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## Abbreviations

- SAA 1981* *South Asian Archaeology 1981*, ed. B. Allchin (with assistance from R. Allchin & M. Sidell). Proceedings of the Sixth International Conference of the Association of South Asian Archaeologists in Western Europe, Held in Cambridge University, 5-10 July 1981. Cambridge 1984
- SAA 1983* *South Asian Archaeology 1983*, ed. J. Schotsmans & M. Taddei. Papers from the Seventh International Conference of the Association of South Asian Archaeologists in Western Europe, held in the Musées Royaux d'Art et d'Histoire, Brussels. 2 vols., Naples 1985
- SAA 1985* *South Asian Archaeology 1985*, ed. K. Frifelt & P. Sørensen. Papers from the Eighth International Conference of South Asian Archaeologists in Western Europe, held at Moesgaard Museum, Denmark, 1-5 July 1985. London & Riverdale, MD, 1989
- SAA 1987* *South Asian Archaeology 1987*, ed. M. Taddei with the assistance of P. Callieri. Proceedings of the Ninth International Conference of the Association of South Asian Archaeologists in Western Europe, held in the Fondazione Giorgio Cini, Island of San Giorgio Maggiore, Venice. 2 vols., Rome 1990
- SAA 1989* *South Asian Archaeology 1989*, ed. C. Jarrige with the assistance of J.P. Gerry & R.H. Meadow. Papers of the Tenth International Conference of the Association of South Asian Archaeologists in Western Europe, held in the Musée National des Arts Asiatiques – Guimet, Paris, France, 3-7 July 1989. Madison, Wisconsin 1992
- SAA 1991* *South Asian Archaeology 1991*, ed. A. Gail & G.J.R. Mevissen with the assistance of B. Zehmke. Proceedings of the Eleventh International Conference of the Association of South Asian Archaeologists in Western Europe, held in Berlin 1-5 July 1991. Stuttgart 1993
- SAA 1993* *South Asian Archaeology 1993*, ed. A. Parpola & P. Koskikallio. Proceedings of the Twelfth International Conference of the European Association of South Asian Archaeologists, held in Helsinki University, 5-9 July 1993. 2 vols., Helsinki 1994
- SAA 1995* *South Asian Archaeology 1995*, ed. R. Allchin & B. Allchin with the assistance of G. Elston and O. Starza-Majewski. Proceedings of the 13th International Conference of the European Association of South Asian Archaeologists, Cambridge 5-9 July 1995. 2 vols., New Delhi 1998
- SAA 1997* These volumes
- ZDMG* *Zeitschrift der Deutschen Morgenländischen Gesellschaft*

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## The Ravi Phase: A New Cultural Manifestation at Harappa

### *Introduction*

Since 1986, each season of excavations at the site of Harappa has provided new perspectives on the nature of the settlement and on its growth and development (Dales & Kenoyer 1991; Kenoyer 1991; Meadow 1991; Meadow & Kenoyer 1993, 1997). Study of the excavated material combined with radiocarbon dates has made it possible to present a detailed chronology for the site (Table 1) and a more precise breakdown of the types of artifacts and architectural traditions associated with each major

TABLE 1 – *Provisional Prehistoric Chronology for Harappa.*

Period 1A and 1B – Early Harappan/Ravi Phase	c. 3300 – 2800 BC
Period 2 – Early Harappan/Kot Diji Phase	c. 2800 – 2600 BC
Period 3A – Harappan Phase A	c. 2600 – 2450 BC
Period 3B – Harappan Phase B	c. 2450 – 2200 BC
Period 3C – Harappan Phase C	c. 2200 – ?1900 BC
Period 4 – Harappan/Late Harappan Transitional	no dates
Period 5 – Late Harappan Phase (Cemetery H)	? – <1700 BC

occupational period. In 1988 five major prehistoric periods were identified, with Periods 1 and 2 representing the pre-urban, 'Early Harappan' occupation. Since that time a major focus of excavations has been to determine the extent of the Period 2 deposits and to better understand the nature of the urban growth during Period 3, the Harappan Phase (2600-1900 BC). Additional Period 1 deposits were not discovered until 1996 when they were located below Period 2 levels on the northern side of Mound AB (Trench 39S, Figs. 1-3). Because nearly four metres of Period 1 occupation levels were excavated during the 1996 season, it is now possible to divide that period into two sub-periods, 1A and 1B. Furthermore, a larger assemblage of artifacts from Period 2 has allowed for a more comprehen-

sive discussion of the characteristics of this period, including the development of what appears to be Early Indus script. The following presentation focuses primarily on the Period 1A and 1B occupations with a brief discussion of new features of the Period 2 occupations.

### *The Early Harappan Phase Periodization*

In earlier reports we stated that the earliest occupation levels at Harappa, which we attributed to Period 1, are found only in the northwest corner of Mound E (e.g., Kenoyer 1991). We now know this to be incorrect. On the basis of excavations carried out on Mound AB in 1996, it is necessary to revise the extent of the Period 1 occupation to include the northern area of Mound AB (Fig. 1). Excavations between mounds AB and E undertaken in 1989 (Figure 1, 'Op. 6') did not reveal the presence of any early occupation levels in this intervening area (Dales & Kenoyer 1989), and it is possible that from the very beginning two distinct areas of occupation were established, one on the northwestern corner of Mound E and another more substantial occupation on the northern part of Mound AB. It must be borne in mind, however, that this intervening area may have been scoured out by people digging clay for mud bricks during later periods. Thus, including the intervening area, the total extent of the Period 1 occupation is now thought to be approximately 7 to 10 ha. In both areas, the Period 1 levels are followed by Period 2 deposits, but only on Mound AB, because of the well-preserved nature of the deposits, has it been possible to divide Period 1 into two sub-periods, namely Periods 1A and 1B.

