

The Origin of Indian Civilization in Sarasvati Valley

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Abstract

The rise of Indian civilization in the Sarasvati Valley and the adjoining Indus region is a topic of interest and debate among scholars. Recent research has yielded many Harappan sites on the old banks of the dried-up course of the Sarasvati. Moreover, excavations at a few sites in the 21st century revealed cultures earlier than those of the Harappa civilization, suggesting the evolution of Indian society in this region. An extensive review of the archaeological data from pre-Early Harappans to early Harappans shows a smooth transition without any break or cultural gap in the areas of Harappa, Jalilpur, and other excavated sites noticed in Hakra/Sarasvati valley.

Keywords: Pre-Harappan horizon, Early Harappans, Bhirrana, Rakhigarhi, Girwad, Radio-Carbon Dates, Mehrgarh,

The paper reviews, in a comprehensive sense, the rise of Indian Civilization in the Sarasvati Valley and the adjoining Indus region. However, this river is now 'lost' in the deserts of Rajasthan. In recent years, archaeology has come forward to prove it with the discovery of many Harappan sites on the old banks of the dried-up course of the Sarasvati. Recent excavations of a few sites in the 21st century revealed cultures earlier than those of the Harappa civilization, thereby suggesting that Indian civilization evolved in this region (Plate. 1-2) (Dikshit, 2021).

The River Sarasvati

The Ghaggar, Sarasvati, Markanda, and Chautang rivers rise from the Siwalik hills. The hydrographic history of the Sarasvati-Ghaggar system of rivers has been studied by several geologists such as C.F. Oldham, D.N. Wadia, S.M. Ali, Gurdev Singh, V. M. K. Puri and others (Dikshit 1977: 61-66; Puri 2001: 175-191). They have postulated the changes in their drainage. Burrad and Hayden (Burrad et al. 1907-8: 135-136) were of the view that probably the Giri running between Simla and Chur peaks formerly drained into the Ghaggar but later on deflected to Yamuna because of the slow upheaval of a range across its course. According to Rajaguru, there is evidence of the bifurcation of some of the minor streams initially joining Markanda, a tributary of Ghaggar near Nahan, into the drainage of Yamuna (Misra and Rajaguru 1975). The Siwaliks feed this river only in the rainy season when its water touches even the towns of Hanumangarh and Suratgarh.

From Hanumangarh, a dry bed of the river Naiwal can also be seen again starting and meeting the combined rivers near Anupgarh on the Pakistan border. In all probability, this combined river, known as the Hakra (or Wahind) in adjoining Pakistan, is a continuation of the Sarasvati-Ghaggar combine. The isotope data of the Ghaggar alluvium and the Thar Desert point to a sub-Himalayan sediment source with no contribution from the glaciated regions. The Indus and Sarasvati were also depicted as parallel river systems in the Mughal period (Dutch Map, 1746). This has also been confirmed by the High-Resolution Satellite Imagery (ISRO, 2006) (Plates. 3-6).

Climatic Evidence

The proposed phases are based on the palynological data from the lakes in Rajasthan. (Gurdeep Singh et al. 1971: 177-189).

Phase I: Before 8000 BCE (wind-borne, unsuitable for human settlement)

Phase II: c. 8000-7500 BCE (rainfall increased)

Phase III: c. 7500 - 3000 BCE (slight decline in rainfall)

Phase IV: c. 3000 - 1000 BCE (increased rainfall in the beginning but a short dry period in the semi-arid belt and towards the end a relatively weak wetter interval)

The stratigraphic examination of several other salt lakes, such as Pachpadra, Sambhar, Kuchaman, Didwana, Tal Chhappar, and Malhar, supports the palynological evidence for the increase in rainfall during the Holocene period, but the other hypothesis of Singh regarding aridity between 3000 BCE and 1000 BCE responsible for the cultural gap is a matter of discussion as other later local cultures flourished in the region.

Archaeological Data

Since the discovery of Harappan Culture in 1921, it was in 1958 that a pre-Harappan horizon (now called Early-Harappa) was noticed in a stratigraphical sequence at Kot Diji, Pakistan by F.A. Khan (Khan 1965: 13-85) and at Kalibangan in 1960-61 by B.B. Lal (IAR, 1960-61, pp. 31-21). At Harappa in 1946, Wheeler also noticed a 'preference' horizon (1947: 91).

