

# CULTURAL RELATIONSHIPS BEYOND THE IRANIAN PLATEAU: THE HELMAND CIVILIZATION, BALUCHISTAN AND THE INDUS VALLEY IN THE 3<sup>rd</sup> MILLENNIUM BCE

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**Abstract:** *This paper presents a systematic review of the archaeological evidence for cultural interaction between the Helmand and the Indus during the 3<sup>rd</sup> millennium BCE. A series of artefacts found at Shahr-i Sokhta and nearby sites (Iranian Seistan) that were presumably imported from Baluchistan and the Indus domain are discussed, together with finds from the French excavations at Mundigak (Kandahar, Afghanistan) that might have the same origin. Other artefacts and the involved technologies bear witness to the local adaptation of south-eastern manufactures and practices in the protohistoric Sistan culture. While the objects datable to the first centuries of the 3<sup>rd</sup> millennium BCE fall in the so called “domestic universe” and reflect common household activities, in the centuries that follow we see a shift to the sharing of luxury objects and activities concerning the display of a superior social status; but this might be fruit of a general transformation of the archaeological record of Shahr-i Sokhta and its formation processes.*

**Résumé:** *Cet article propose un ré-examen systématique des documents archéologiques qui témoignent d'interactions culturelles entre le Helmand et le bassin de l'Indus au cours du III<sup>e</sup> millénaire avant J.-C. Une série d'objets, selon toute vraisemblance, importés du Baluchistan et de la vallée de l'Indus, trouvés aussi bien à Shahr-i Sokhta que sur les sites avoisinants du Séistan iranien, sont discutés ici, en parallèle avec d'autres, recueillis par la mission française à Mundigak (Kandahar, Afghanistan). D'autres artefacts ainsi que leurs technologies montrent clairement dans la culture protohistorique du Séistan l'adaptation de coutumes et de pratiques en provenance du Sud-Est. Alors que les objets qui peuvent être datés des premiers siècles du III<sup>e</sup> millénaire avant J.-C. appartiennent à la « sphère domestique » et reflètent des activités quotidiennes, dans les siècles qui suivent on observe un glissement vers des objets de luxe et vers des activités permettant d'afficher un statut social supérieur ; on pourrait y voir le résultat d'une transformation générale des assemblages de Shahr-I Sokhta et des processus qui y ont présidé.*

**Keywords:** *Sistan, Baluchistan, Indus Valley, 3<sup>rd</sup> millennium BCE, Interrelationships, Pottery, Seals, Terracotta figurines, Shell artefacts.*

**Mots-clés:** *Séistan, Baluchistan, Vallée de l'Indus, 3<sup>e</sup> millénaire BCE, Interaction culturelle, Poterie, Scellements, Figurines d'argile, Coquillages.*

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**Fig. 1** – Middle Asia map with the location of Shahr-i Sokhta and main protohistoric centres. (Source: Microsoft Encarta.)

## INTERACTION SPHERES IN THE INDO-IRANIAN BORDERLANDS

In 2003, Laurent Flusch, curator of a provocative exhibition in Lausanne, reported the hypothetical discovery, in future deposits dated to the 21st century AD, of metal brooches as the sole archaeological remnant of the contemporary production, trade and consumption of denims.<sup>1</sup> Below the pictures exhibited one sees a fictitious map of the world with the assumed archaeological locations of similar finds: the map simulates a dense cluster in North America followed by their spread to other regions of the planet. In current archaeological terms it would be the representation of a large “interaction sphere”. Putting aside the contention that the entire planet has been turned into a global interaction sphere mainly pivoted in the northern American conti-

ment, we may briefly review the semantics of this term and its application to the prehistory and protohistory of Middle and South Asia.

J.R. Caldwell<sup>2</sup> originally applied the concept of interaction spheres to the study of late North American prehistory. According to L.R. Binford,<sup>3</sup> an interaction sphere is archaeologically defined by the evidence of a widespread exchange of material objects in a well delimited social context, and indicates an intensive process of active inter-cultural communication. J. Shaffer<sup>4</sup> systematically applied the concept to the general framework of South Asian prehistory. He stated that the basic preconditions for the identification of such historical contexts are the presence of similar artefacts occurring in wide exchange or trade networks, joined to the detailed reconstruction of the relevant social contexts. Later, K.C. Chang used this

1. FLUSCH, 2003: 98.

2. CALDWELL, 1964.

3. BINFORD, 1965: 208.

4. SHAFFER, 1992 and 1978: 133.

approach for his spectacular study of the mosaic of regional cultures of Late Neolithic China.<sup>5</sup>

In South Asian archaeology, the concept was used at a macro-regional scale for the first reconstruction of wide-range historical trends (fig. 1). While correlating various materials found at Shahr-i Sokhta and Tepe Yahya, C.C. Lamberg-Karlovsky and M. Tosi<sup>6</sup> recognized on the Iranian Plateau, at the end of the 4th millennium BCE, two main interaction spheres: a Jemdet Nasr one (late 4th-early 3rd millennium BCE), including southern Mesopotamia, the Diyala region, the Gulf and south-eastern Iranian Plateau, and extending to Tepe Yahya, somehow related to the so-called Uruk expansion and its later developments;<sup>7</sup> and a northern one, extending from the Kopet Dagh piedmont southward to the Helmand centres and Quetta valley.<sup>8</sup> After the middle of the 3rd millennium BCE, the authors observed the growth of new forms of interaction centred along the southern sea routes and what we presently see as the highly structured societies of the Magan coast centres. Ultimately they observed “a tendency towards greater nucleation and disintegration of the earlier pattern of cultural interconnections”.<sup>9</sup> At the end of the 3rd millennium BCE, the main interaction spheres of southern Eurasia (from Mesopotamia to Central Asia, the Gulf and the Indus valley) shrunk in size and underwent a severe localization process apparently resulting in the growth of isolated polities.<sup>10</sup>

R.P. Wright applied a similar approach, but at a regional scale, to the study of the diffusion in the first half of the 3rd millennium BCE of the fine-ware production labelled Faiz Muhammad Gray.<sup>11</sup> Focussing on the lands artificially severed by the present southern boundary between Pakistan and Iran (in northern and north-eastern Baluchistan) and with reference to the “world systems” models proposed by Wallerstein,<sup>12</sup> Wright preliminarily analysed the production and exchange of these ceramics in terms of fields of interaction between core regions and borderlands.<sup>13</sup> Five overlapping production-distribution areas, with distinctive chemical patterns, were identified as pivots of interaction spheres of variable extent, involving local peer communities. *Contra* Wallerstein, Wright suggested that such spheres were actively promoting technical innovation and information exchange, and therefore the overlapping

peripheries, rather than the centre, represented privileged points of archaeological observation.<sup>14</sup>

But the most influential application of a similar model to the 3rd millennium BCE archaeology of South Asian countries was P. Kohl's definition of an “intercultural style” commonly encountered in precious chlorite vessels carved with a complex set of icons and symbols. Kohl proposed that this class of luxury goods, found in distant regions such as Mesopotamia, south-eastern Iran (particularly in the Kerman Region) and the southern coasts of the Gulf shared the same manufacturing technology, aesthetics and iconography, as the marker of a widespread, interregional circuits of exchange. The high compositional variability of the raw materials, as observed in the initial mineralogical and chemical analyses, supported the hypothesis of several micro-regions of procurement and transformations and of a decentred production-distribution system.<sup>15</sup>

In 1978, the Islamic Revolution interrupted field research by foreign missions across the Iranian Plateau. As an immediate result, prehistoric-protolithic research declined in Iran, but was intensified in the surrounding countries, initially in Pakistan and in the Gulf countries. When in 1989 the decline and collapse of the Soviet Union re-designed the geopolitics of Eurasia, a new phase of field archaeology in Central Asia was disclosed to for western scholars.

In the meantime, Iranian archaeologists had a new cycle of large-scale excavations in their country. Pre-Islamic archaeology suddenly became again very popular. Among the new results stand out the re-opening of the excavations at Shahr-i Sokhta in 1997<sup>16</sup> and the discovery of the Halil Rud Civilization, following the massive plundering of its rich graveyards and the beginning of regular excavations at the early urban site of Konar Sandal near Jiroft and nearby locations.<sup>17</sup> The chlorite carved artefacts illegally excavated at the cemetery of Mathoutabad and other sites, although missing at the time reliable contexts of provenience, suggested that the “intercultural style” is the actual marker of the local intensive production of such elite objects for local use, even before representing a widespread semantic system for international protohistoric trade. In a sense, the Halil Rud style was intercultural in Middle Asia in the 3rd millennium BCE in a fashion similar to the Egyptian style became intercultural across the Mediterranean during the first half of the 1st millennium BCE: it was perceived as highly

5. CHANG, 1986: 242.

6. LAMBERG-KARLOVSKY and TOSI, 1973.

7. ALGAZE, 1993.

8. LAMBERG-KARLOVSKY and TOSI, 1973: 52.

9. *Ibid.*: 52.

10. *Ibid.*: figs. 1 and 2.

11. WRIGHT, 1987 and 2002.

12. WALLERSTEIN, 1974.

13. WRIGHT, 2002.

14. *Ibid.*: 406.

15. KOHL, 1975, 1978 and 1979.

16. SAJJADI, 2003 and 2004; SAJJADI *et al.*, 2004.

17. MADJIDZADEH, 2003 and 2007; LAMBERG-KARLOVSKY, 2004; VIDALE, 2007.

prestigious by several contemporaneous cultures. It is too early to say to what extent it gave birth to local interpretations or variations, as the Egyptian style did in the Orientalizing craft productions of the 8th and 7th century BCE.

While Tepe Yahya, in period IVA, that is in the second half of the 3rd millennium BCE, was one of the manufacturing centres for these chlorite artefacts, and was certainly connected with the most important urban centres of the Halil Rud valley, many other centres of production await discovery in the nearby valleys and in the Konar Sandal area as well. Ongoing research on the subject shows that this industry in the Halil Rud basin goes back at least to the early 4th millennium BCE<sup>18</sup> and most probably represents an archaic indigenous economic adaptation. Furthermore, elaborately carved vessels found in the west bearing cuneiform inscriptions (mostly datable to the Akkadian period) suggest that such objects, in many cases, were taken as war booty dedicated to deities or exchanged as gifts among royal houses.<sup>19</sup> The impression is that the vessels with the royal dedications are those with the most elaborate mythological depictions, as if the Mesopotamian lords wished to state their authority on the culture that had produced such very complex and alien ideological representations. In other words, the general pattern of the production and distribution of chlorite goods in the area and in the period concerned needs to be conceived differently. Such fast and radical transformations of the concept of intercultural style (from a loosely defined economic and semantic sphere to the historical contingencies of complex civilizations) provide a paramount example of the need for investigating in depth the interaction spheres so far hypothesized in the prehistory of South Asian regions and the Gulf, trespassing upon their original definitions.

As very effectively stated by Lamberg-Karlovsky,<sup>20</sup> in the original formulation of interaction spheres as archaeological tools: “The distribution of artefacts stand as proxies for cultural interaction”. As a consequence, in many cases little room was left for enquiring into the institutions, agencies and processes that materially affected and patterned social evolution. The next step is necessarily “the quest for an understanding of what brought different polities into contact”.<sup>21</sup> Going back to the above-quoted case of contemporary denims, we immedi-

ately see why the interpretation of artefact distribution in terms of “cultural interaction” is hopelessly reductive. Denims were originally invented and traded as working class garments, to become unexpectedly a symbol of libertarian ideologies and new ways of life. At the same time, they were adopted by social and political groups actively opposing the political role of western countries and the expansion of their capitalistic markets. In the Lausanne catalogue, denims belong to a famous and powerful multi-national brand, but we all know that they have been independently produced by a multitude of independent factories all over the world. The brand itself is illegally copied for the mass production of counterfeit items, particularly in Third World countries. Confronted by such a nest of conflicting issues, their plain “archaeological” distribution, as reported in the Lausanne catalogue, conveys little or no historical meaning.

In Middle Asia, we are confronted with the nature of the boundary, or boundaries, separating the scattered early urban civilizations on the easternmost fringe of the Iranian plateau and in the Indus valley during the 3rd millennium BCE. An ideal straight line connecting Shahr-i Sokhta in the Iranian Seistan and Mundigak in Kandahar (Afghanistan), two of the larger early urban poles of the Helmand civilization, through the Registan desert, might represent, very generically, the north-western cultural boundary of the Indus core area. But the actual geopolitical and chronological context of such boundaries, to be looked for southwards, is still archaeologically unknown. Similarly field research on the Makran coast<sup>22</sup> had identified Sotka-Koh and Sutkagen-Dor, two Indus fortified outposts or forts aimed at controlling in security the eastern gates to the Gulf trade. Later, survey and excavations by French teams in Kech Makran<sup>23</sup> identified at the small site of Miri Qalat, Pakistan, specimens of Bevelled Rim Bowls, marking the present easternmost limit of diffusion of one of the most diagnostic ceramic types of the Uruk-related phenomenon (late 4th-early 3rd millennium BCE) as well as, for the second half of the 3rd millennium BCE, the traces of an Indus settlement. Besides these points on our maps, the actual geopolitical and chronological context of the Indus boundary is still archaeologically unknown.