The distinction between Periods 1 and 2 on Mound E was first defined by changes in the ceramic assemblage that coincided with the construction of a massive mud brick revetment wall along the northwestern edge of Mound E. Due to the limited area excavated at the northern edge of Mound AB in 1996 (Trench 39S), no traces of a Period 2 revetment wall were discovered in that part of the site. In 1997, however, in the area of Wheeler's Trench HP XXX along the western edge of Mound AB, a massive mud-brick wall of Period 2 was discovered. On the basis of this admittedly limited evidence it appears that the areas of both Mound AB and Mound E saw the construction of mud brick revetment or 'city' walls sometime during Period 2. Future excavations will be necessary to deter-

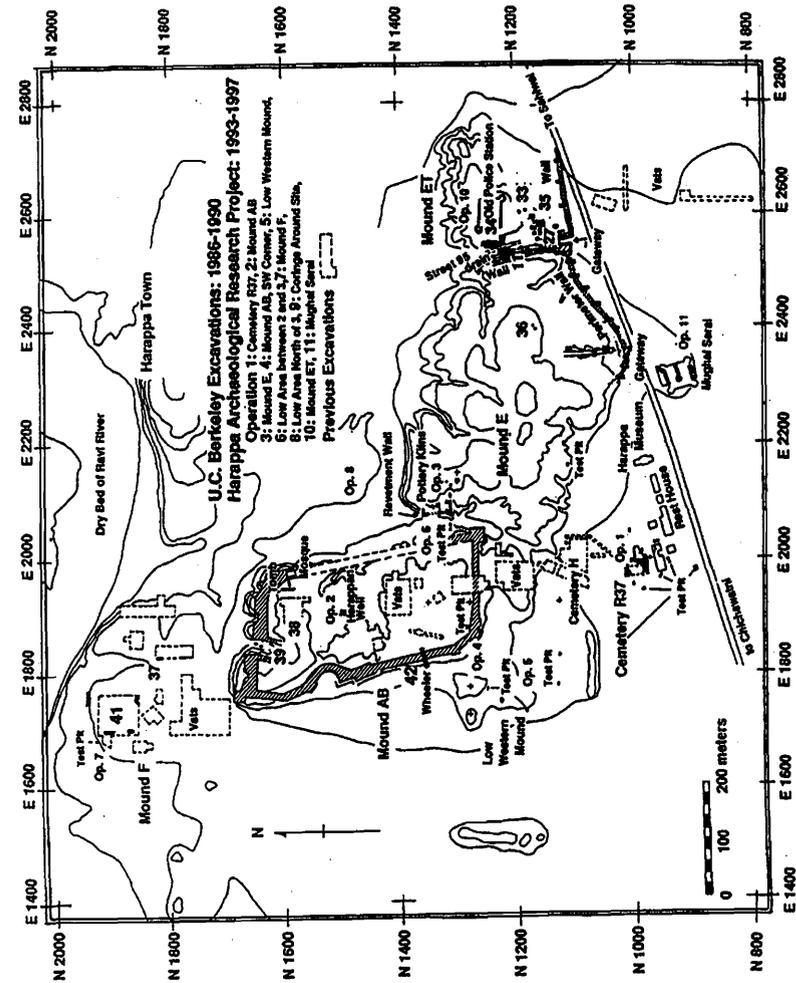


Fig. 1 - Harappa 1997: Site plan showing excavation areas.

mine if these walls surrounded separate mounds as was clearly the case during the following Period 3.

The transition from Period 1A to 1B is currently documented only on the northern side of Mound AB. In the small trench that we dug in this area (3 × 4 m) the major means for differentiating the two sub-periods is the pottery assemblage. In Period 1A all of the pottery is hand-built and consists of a limited number of vessel shapes. Both vessels with polychrome painted motifs and plain wares are attested. In Period 1B there are some wheel-turned vessels, with their number increasing over time. By Period 2, most of the pottery is wheel-turned and includes a variety of shapes with black-painted designs on red slip, as well as globular vessels with brown paint and grooved surfaces identical to the types associated with the Kot Dijian culture as defined by Mughal (1970, 1990).

In the upper levels of Period 2 there is a gradual transition in ceramic styles leading into the characteristic black-on-red pottery of Period 3 (the Harappan Phase). Again, due to the fact that there is no distinct hiatus or break, Period 3 deposits are defined by the presence of baked-brick architecture and the entire range of artifacts uniquely associated with the Harappan Phase. As noted in Table 1, Period 3 can be divided into three sub-periods on the basis of ceramics and architectural phases (Dales & Kenoyer 1991; Kenoyer 1991; Meadow & Kenoyer 1993, 1994, 1997).

#### Periods 1A and 1B: the Ravi Phase Occupations

The earliest cultural deposits discovered so far at Harappa are about 4.5 m of occupational debris at the base of the northern portion of Mound AB. These we have designated the Ravi Phase occupations. In the past material like that found in Period 1 deposits has been assigned to the Hakra Wares culture (Mughal 1974, 1990, 1997) or to the Hakra Phase (Shaffer 1992). In earlier reports, our Period 1 was defined on the basis of ceramics from the northwest corner of Mound E that are similar to examples reported from the Early Harappan levels at Kot Diji (Khan 1965; Mughal 1970), Jalilpur II (Mughal 1974), and Rehman Dheri II (Durrani 1988; Durrani *et al.* 1991). Based on a larger assemblage of ceramics and greater time depth, what we previously called Period 1 on Mound E should now be designated as late Period 1B (with some Period 1A sherds mixed in). Period 1A and early 1B ceramics are closely similar to those found in

Jalilpur I (Mughal 1974) which Mughal associates with a more general and widespread phenomenon called the Hakra Wares culture (Mughal 1997: 63-68). Detailed studies of the ceramics and other artifacts found in Period 1A contexts at Harappa, however, suggest that the material from Harappa, and probably also from Jalilpur I, is sufficiently distinct from that found in other geographical subregions within the region covered by Shaffer's Hakra Phase to deserve a separate name. Indeed as we learn more about the period between about 3500 and 2800 BC, we expect that a number of sub-regional 'phases' will be defined. As Shaffer (1992: 442) notes: 'Phases thus may be applicable to the area of a major cultural tradition as a whole, or more commonly to separate sequences within its geographical subareas. This is the smallest analytical unit and its major feature is a diagnostic ceramic style located at one or more sites during a particular time'. Another possibility would be to call the cultural phenomenon of Jalilpur I and Harappa Period 1 the 'Ravi aspect of the Hakra Phase'. This is cumbersome and thus we choose to use the term 'Ravi Phase' with the understanding that once excavations are carried out in other areas, particularly in Bahawalpur, we may again have to change the way we refer to the various subregional manifestations.