Since then, archaeologists have been busy finding the origin of Early-Harappans. Towards the end of the 20th century and the beginning of the 21st century, a pre-Early Harappan level was confirmed in excavations at Kunal, Bhirrana, Girwad, Farmana, and Rakhigarhi. However, a pottery termed Hakra Ware was also noticed in the Cholistan area of Pakistan (adjoining India) in explorations only (Mughal 1990: 1-72). However, a set of radiometric dates from Bhirrana, Rakhigarhi, Girwad in India, and Mehrgarh in Pakistan confirmed the rise of civilization transforming from the neolithic agro-pastoral stage to the beginning of Chalcolithic Culture somewhere during the 7th-8th millennium BCE. The excavations at Kunal (Khatri and Acharya 1995: 84-86) and Bhirrana in the 'Lost' Sarasvati plain in India, provided for the first time a stage of cultural development from dwelling pits to the primary stage of a settled life (Rao et al. 2003-04: 20-24). The antiquity of Bhirrana based on radiometric dates goes back to the time bracket ranging between c. 7380 – 6201 BCE. This bracket has been calculated based on the calibrated age range, i.e., 7570 – 7180 BCE on the one hand and 6689 – 6201 BCE on the other (Plate. 7-9).

Our knowledge about the beginning of Indian civilization was limited as earlier excavations of neolithic-chalcolithic sites at Kile Gul Mohammad and Rana Ghundai, particularly in the north-west region of the Indo-Pak subcontinent were sporadic, but the excavations at Harappa in 1946 provided through the cutting of defenses, a pre/non-Harappan level whose date could not be assigned at that time. After 1947, the

lowest levels at Kalibangan, Banawali, Balu, Sothi, Nohar, etc., were found to be comparable with similar results from Kot Diji, Amri, Harappa, Rehman Dheri, and other smaller sites of the adjoining regions. An analysis of the material culture noticed on these sites and in the hinterland could only push back the region's antiquity after the beginning of the 3rd millennium BCE. As the present paper is confined to the distribution zone of Harappa culture, other areas, mainly central Indian chalcolithic cultures, namely Kaytha and Navdatoli, and transition from neolithic to chalcolithic in Ganga valley, particularly Lahuradewa and Jhusi, have not been taken into account. However, these regions were equally important for their contributions to the origin of Indian civilization.

Data from Pakistan

Jalilpur

In Pakistan, particular pottery known as 'mud appliqué' ware was found to have a wide distribution in the greater Indus region, Baluchistan, and also in the Cholistan area of lost river Hakra/ Sarasvati in India, which has been termed by Mughal as 'Hakra ware.' Similar pottery has also been reported earlier from Jalilpur, about 72 km from Harappa, in 1972 and at a few other places in Gomal plain in regular excavations (Pakistan Archaeology no. 8, pp. 113-158). There are also other decorative potteries painted white, red, black, or brown. The motifs on these wares include floral and geometric and also some birds. This pottery is also associated with a limited use of copper.

Harappa

Recent work at Harappa carried out by Kenoyer (2011) revealed Ravi and Kot Diji phases in the lowest level, dividing into periods IA and IB. He has particularly emphasized the presence of handmade ceramics in period IA, with the appearance of wheel-made pottery in late levels, which he has termed as the Ravi phase, whereas in period IB, a small percentage of wheel-thrown pottery along with other fabrics were found (Plate. 10; Plates 1-2). In the later phases of Ravi, mud bricks were used to build houses. The pre-defense pottery found in 1946 belongs to period IB (Plate. 11).

In the excavations from these earliest levels at Harappa, pottery and other antiquities like cartwheels, steatite beads, and bead manufacturing waste were also found in circular huts and constricted mouth storage pits. The hearths are lined with clay, whereas bricks are plastered with red ochre clay. Some mud brick walls having

bricks in the ratio of 1:2:4 were also reported. According to the excavator, the standard Harappan brick size started from the 'early Ravi phase,' giving a clear idea that before this area witnessed the growth of the urban center, a beginning was already made (Kenoyer, 2011)

The excavator of Harappa has assigned this phase of period 1A and 1B (Early Harappan / Ravi Phase), a time range between c. 3700 – 2800 BCE and period 2 (Early Harappan / Kot Diji Phase) between c. 2800-2600 BCE and termed as 'Regionalisation Era' (Kenoyer, 2011). This period, without any cultural gap, was succeeded by the Harappan phase (Period 3A-C-Period 4), Late Harappan (transitional), and Cemetery H (period 5).

A few other sites were also located to the north and south of Harappa along the Ravi river at Rajanpur, broadly speaking, having the same cultural material as noticed at Jalilpur (Plate. 12-13; Plate. 3).

Gomal Plain

Dani was the first to carry out the survey of the Gomal Plain, which is divided from Peshawar Valley by a great hilly barrier. However, the area was already explored earlier by Sir Alexander Cunningham and Aurel Stein. He discovered the sites of Hathala, Gumla, and Rehman Dheri.