The recent discovery in the Halil Rud Basin (Jiroft, Kerman, Iran) of a late 4th millennium administrative unit, endowed with large amounts of Bevelled Rim Bowls, stone weights and jar stoppers, suggests that we need to reconsider

18. M. Vidale, unpublished data from Mathoutabad.

19. MARCHESI, 2007.

20. LAMBERG-KARLOVSKY, 2008.

21. The interpretation of ancient social interaction in terms of “shared social fields” or the “social networks” recently advocated in prehistory (see GAMBLE, 1999) and similar abstract models does not seem particularly productive. See LAMBERG-KARLOVSKY, 2008 for a general discussion.

22. DALES, 1962a and 1962b; DALES and LIPO, 1992.

23. BESEVAL, 1994, 1997a, 1997b and 2000; BESEVAL and DIDIER, 2004 and 2005; DIDIER, 2007.

the so-called Uruk expansion and its later developments in a new light and scale. Similarly, the presence at Konar Sandal of objects and goods in Indus style or imported from the Indus valley<sup>24</sup> re-emphasize the importance of the Indus stamp seal impression found by Lamberg-Karlovsky at Tepe Yahya.<sup>25</sup> In such a perspective the critical constrain is that south-eastern Iran, particularly in the core regions along the fluvial corridors, remains largely unexplored. Before the “Jiroft revolution”, archaeologists had to ground their assumption of local developments and interaction processes upon De Cardi’s test trenches at Bampur in the Jazmurian depression and other small sites,<sup>26</sup> while current field exploration not far from Bampur reports the existence of imposing early urban site clusters extending for dozens of ha.<sup>27</sup>

## HELMAND VERSUS INDUS

In a brief reply to R. Dittmann on the role played by the Iranian plateau as a geographical “continuum” during the 3rd millennium BCE between Mesopotamia and the Indus Valley,<sup>28</sup> U. Franke strongly stressed the present limitations of the currently available archaeological record.<sup>29</sup> Her list of the artefacts considered as positive material evidence of contacts between the Plateau and the Indo-Pakistani Subcontinent<sup>30</sup> is indeed very short. It includes

“Only few Nal sherds, most of them found in Shahr-i Sokhta<sup>31</sup> and one from Tepe Yahya;<sup>32</sup> a canister jar, from Shahr-i Sokhta;<sup>33</sup> two so-called *Kot Dijian* jars, one from the Central Quarters of Shahr-i Sokhta and the latter from Mundigak<sup>34</sup> and last but not least an unfired TC (*terracotta*) female figurine, like the Zhob type found in Shahr-i Sokhta.”<sup>35</sup>

While we agree that the material evidence of exchange and contacts is indeed scanty, the aim of this paper is to enlarge and substantiate this preliminary list, defining in greater detail

the material evidence for ancient relationships among the Helmand civilization, Baluchistan and the Indus valley, during the Early and Middle Bronze Age, in a time range between the early 3rd millennium BCE and the third quarter of the same millennium. Our main focus is the archaeological record from Shahr-i Sokhta and Iranian Sistan, but we will also consider some relevant finds from Mundigak.<sup>36</sup>

On two occasions<sup>37</sup> Franke has stressed the need of solving a major disagreement on the protohistoric chronology of the Helmand civilization. In fact, J.-F. Jarrige<sup>38</sup> and other scholars, on the basis of their sound knowledge of the ceramic sequences of the region and of specific ceramic comparisons, have considered Shahr-i Sokhta Period III as contemporary with the Kot-Dijian phase of the Indus core area (*i.e.*, with Period II at Harappa, ascribed by a consistent series of calibrated <sup>14</sup>C datings to the range 2800-2600 BCE).<sup>39</sup> For example, in 1987 R. Biscione after specific information by S. Pracchia proposed to link a group of plain bowls with an upper S-shaped wall contour found at the ceramic production site of Lal Shah near Mehrgarh with apparently similar bowls from late Period III in Sistan and with Kot-Dijian production in general.<sup>40</sup>

In contrast, other Italian archaeologists, on the basis of a preliminary series of calibrated <sup>14</sup>C datings and other radiometric determinations from the settlement area of Shahr-i Sokhta and nearby sites, would rather place Period III, phase 4 between 2500 BCE and the 24th century BCE, and the ensuing phase 3 (very poorly represented in the settlement and unreported, so far, in the graveyard) between approximately 2350 and 2200 BCE<sup>41</sup> (see fig. 2). As Period III deposits, in the topmost levels of Shahr-i Sokhta, are to a great extent heavily damaged by wind and water erosion, the architecture often being abraded down to the foundations,<sup>42</sup> the relevant absolute readings are presently limited to five datings from the Eastern Residential Area and the layers underlying the Burnt Building, two

36. Reported in CASAL, 1961.

37. FRANKE, 2002: 351 and 2008: 666.

38. JARRIGE, 1993: 152 and 162.

39. KENOYER, 1991a, 1991b and 1991c; KENOYER and MEADOW, 2000.

40. This claim, we feel, is based upon wrong ceramic associations: for example, Biscione compares some overfired potsherds with a saddle-shaped upper rim and stepped painted pattern from Tepe Rud-i Biyaban 2, Period IV, with Kot-Dijian fragments from the Indus valley having similar rims, but the painted designs are significantly different, and the Indus specimens are painted on a thick red slip, while the sherds from Seistan are the late bichrome (red-and-black) version of the coarse polychrome pottery most distinctive of the Helmand civilization. See BISCIONE, 1990: 399, figs 1-2 and comments in MUGAVERO and VIDALE, 2003 and 2006.

41. SALVATORI and TOSI, 2005: fig. 1.

42. As described by SALVATORI and VIDALE, 1997.

24. Y. Madjidzadeh, H. Pittman and M. Vidale, ongoing research.

25. LAMBERG-KARLOVSKY, 1972: pl. 2B; PITTMAN, 2001: fig. 10: 63.

26. DE CARDI, 1967, 1968 and 1983.

27. M. Mortazavi, personal communication.

28. DITTMANN, 2002.

29. FRANKE, 2002: 346.

30. *Ibid.*: 349.

31. AMIET and TOSI, 1978: 14-15.

32. LAMBERG-KARLOVSKY, 1970: pl. 34.

33. BISCIONE *et al.*, 1974: fig. 8.

34. CASAL, 1961: fig. 253.

35. TOSI, 1983: fig. 61.

**Fig. 2** – *Shahr-i Sokhta, C<sup>14</sup> chronology (SALVATORI and TOSI, 2005: fig. 1).*

radiometric determinations and a palaeomagnetic one from Tepe Rud-i Biyaban 2.<sup>43</sup> Furthermore, considering the recent results from Sohr Damb/Nal excavations,<sup>44</sup> Franke stated that “[...] evidence from Baluchistan, particularly Miri Qalat IIIc-IV and Sohr Damb III-IV, throws new light on this question, in favour of the later dating”<sup>45</sup>

If we accept the first viewpoint, both Shahr-i Sokhta and Mundigak would have disappeared, at least as large urban centres, immediately after 2600 BCE, without meaningful interaction with the urban formation processes of the Indus Integration Era (*ca* 2600-1900 BCE).<sup>46</sup> In the second perspective, the urban

peaks of both civilizations would be roughly contemporary, and we should make an effort to define precisely the historical dynamics of the “interaction spheres” between the major civilization of the eastern Iranian Plateau and the Indus world.

#### CERAMIC LINKS WITH THE SUBCONTINENT: THE NAL CERAMICS

The record of possible ceramic imports or vessels imitating types from Baluchistan and the Indus basin found at Shahr-i Sokhta includes ten fragments and vessels (both from the graveyard and the settlement) close to the Nal production as well as a more limited and heterogeneous group of four ceramic finds similar to other types of products from the same

43. SALVATORI and TOSI, 2005: 288.

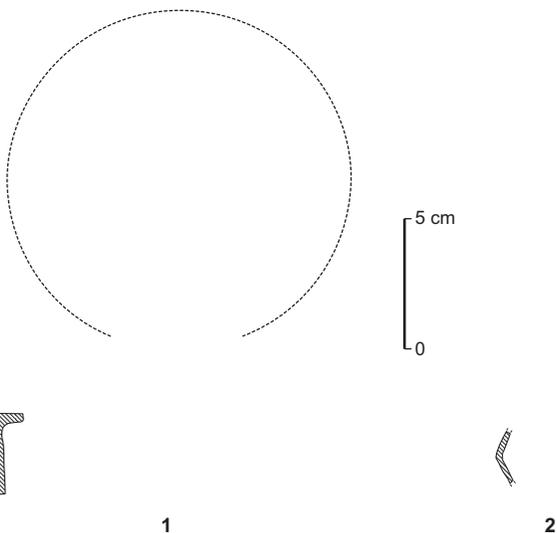
44. FRANKE, 2003-2004, 2005 and 2007; FRANKE and IBRAHIM, 2005.

45. FRANKE, 2008: 666.

46. JARRIGE, 1996: 864; JARRIGE and QUIVRON, 2008: 80.

**Table 1** – List and recovery context of the Nal-like ceramic finds so far on record at Shahr-i Sokhta.

Number	Description	Provenance	Period	Phase	References
MAI 8724 fig. 3: 1	Fragment of cylinder jar painted with metopes and stepped lines	XDV 11, South	I	10	AMIET and TOSI, 1978: fig. 4a: 23
MAI 8725 fig. 3: 2	Fragment of biconical jar with painted frieze including a pipal leaf	XCIIa, 8	I	10	<i>Ibid.</i> fig. 4c: 23
MAI 7041 fig. 4: 3 fig. 5: 3	Cylinder-like jar with well-distinguished neck and a painted frieze of triangles	G.413/5	I	10-9	TUCCI, 1977: fig. 28; PIPERNO and SALVATORI, 2007: fig. 493
1520.5 fig. 4: 6	Cylinder-like jar with reticular motifs on the shoulder and on the body	G.1520.5	I	10-9	SAJJADI, 2003: fig. 19
1700.4 fig. 4: 5	Cylinder-like jar with angular motifs on the shoulder and frieze of lozenges on the outer wall	G.1700.4	I	10-9	<i>Ibid.</i>
MAI 8692 fig. 6: 1	Fragment of cylinder-conical bowl with a frieze of zig-zag lines and semicircles	XX, 22	I	9	
Draw Dep.CS.3161 fig. 4: 1	Fragment of globular jar with a frieze of zig-zag lines and semicircles on the outer wall	XX	I	9-8	BISCIONE, 1984: 10.15b; LAMBERG-KARLOVSKY and TOSI, 1973: fig. 54; TOSI, 1983: fig. 38
MAI 2302 fig. 4: 2 fig. 6: 2	Carinated sub-cylindrical beaker with an outer frieze of triangles	Surface	I	?	SARIANIDI, 1983: fig. 12
MAI 6935 fig. 4: 4 fig. 5: 4	Cylinder-like jar with well-distinguished neck and an outer frieze with a vegetal design	G.62/1	I	8-7(?)	PIPERNO and SALVATORI, 2007: fig. 236
MAI 6917 fig. 4: 7 fig. 5: 1	Cylinder jar with saddle-like shoulder decorated with a simple radial motif	G.55inf./1	II	7	<i>Ibid.</i> fig. 224
MAI 6127 fig. 4: 8	Cylinder jar with saddle-like shoulder, and an outer frieze of stepped lines	G.10/2	II	5a	BISCIONE <i>et al.</i> , 1974: fig.8; PIPERNO, 1977: fig. 121a; D'AMORE, 1999: fig. 107: 139; PIPERNO and SALVATORI, 2007: fig. 47



**Fig. 3** – Shahr-i Sokhta. The Nal group specimens. **1**, MAI 8724, 1,7 cm high (AMIET and TOSI, 1978: fig. 4a: 23), Period I, phase 10; **2**, MAI 8725, 2 cm high (*ibid.*, 1978: fig. 4c: 23), Period I, phase 10.

areas. Table 1 and fig. 3 present the complete list with the precise context of recovery of the ten Nal-like finds so far recovered.