The deposits containing Period 1 materials on the north side of Mound AB consist of numerous superimposed living floors that have been heavily perforated by rodent holes (Figs. 2-3). In excavating these levels it was necessary to carefully remove the mixed fill from these rodent holes before excavating the undisturbed floor areas. Even so, some mixing of materials is inevitable and this may be reflected in some younger than expected radiocarbon dates. The initial Period 1A occupation on natural soil is characterized by an oval hearth [190] that was dug into the natural soil along with a circular pit [193] that appears to have been plastered with a chaff tempered clay (Fig. 2c). The pit contained some charred grain and ash that have been dated to between 3254 and 2706 BC (WG [NEC] 2515 + 1 sigma, 2516 - 1 sigma). We believe that the earlier end of this range fits better with other dates from later hearths in the same trench and with another date from Period 1 levels on Mound E (Beta-33873, see Appendix 1).

All pottery associated with these earliest features was hand-built, and most of the forms are finely made shallow bowls, deep bowls, large carinated vessels, or thick-walled cooking pots covered with a slurry of coarse sandy clay mixed with calcium carbonate nodules and some pebbles.

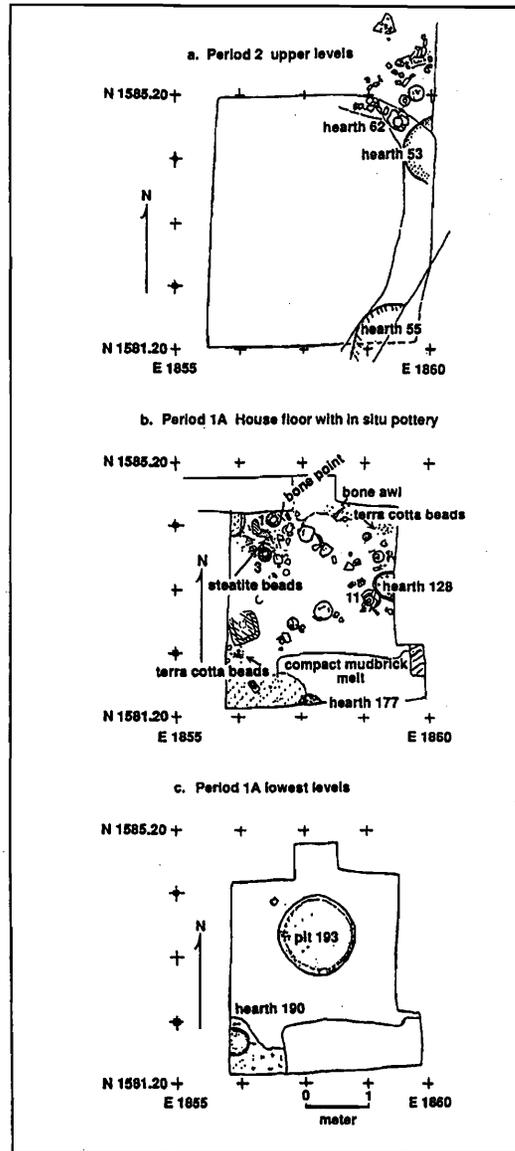


Fig. 2 – Harappa 1996, Mound AB, Trench 39S:  
 a: Plan of Period 2 levels; b: Plan of Period 1A house floor (numbers next to vessels refer to Fig. 4); c: Plan of Period 1A lowest levels

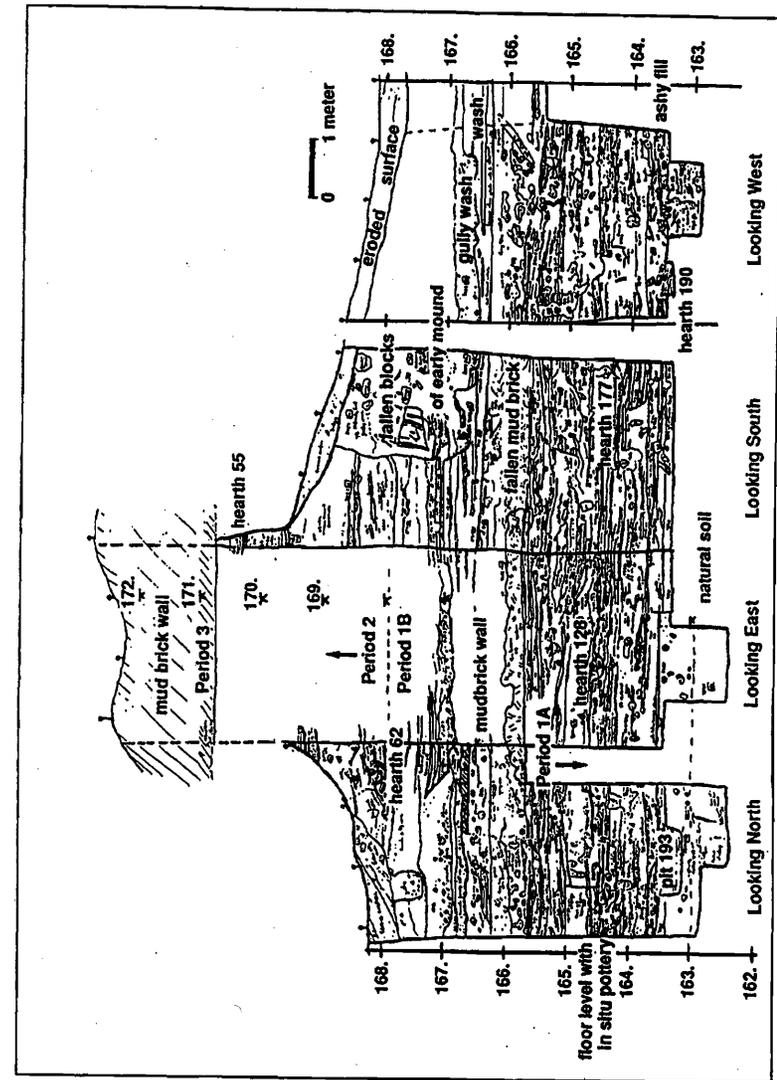


Fig. 3 – Harappa 1996, Mound AB, Trench 39S: Section.