Hathala is a smaller site that has revealed Kot Diji pottery, bangles, stone tools, and other grinding objects. The site is damaged by illegal digging and modern graves. The area is littered with KotDijian material as at Jhandi Babar II and Maru I. Jhandi Babar I, adjacent to Jhandi Babar II, is a Neolithic settlement in this area (Ali and Eltsov 2009). This is also an excellent area to find out the genesis of urban growth.

Gumla

The excavations at Gumla revealed five periods. Period I yielded microliths, whereas some negligible handmade pottery was found in Period II. Period III was a temporary desertion, but new pottery traditions, terracotta figurines, and parallel-sided blades were noticed. The pottery has a painting of a horned deity identical to the one at Kot Diji (Plate. 4). Period IV was destroyed by a fire, but two distinct cultural sub-periods were noticed, and they are assignable to the mature Harappan period. Period V is dotted with graves, horse bones, and terracotta horse models whose exact dates could not be determined. Period VI belongs to the Iron Age.

Sarai Khola

Sarai Khola is located north of Gomal plains, right on the banks of Kala Nalabridge, on the Potwar plateau adjoining Taxila valley. The site was excavated from 1968 until March 1971 by Muhammad Abdul Halim (1972 no. 8, pp 1-112, 1972, no. 7 (1970-71) pp. 23-89). A granulated ware from Anjira from this region resembles the similar pottery of Burzahom in Kashmir and Yang-shao horizon in north China, belonging to the Neolithic period.

Dam-Saddat, another site located about 16 km south of Kile Gul Mohammad, is more extensive and more prosperous in comparison to the above site. Other sites excavated in Quetta Valley include Karez, Kechi Beg, Mughal Ghundai, Periano Ghundai, and others whose stratigraphical position has to be ascertained by new excavations before any final verdict can be given.

Rehman Dheri

Rehman Dheri in Gomal Plain was discovered by Dani (1970-71). It was excavated by F.A. Durrani (1988, Ancient Pakistan Vol. 6, pp.1-147), who struck in excavation one of the first well-planned fortified cities belonging to the late fourth - 3rd millennium BCE and also one of the most important regional centers of Harappan civilization. In exploration, a microlithic industry was also found from the surface, whereas, in regular excavations, the following periods were noticed (Plate. 5).

Mehrgarh

The excavations at Mehrgarh in Baluchistan at the foot of the Bolan Pass from 1974 to 1985 by the French Archaeological Mission to Pakistan and the Department of Archaeology of Pakistan have revealed continuous cultural development since the 7th millennium BCE (Jarrige et al. 1995) (Plate. 14 & 15). Period I was earlier divided into phases IA and IB; IA was a ceramic, followed by period IB when the first coarse chaff tempered ceramic appeared, and then in period IIA, the same ceramic continued. Some structures assigned to period IB start from the period.

However, establishing the Neolithic of Mehrgarh between other regions of Baluchistan and the Indus drainage system requires further research, as is the case in the Bolan basin. Mehrgarh is an excellent example of continuous development from the end of the 8th millennium BCE to the middle of the 3rd millennium BCE (period IV) (Plate. 16-17).

The radiocarbon dates from Mehrgarh of period IA; the earliest goes to 7435 BCE, whereas in period IB, the date is 6490 BCE. In period IIA, the earliest date is 4653 BCE; from period IIB, 6090 BCE; and from period III, the date is 5489 BCE. However, a deduction can be made that this site was in continuous occupation from the middle of the 8th millennium BCE to the middle of the 3rd millennium BCE, including period IV (Jarrige et al. 1995: 555556).

Thar Desert

The eastern side of Sindh is a part of the Thar desert, where the Hakra River once flowed through the east side along the fringes of this area. The present work done by Qasid H. Mallah (Mallah, 2008) revealed sites of different periods, starting from Hakra /Ravi and Amri to Kot Diji to the late Indus period. This data from the lower Indus is critical as it holds the roots of successive complexes fulfilling the preconditions of urbanization. These sites are 75 in number but have yet to be excavated, as is the case in the Cholistan area (Plate. 6). This area adjoins the part of north Gujarat, which has established the presence of the early Harappan communities directly affiliated with the coastal area of Sindh and Baluchistan, stretching from Karachi to the coastal region of Rann of Kachchh. The region beyond Thatta is generally a delta area. During the period of inundation, it is flooded about 32 km inside. It is essential for reasonable subsistence, including the source of shell and fish, and in exploration, many archaeological settlements were found in this area.