MAI 8724,<sup>47</sup> dated to Period I, phase 10 (fig. 3: 1) was recovered on the south side of room XDV, artificial cut 11. This is one of the oldest deposits so far excavated at Shahr-i Sokhta. On the outer wall, metopal fields bounded by thick, vertical and horizontal lines include series of stepped lines. On the shoulder the remnants of further parallel radiating lines or possibly more metopes<sup>48</sup> are visible. Stepped lines are frequently encountered in Nal ceramic decoration;<sup>49</sup> for instance in Sohr Damb/Nal<sup>50</sup> or, again, along the Porali river in Jhalawan.<sup>51</sup>

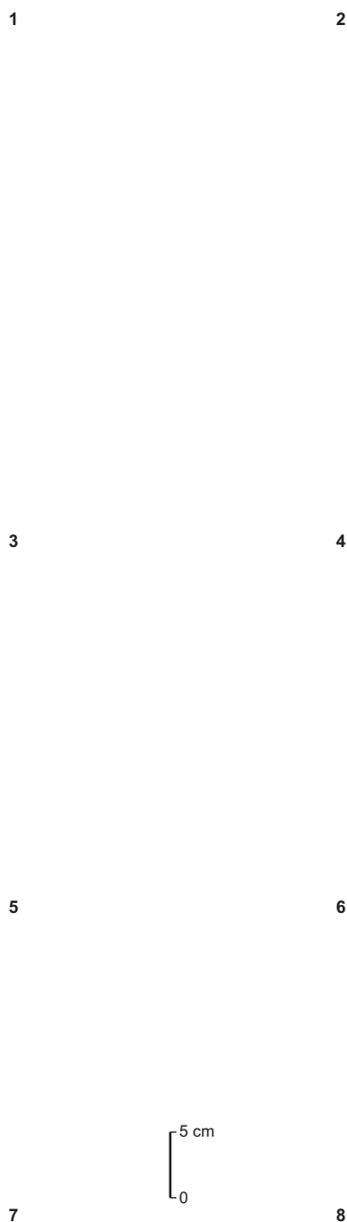
47. AMIET and TOSI, 1978: fig. 4a: 23.

48. The originally Greek word metopē (from meta- + opē opening; akin to Greek ops eye, face) indicates the space between two triglyphs of a Doric frieze often adorned with carved work (according to Merriam-Webster Online Dictionary). Here we used the term to describe the geometric space between two equal decorative elements often formed by one or more parallel vertical painted lines.

49. See for instance FAIRSERVIS, 1975: fig. 40, pl. 13 and figs. 41: 35.

50. HARGREAVES, 1929: pl. XVII: 20-21, pl. XVIII: 16.

51. See RAIKES, 1968: fig. 5: 1, 3, 6; fig. 7: 3; fig. 8: 2, 18; fig. 9: 9, 28; fig. 10; fig. 11: 26; fig. 13: 10.



**Fig. 4 – Shahr-i Sokhta, Nal-related ceramics. 1, Draw Dep. CS. 3161, 9 cm high (BISCIONE, 1984: fig. 10.15b), Period I, phases 9-8; 2, MAI 2302, 7 cm high (SARIANIDI, 1983: fig. 12) Period I (?); 3, MAI 7041, 15 cm high (PIPERNO and SALVATORI, 2007: fig. 493), Period I, phases 9-8; 4, MAI 6935, 11,7 cm high (*ibid.*: fig. 236), late Period I, phases 8-7(?); 5, 1700.4, 8,2 cm high (SAJJADI, 2003: fig. 19), Period I, phases 10-9; 6, 1520.5, 7,5 cm high (*ibid.*), Period I, phases 10-9; 7, MAI 6917, 6,4 cm high (PIPERNO and SALVATORI, 2007: fig. 224), Period II, phase 7; 8, MAI 6127, 7,2 cm high (*ibid.*: fig. 47), Period II, phase 5a.**

1 2 3

**Fig. 5 – Shahr-i Sokhta, Nal-like canisters jars from the graveyard. 1, MAI 6917, Period II, phase 7 (see also fig. 4.7); 2, MAI 6935, Period II, phase 7(?) (see also fig. 4.4); 3, MAI 7041, Period I, phases 10-9 (see also fig. 4.3). No scale.**

MAI 8725 (fig. 3: 2) is a fragment of the wall of a biconical jar with a polychrome frieze including a *pipal* leaf embellished by a geometric filling. Found in room XCIIa, 8, it dates back to Period I, phase 10.<sup>52</sup> Hargreaves<sup>53</sup> described similar motifs on Nal wares found at Sohr Damb/Nal. Franke has recently published similar vessels found in her recent excavations at the same site.<sup>54</sup>

MAI 7041 (figs. 4: 6 and 5: 3) (Period I, phase 10/9) comes from G. (grave) 413.<sup>55</sup> The motif on the outer wall, with black and white triangles (see also MAI 2302 below), creates a bichrome effect and may be matched with a specimen from Jhalawan.<sup>56</sup> On the shoulder there are two thick parallel lines forming a zig-zag motif running around the neck. The vessel is deemed by Salvatori and Tosi as “surely imported”.<sup>57</sup>

Vessel 1520.5 (fig. 4: 6) is a cylinder-like jar with a slightly concave profile, a raised, outward projecting rim and a horizontal plain shoulder. The outer wall is divided by series of vertical strokes into a sequence of metopes filled with a cross-hatching motif. On the shoulder there is a similar frieze delimited by three or more concentric lines. This motif is not common in the Nal tradition but it appears on some vessels

52. AMIET and TOSI, 1978: fig. 4c: 23.

53. HARGREAVES, 1929: pl. XVII: 24-25; pl. XXI: 1-4.

54. FRANKE-VOGT, 2005: figs. 2 and 60.

55. TUCCI, 1977: fig. 28; SALVATORI and TOSI, 2005: 283, fig. 2,2; PIPERNO and SALVATORI, 2007: fig. 493.

56. RAIKES, 1968: fig. 6: 14.

57. SALVATORI and TOSI, 2005: 283.

from Sohr Damb/Nal<sup>58</sup> and the similar forms appear in the publication of the recent excavations at the site.<sup>59</sup>

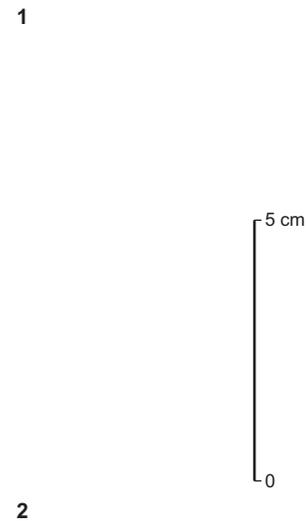
G. 1700.4 (fig. 4: 5) is another, similar cylinder-shaped jar with a raised, short neck and horizontal shoulder. Four angular motifs appear on the shoulder and a frieze of lozenges subdivided by cross-designs into four solid-filled triangles runs on the outer wall. Although the grave furnishings from this grave were not fully published, such motifs belong generically to the geometrical tradition of Period I, and sometimes they occur also on Nal wares.<sup>60</sup>

MAI 8692 (fig. 6: 1) is a fragment of a cylinder-conical bowl with a frieze of zig-zag lines and semicircles identical to the jar fragment Dep. CS. 3161 (fig. 4: 1), part of a globular jar bearing a wide painted band on the maximum expansion. Both may be ascribed to a late Period I context. The form of MAI 8692 is quite unusual at Shahr-i Sokhta and the vessel might have been imported. While this painted motif is very common in Nal wares,<sup>61</sup> this vessel may be compared with the Nal-like specimen found at Tepe Yahya, dated to the late 4th millennium BCE.<sup>62</sup>

MAI 2302 (fig. 4: 2) is a carinated sub-cylindrical beaker found on surface. The decoration is the same described for MAI 7041 jar (see above). The vessel has no stratigraphic context and was published by V. Sarianidi<sup>63</sup> as an import from Southern Turkmenia, but it is more likely a Nal-like product.<sup>64</sup> The discussion is anyhow open, and might be solved only by future analytical studies.

MAI 6935 (figs. 4: 4 and 5: 2) is a cylinder-shaped jar with a sloping shoulder, a short everted rim and outer frieze of metopes filled with a vegetal design. The vessel bears the same vegetable motif all around the mouth. Similar designs are well known in the Nal tradition, although U. Franke<sup>65</sup> considers this canister shape quite unusual for typical Sohr Damb forms.<sup>66</sup>

MAI 6917 (figs. 4: 7 and 5: 1) is a smaller cylindrical jar with a saddle-like shoulder decorated with a simple radial motif; the mouth is formed by a short everted rim. The decoration of the outer body included festoon-like designs but has almost completely vanished.



**Fig. 6** – *Shahr-i Sokhta, Nal-related ceramics. 1, MAI 8692, fragment of a cylinder-conical bowl with a frieze of zig-zag lines and semicircles, Period I, phases 8-9; 2, MAI 2302, carinated beaker with frieze of triangles on the exterior. Period I, found on surface (see also fig. 4.2).*

Finally, MAI 6127 (fig. 4: 8) a quite similar cylinder-shaped jar with saddle-like shoulder comes from Grave 10 (10/2). It bears on the outer wall a continuous frieze of repeated stepped lines, a design of radiating lines on the shoulder. It was used as a lid for a large globular jar with a short cylindrical neck.<sup>67</sup> As stated before, such stepped lines are a very common expedient in the Nal graphic tradition. Finally, the inventory of Nal-related wares in the Helmand civilization should also include some probable fragments found in the test trench at Said Qala

58. HARGREAVES, 1929: pl. XIX: 9.

59. FRANKE-VOGT, 2005: fig. 3.

60. See HARGREAVES, 1929: pl. XVII: 48.

61. *Ibid.*: pl. XVII: 46-48, 51; FAIRSERVIS, 1975: figs. 41, 33-35, 43-44; fig. 40; MARSHALL, 1931, III: pl. XCIII, 16N, 20N; RAIKES, 1968: fig. 13: 14.

62. LAMBERG-KARLOVSKY, 1970: pl. 34.

63. SARIANIDI, 1983: fig. 12.

64. HARGREAVES, 1929: pl. XVI: 27; pl. XIX: 11.

65. U. Franke, personal communication.

66. For the motif, see HARGREAVES, 1929: pl. XVII: 25; pl. XVIII: 15; FAIRSERVIS, 1975: fig. 41: 22.

67. PIPERNO and SALVATORI, 2007: fig. 46.

Tepe<sup>68</sup> and other finds at Mundigak,<sup>69</sup> ascribed to Periods III to IV of the general site sequence.

The first seven specimens date back to Period I (about 3200-2800 BCE). Although information on the provenience is not currently available, the earliest specimens, found together with nose-lug painted jars, Southern Turkmenian geometric pottery, Jemdet Nasr style seal impressions and a single inscribed proto-elamite tablet, might be actual imports. Later Nal-like vessels could have been made at Shahr-i Sokhta or other sites imitating the Nal style. The latest specimens on record are datable to late Period II (phase 5a of the Central Quarters ceramic sequence, mid 3rd millennium BCE). As far as cylindrical jars—the most common type—are concerned, earlier cylindrical specimens with a flat/sloping shoulder and a clearly distinguished neck (such as MAI 7041 and probably MAI 8724) might have transformed into smaller versions with a concave profile, a limited concave shoulder, marked on the upper corner point by a sharp ledge in Period II. In these later small jars, the neck disappears, turned into a simple vertical projection of the shoulder itself. At Mehrgarh, versions that might be intermediate between the two forms appear starting from Period V.<sup>70</sup> In the test trenches excavated at Anjira and Siah Damb, Surab (Pakistan) the first type was encountered in Period III<sup>71</sup> while the second type appears in Period IV.<sup>72</sup>

## ANOTHER VESSEL AND MORE POTSDHERDS

Franke mentions a brown-slipped Kot-Dijian jar found in the Central Quarters, originally described by the excavators as “definitely extraneous to the local production of Shahr-i Sokhta for its shape, ceramic texture and surface treatment”<sup>73</sup> (fig. 7: 1). This jar, MAI 8383, was generically compared to flat sub-globular vessels commonly found in Kot-Dijian complexes.<sup>74</sup> The vessel was found in room CDLXX of the “House of the Jars” in the Central Quarters. The upper part of the vessel was found in a secondary position in the dump of late Period II, phase 5b, but the base was recovered in its primary context of deposition, a basal layer of phase 7 (around 2900-2800 BCE). Although Franke remarks that “Similarities are confined to the



**Fig. 7** – Other Indus related vessels from Shahr-i Sokhta and Mundigak. **1**, Shahr-i Sokhta. MAI 8383 Kot-Dijian jar, Period II, Phase 7; **2**, Mundigak. Possible Kot-Dijian jar (CASAL, 1961: fig. 253); **3**, Shahr-i Sokhta. MAI 8666, high truncated-cone shaped bowl fragment with a pipal leaf decoration, found on surface (see also fig. 8); **4**, Shahr-i Sokhta. MAI 8734 Globular jar potsherd with “X-rayed” fish design, found on surface (see also fig. 9); **5a**, Shahr-i Sokhta. MAI 8675, fragment of a black-on-red painted vessel, found on surface (see also fig. 5a and fig. 10); **5b**, Shahr-i Sokhta. MAI 8675, black-on-red painted jar (conjectural reconstruction).

68. SHAFFER, 1978: 63-65.

69. CASAL, 1961: fig. 58: 113; fig. 87: 361; fig. 93: 413.

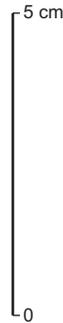
70. JARRIGE *et al.*, 1995: 152, figs. 2-14 n-o.

71. See DE CARDI, 1965: fig. 16:7.

72. *Ibid.*: fig. 17: A7.