Due to the fragmentary nature of the sherds in the earliest levels it has not been possible to reconstruct complete shapes. The partial shapes, however, indicate no difference from those defined on the basis of complete vessels found on a floor about a metre higher in the sequence. The intervening superimposed floor levels also yielded many sherds as well as several hearths, one of which (hearth [177]) has been dated to between 2924 and 2887 BC (Beta-93760).

Our best information about the cultural assemblage from Period 1A comes from a floor level containing many complete vessels and a hearth [128] that has been dated to between 2886 and 2696 BC (Beta-93759). A complete cooking pot was found next to the hearth and additional complete vessels were found in different groups on the floor (Fig. 2*b*). Other fragmentary vessels could be partially reconstructed to provide what appears to be a reasonably complete picture of the types of vessels being used during this period. The larger carinated vessels have rounded bases with tapered upper bodies and simple rims (Fig. 4.1-5). These vessels are painted with geometric and floral motifs using an often fugitive white paint and some red-brown or purple-brown paint. Both deep and shallow bowls (not illustrated) were found painted with similar pigments and a range of geometric and floral motifs. Small pots with constricted necks and simple rims were also recovered (Fig. 4.6-9). Some of these vessels are painted with a dark brown slip while other are decorated with brownish-black paint on a buff surface. Cooking pots (Fig. 4.10-11) are generally unpainted except for the rims, which are sometimes coloured with a deep brown slip. Below their rims, the exteriors of these vessels are covered with a slurry of coarse sandy clay mixed with calcium carbonate nodules and some pebbles. This treatment is generally similar to that reported for some of the Hakra wares reported by Mughal from Cholistan, but there are major differences in the shapes of the rims and the inclusions in the slurry (personal observations). Further morphometric and petrographic studies are needed to fully document the distinctive styles of this kind of slurry-coated cooking pot that are found in the different regions.

Noteworthy among the painted motifs on the pottery from Period 1A at Harappa are bird and net motifs that are comparable to decorative elements found at Sheri Khan Tarakai (Farid Khan, pers. comm., and Khan *et al.* 1990; Khan 1991), but here again the shapes are distinctive to the Ravi region (Fig. 4.1-2). Other geometric and floral motifs are comparable to

those seen at Rehman Dheri, Periods 1 and 2 (F.A. Durrani, pers. comm., and Durrani 1988). Among the most significant motifs discovered at Harappa are the intersecting circle design painted in polychrome (Fig. 4.3-4) and the fish-scale motif painted in light red-brown on buff (Fig. 4.5). Whereas the other motifs mentioned here all disappear by Period 2, the intersecting circle and fish-scale motifs continue to be used, but they come to be executed in black paint on a red slip. Intersecting circle and fish-scale motifs on pottery have been reported from other early sites such as Amri, Kot Diji, Mehrgarh, Nausharo, Jalilpur and Rehman Dheri. At those sites they are said to occur on wheel-made vessels, whereas at Harappa they occur first on hand-built pottery. In any case, these motifs appear to have been used at many different sites throughout the Indus valley at approximately the same time period, i.e., c. 3300-2800 BC.

#### Period 1A Craft Traditions

In addition to the pottery, the intact Period 1A floor level contained a wide range of artifacts that shed new light on the craft activities practised during Period 1A and on the antiquity of these traditions at the site of Harappa itself. Some of these crafts involve the use of locally available materials and relatively simple technologies, such as terracotta bead, bangle and figurine manufacture, bone working and textile production (Kenoyer 1992; Bhan *et al.* 1994). Others crafts used exotic raw materials and more complex technologies, for example, glazed steatite-bead making, stone-bead manufacture, shell-bangle making, and possibly copper working.

Terracotta beads from Period 1A include a wide variety of shapes, many of which are unique to this early period (Fig. 5). Two groups of terracotta beads were discovered which appear to have come from entire necklaces left lying on the intact Period 1A floor (Fig. 2*b*). Although only one terracotta bangle with a pinched exterior ridge was discovered from Period 1A, more bangles were found in Period 1B strata, and by Period 2 there are a number of different styles of bangles, including painted bangles with dark brown bands and gray fired bangles with incised designs (Fig. 6). Terracotta bull figurines have been found along with the limb of a painted animal figurine having a reddish slip and white spots. Seated female figurines with large hips, pinched head, appliqué eyes and traces of red-painted bands have also been recovered from Period 1 levels.