Kot Diji

Located on the national highway, 25 km south of Khairpur town, Kot Diji also has a medieval fort built on a rock on its south. The site was excavated in 1955, which accidentally revealed a pre-Harappan stage, now called Early Harappa, succeeded by mature Harappans represented by their town planning and other material culture (Khan, 1965). The occupational deposit at Kot Diji was about 7.50 m. From layer (1) to layer (3) was mature Harappan ware, and from layer (3A) up to (16), a different pottery along with a pre-Harappan fortified citadel was encountered. This change in pottery from 'thick to a thin type of pottery' is an entirely new ceramic not experienced before (Plate. 18-21). It has no conformity in texture, form, or paintings/incised designs with the mature Harappa. It is also different in features, dominated by a fine, thin body, short beaded or slightly averted rim, and a broad, generally black band around the neck. The dish on the stand is typical in the late levels. It also includes minor stone antiquities, namely fine micro-blades (Plate. 22), sharp and thin long knife blades,

and terracotta objects such as toys, painted bangles, cakes, cones, and beads. Bronze objects are present but are few. It has regular stone walls and mud-brick walls with regular mud floors. This pottery could also be associated with Amri ware and pre-defense pottery at Harappa.

While examining the published pottery of Kot Diji, no mud appliqué sherd was found, a hallmark of the Hakra ware collection, including Harappa and Jalilpur. In the Sarasvati complex in India, an incised decorated pottery was also found accompanying the mud appliqué pottery in the lowest levels, especially at Bhirrana.

Cholistan

Mughal explored the Cholistan area in Bahawalpur state between 1974 and 1977 and noticed about 377 protohistoric sites and classified the surface collection as per different categories of settlements viz. campsites, industrial and multi-functional sites revealing their craft-related activities (Mughal 1997: 1-170; 1990: 1-72). Of these explored sites, 99 were marked, representing the earlier period called Hakra (river Sarasvati is known as Hakra in this area). Mughal pointed out that this area now consists of vast open muddy land covered with drift sand that has advanced 3035 km eastward adjoining Thar desert. To connect Hakra-Sarasvati at one end with Jalilpur and Harappa on the other, the excavations at Ganweriwala near Derawar Fort or some other suitable site in the Cholistan area of Bahawalpur State, which is lying in between, needs to be studied in depth so that Hakra ware settlement pattern could be placed in a broader context (Plate. 23-24).

The Hakra ware sites also yielded material from the Early Harappan period in exploration, similar to KotDijian pottery and associated materials of that period. This Early Harappan pottery has also been reported from Kalibangan I, Banawali I, Balu I, and many other sites in the Sarasvati region (Plate. 25).

The lithic tools associated with the Hakra wares primarily consist of microliths, perhaps survivals from the neolithic tradition of the Indus Valley. Objects like stone mullers, lapis lazuli terracotta beads, and shell objects were found along with the material of Early Harappans (Plate. 26-27).

In Bannu and Gomal plains, right at the foot of Takht-i-Sulaiman, the cultural life in no way was different as the food gatherers were found using a multiple variety of lithic equipment, which were also used profitably before the knowledge of agriculture became very common. These nomadic people also appeared to have a longer life duration because of climatic factors. The excavations at Mehrgarh, Rehman Dheri, Gumla, and Sarai Khola revealed the same development process, which was expected of all. In the next succeeding phase, all the sites belonging from pre to early Harappan

phases, like Hakra, Ravi, Amri, KotDiji, Nal, etc., are clubbed in the absence of more datable data between c. 5500 to 2600 BCE (Kenoyer, 2011).

Data from India

In the last five decades, the concentration of Harappan sites was noticed in the extinct Hakra-Sarasvati-Ghaggar and its equally extinct tributaries. The combined Sarasvati-Ghaggar rivers were perennial in northern Rajasthan during the Early Harappan and Harappan times. There is also evidence of the Painted Grey Ware sites, but they are in a narrow bed, suggesting that the river was getting less water supply. Rangmahal mounds were noticed in a narrower bed. This phenomenon indicates that the river was drying up. Tessitori (1917-18: 2223) and Aurel Stein (1942) found protohistoric settlements from Hanumangarh up to Bahawalpur in Pakistan. Further exploration and excavation by A. Ghosh revealed a sequence of three cultural phases, viz. Harappan, the Painted Grey Ware, and the Kushan. (Ghosh 1952: No.1) B.B. Lal and B.K. Thapar excavated Kalibangan and noticed the remains of a fortified Early Harappan settlement. In contrast, Katy Frenchman made a trial dig at Binjor, west of Anupgarh on the Pakistan border, and surveyed the archaeological sites along the 'Lost' Sarasvati river. In 1978, the author revisited the archaeological sites explored by A. Ghosh and provided a chronological order regarding regional dynamics, including time bracket and nomenclature about work done in India and Pakistan. Some trenches were also laid at Nohar and Sothi, clearly defining early horizons (Dikshit, 1984). Excavations were also carried out at Baror and Tarkhanwala Dera by the Archaeological Survey of India from 2002-2005 (Sant et al. 2005: 5059, Trivedi 2009: 256).