73. SALVATORI and VIDALE, 1997: 78.

74. KHAN, 1965; HALIM, 1971.



**Fig. 8** – *Shahr-i Sokhta*. High truncated-cone shaped bowl fragment with a pipal leaf decoration found on surface (photograph by F. Aghadian).

groove decoration, but the shape is different”,<sup>75</sup> in our view the short, vertical sharp neck is a feature of Kot-Dijian ceramic traditions; the lower body was obtained by paddle and anvil, a technique recurring in the Indus valley, but otherwise totally absent from *Shahr-i Sokhta*. Similarly, the series of horizontal parallel grooves made by combing inside and outside the shoulder finds no matches in the technical inventory of the *Shahr-i Sokhta* production.<sup>76</sup> As remarked by Franke, another possible Kot-Dijian jar (fig. 7: 2) is reported from Mundigak.<sup>77</sup>

These likely imports from the Indus core area are not isolated. A fragment of a high truncated-cone shaped bowl with S-shaped profile, a simple raised rim and a pipal leaf decoration (MAI 8666, fig. 7: 3 and fig. 8), found on its surface, is equally extraneous to local wares, and might have been imported from the south-east or from the east. This small and tall bowl, 13 cm wide at the mouth, and originally 12-13 cm high, was manufactured on a potter’s wheel and carefully turned on the same device along the base. It was baked in a strongly oxidizing atmosphere: the colour of the paste, yellowish red (Munsell 5YR 5/8), contrasts with the yellowish-buff hue dominating the common buff wares of *Shahr-i Sokhta*. The compact and

homogeneous paste is devoid of macroscopic inclusions and is covered by a reddish yellow slip (5YR 6/6). The pigment, poorly preserved, is reddish brown (2.5 YR 5/6). Two parallel lines run below the rim and limit a frieze divided in a series of long and narrow metopes, separated by bands of five or more parallel lines. The only surviving metopa shows a vertical elongated leaf, with two symmetrical swirling lines rising from the base on both sides of the leaf. *Pipal* leaves are a distinctive motif of the pre-Indus ceramic complexes across wide regions of the Subcontinent; they become very common in the Kot-Dijian phase (approximately 2800-2600 BCE), and often appear on the famous *verres ballon* of the Helmand civilization.<sup>78</sup> The variant with the symmetrical swirling elements is well-known at Kalibangan, in Haryana, where it occurs in different versions, painted or incised in a plastic state.<sup>79</sup> Besides such a possible link with Kalibangan and Haryana, similar sherds are reported from an enormous region, stretching from Kech Makran, Period IIIb<sup>80</sup> (about 2800-2600 BCE) to Mundigak.<sup>81</sup> Although this potsherd demonstrates another connection with the Subcontinent in the first half of the 3rd millennium BCE, it seems impossible to further detail its geographical context of provenience.

Another potsherd<sup>82</sup> (MAI 8734, fig. 7: 4 and fig. 9), found on the surface of *Shahr-i Sokhta* and presently on exhibit at the Museo Nazionale d’Arte Orientale “G. Tucci” in Rome, provides a link with northern Baluchistan during the Kot-Dijian phase. It belonged to a globular buff ware jar painted on the exterior with an “X-rayed” fish design. Such a motif is well known at Rehman-Dheri.<sup>83</sup> The details of the eye, placed in the extremity of the head, and its proximal fins are identical; nonetheless, the orientation of the fish-bone, anatomically correct in the Rehman-Dheri specimens, in the fragment of fig. 4: 4 is inverted.

A fragment of a black-on-red painted vessel (MAI 8675, fig. 7: 5 and fig. 10), equally collected from the surface of *Shahr-i Sokhta*, may be related to the Indus valley both on stylistic and technical grounds. The fine reddish yellow paste (7.5 YR 7/6) shows a limited amount of pores and rare white

75. FRANKE, 2002: 349.

76. SALVATORI and VIDALE, 1997: fig. 95: 2.

77. CASAL, 1961: fig. 253.

78. For Mundigak, see CASAL, 1961: fig. 56: 84; fig. 59: 116; figs. 64-65; fig. 88: 372; fig. 93: 412; fig. 102: 485; fig. 104: 502; fig. 128: 711. For *Shahr-i Sokhta*, in the settlement area, see SALVATORI and VIDALE, 1997: fig. 185: 11; in the graveyard, see PIPERNO and SALVATORI, 1983: pl. VIIc; SAJJADI, 2003: fig. 23e; PIPERNO and SALVATORI, 2007: figs. 674-675.

79. SANKALIA, 1974: 346.

80. DIDIER, 2007: 4-169/P12.

81. CASAL, 1961: fig. 65: 179-182; fig. 88: 372; fig. 93: 412; fig. 102: 485; fig. 128: 711.

82. TOSI, 1973: fig. 10c.

83. DURRANI, 1981; SHAH and PARPOLA, 1991: 376-377, Rhd 255-260.

**Fig. 9** – *Shahr-i Sokhta*. MNAOR 8734 (TOSI, 1973: fig. 10c). Globular jar potsherd with “X-rayed” fish design, found on surface. No scale.



**Fig. 10** – *Shahr-i Sokhta*. MAI 8675 Fragment of an Indus black-on-red painted jar, found on surface (photograph by F. Aghadian).

inclusions, and is covered inside and outside by a yellowish red slip (5 YR 5/6), with irregular horizontal-oblique burnishing marks. Technical features suggest a coiling and wheel-throw-

ing process, each coil of the wall being about 3.5 cm high. This potsherd, too, finds no comparison with the local buff ware production. It belonged to an elongated, probably pear-shaped jar, about 17 cm wide at its maximum diameter, originally located at the lower edge of the preserved sherd portion, where a coil joint is still visible. The outer surface of the vessel was painted with a dark reddish grey pigment (5 YR 4/2) in superimposed registers or friezes. The upper frieze retains part of a quadruped, most probably a male goat or an antelope, below a sun-like radiating circle filled with a dot; to the right one sees what is left of three superimposed “combs” with oblique teeth, turned upside down. The lower register, separated by the upper one by a double line, is covered by a cross-hatched pattern. The vessel is easily distinguished from the local product because of its form, technical features and painted figuration. The only possible match is an Indus pear-shaped jar (as reconstructed in fig. 7: 5b), the most intensively decorated vessel of the Indus valley ceramic repertory. These jars may have a rounded or flat base,<sup>84</sup> and are lavishly painted with dark pigments on bright red slips on the greatest part of the outer surface. Figures, as a rule, are organized in superimposed registers and often metope-like subdivisions. The four motifs visible on the *Shahr-i Sokhta* potsherd, namely the radiating “sun” filled with a dot, the animal, the upturned “combs” (interchangeable with branches of tree-like patterns), and cross-hatched horizontal bands figure among the most common designs on this peculiar ceramic type.<sup>85</sup> An example of “net” motif associated with the radiating “sun” design also appears on a vessel ascribed to the Nal tradition.<sup>86</sup> The designs, in our case, are carefully traced. As painted figuration, during the long time-span of the Integration Era, is affected by a gradual process of smoothing, we would tentatively date our sherd to a Harappa 3A horizon (approximately 2600-2450 BCE).

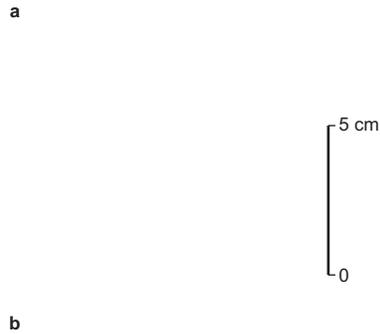
## OTHER CLASSES OF ARTEFACTS

Besides ceramics, the artefact record of similarities or imports from the Indo-Pakistani Subcontinent found at *Shahr-i Sokhta* and *Mundigak* is both substantial and heterogeneous. The most relevant classes of artefacts and their implications

84. See MARSHALL, 1931: pl. LXXXV: 6; pl. LXXXVII: 4-5; MACKAY, 1938: pl. LIV: 5, LVIII: 7; DALES and KENOYER, 1986: 74-76, fig. 1.

85. See, among many possible examples, the tables in MARSHALL, 1931: pl. XC-XCIII; MACKAY, 1938: pl. LXVIII-LXX; MACKAY, 1943: pl. XXX-XXXVII; DALES and KENOYER, 1986: 75.

86. PARPOLA, 1981: fig. 23: 7.



**Fig. 11** – *Shahr-i Sokhta*. MAI 2307, *Terracotta female figurine in “Zhub” style, Period II, phase 6 (a, photograph by F. Bonardi; b, drawing by V. La Bianca).*

are briefly discussed in the following pages. They include (in chronological order) a famous fragmentary figurine in unbaked clay with Zhub-like features, a substantial series of terracotta cakes and fragments of the same objects, at least three types of stamp seals and three types of beads, the same type of terracotta mouse traps found at Mundigak, Mohenjo-Daro and Bampur, different types of gaming pieces and dice, two types of shell ornaments, a fragmentary cylinder seal in steatite with an Indus inscription probably found in Sistan, three well-known fragments of small-to-medium sized male stone statues.

### ZHOB-LIKE FRAGMENTARY CLAY FIGURINE

This fragment<sup>87</sup> (fig. 11) (MAI 2307) was found at Shahr-i Sokhta in room XIX, 8, and ascribed to Period II, phase 6: it should be dated around 2650-2570 BCE, according to Salvatori and Tosi.<sup>88</sup> The female torso, 5.5 cm high and 6.6 cm wide, shows a series of large disk-like beads embellished by dots at the edge, hanging below a multiple necklace. The circulation of similar figurines in the centres of the Helmand civilization is also demonstrated by the discovery of two other fragmen-

87. TOSI, 1983: pl. LXIX: 61.

88. SALVATORI and TOSI, 2005: 285.

tary specimens at Mundigak.<sup>89</sup> The Mundigak figurines were ascribed by the excavator to Period IV,1 and IV,2, *i.e.* to the first half of the 3rd millennium BCE, a date consistent with the evidence from Shahr-i Sokhta. These figurines, like the potsherd with the “X-rayed fish” point to connections with sites in northern Baluchistan occupied during the Kot-Dijian phase.<sup>90</sup>

### TERRACOTTA CAKES

Variously called “terracotta tablets”,<sup>91</sup> “triangular plaques”<sup>92</sup> or “triangular terracotta cakes”<sup>93</sup> these artefacts (fig. 12, tables 2 and 3), made of coarse chaff-tempered clay, are a very common find in several protohistoric sites of the Subcontinent from the late Regionalization Era (2800-2600 BCE) to the Localization Era (1900-1700 BCE). In this latter time-span they frequently assume irregular rounded shapes, to finally retain the form of a lump of clay squeezed in the hand. Despite abundant and often unnecessary speculation, archaeological evidence demonstrates that they were used in pyrotechnological activities, both in domestic and industrial contexts. The most likely hypothesis is that these objects, in the common kitchen areas, were heated to boil water, and used as kiln setters in other contexts. Shahr-i Sokhta is the only site in the eastern Iranian plateau where such terracotta cakes, triangular or more rarely rectangular, are found in great quantity. Their use, perhaps by families or individuals having special ties with the Indus region, might have been part of simple domestic activities, but this conclusion is questioned by the fact that several terracotta cakes, at Shahr-i Sokhta, bear stamp seal impressions or other graphic signs (in more than 30% of the total cases). In many cases the actual impressions are poorly preserved, and require detailed study. Perhaps these objects used in some form of administrative practice.<sup>94</sup> Although many specimens are fired or burnt, a small percentage of the “cakes” found at Shahr-i Sokhta is unfired (see table 2). On the other hand, their modification in the frame of one or more unknown semantic contexts is not unknown in the Indus valley. At Kalibangan (Haryana, India), for example, two terracotta cake fragments respectively bear a cluster of signs of the Indus writing system and a

89. CASAL, 1961: 253, pl. XLI: 8-9.

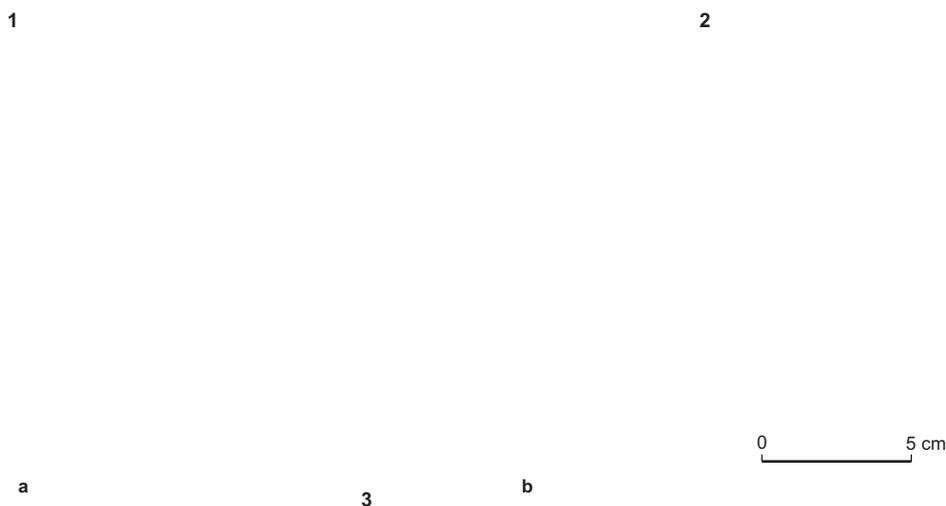
90. For Damb Sadaat II-III, see FAIRSERVIS, 1956: 224, fig. 16: a-f; for Periano Ghundai in the Zhub valley, FAIRSERVIS, 1959: 330-331, fig. 5: c-d; for Mehrigarh, Periods VI-VII, see JARRIGE *et al.*, 1995: fig. 2: 36-37.