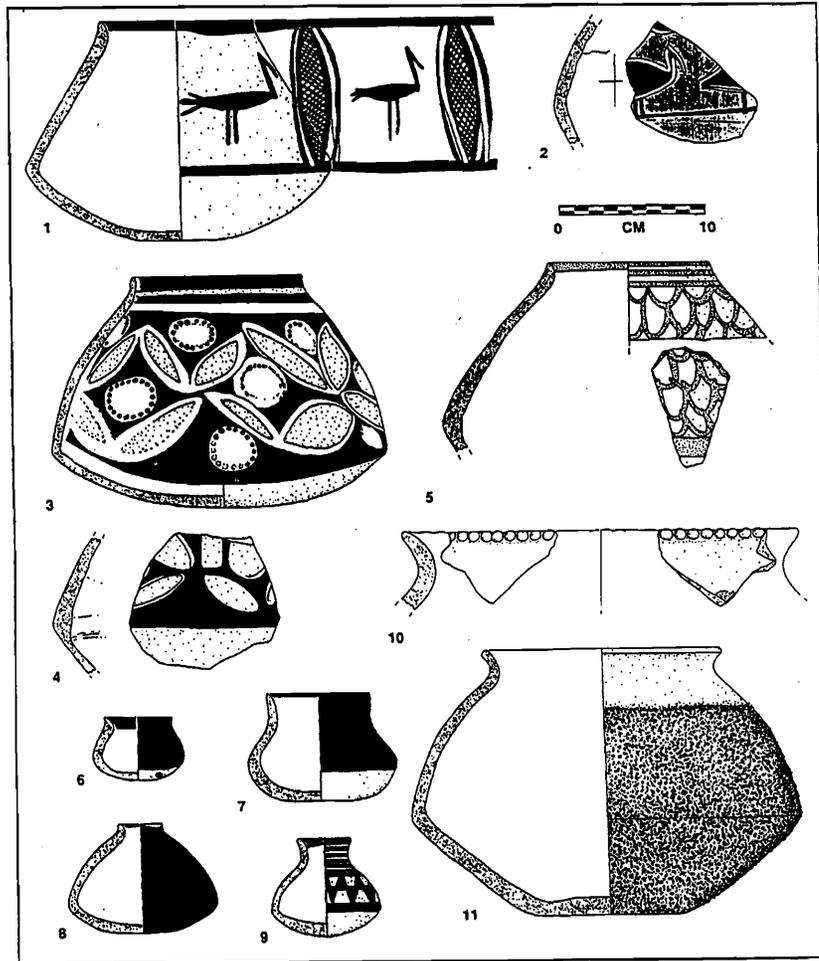


Fig. 4 – Harappa 1996, Period 1, Ravi Phase: Selected pottery:

1. Polychrome pot with bird and net design, H96-3157/7505-510; purple-brown paint, white paint highlighting net design, unslipped red-brown surface (2.5 YR 4/2), hand built with slab construction possibly in combination with coils.
2. Polychrome pot, body sherd with crane or ibis design, H96/7501-505; red-brown paint (2.5 YR 4/2), white outline, light red-brown surface (2.5 YR 6/4), hand built with slab construction.
3. Polychrome pot, intersecting circle motif, H96/7509-502; white circles and brown dots, white outlining, hand built with slab construction.

Bone working in Period 1A is represented by long tapered points that may have been used as projectiles, an awl made from a caprid long bone, and spatulas made from ribs. The awl may have been used in basketry or leather working, while the spatulas are highly polished and may have been used in weaving. A single terracotta bead with fabric impressions on both faces indicates the production of simple weaves, and several spindle whorls found on the floor suggest the spinning of thread. The fabric impression does not allow identification of the type of thread being produced, but it could have been either wool or cotton.

Steatite beads were also being made at the site, with the manufacturing waste including sawn steatite blanks and unfinished beads. The saw marks on the steatite indicates the use of a toothed copper saw (Kenoyer 1997), and the drill marks on the beads appear to have been made by a copper drill with a bevelled tip rather than by a stone drill. Many fired and glazed steatite beads were discovered on the intact Period 1A floor along with the unfinished beads, and in one area a fragmentary necklace of white-glazed steatite beads was discovered (Fig. 2b). Most of the white-glazed beads had short cylindrical shapes, but a distinctive green-coloured glaze was identified on long cylindrical beads (Kenoyer 1997). Pieces of vitrified, chaff-tempered clay were recovered in the debris on the floor, and their presence suggests that the firing and glazing of the beads may have taken place in nearby areas.

Stone beads recovered from the Period 1A floor and overlying strata

4. Polychrome pot, body sherd, intersecting circle motif, H96/7501-506; white outlining, gray-brown paint (5YR 4/1), red-brown surface (2.5YR 4/2); hand built with slab construction.
5. Pot with fish scale design, H96/7515-503; red brown paint; hand-built with slab construction.
6. Small pot, H96/7516-502; chocolate brown paint (5YR 3/2), hand-built.
7. Small pot, H96/7516; chocolate brown paint (5YR 3/2), hand-built.
8. Narrow-mouthed pot or bottle, H96-3155/7512-505; burnished black-brown paint, base scraped and smoothed.
9. Small pot, H96-3156/7512-501; flaring rim, horizontal bands and geometric design; reddish brown to purplish black paint (2.5 YR 4/2), hand-built.
10. Pinched rim, H96/7533-500; hand built with sandy coating on body.
11. Cooking pot, H96-3178/7505-513; grog slip on exterior below rim, smoke-blackened on parts of body and rim; reddish-yellow to reddish, medium sandy with grog and pebble temper, some vegetable temper, hand built with slab construction.

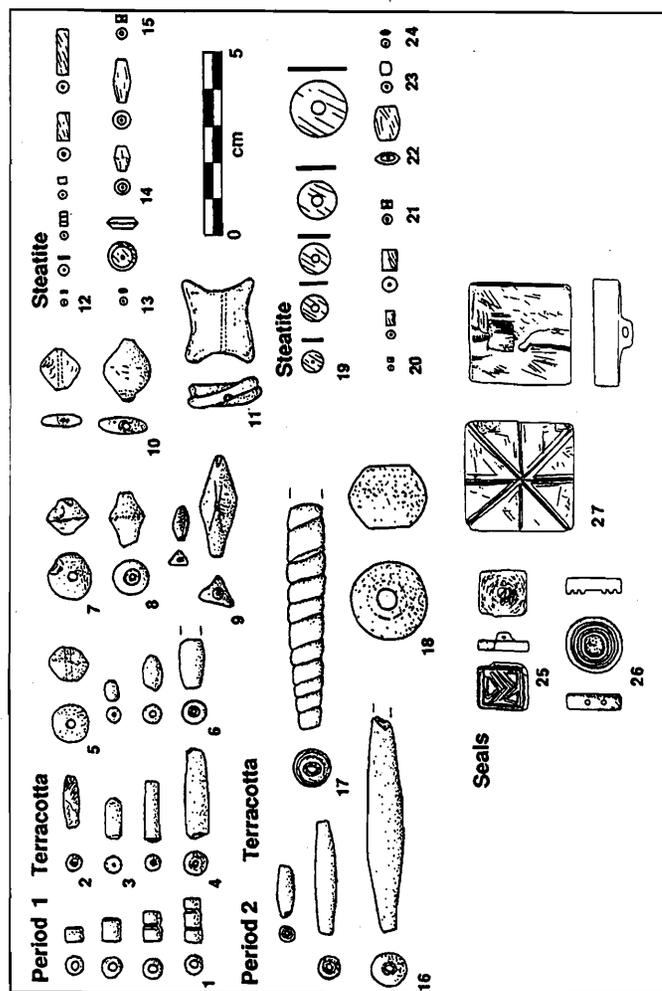


Fig. 5 – Harappa 1996, Period 1 and 2 beads and seals.