Gujarat and Rajasthan

It may also be stressed that the fertile tract of Sind has also had the same extension in Gujarat as noticed especially in Saurashtra (Sorath) by Possehl (1980), R.S. Bisht at Dholavira in Gulf of Kutch (Bisht, 1982) and S.R. Rao at Lothal in Gulf of Khambhat and Bhagatrav on Narmada (Rao 1985: ASI Memoirs 78(2)). The climate regime and drainage network are undoubtedly complex in Gujarat but were bigger in area than in Egypt and Mesopotamia in Harappan proliferation (Sonawane, 2022).

Kalibangan

In northern India, for the first time, in the year 1960-61, the cultural antiquity of the 'Lost' river Sarasvati was pushed back to earlier levels before mature Harappans by

the excavations at Kalibangan in District Shri Ganganagar (Rajasthan) located on the left bank of the Ghaggar (ancient Sarasvati river) usually dry, but occasionally flooded. In subsequent excavations at the site, a deposit of 0.85 cm overlying the natural soil confirmed definite elements of a pre-Harappan culture with three structural phases wherein the brick sizes were significantly different from those of the Harappa culture (Plate. 28). It revealed pottery that was also obtained from the pre-defense levels at Harappa and also from the lowest levels of Kot Diji. Still, a clear picture of this evolution could not be confirmed then, including that of other associated industries (Lal and Thapar 1967: 78-88). This particular pottery found at this site was widely prevalent on the sites in the Sarasvati and Dhrisadwati valleys. Other finds included blades, terracotta bangles, steatite beads, and a piece of copper from the late levels of this culture. Later on, the pottery of this phase was divided into six fabrics, and the most prolific was dull red to light pink, often supplemented with white paintings comparable to Kot Diji (Khan, 1965). In period I, all six fabrics of the Early Harappan were noticed, but there are no details of their stratigraphic position about the emergence of individual fabric (Plates. 7-10). The site was a fortified settlement having a grid system of planning, fire altars, and burials outside the area of settlement, and an Agricultural field datable to c. 2800 BCE (Plate. 29). It was better to have gone for excavation in a part of the earliest agricultural field having crisscross furrow-marks to get carbonized seeds of mustard and horse gram plants for better equating to the earliest Harappan period bracket.

There are twelve C14 dates for Kalibangan, of which five are from the late levels, one from the middle, and the remaining six are from early levels (Table 1). In an overall assessment, the excavators assigned a time bracket for the early Harappans between c.3000 – 2700 BCE.

Table 1: Radiometric dates from Kalibangan

Stratigraphic Level	Sample No.	Based on 5568-year half-life	Based on 5730-year half-life	Calib-3 correction (1 Sigma & 2 Sigma)
Late	TF-957	2355±/-200 BP	2425±/-205BP	1 Sig BC 782 (398) 185 2 Sig BC 900 (398) AD 70

Late	TF-154	3665±/-110 BP	3770±/-115 BP	1 Sig BC 2192 (2029, 1994, 1987) 1886 2 Sig BC 2395 (2029, 1994, 1987) 1741
Late	TF-156 (BS)	4010±/-165 BP	4130±/-170 BP	1 Sig BC 2867 (2553, 2543, 2493) 2287 2 Sig BC 2917 (2553, 2543, 2493) 2034
Late	TF-156 (BS)	3740±/-105 BP	3850±/-110 BP	1 Sig BC 2287 (2137) 1974 2 Sig BC 2462 (2137) 1789
Late	TF-165	3800±/-100 BP	3915±/-105 BP	1 Sig BC 2450 (2200) 2041 2 Sig BC 2489 (2200) 1934
Middle	TF-161	3930±/-100 BP	4050±/-105 BP	1 Sig BC 2563 (2457) 2280 2 Sig BC 2853 (2457) 2059
Early	TF-161	3610±/-110 BP	3720±/-115 BP	1 Sig BC 2132 (1944) 1776 2 Sig BC 2281 (1944) 1680
Early	TF-162	3940±/-100 BP	4060±/-105 BP	1 Sig BC 2568 (2459) 2284 2 Sig BC 2857 (2459) 2137
Early	TF-241	4090±/-90 BP	4215±/-95 BP	1 Sig BC 2869 (2611) 2486 2 Sig BC 2888 (2611) 2404
Early	TF-157	4120±/-110 BP	4245±/-120 BP	1 Sig BC 2880 (2850, 2825, 2655, 2645, 2622) 2493 2 Sig BC 2918 (2850, 2825, 2655, 2645, 2622) 2362
Early	TF-155	4195±/-115 BP	4320±/-120 BP	1 Sig BC 2911 (2872, 2792, 2777, 2713, 2708) 2586 2 Sig BC 3072 (2872, 2799, 2777, 2713, 2708) 2465
Early	TF-439 (BS)	6507±/-125 BP	6700±/-130 BP	1 Sig BC 5566 (5436) 5289 2 Sig BC 5600 (5436) 5224
Early	TF-439 Same as in the case of TF-439 (BS)			