91. MARSHALL, 1931: 480.

92. MACKAY, 1938: 429.

93. RAO, 1985: 517.

94. E. Cortesi, ongoing research.



**Fig. 12** – *Shahr-i Sokhta, terracotta cakes, Periods II and III. 1, MAI 1026 (front and rear); 2, MAI 376 (front and rear); 3, MAI 9794 (3a, photograph of front and rear; 3b, drawing).*

possible scene of animal sacrifice in front of a possible divinity.<sup>95</sup> While a terracotta cake found at Chanhu-Daro (Sindh, Pakistan) bears a star-like design, another has three central depressions.<sup>96</sup> The most important group of incised terracotta cakes comes from Lothal, where the record includes specimens with vertical strokes, central depressions, a V-shaped sign, a triangle, and a cross-like sign identical to those found at Shahr-i Sokhta.<sup>97</sup>

Tables 2 and 3 show a complete inventory of these objects (most so far unpublished), their provenience and proposed dating, and finally summarize their frequencies across the Shahr-i Sokhta sequence.

The data suggest that terracotta cakes are absent from Period I. This might be due to the very small amount of excavated deposits in the earliest settlement layers, but the almost total absence of terracotta cakes in layers datable to phases

8-7, exposed in some extension both in the Eastern Residential Area and in the Central Quarter, is remarkable. The majority of the finds belong to Period II, phases 6 and 5 (amounting together to about 60% of the cases). As the amount of sediments investigated for Period III in the settlement areas, for various reasons, is much less than what was done for Period II, the percentage of about 40% obtained for Period III (which, we believe, dates to the second half of the 3rd millennium BCE) actually demonstrates that the use of terracotta cakes at Shahr-i Sokhta continued to increase.

## STAMP SEALS

Three types of stamp seals known at Shahr-i Sokhta might imply links with the Subcontinent. The first one (MAI 115) is attested by a fragment of a rectangular stamp seal found on surface and described in the records as “white limestone” (but it could also be in fired steatite). Split in half, the seal originally bore a grid of incised lines, three of which are

95. JOSHI and PARPOLA, 1987: K-79A and K-79B, K-119A and K-119B: 324.

96. MACKAY, 1934: pls. XXXVIII: 1 and XCII: 27.

97. See RAO, 1985: 517-518, pls. CXXXI-CXXXIV.

**Table 2** – *Inventory of terracotta cakes so far found at Shahr-i Sokhta (mostly so far unpublished), with context of provenience and dating. After SALVATORI and VIDALE, 1997: 79.*

MAI	Description	Size (in cm.)	Square	Room	Cut	Period	Phase
4087	Fragment of small triangular cake	7,3 x 8,00		CDLXVIII	7	II	7
4758	Triangular cake	4,4 x 5,8 x 7,4		XII	8	II	6
5195	Corner fragment of triangular cake	4 x 3,6		XII	8	II	6
5196	Corner fragment of triangular cake, burnt	3,6 x 7,1		XII	8	II	6
1200	Triangular cake, bearing a square stamp seal impression, unbaked	2,1 x 9,5 x 10,2	XIH	XXV	6	II	6
5199	Triangular cake, bearing two rectangular stamp seal impressions	11,2 x 11,4		LXXVII	7	II	6
1026	Fragment of triangular cake bearing a cross-like sign made with dots	4 x 6,45 x 8,65	XIG/XIH	XX	8	II	6
6864	Corner fragment of triangular cake, burnt	2,4 x 6,30	SCP, S		2	II	5
6876	Corner fragment of triangular cake, burnt	2,9 x 5	XHJ		13b	II	5
525	Fragment of triangular cake	3,2 x 5,5 x 10,5	XIH		2	II	5
637c	Rectangular cake, unbaked	2,5 x 6,4	RYL		4	II	5a
376	Triangular cake	3 x 9,5 x 9,2	RYL		5-6	II	5a
726	Fragment of triangular cake, burnt	3,2 x 5 x 6,2	RYL	Under wall	7	II	5a
5197	Rectangular cake, burnt, unbaked	4,6 x 7,3		CC	6	II	5a
6880	Fragment of triangular cake, with square stamp seal impression	3,4 x 6,7		CDII	3	II	5a
582	Triangular fragment of cake	3,9 x 5,7 x 6,2	XIB	XVIII	2-5	II	5a
493	Fragment of triangular cake	3,5 x 4,5 x 5,3	XIB	XVIII	3	II	5a
662	Fragment of cake	4,5 x 5,7	RYM		2	II	5b
6836	Triangular cake, bearing a trapeze-shaped stamp seal impression	4,3 x 9,6		DIII	5	III	4
6837	Triangular cake, bearing a copper square stamp seal impression	4,1 x 7,2		DII	2	III	4
6838	Triangular cake, bearing a stamp seal impression with a cross design, burnt	3,3 x 9,5	EWP		1	III	4
9794	Triangular cake, bearing a linear cross-like sign	3,5 x 8,4 x 8,9		DIII	3	III	4
nd	Fragment of triangular cake	nd	SCP			III	4*
nd	Fragment of cake, indeterminable shape bearing a seal impression	nd	NXK			III	4*
5081	Fragment of triangular cake, bearing a stamp seal impression	6,1 x 10,6	Surface			III	4-3
2243	Fragment of cake, indeterminable shape, bearing a square seal impression, unbaked	2 x 6,5 x 8,3	XHI		2-3	III	4-3
3368	Fragment of triangular cake, unbaked	3,5 x 8,1	XIG	XXI-XXII	4	III	3
2533	Fragment of triangular cake, probably with round stamp seal impression, unbaked	3,2 x 4,5 x 9,7		CXX Corridor	3	IV	1
3106	Round flat cake, unbaked	nd		CXX Corridor	2	IV	0
5198	Round cake, two pierced ends, unbaked	4,8 x 8,7	X.JA	Section	6	nd	nd
430	Triangular cake	3,5 x 9 x 9	RYM	Bulk		nd	nd

**Table 3** – Number and percentages of terracotta cakes so far found at Shahr-i Sokhta, by Periods and Phases. *nd* = 2; *tot.* 31 (100%).

Period	Phase	Nr.	%
II	7	1	3.4
II	6	6	20.7
II	5	11	38
III	4-3	9	31
IV	1-0	2	6.9



**Fig. 13** – Stamp seals bearing grid-like motives from Shahr-i Sokhta and other sites. Scale not available. **1**, Shahr-i Sokhta, MAI 115, found on surface (photograph by F. Bonardi and drawing by M. Vidale); **2**, Rehman Deri (DURRANI, 1994-1995: 204, fig. 2); **3**, Rehman Deri (*ibid.*: 202, fig. 2); **4**, Banawali (JOSHI and PARPOLA, 1987: 346, B-20 A); **5**, Tarakai Qila (SHAH and PARPOLA, 1991: 414, Trq-4 A); **6**, Ras' al-Jinz (CLEUZIOU and TOSI, 2000: fig. 16,7); **7**, Mohenjo-Daro (JOSHI and PARPOLA, 1987: 86, M-351 A,a).

orthogonal to the short side, and perhaps seven are in the other direction (fig. 13: 1). Grid-like designs, although admittedly rather simple, are not common in the Helmand seal repertory, but frequent in the Indus region. Figure 13 compares this spec-

imen with similar stamp seals from Rehman-Dheri<sup>98</sup> (northern Baluchistan, Pakistan) (here fig. 13: 2-3), with a square steatite seal (fig. 13: 4) found at Banawali<sup>99</sup> (Haryana, India), and with another example (fig. 13: 5) from Tarakai Qila<sup>100</sup> (northern Baluchistan, Pakistan). While this type of seal was definitely used in the Kot-Dijian phase, its use in the Integration Era as well is suggested by the find of similar specimens (fig. 13: 6) at Mohenjo-Daro,<sup>101</sup> Ras' al-Jinz<sup>102</sup> (fig. 13: 7) and Lothal.<sup>103</sup> The popularity of similar simple grid patterns is also demonstrated by a series of cubic terracotta tokens from Mohenjo-Daro<sup>104</sup> and similar seal-like objects from Harappa.<sup>105</sup> The best match for the Shahr-i Sokhta grid seal is the specimen from Rehman-Dheri, and it is possible (if not likely) that the former find dates back to the first half of the 3rd millennium BCE.

To Rehman-Dheri, and northern Baluchistan in general, is related another fragmentary seal (MAI 6032) from the surface of the protohistoric city (fig. 14: 1). It is a fragment of a fired steatite seal originally having a distinctive lobate contour. Each lobe hosted a double concentric circle, with a central dot. In this specimen survive two lobes, part of a third, and two holes asymmetrically placed in the centre for the string. Originally the object had five protruding lobes. Almost identical seals (fig. 14: 3-5), with 4 to 6 lobes were found at Rehman-Dheri.<sup>106</sup> The identity of the Shahr-i Sokhta seal fragment to those found at Rehman-Dheri places the contact within the Kot-Dijian time horizon (*ca* 2800-2600 BCE). Other fourfold lobate seals come from the nearby site of Tarakai Qila<sup>107</sup> (fig. 14: 6), from Bhirrana,<sup>108</sup> India, and from Nausharo<sup>109</sup> (fig. 14: 7). A rectangular seal in bone, bearing six concentric circles (MAI 7649, fig. 14: 2) was found in Grave 801/3.<sup>110</sup> The grave has only three artefacts, but one is a copper/bronze pin with the head formed by spirals, comparable to a specimen found in the Central Quarters, sq. NXK, cut 2,<sup>111</sup> would ascribe the grave to phase 5B, *i.e.* between 2600 and 2500 BCE. Steatite stamp seals with concentric circles, but included in square or round frames,

98. DURRANI, 1994-1995: 202-204, fig. 2.

99. JOSHI and PARPOLA, 1987: 346, B-20A-D.

100. SHAH and PARPOLA, 1991: 414, Trq-4 A.

101. JOSHI and PARPOLA, 1987: 86, M-351.

102. CLEUZIOU and TOSI, 2000: fig. 16: 7.

103. RAO, 1985: pl. CCLXXXII: A 7-8, 11-12; pl. CCXCIII: 4.

104. JOSHI and PARPOLA, 1987: 123.

105. *Ibid.*: 195, H-126A.

106. DURRANI, 1994-1995: 202, 204, figs. 1-2.

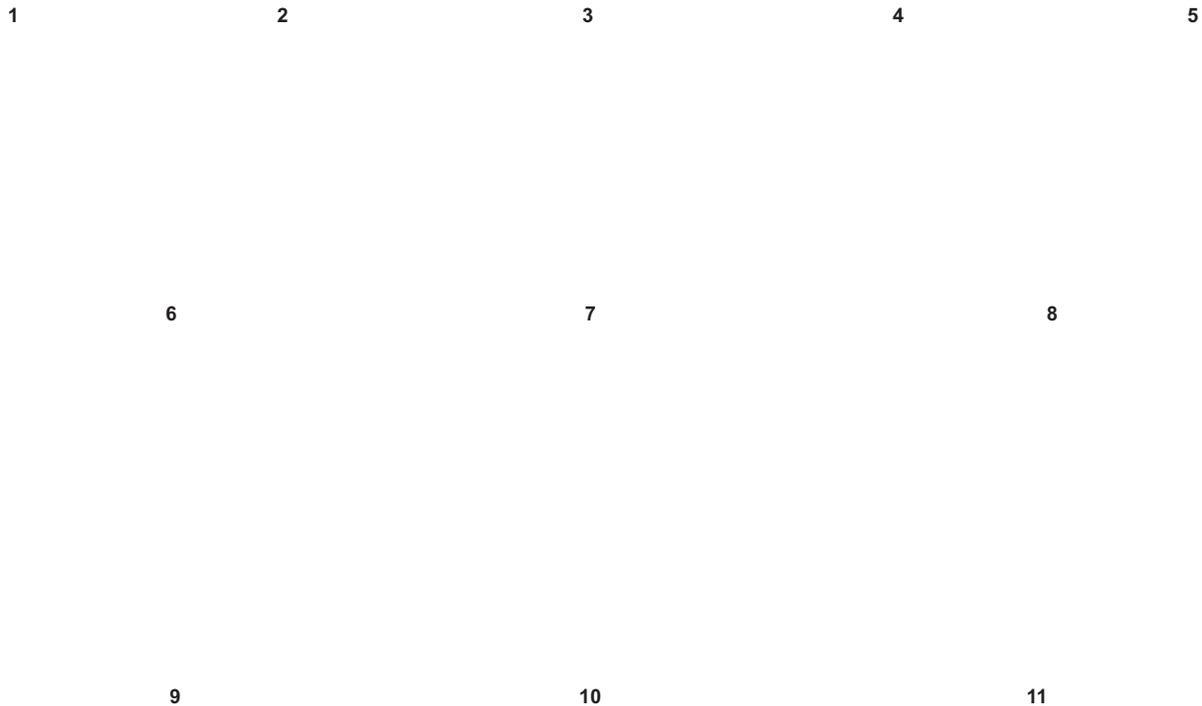
107. SHAH and PARPOLA, 1991: 414, Trq-3 A.