1 to 11. Terracotta beads, Period 1A/B; 12 to 14. Fired steatite beads, Period 1 A/B; 16 to 18. Terracotta beads, Period 2; 19 to 24. Fired steatite beads, Period 2; 25. H96-2740/7469-01, Period 2, glazed steatite button seal; 26. H96/7458-01, Period 2, glazed steatite button seal; 27. H96-2743/7402-90, Period 2?, steatite button seal.

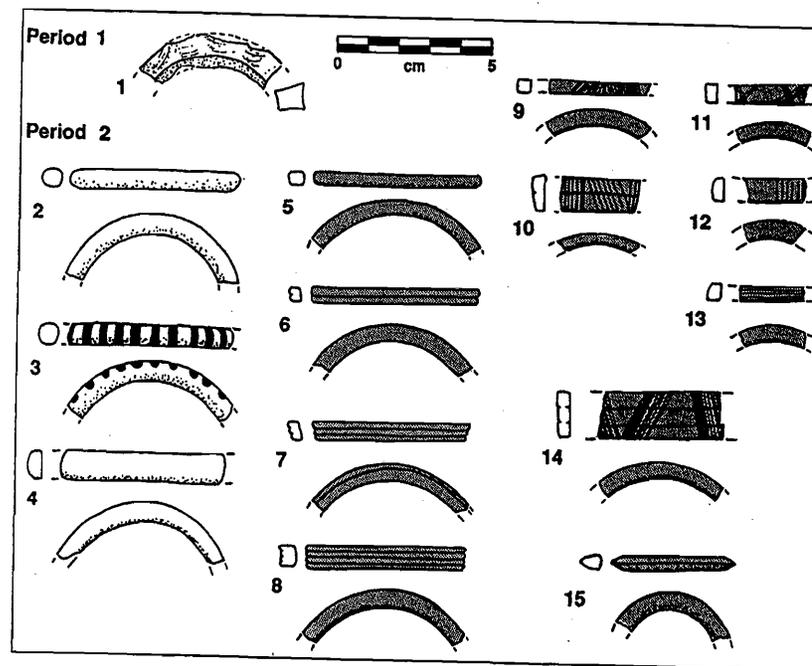


Fig. 6 – Harappa 1996, Terracotta bangles.

1. Period 1;  
2 to 15. Period 2.

include short cylindrical beads of lapis and carnelian. The lapis beads appear to have been perforated with stone (chert or jasper) drills while the carnelian beads were perforated by pecking. One amazonite bead fragment was recovered and this was drilled with a tapered cylindrical stone drill (Kenoyer & Vidale 1992). The presence of several different cutting, drilling, and finishing techniques in the same area of the site indicates the diversity of bead technology during the Ravi Phase occupation. The differences between these technologies, from raw-material acquisition to final distribution of finished beads, are critical to understanding the relative 'value' of beads and for defining the different ways in which production could have been controlled by elite groups (Vidale 1992, 2000).

The presence of both finished and unfinished shell bangles made from

the large gastropod *Turbinella pyrum* has also been documented from the Ravi Phase occupation levels. The unfinished pieces indicate the manufacture of shell bangles at the site, while the presence of both wide and narrow bangles demonstrates the antiquity of these contrasting bangle styles almost 1000 years before the Harappan Phase. The unfinished shell bangles also show that there was long-distance trade of raw materials from either the Makran or the Kutch coastal regions and confirms a trend already noted for Mehrgarh Period III for the increasing movement of raw materials as opposed to finished products during the 4th millennium (Kenoyer 1995b).

Other artifacts that indicate long-distance trade are copper objects such as pins and arrow heads. So far no evidence for the melting or casting of copper has been discovered, but the evident ability to produce glazed steatite (attested also at Mehrgarh in Period III: Barthélemy de Saizieu & Bouquillon 1994) would indicate that the early Ravi Phase inhabitants were technologically capable of melting copper and otherwise processing the metal.

#### Period 1B and the Transition from the Ravi to the Kot Dijli Phase

The Period 1B occupation sees the introduction of wheel-thrown pottery and the increasing use of decorative motifs and vessel forms that later come to characterize Period 2 (Kot Dijian Phase) ceramics. Examples are wheel-thrown bowls with bilaterally projecting rims and moulded bases and wheel-thrown globular jars with multiple grooves and short everted rims painted with a dark reddish-brown pigment. Painted pottery with red slip and black designs such as the fish-scale, pipal leaf, and intersecting circle also begins to be produced during this period. However, some vessels continue to be painted with multiple pigments (red, brown, black, white). The tradition of inscribing marks onto vessels either before or after firing becomes increasingly common (Fig. 7) and by the end of Period 2, there is evidence that some of these signs may in fact represent an early form of the Indus script.

In Period 1B levels a few sherds of non-locally made ceramics were recovered although not so many as for Period 2 when the variety of such ceramics increases and includes what are commonly referred to as Quetta Wet ware, Damb Sadaat black-on-buff, and a finely painted bowl that is similar to one found at Lal Shah, near Mehrgarh (Jarrige *et al.* 1995: 527, Fig. 11.2b, Mehrgarh Period VIIC). All of these non-local pottery vessels