Sothi

Ghosh excavated Sothi in the year 1950-51. He laid a trench STH-A on the top of the mound, which revealed an occupational deposit of about 60 cm, whereas STH-B, which was on the slope, yielded only a 30 cm deposit. Another trench STH-D yielded a maximum deposit of 2.50 m divided into ten layers. The concentration of potsherds was noticed up to layer 6. However, only three sherds were found percolated in layers 8, 9, and 10, but these layers were utterly devoid of any habitational sign (Section drawing courtesy: A Ghosh) (Plate. 30).

In 1978, the present writer laid a trial trench of 2 x 2 m on the western side of the mound (Dikshit, 1980). The trench was dug up to a depth of 3.40 m. A deposit of loose earth from the surface to 0.50 m consisted of mixed pottery – Harappan and Sothi, whereas from 0.50 m to 0.70 m, it was only Sothi (Plate. 31). The loose earth was mixed up with clay patches. The potsherds were scarce from 0.70 m to 1.30 m, but beyond 1.30 m, up to 3.40 m, the loose earth was without any pottery. However, no compact earth was encountered in this trench.

A trial trench of 2 x 2 m was also laid at Nohar. The mound was found merging with the surrounding sandy land except for some bulges in the center. The results obtained were similar to what was noticed at Sothi, divided into two periods: early Harappan (Sothi) and mature Harappa (Plate. 32).

Siswal

The site at Siswal, district Hissar, is located 26 km west of Hissar in Haryana. A trench measuring 2 m sq. was put on the mound's western part, revealing a culture deposit of 1.25 m divided into five layers. Based on the pottery classification, these layers were divided into two phases. The lower phase A, from layers 2 to 5, is characterized by the fabric of Kalibangan I, including white paintings. In contrast, phase B yielded more evolved, rather sturdy shapes, a paucity of types and designs, and no white painting (Plate. 33). phase B has been connected with Mitathal I (see Plate). No microlithic blades or copper objects were found (Bhan, 1971-72).

Banawali

Excavations at Banawali, located on the right bank of the river Sarasvati in district Fatehabad (earlier Hissar), Haryana, has yielded a continuous sequence of Harappan culture, i.e., the Harappan now called Early Harappan (periods IA and IB), proto-Harappan or transitional (period IC), Mature Harappan (period II) and the post-

Harappan (period III). The period IA (Pre-defense phase) is represented by fabric 'A' of Kalibangan I, which is finer in quality in terms of clay, baking, lightness, surface treatment, and painted motifs. The usual building material was the standardized sun-dried molded bricks set in mud mortar. The house walls followed nearly the cardinal directions. Period IB (Defense stage) starts with constructing a comparatively thin boundary wall around the settlement. Later, the boundary wall was built into a massive fortification wall at its apex in the north. The antiquities of this period are a continuation of earlier periods, namely beads of lapis lazuli, carnelian, steatite, and clay, a bone handle probably for drill bits, fragments of two bone spatulae, and one copper fish hook and one arrowhead (Bisht, 1998).

In period II at Banawali, the mature Harappan integrated both the Citadel and Lower town by using a standard wall; the Citadel formed a sort of semi-ellipse and occupied nearly half of the entire area (Plate. 34). The houses followed the usual pattern of having a courtyard with rooms around it. With typical mature Harappan pottery, it also yielded a variety of antiquities, including copper objects, beads, bangles, seals, sealings, and weights, including beads of carnelian, lapis-lazuli, and gold. The site was also occupied post-Harappan period (Plate. 35-40).

Balu

Excavations at Balu by UV. Singh and Suraj Bhan yielded three phases of occupational deposit. Phase A, consisting of an average occupational deposit of one meter, is represented by a ceramic industry of pre-Harappan tradition, comparable to late Siswal ceramics and antiquities like terracotta cakes and bangles and steatite beads. No house structure was noticed, but 30 X 20 X 10 cm mud bricks were encountered.