108. V. Shinde, personal communication; SHINDE *et al.*, 2007.

109. SHAH and PARPOLA 1991: 407, Ns-2 A, dated to the Integration Era.

110. PIPERNO and SALVATORI, 2007: 331.

111. SALVATORI and VIDALE, 1997: fig. 241: 1.



**Fig. 14** – Stamp seals with concentric circles from Shahr-i Sokhta and other sites. Scale not available. **1**, Shahr-i Sokhta, MAI 6032, found on surface; **2**, Shahr-i Sokhta MAI 7649, bone, from Grave G801/3, Period II, phase 5b; **3**, Rehman Dheri (DURRANI, 1994-1995: 204, fig. 1); **4**, Rehman Dheri (*ibid.*, fig. 2); **5**, Rehman Dheri (*ibid.*: 204, fig. 1); **6**, Tarakai Qila (SHAH and PARPOLA, 1991: 414, Trq-3 A); **7**, Nausharo (*ibid.*: 407, Ns-2 A); **8**, Rehman Dheri (DURRANI, 1994-1995: 203, fig. 2); **9**, Tarakai Qila (SHAH and PARPOLA, 1991: 414, Trq-2 A); **10**, Harappa (JOSHI and PARPOLA, 1987: 196, H 128-A); **11**, Nausharo (SHAH and PARPOLA, 1991: 407, Ns-3 A).

are also reported from Rehman-Dheri<sup>112</sup> (fig. 14: 8), Tarakai Qila<sup>113</sup> (fig. 14: 9), Nausharo<sup>114</sup> (fig. 14: 11), Mehrgarh,<sup>115</sup> Area MR 1, Periods V/VI, Harappa<sup>116</sup> (fig. 14: 10), and Mohenjo-Daro.<sup>117</sup>

The craftsmen of Shahr-i Sokhta also made a series of stamp seals in various stones, shell and copper, where the main motif was a central cross (fig. 15). The cross divides the field in

four quadrants, further decorated with concentric angular patterns, and in one case, with round drilled dots (fig. 15: 8). The motif of the cross expanding with geometric angular traits, or limited by holes drilled within the arms, is well known in a class of steatite stamp seals found at Harappa,<sup>118</sup> Mohenjo-Daro<sup>119</sup> and Lothal<sup>120</sup> (fig. 15: 10); the same motif, as suggested by some impressed terracotta tablets from Mohenjo-Daro, was

112. DURRANI, 1994-1995: 203, fig. 2.

113. SHAH and PARPOLA, 1991: 414, Trq-2 A, Kot-Dijian phase.

114. *Ibid.*: 407, Ns-3 A, Integration Era.

115. JARRIGE *et al.*, 1995: fig. 10: 27.

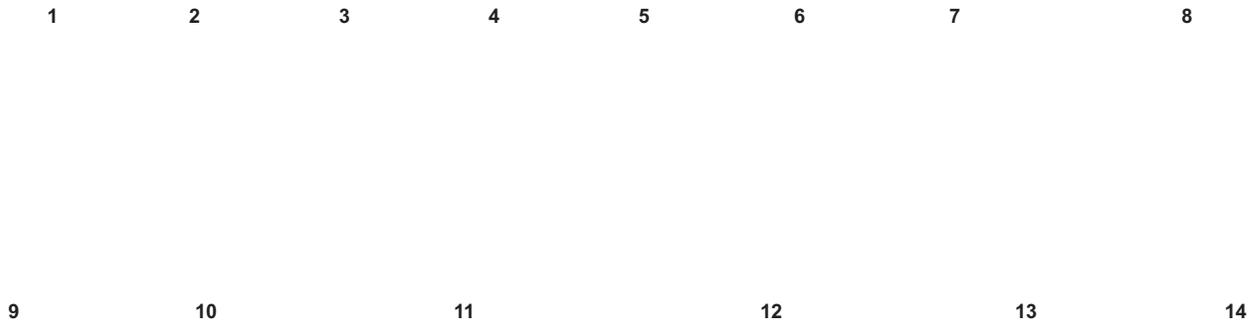
116. JOSHI and PARPOLA, 1987: 196, H-128 A.

117. SHAH and PARPOLA, 1991: 158, M-1259 A-1260 A.

118. *Ibid.*: 1991: 304, H-630 A-H-635 A.

119. SHAH and PARPOLA, 1991: 158, M-1254 A-1258 A; see our fig. 9: 11 and 14, respectively from JOSHI and PARPOLA, 1987: 87, M-352 A and 86, M-349 A.

120. JOSHI and PARPOLA, 1987: 256, L-75 A.



**Fig. 15** – Stamp seals bearing a central cross motif from Shahr-i Sokhta and other sites. Scale not available. **1**, Shahr-i Sokhta, 1505.16 , Grave IUL 1505 (SAJJADI, 2003: fig. 36,a), Period I (?); **2**, Shahr-i Sokhta, MAI 8019, Grave 725 sup., late Period II or early Period III (PIPERNO and SALVATORI, 2007: fig. 626); **3**, Shahr-i Sokhta, MAI 8020, from the same grave, late Period II or early Period III (*ibid.*); **4**, Shahr-i Sokhta, MAI 7684, Grave 311, Period II, phases 6-5a (*ibid.*: fig. 461); **5**, Shahr-i Sokhta, MAI 7685, from the same grave, phases 6-5a (*ibid.*); **6**, Shahr-i Sokhta, MAI 6025, found on surface; **7**, Shahr-i Sokhta, MAI 6047, found on surface; **8**, Shahr-i Sokhta, MAI 6027, found on surface; **9**, Harappa (SHAH and PARPOLA, 1991: 304, H-635 A); **10**, Lothal (JOSHI and PARPOLA, 1987: 256, L-75 A); **11**, Mohenjo-Daro (*ibid.*: 87, M-352 A); **12**, Mohenjo-Daro (*ibid.*: 112, M-464 A); **13**, Harappa (SHAH and PARPOLA, 1991: 304, H-630 A); **14**, Mohenjo-Daro (JOSHI and PARPOLA, 1987: 86, M-349 A).

carved on cylinder seals<sup>121</sup> (fig. 15: 12). There is a basic affinity between the geometry of the Shahr-i Sokhta seals and the Indus examples. Although the earliest specimens at Shahr-i Sokhta date back to Period I (like the lapis lazuli seal in our fig. 15: 1), other seals of this type come from middle Period II (fig. 15: 4-5) or late Period II-early Period III contexts (fig. 15: 2-3). The use of this geometric pattern at Shahr-i Sokhta thus seems to spread between 2600 BCE and the following centuries, in correspondence with the main urban peak of the Integration Era in the Indus valley.

## BEADS

The manufacture of disk beads in steatite, at Mehrgarh, is attested from the beginning of the 5th millennium BCE.<sup>122</sup> Thin, fired steatite disk beads, according to excavation data from Harappa, were serially produced in the Indus valley from the last centuries of the 4th millennium BCE.<sup>123</sup> At Mundigak, some specimens were found in a Period I, 3-4 context, *i.e.* around the middle of the 4th millennium, thus showing the early adop-

tion of this type of ornament in the repertoires of the Helmand civilization.<sup>124</sup> White steatite disk beads of variable size may be found on the surface of Shahr-i Sokhta as well. Their chronological context is detailed by the discovery of two complete necklaces in well controlled stratified contexts.

The first necklace (MAI 3571, fig. 16), comprising 271 beads, was stuck by salt crusts onto the plaster of a Period III house, where it had been lost. This surface was partially exposed below the foundations of the Burnt Building. The second necklace was found in room CCXV, cut 3, a context also dated to Period III. A sample of seven beads (MAI 2757, fig. 17) is presently stored in the facilities of IsIAO at Rome. The maximum diameter of Indus steatite disk beads usually ranges between 0.7 and 0.9 cm, the thickness is about 0.2 cm and the hole wavers around 0.1-0.3 cm. In the Indus cities, they were mass produced with a technology involving the use of copper saws for cutting steatite blocks in flat tablets, grooving and snapping the tablets in rectangular sticks, sawing the sticks into parallelepipeds, perforation of these latter pre-forms, probably followed by rounding, slicing the disk beads and a final firing stage.<sup>125</sup>

121. *Ibid.*: 112, M-464 A.

122. VIDALE, 1995; VANZETTI and VIDALE, 1995.

123. KENOYER, 1997: 262 and 266.

124. CASAL, 1961: fig. 138: 1.

125. VIDALE, 1989, 2000 and 2004; KENOYER, 1997.

**Fig. 16** – *Shahr-i Sokhta*, necklace MAI 3571, with 271 fired steatite disk-beads of Indus fashion. It was found soldered by salt onto the surface of a house dating to Period III, phase 4. No scale.

In 2007, Vidale carried out a preliminary investigation of steatite bead making at Tepe Hissar (Damghan, Iran)<sup>126</sup> based on samples of bead making debris originally recovered on the site by R.H. Dyson and presently kept in Rome. The aim was to compare the steatite bead manufacturing sequence at Tepe Hissar with that previously reconstructed at Mohenjo-Daro and Harappa, and to ascertain if the beads found at Shahr-i Sokhta were locally produced or imported from the Indus valley.<sup>127</sup>

126. DYSON and HOWARD, 1989.

127. VIDALE *et al.*, 2007.

The steatite processed at Tepe Hissar, being lower in silicon, and higher in calcium, iron and aluminium, was easily distinguished even by a preliminary quantitative microprobe analysis from the stone worked at Harappa and Mohenjo-Daro. Moreover, while in the analyzed samples there was no evidence of thin disk bead production, the manufacturing sequence involved the preliminary use of coarse blades in a kind of metalworking glassy slag, followed by sawing with metallic saws, and the application of not less than 5-6 stages of firing for whitening and rendering steatite hard.

While such technical choices might have been entirely dependent upon the mineralogical and chemical features of locally available raw material, the overall evidence suggested an independent technical tradition not affected by Indus models. The beads found at Shahr-i Sokhta, in contrast (taken from the collection in CCXV, cut 3), were morphologically identical to the Indus specimens; the chemical characterization showed minor variations from the Indus beads (slightly higher amounts of aluminium, magnesium, potassium and calcium). The initial inference was that the steatite disk beads found at Shahr-i Sokhta, Period III, were imports. However, after this paper had been completed<sup>128</sup> we identified in the surface collection from the site a piece of a fired steatite perforated cylinder with slicing marks (see Addendum and fig. 23: 1). This piece alone might suggest, contrary to previous assumptions, that fired steatite disk beads could have been locally produced at Shahr-i Sokhta with a distinctively Indus technique.

Two other types of beads might be relevant to the present discussion. Etched carnelian beads, another indicator of Indus trade and exchange activities, are reported from Mundigak.<sup>129</sup> A possible ivory bead was reported at Shahr-i Sokhta, in the Central Quarters, in a Period III, phase 4 context<sup>130</sup> but still awaits study and publication.

#### MOUSE TRAPS FOUND AT MUNDIGAK AND MOHENJO-DARO

Two pottery mouse traps found at Mohenjo-Daro, in relatively recent occupation layers,<sup>131</sup> can only be compared with two similar devices found at Mundigak, Period IV,<sup>132</sup> and one from Bampur.<sup>133</sup> The technical principles of the traps found in

128. M. Vidale and F. Egloff, ongoing research.

129. CASAL, 1961: 138: 23.

130. SALVATORI and TOSI, 2005: 287.

131. MACKAY, 1938: DK-12299, pl. LIV: 20-22, 427-428.

132. CASAL, 1961: 145-146, fig. 84: 314-314a.

133. DE CARDI, 1970: 329.



**Fig. 17** – *Shahr-i Sokhta*, necklace MAI 2757, detail of 7 beads (Period III, phase 4) (Photograph F. Aghadian).

the two protohistoric cities (fig. 18) might have been different, perhaps involving the use of a knot at Mohenjo-Daro against a downward sliding pottery lid at Mundigak. Nonetheless, the overall similarity of the ceramic containers suggests a parallel adaptation, based upon shared know-how, for coping with common problems of rodent infestations in the “domestic universes” of the two civilizations.<sup>134</sup> The specimens from Mundigak might be several centuries older than the Mohenjo-Daro ones, suggesting that such an adaptation was as widespread in time as in space.

### GAMING PIECES AND DICE

A type of gaming piece in a bluish green stone (MAI 6190 a-b), found in Grave 12 of the Shahr-i Sokhta graveyard, dated to the beginning of Period III<sup>135</sup> (fig. 19: 1-2), may be compared to ivory pieces, having presumably the same function, found at Altyn Depe<sup>136</sup> and at Gonur North<sup>137</sup> in Turkmenistan. Another similar specimen was found at Mohenjo-Daro<sup>138</sup> (fig. 19: 3). In spite of the different base material,

the shape of the gaming pieces and their decoration are very similar.