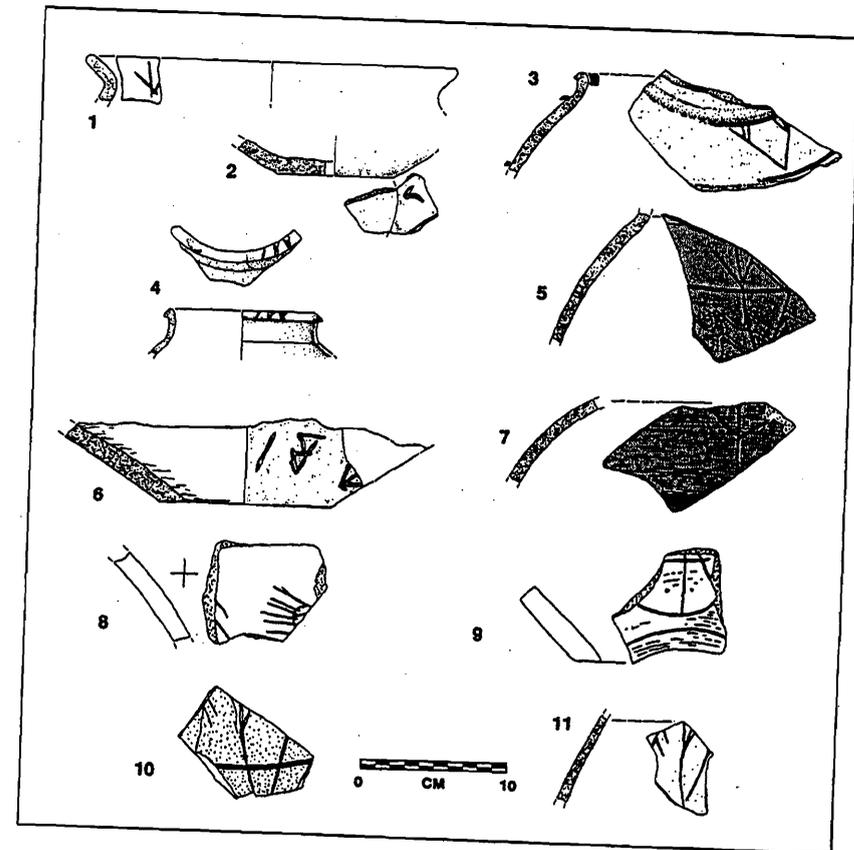


Fig. 7 – Harappa 1990-1996, Inscribed sherds: Ravi, Kot Dijian, and Harappan Phases: 1. H96-3168/7515-40, Period 1A, post-firing inscription; 2. H96-3242/7486-11, Period 1B, pre-firing inscription (potter's mark); 3. H96-3027/7462-05, Period 2, post-firing inscription, Early Indus script; 4. H96-3031/7423-99, Period 2, post-firing inscription, Early Indus script; 5. H96-3030/7419-36, Period 2, post-firing inscription, Early Indus script; 6. H95-2961/6571-01, Period 2, pre-firing inscription, chuck mold, Early Indus script; 7. H96-3028/7451-59, Period 2, post-firing inscription, Early Indus script; 8. H90-2970/1155-21, Period 2, pre-firing inscription, chuck mold, Early Indus script; 9. H90-2980/1157-73, Period 2, pre-firing inscription, chuck mold, Early Indus script; 10. H90-2971/1151-16, Period 2, post-firing inscription, Early Indus script; 11. H96-3243/6850-15, Period 3, post-firing inscription, Indus script.

seem to have come from the western margins of the Indus Valley and eastern Baluchistan, highlighting the importance of ties between Harappa and these regions. A leaf-shaped chert arrowhead similar to ones found at sites to the west such as Rehman Dheri and Mundigak has also been recovered from Period 2 context, providing further evidence of such interactions.

Several different periods of mud-brick wall construction were discovered from the two trenches excavated in 1996 (39N and 39S), all of which are oriented along the cardinal directions. In Wall [100] of Trench 39S dating to Period 1B the bricks are  $11 \times 23 \times 40$  cm – an approximate 1:2:4 ratio. This large-size mud brick is comparable to those used in Early Harappan and Harappan Phase city walls and house platforms. During Period 2 the first evidence for smaller sizes of mud bricks (measuring  $7 \times 14 \times 26$  cm again in an approximate 1:2:4 ratio) has been documented in Trench 39N (wall [30] and other walls). These smaller-size bricks correspond to the size of mud bricks and fired bricks used in domestic structures during the Early Harappan and Harappan Phases in other parts of the site.

On the basis of the artifacts mentioned above, there is now evidence for the establishment of trade and exchange networks during Period 1A and B that connected Harappa with the coastal regions to the south, the agate and amazonite sources in Gujarat and Rajasthan, the lapis lazuli sources to the west in Baluchistan and Afghanistan, and copper resource areas in Baluchistan and/or Rajasthan (Kenoyer & Miller 1999). This pattern of long-distance trade and local production beginning in Period 1A/B (Ravi Phase) and continuing through Period 2 (Kot Dijian Phase) sets the foundation for later economic organization during Period 3 (Harappan Phase; Kenoyer 1997).

#### Period 2: The Kot Dijian Phase

Period 2 deposits were identified in the upper two metres of Trench 39S (Fig. 4a) and in Trench 39N (Fig. 8). Excavations in the latter focused on two small kilns that were eroding from the slope below an overlying Harappan Phase baked-brick drain. The Harappan drain was filled with Period 3A (Harappan Phase) sherds, but directly below it were found Period 2 mud-brick structures and floors stratigraphically associated with the kilns, one of which (Kiln 47) has been dated to c. 2600 BC (Beta-97758).

Numerous artifacts were found in levels associated with the kilns including steatite and agate beads, elaborately painted pottery, and terracotta