Phase B continued for a more extended period, as revealed by the occupation of 2.20 meters, distinguished by mature Harappan pottery with the continuation of the ceramics of the preceding period. The structural remains include a massive mud brick platform and a few domestic structures constructed of sun-dried bricks.

Phase C, having a 1.3-meter deposit, yielded pottery traditions of earlier phases with the emergence of new types of late Harappan complex comparable to Bara and Mitathal IIB. The structures include a house-drain built of wedge-shaped mud bricks. A few shell bangles with other objects of Phase B continue to occur (IAR 1978-79, IAR 1979-80, Kesarwani 2002).

Rakhigarhi

Excavations at Rakhigarhi, located in the drainage systems of ancient Sarasvati-Drishdvati rivers, revealed all the phases of the Harappan civilization, i.e., period I (Early Harappan), period II (Mature Harappan) and period III (Late Harappan). The structures of the period I are oriented along the cardinal directions and are built with burnt and sun-dried bricks. There are three structural phases within this period (Plate. 41-42). Essential structures include drainage systems, the floor of the courtyard, circular pits, fire chambers, etc. (Plate. 43-44).

The charcoal samples, twelve in number, were sent for C14 dating to Birbal Sahni Paleobotany Institute, Lucknow (Table 2).

Table 2: Radiometric dates carried out by Birbal Sahni Paleobotany Institute, Lucknow, from Rakhigarhi (courtesy: Amrendra Nath)

SIM	BISP Ref	Ref No.	Radiocarbon Age (Yrs BP)	Calibrated Age (Yrs BP)
S-4168	BS-3313	No.86, RGR-2, 1080 CM	5410±100	6180±50
S-4169	BS-3314	No.43, RGR-1, 3.2-3.3 CM	5230±90	6030±40
S-4179	BS-3323	No.223, RGR-2, 8.45 m	3910±100	5350±100
S-4180	BS-3324	No.213, RGR-2, 8.45 m	5200±100	5910±130
S-4181	BS-3325	No.155, RGR-2, 0.74CM	4690±120	5450±80
S-4186	BS-3340	No.59, RGR-1, 2.70 M	3740±70	4090±80
S-4188	BS-3342	No.51, RGR-6, 4.32 M	4950±310	5680±340
S-4190	BS-3344	No.46, RGR-1	4570±100	5230±60
S-4191	BS-3345	No.37, RGR-1, 2.55-2.70 M	4430±80	5060±40
S-4197	BS-3350	No.28A, RGR-1, 200-205 CM	4650±90	5410±90
S-4199	BS-3352	No.35, RGR-1, 240-250 CM	3840±70	4270±60
S-4200	BS-3353	No.43, RGR-1, 320-330 CM	3810±70	4200±100

In the case of these dates, one has to quote the opinion of the laboratory that to obtain the correct age in BCE/CE by subtracting 1950 from the age in BP may not give the proper age in BCE/CE due to the non-linear behavior of the calibration curve, for this one should use standard calibration program such as Calib 44 made available by the University of Washington. This latest calibration may give more correct dates for assigning the antiquity of the site.

First, Ancient DNA from the Harappan Civilization city of Rakhigarhi links its People to modern South Asians. This work by Prof Shinde and Dr. Neeraj Rai of the DNA lab of the Centre for Cellular and Molecular Biology (CCMB) of Hyderabad carefully cleaned the skeleton remains, packed the selected samples from petrous bone, and prepared two libraries of each sample (Plate. 45). The prepared libraries were first analyzed and sequenced by Dr. Rai in India.

The second set of Libraries was then provided to Dr. David Reich from the Harvard Medical School, Harvard University, for further sequencing, analysis, and cross-checking. As the DNA signature in the Harappan human bones was weak, Dr. Reich carried out hundreds of tests and finally obtained the signature of DNA from a few skeleton remains. According to Shinde, "the ancient DNA results completely reject the theory of Steppe pastoral or ancient Iranian farmers as a source of ancestry to the Harappan population. The South Asians began domestication and independently introduced a settled way of life in this part, and the same people developed Harappan Culture and Civilization. This is amply evident in the archaeological data from the Mehrgarh site. It is therefore concluded that the ancestry of the Harappans is South Asian is indigenous, and neither Iranian farmers (Sahr-i-Sokhta) nor steppe pastoralists (Gonur in Turkmenistan) have any role in the formation of ancestry of the South Asians (Shinde, 2021).