The idea that the shape of dice might reflect early contacts between Mesopotamia and the Indus civilization goes back to a suggestion first proposed by E.J.H. Mackay<sup>139</sup> and was later developed in a paper by G.F. Dales.<sup>140</sup> Dales considered cubic dice a relatively late innovation in the history of material culture of the Near East, and noticed their scarcity in the west, opposing this evidence to the apparent high frequency of the same type at Mohenjo-Daro and Harappa. Actually, at Mohenjo-Daro dice in the form of cubes, tablets, long parallelepipeds, and prism-like pieces with triangular section<sup>141</sup> were unearthed. Although cubic dice (seven specimens known) are less frequent than the other types, they were found at variable depths. The standards envisaged 1 opposed to 2, 3 to 4 and 5 to 6, although there are variations.<sup>142</sup>

At Shahr-i Sokhta, while a cubic die was found in a layer datable to Period IV,<sup>143</sup> parallelepiped-like pieces (or rectangular dice) are more common (fig. 20). The inventory includes three specimens from the settlement area and four from Grave 731, where they accompanied the famous gaming board in

134. CALOI and COMPAGNONI, 1977: 188-190.

135. PIPERNO and SALVATORI, 2007: fig. 60.

136. SHETENKO, 1968: fig. 14: 8-9 and 1970: 59; KIRCHO, 2000: fig. 2.I.5.

137. SARIANIDI, 1998: fig. 21.16-17.

138. MARSHALL, 1931: pl. CXXXIV: 3.

139. MACKAY, 1938: 559.

140. DALES, 1968.

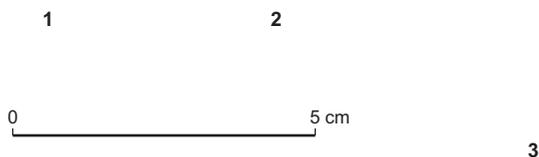
141. MACKAY, 1938: 559-562.

142. *Ibid.*: 559.

143. TOSI, 1983: 174, fig. 10.

1  
2

**Fig. 18** – Pottery mouse trap. Scale not available. 1, Mundigak (DE CARDI, 1967: fig. 4); 2, Mohenjo-Daro (MACKAY, 1938: pl. LIV, 15-17, 20-22).



**Fig. 19** – Gaming pieces. 1, Shahr-i Sokhta. MAI 6190a, Grave 12 (PIPERNO and SALVATORI, 2007: fig. 60), Period III, phase 4; 2, Shahr-i Sokhta. MAI 6190b, from the same grave (*ibid.*); 3, ivory gaming piece found at Mohenjo-Daro (MARSHALL, 1931: pl. CXXXIV,3).

*pipal* (*Dalbergia sissoo*) wood carved with a snake motif and a complete set of gaming pieces<sup>144</sup> (Period III, phase 4). These dice belong to a single type. In three specimens, the faces are marked by drilled holes filled with bone, ivory or shell inlays, possibly set with bitumen or another glue. Numbers are

opposed in the following way: 1 to 4, 2 to 3 in one case, 1 to 3, 4 to 2 in another case. One die is split in half, and only the face bearing number 2 is preserved. The fourth specimen is different: numbers are made by a system of triangles and lozenges. Thus, we have a central lozenge for 1, two opposed triangles for 2, a lozenge and two opposed triangles for 3, two central lozenges and two opposed triangles for 4. The opposition pattern is 1 to 3 and 4 to 2. Note that in this die the numbers are expressed by plane geometrical figures, or by enclosed areas, and not by the number of linear incisions.

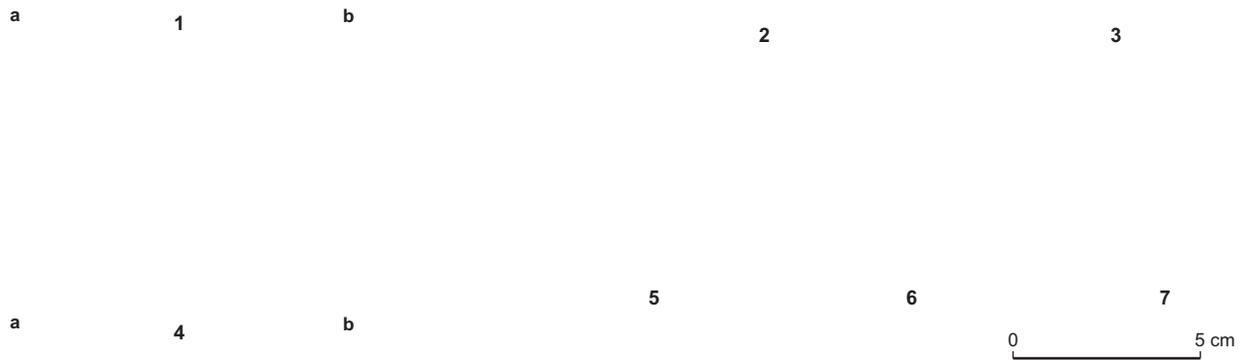
MAI 781 (fig. 20: 2) is another limestone die measuring 3.8 x 1.5 x 1.5 cm. It was found on the surface, in an area covered by ceramics of Periods III and IV. Numbers, in this case, are indicated with drilled dots: 1 opposed to 4, 2 opposed to 3. MAI 3446 (fig. 20: 3), like the one just described, it is in limestone and comes from a surface context of Period III. Broken in half, it should have originally measured 4.2 x 1.1 x 1.1 cm. The numbers are expressed by a drilled circle with a central dot: in this case, 1 was opposed to 2, 4 to 3.

Die MAI 2377<sup>145</sup> (fig. 20: 1a interpreted in fig. 20: 1b) came from square XHI, 2-3, Period III. It is in a slightly translucent calcite, and measures about 3 x 1.1 x 1 cm. Like the last die from Grave 731, numbers are expressed by means of linear incisions, but in this case the interpretation of the numeric notation is less easy. On one side we can see three “X” signs, the central one narrower than the others; two horizontal lines run on the base of the proximal and distal crosses. The overall design is strangely asymmetric. The opposed face is plain. Another face bears two “V” signs, while two convergent oblique lines appear on the opposed face. Interpreting the numeric values on the basis of the number of individual incised traits we would have 0 opposed to 2 and 4 opposed to 8, but we might instead count the areal divisions or sections, as in the last die in Grave 731. In this case, we might have 1 (the plain face) opposed to 4 (the face with the asymmetric pattern: the vertical traits would close the geometric partitions to be counted) and 2 (the face marked by the two convergent traits) opposed to 3 (the face with the two “V” signs).

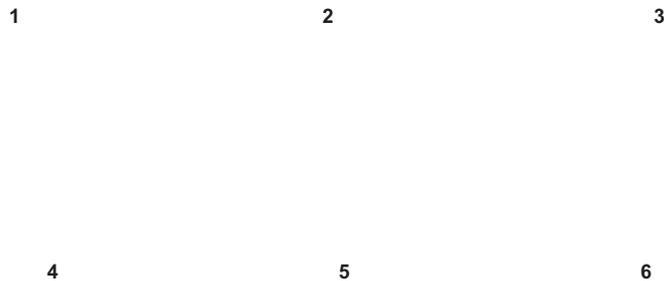
At Mohenjo-Daro and Harappa, besides cubic dice various types of elongated dice, “throwing sticks” or gaming pieces, were in use. They are said to be most frequently made of ivory. The form, section and notation are quite variable, and sometimes very complex. The closest match with the rectangular dice from Shahr-i Sokhta are rectangular sticks, square in section, whose sides are marked with 1, 2 and 3 concentric circles, the fourth side bearing two parallel central lines, probably

144. PIPERNO and SALVATORI, 1983 and 2007: figs. 691-693.

145. TOSI, 1983: 174, fig. 11.



**Fig. 20** – *Shahr-i Sokhta*, rectangular dice. **1a**, MAI 2377 (TOSI, 1983: 174, fig. 11), Period III, phase 4; **1b**, MAI 2377, black areas show a possible numeral interpretation; **2**, MAI 781, found on surface; **3**, MAI 3446, found on surface in a Period III context (as associated to Period III ceramics); **4a**, MAI 8099, Grave 731, Period III, phase 4 (PIPERNO and SALVATORI, 2007: fig. 692,4); **4b**, MAI 8099, possible numeral interpretation; **5**, MAI 8099, from the same Grave (*ibid.*: fig. 692,1); **6**, MAI 8099, from the same Grave (*ibid.*: fig. 692,2); **7**, MAI 8099, from the same Grave (*ibid.*: fig. 692,3).



**Fig. 21** – *Mohenjo-Daro*, rectangular dice. No scale. **1**, (MARSHALL, 1931: pl. CXLIII, 41); **2**, (MACKAY, 1938: pl. CXXXVIII, 48); **3**, (*ibid.*: pl. CXXXVIII, 41); **4**, (MARSHALL, 1931: pl. CXLIII, 49); **5**, (*ibid.*: pl. CXLIII, 47); **6**, (*ibid.*: pl. CXLIII, 51).

denoting 4 (fig. 21). A recurrent opposition pattern is 1 to 3, 2 to “4”, but here, again, there are variations. Some of these ivory rectangular dice bear linear incisions like orthogonal or oblique strokes, crosses and zig-zag designs, and have a superficial resemblance with the two Shahr-i Sokhta specimens described above.<sup>146</sup> Interestingly, in the ivory dice from Mohenjo-Daro (see fig. 21: 4-5) in plates CXLIII, 47 and 49 the faces bearing numbers 1-3 are subdivided by means of oblique strokes, and concentric circles mark the segments that actually express the numeric value. While at Shahr-i Sokhta rectangular dice may bear drilled dots or, in alternative, incised lines, the dice or throwing sticks found at Mohenjo-Daro often associate these two different systems of notation in quite complex patterns, thus reflecting a noticeably wider range of games and game rules.

In sum, besides the use of cubic dice, the rectangular dice abundantly used in the Indus valley cities and in Central Asia had local versions at Shahr-i Sokhta, apparently limited to Period III. While the snake-board is structurally identical to the inlaid boards from the Royal Cemetery of Ur, this similarity of the dice points to a first-hand knowledge of games and gaming rules.

## SHELL ARTEFACTS

The exploitation of the shell of the mollusc *Turbinella pyrum* by the craft communities of the Indus civilization has been the subject of intensive research.<sup>147</sup> The shell was gathered by specialized fishing communities along the Karachi coast, the coast of Gujarat and Kutch and traded inland, as a raw unmodified material or after being transformed into bangles, shell ladles and other finished commodities. Twenty fragments of *Turbinella pyrum*, identified from the morphology of the columella, were collected on the surface of Shahr-i Sokhta.<sup>148</sup> Out of this group, twelve are fragments of bangle manufacturing waste. The rest belong to stamp seals or are fragments of other objects. The evidence shows that complete shells were brought inland from the coasts to Sistan, in the frame of a sporadic long-distance trade. As all the fragments come from surface deposits, their preferential association with Period III, before the urban crisis of Period IV, is quite likely. The bangles

146. See MARSHALL, 1931: pl. CXXII: 22-45; MACKAY, 1938: pl. CXXXVIII: 41, 48; pl. CXLIII: 18-54, and particularly 41, 47, 49, 51; VATS, 1940: some artefacts in pl. CXIX.

147. DURANTE, 1979a and 1979b; KENOYER, 1984a, 1984b, 1985, 1991c and 1991d; BHAN and GOWDA, 2003; BHAN and KENOYER, 1984; SONAWANE *et al.*, 2003; VIDALE, 2000.

148. DURANTE, 1979a.



**Fig. 22** – Shell inlay pieces from Shahr-i Sokhta (1, found on surface) and Mohenjo-Daro (2-4). No scale.

found at Shahr-i Sokhta are rarely standardized, having variable sections and different size.<sup>149</sup> The modification of the suture joint of the end of the spiral with a “V”-shaped cut pattern, a typically Indus expedient, is not on record, and the manufacturing techniques seem to be a local variation. From the surface of Shahr-i Sokhta comes also a fragment of a complex “perforated disk”<sup>150</sup> (fig. 22: 1), an inlay piece made from shell of the same species. The disk (Dep. CS 8392/1) shows on the outer edge a series of triangles the vertex of which points to the centre. Similar disks, sometimes with very complex geometry, are well known at Harappa and Mohenjo-Daro (fig. 22: 2-4); most probably, they were applied as inlay pieces to wooden boxes, musical instruments, and decorative panels or to other costly wooden artefacts. As some precious wood varieties, such as *pipal*, reached Sistan from south-east, on this basis we may hypothesize a trade of shell-inlaid wood artefacts along the same trade route.

## A STEATITE CYLINDER SEAL WITH AN INDUS INSCRIPTION

The only Indus inscription so far reportedly found in Sistan appears on a fragmentary cylinder seal belonging to the antiques collection of General H. MacMahon,<sup>151</sup> donated to the

149. *Ibid.*: fig. 3.