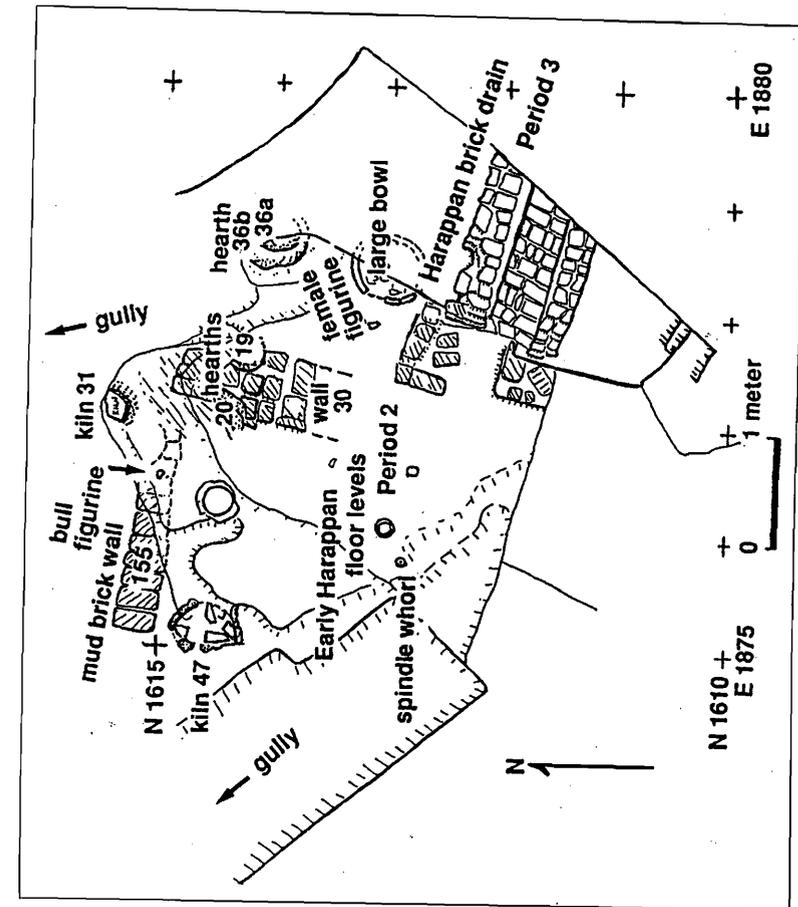


Fig. 8 – Harappa 1996: Mound AB, Trench 39N, Plan view.

figurines. There is also a dramatic increase in the numbers of fragments of terracotta bangles of various styles, including both red-fired and gray-fired kinds, some of which have been decorated with delicate incised lines (Fig. 6). The making of animal and anthropomorphic figurines becomes more elaborated and copper and bone tools and weapons begin to occur with regularity.

Numerous sherds from vessels that had been inscribed with both pre-firing (potter's marks) and post firing inscriptions or 'graffiti' were recovered in good Period 2 stratigraphic contexts or on the eroded slope (Fig. 7). Although the painted pottery and the forms themselves are comparable to those found at other Early Harappan sites, e.g., Kot Diji and Nausharo, and many of the incised marks are similar as well, other marks appear reminiscent of signs that later became characteristic of the Indus script (Fig. 7.4, 5).

In addition to inscribed pottery, Period 2 sees the first appearance of glazed steatite button seals. Two examples were recovered from Period 2 deposits in Trench 39S (Fig. 5.25, 26). A third example was found in the gully to the south of one of the kilns (Figure 5.27). This last is a square geometric steatite seal made from unfired gray steatite and appears to have eroded from Period 2 deposits; however, it should be noted that geometric button seals with similar designs reemerge during the post-urban occupation, e.g., at Jhukar, Mohenjo-daro, and Chanhu-daro (Parpola 1994).

### Conclusion

Investigation of the Period 1 (Ravi Phase) occupation and the subsequent Period 2 (Kot Dijian Phase) settlement is still in progress. Excavations in 1998 are focusing on opening up a larger horizontal exposure to recover architectural features and a larger sample of artifacts. It is becoming increasingly clear, however, that from the earliest phase of occupation c. 3300 BC people living at Harappa were involved in the local production of status items from exotic raw materials. Agate and amazonite beads, steatite beads, and glazed steatite beads may have been made for both local use and regional trade. The production of shell bangles and copper tools such as saws and arrow points can also be traced to this early period. Each one of these crafts was to become highly specialized during the later Harappan Phase and was to become controlled either directly or indirectly

by non-producers (Kenoyer 1995a).

Along with these developments we are finding new clues to the origins of the Indus script. The recent discoveries of inscribed sherds from the Period 2 occupation levels at Harappa as well as at other early sites such as Mehrgarh and Nausharo (Quivron 1997) indicate that a well developed system of graphic symbols was established during the period immediately preceding the Harappan Phase. Some of these systems of graffiti may have been used as a form of script, and it is not unlikely that there were several regional styles. At Harappa, we find increasing evidence for the use of multiple abstract symbols that were inscribed on pottery both before and after firing (Fig. 7.4, 6, 8, 10). Some of these symbols are identical to characters used in the later Indus script (Fig. 7.11) and even occur in the same sequence (Fig. 7.10). A better understanding of these developments must await more excavation of both Period 2 and Period 3A deposits at Harappa and at other sites throughout northwestern South Asia.

## APPENDIX 1

Radiocarbon Dates from Harappa 1996 (results quoted using 5568 half-life before AD 1950; results normalized to C13/C12 ratio of -25 per mil; calibrations use the University of Washington Calibration Program rev. 3.0.3c; the Beta AMS dates were run at the Lawrence Livermore Laboratory and the WG (NEC) AMS dates were run at the University of Wisconsin, Madison).

Year/Lot [Feature]	Context	Period	Lab No.	Result	Calibrated BC +1s (date) -1s
Mound AB	Trench 39 N				
H96/7435 [152]	Lower Kiln (lower levels)	Early Harappan (Period 2)	Beta 93758 AMS	4090±50 bp	2857 (2611) 2504
Mound AB	Trench 39 S				
H96/7499 [115]	Hearth 115 lower levels	Early Harappan (Period 1B)	WG-2518 (NEC) AMS	4980±60 bp	3899 (3772) 3698
H96/7507 [127]	Hearth 128	Early Harappan (Period 1A)	Beta-93759 AMS	4210±50 bp	2886 (2875, 2794, 2784) 2696
H96/7525 [177]	Hearth 177	Early Harappan (Period 1A)	Beta-93760 AMS	4320±50 bp	2924 (2913) 2887
H96/7539 [195]	Pit 193	Early Harappan (Period 1A)	WG-2515 (NEC) AMS	4400±70 bp	3254 (3028, 2975, 2930) 2915
H96/7537 [192]	Pit 193	Early Harappan (Period 1A)	WG-2516 (NEC) AMS	4260±70 bp	2915 (2886) 2706
Mound E:	Northwest				
H88/799 [53]	Hearth 53	Early Harappan Period 1/2	Beta-33873	4540±85 bp	3366 (3336) 3048

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