150. TOSI, 1983: pl. LXXVIII: 92.

151. KNOX, 1994.

British Museum in the 1960s. The artefact was probably collected from the surface of a site in Sistan, during a visit in 1906. The information cannot be confirmed, but this provenience appears more probable than Swat, the other source area of the artefacts gathered by this military officer. The seal fragment (1.9 cm high, with a diameter of 1.4 cm) corresponds to the lower part of a solid cylinder provided, in the missing end, with a perforated projection. Similar seals were found in Margiana (Turkmenistan) at Gonur South, Taip and Togolok<sup>152</sup> as well as in the graveyard of Sibri near Mehrgarh<sup>153</sup> (Baluchistan, Pakistan). It retains a sequence of six signs running at the base of the original imprint, while another possible register with other signs run on the missing portion. The preserved base of the cylinder bears a damaged sign apparently formed by a cluster of triangles, of uncertain interpretation. The archaeological contexts of these finds, both in the Murghab delta and in northern Baluchistan, indicate a dating to the first centuries of the 2nd millennium BCE.

From Tepe Yahya comes a seal impression on pottery with few Indus signs.<sup>154</sup> From the same context (belonging to Period IV-A, though to be contemporary with the Indus Civilization) another potsherd shows an anthropomorphic figure in low relief. The figure sits with crossed legs, a position very similar to the “yogic” posture common in Indus seals.<sup>155</sup>

## STONE STATUES OF KNEELING PERSONAGES

The series of fragmentary stone statues of kneeling male figures found in the upper levels of Mohenjo-Daro is often mentioned as the main example of the Indus statuary in the round; it has been described by the excavators and later in greater detail by Ardeleanu-Jansen.<sup>156</sup> The most famous sculpture is the so-called “Priest king”, a steatite fragmentary bust found in DK-B area. Although such sculptures have not been found at Harappa, another find of this type was recently unearthed at Dholavira<sup>157</sup> in Kutch, India. The recurrent traits are a typical posture, with one knee touching the floor, the other leg bent higher, the arms bent on the knees; elaborate head-dressings, with fillets (or ribbons) departing in two bands on the neck or hair knots or single braids on the rear; strongly stylized of face and head traits, with ears reduced to abstract curvilinear

patterns. Three examples of limestone heads comparable to the statues found in the Indus valley were found in the Helmand area, between Sistan and Kandahar. The first and most famous comes from Mundigak;<sup>158</sup> the second (MAI 8379) was picked up from the surface of a little hummock named Tepe Chah-i Torog 2,<sup>159</sup> 15 km south of Shahr-i Sokhta; the third and last is a limestone head from a private collection<sup>160</sup> from the surface of an unknown site in north-western Sistan.<sup>161</sup> The Mundigak head was found while digging a ceramic dump datable to Period IV, 3, *i.e.* late Period III or Period IV of the Shahr-i Sokhta sequence. The Tepe Chah-i Torog 2 head was dated to Period IV on the basis of the associated surface ceramics.<sup>162</sup> The chronology of the Helmand examples thus fits with the latest time span of Harappa IIIc (*ca* 2250-1900 BCE) and places these artefacts, and the complex of ideas that accompanied them, at the end of the 3rd millennium BCE. From an iconographic viewpoint, such male figures have little to do with the representative and plastic tradition of the Indus valley, but are faithfully reproduced in their basic features in the late 3rd millennium BCE art of central Asia (see for example the figures on a silver vessel from a looted grave in Bactria).<sup>163</sup> The contemporary occurrence of these sculptures in Sistan, Sindh and Kutch, in this light, rather than pointing to a more limited Helmand-Indus connection, might be related to the general evidence of strong links between the urban poles of south-western Central Asia, Baluchistan and the Indus valley at the close of the millennium.<sup>164</sup> The MacMahon seal fragment could have similar implications, but might reflect the activities of Indus traders settled in Margiana and travelling across Sistan and Baluchistan towards the Gulf.

## CONCLUSIONS

In summary, the evidence points to a continuous contact between the Helmand the Indus civilizations throughout the 3rd millennium BCE. The links can hardly have been limited to the first half of the millennium, when few but meaningful finds firmly link Period II with the Kot-Dijan horizons. As far as Shahr-i Sokhta Period III is concerned, although the record

152. SALVATORI, 2000: 133.

153. SANTONI, 1984; SHAH and PARPOLA, 1991: 412-413.

154. LAMBERG-KARLOVSKY, 1976: 42ff.

155. PARPOLA, 1981: 181, fig. 23: 14.

156. ARDELEANU-JANSEN, 1984.

157. J.M. Kenoyer, personal communication.

158. CASAL, 1961: pl. XLII-XLIV.

159. JARRIGE and TOSI, 1981: fig. 5b.

160. DALES, 1985: pl. 1.

161. *Ibid.*: 219.

162. JARRIGE and TOSI, 1981: 132.

163. WINKELMANN, 1994; fig. 693: 3d; SARIANIDI, 1986: 168-169.

164. PARPOLA, 2006.

**Table 4** – Material links of the Shahr-i Sokhta sequence. It includes the two artefacts discussed in between the Helmand Civilization, Baluchistan and the Indus valley in the 3rd millennium BCE, in the different Periods (see the Addendum below).

Period	Probable imported goods	Formal-functional convergence, cases of technical adaptation
I	Nal vessels	
II	Lobate steatite stamp seals Grid-like stamp seals Wet wares, grey wares (??) Kot-dijan vessels Zhub-like figurine	Locally made Nal-like vessels Wet wares, grey wares (??) Pipal leaf motifs on pottery Use of triangular-rectangular terracotta cakes Terracotta mouse-traps
II – III	Early Indus (?) pear-shaped jar	Stamp seals with cross-like patterns
III	<i>Turbynella pyrum</i> (raw material) <i>Turbynella pyrum</i> (elaborate inlays) Pipal wood (raw material or finished goods) Etched carnelian beads Faience bangles "Ivory bead" (perhaps fired steatite)	Pipal leaf motifs on pottery <i>Turbynella pyrum</i> (local production of bangles) Local production of steatite disk beads (?) Use of triangular-rectangular terracotta cakes Dice and gaming pieces similar to Indus specimens
IV		Cubic dice Round terracotta cakes

from reliably stratified contexts is admittedly limited, we would preliminarily establish a correlation with Period IIIb at Harappa, while Shahr-i Sokhta Period IV might partially overlap with Harappa IIIc (around 2100-1900 BCE). Although the above-mentioned chronological disagreement cannot be considered solved, and more evidence is expected after the current excavations in Makran and at Sohr-Damb, the archaeological picture is presently wider and more coherent, and can be discussed in greater detail. The "interaction sphere", on the basis of the evidence so far reviewed, can thus be articulated in time and somehow detailed in scale and function.

Table 4 summarizes the general picture of the material links. The Murghab-related seal fragment and the stone statues of male kneeling personages were omitted, because in the present context we deem them more related to the role played in South Asia by Central Asian Bronze Age urban civilizations in the later centuries of the 3rd millennium BCE than to the issue of the Helmand-Indus contacts. Periods I and IV were excavated to a lesser extent, and are therefore underrepresented. Thus, they can hardly be meaningfully compared to the record of Periods II and III (second half of the 3rd millennium BCE) when the scarcity of excavated lots is somehow tempered by the extensive collection of surface small finds, carried out for years at the time of the excavation.

The evidence does not add much to the image of a limited, trickle-like interregional exchange or trade, well fit with the proposed reconstruction of diffuse trade-exchange networks at the opposite pole of the Iranian plateau.<sup>165</sup> In this picture, nothing suggests large-scale trade, centralization of trading network or centrally managed entrepreneurship. The import from the Indus valley and northern Baluchistan to Sistan of seals and ceramics (perhaps used as containers of perishable foodstuffs), of few classes of finished ornaments, as well as of a limited range of valuable base materials used for making costly luxury objects seems to reflect sporadic trade contacts, individual trips or marriages rather than systematic, specialized forms of long-distance trade. The evidence also fits with the preliminary analytical results of R. Law,<sup>166</sup> who carried out an INAA<sup>167</sup> analysis on a series of carnelian rough-outs from the surface of Shahr-i Sokhta and compared them with samples of the same stone from the Chagai areas and from several 3rd millennium BCE sites in the Indo-Pakistani Subcontinent. Shahr-i Sokhta evidently exploited a local carnelian source easily distinguished from that collected in southern and in the

165. POTTS, 1994.

166. LAW, 2005.

167. INAA means Instrumental Neutron Activation Analysis.

abundant south-eastern source areas. It seems to have been a market consuming a local product, more than an intermediate transshipment centre within a wider trade network.<sup>168</sup> In a similar light, a comprehensive study of lapis lazuli production at Shahr-i Sokhta suggests that bead production in the EWK-EWP craft areas was carried out by independent part-time specialists for local demand rather than being monitored by the urban elites for long-distance western trade.<sup>169</sup>

The word “interaction sphere” initially figured prominently in the headings of this research, but eventually we removed it from the title of the paper. In general, the cultural relationships between the Helmand centres and the Subcontinent appear to have been ephemeral and sporadic, had a secondary economic impact, and probably do not justify the use of the term. The links, anyhow, are well-established archaeological facts. Some classes of ceramics, tools and ornaments, throughout the whole sequence, seem to be the local versions of artefacts and habits more firmly rooted beyond the south-eastern frontier. Interestingly, at Shahr-i Sokhta we can recognize at least three technologies that may have been adopted from Indus ones: the possible evidence of local steatite disk bead production, the still unknown technology involving the making and use of terracotta cakes, and the import of *Turbinella pyrum* for a local, scarcely standardized bangle industry; the habit of impressing stamp seals onto terracotta cakes or marking them with incised signs points to a local adaptation or transformation of the original functions of these cheap objects. The carnelian abundantly present on the surface of Shahr-i Sokhta would appear to have been fired in order to enhance its colour, according to the traditional Indian technology, although at present this cannot be demonstrated (the same technique, anyhow, has been recognized at Mundigak).<sup>170</sup> But if this was the case, firing would have enhanced the contrast between red and transparent bands, instead of simply deepening its red hue. Although these activities cannot be considered as economically very relevant, and possibly involved just a minority of the population of Shahr-i Sokhta, the city, particularly in Period III, appears quite permeable to the influence of Indus habits and fashions, definitely more than any other early urban centre of eastern Iran so far excavated.

In Period II, both for the items presumably imported and those locally produced with stylistic or technical features comparable to the Subcontinent, the links include basic domestic equipment (seals, pottery, terracotta figurines, mouse-traps,

terracotta cakes). In contrast, when one moves to Period III, the connections shift to a different functional realm, ornamentation and status display: we encounter steatite, ivory and carnelian beads, shell inlays and bracelets, gaming pieces. The use of terracotta cakes, as we have seen, continued and might even have increased. It is hard to say whether, or to what extent, this peculiar pattern reflects an actual cultural process (a growing cultural interaction between the elites of the two cultures) or this is simply a by-product of the conservation of the site and excavation itself. Unfortunately the Period II deposits excavated at Shahr-i Sokhta are mainly formed by architectural fillings and well preserved dumping areas within a dense network of private households, meanwhile Period III is represented by few large residential compounds including relatively large houses, and by hectares of deposits eroded on the surface from similar elite architectural contexts.

## ADDENDUM

In December 2007, after this paper had been completed, Vidale and Egloff<sup>171</sup> identified in the surface collection from Shahr-i Sokhta two other artefacts that, without contradicting the picture so far outlined, widen the repertory of the material links between the site and the Indus world. One is the above-mentioned perforated cylinder in fired steatite (fig. 23: 1, MAI 8691). It bears on its preserved face a series of transverse cutting marks, and on the outer surface a series of spiral-like traces of abrasion. Both marks are consistent with the manufacturing traces commonly visible on Indus-like disk beads in fired steatite (see figs. 16 and 17), and for this reason we are inclined to interpret this piece as possible evidence of a local production at Shahr-i Sokhta of similar ornaments. The second object (fig. 23: 2, MAI 8682), an unexpected surprise, is most probably a fragment of an Indus faience bangle. The fragment is light greenish blue, and shows distinctive glass-like fractures. The section is rounded, slightly pointed (as if had been pinched while being formed) on the interior. Many Indus bracelets, both in terracotta and in faience, bear the same feature. The most immediate and reasonable hypothesis, given the present absence of evidence of faience-based technologies at Shahr-i Sokhta, is that this piece was imported from the Indus valley. This might be ascertained in future by means of chemical tests. In both cases we are dealing with personal ornaments, and although both artefacts lack a reliable

168. TOSI and PIPERNO, 1973.

169. VIDALE, forthcoming.

170. BARTHÉLEMY DE SAIZIEU and CASANOVA, 1993.

171. M. Vidale, ongoing research.

archaeological context, they would fit very well in the archaeological picture we reconstructed for Period III.



**Fig. 23** – *Shahr-i Sokhta*. Two Indus-related artefacts found on surface. **1**, MAI 8691, perforated tube in fired steatite with sawing marks, possibly a residue of the local manufacture of steatite disk beads like those visible in figs. 16 and 17; **2**, MAI 8682, fragment of an Indus bangle in light greenish blue faience.

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