Kunal

A pre-Harappan site on the Sarasvati was excavated between 1991-92 and 94-95. (Khatri and Acharya 1994-95: 84-86). In the lowest level (IA), the round subterranean pits were found with a refuse pit. These are two m. in diameter and 1.10m. in depth with rammed floors and smoothed walls. A few post-holes were also noticed around the dwelling pits, suggesting the rising of a hut above the pit. It yielded so-called Hakra wares, handmade black-and-red ware, dull chocolate-colored burnished ware with paring marks, and dull red ware with wavy incised decorations on the outer surface.

Another noteworthy pottery is the dull red with a black outline and white filling, which is also found at Banawali, Kalibangan, and Kot Diji. In contrast, at Bhirrana, it was associated with Hakra ware in the upper levels, not inside the dwelling pit (Plate 11). It has painted motifs for faunal and floral, including an established bullhead and decorated horns. In a later stage, a variety of pipal leaves also makes an appearance (Plate. 12). Other objects include bone tools, microbeads, arrowheads, and copper fish hooks.

In period IB, the dwelling pits expanded in diameter and were found lined with finely molded mud bricks, conforming to any standard Early/ Mature Harappan brick

sizes. There were well-designed mud-brick constructed hearths. The pottery of IA continued with all the six fabrics of Kalibangan I.

In period IC, the pattern of living changed from subterranean to regular and square rectangular houses built of standardized mud bricks (1:2:3 and 1:2:4) on the ground level. It also developed a drainage system with soakage jars fixed in the street pits. Dwellings became more significant and durable in different IC (i)-(iii) phases. In one of the houses, gold and silver ornaments were found in a globular pot.

Only three radiometric dates were assigned to the site between c. 3016 and 2577. As there is no date from the earliest level, the site's antiquity may be placed at the beginning of Girawad and other regional sites.

Bharrana

Recent excavation on the Sarasvati river at Bharrana from 2003-2004 revealed a gradually evolving Harappan settlement from a modest beginning substantiated by a cluster of subterranean pits using 'Hakra wares' of Cholistan complex along with other fabrics, especially mud applique ware. (Rao et.al. 2003-04: 20-24) (Plate. 46). The other material remains of IA were micro and disc beads of steatite, fragments of terracotta bangles, and crucible fragments with molten copper. No copper object was reported.

The dwelling pits, which are 14 in number, are directly cut in the natural soils, are shallow in depth, and could accommodate about 3-4 people. These are plastered with the same earth of yellowish alluvium. Besides dwelling, these pits were also used for sacrificial/industrial purposes (Plate. 13; Plate. 47). In the lower levels of these pits, medium to thin-bodied wheel-made pots with thick coats of mud called specially Hakra ware or mud appliqué ware (Plate. 14) in comparison to incised ware of deep or light incision dominated. However, in upper levels, it was associated with bi-chrome ware (Plate. 15-25).

These were followed by the mud-brick structures (1:2:3) of the Early-Harappan (IB) to a full-fledged maturity, tracing the fortification wall of Early Mature Harappan (IIA) and Mature Harappan (IIB) to a length of 95 m with a width of 5 m having 17 courses rising to a height of 1.80 m with a plaster coating on its external face (Plate. 48).

Four mature Harappan steatite seals depicted a three-headed animal, those of a bull, unicorn, and a deer with a standing deity. One of the seals was on black steatite. Mention be also made about the fragment of a thick, sturdy red ware bearing an incised figure of a dancing girl, and also single hub wheels, some with spokes painted in black (Plate. 26; Plate. 49). The Carbon 14 samples from Bharrana have pushed back the antiquity of the region to a hoary past comparable to other places like Mehrgarh in Pakistan (Table 3).

Table 3: C¹⁴ dates carried out by Birbal Sahni Institute of Paleobotany, Lucknow, from Bhirrana, district Fatehabad, Haryana

Sample ID	BS No	C ¹⁴ Age (Yr. BP)	(1 Sigma) Yr. BP	Yr. BCE
BRN 1	2308	3300 ± 200	3826 - 3274	1878 – 1839
BRN 2	2327	40 ± 80	31 - 93	Contaminated
BRN 3	2310	3190 ± 160	3629 - 3214	1641 – 1287
BRN 4	2311	3890 ± 90	4442 - 4153	2471 – 2273
BRN 5	2318	6120 ± 250	7286 - 6671	5316 – 4775
BRN 6	2333	7590 ± 240	8597 - 8171	6689 – 6201
BRN 7	2314	5700 ± 170	6720 - 6303	4714 – 4360
BRN 8	2301	4050 ± 90	4806 - 4418	2856 – 2414
No.8, BRN 1	2485	4450 ± 170		3370 – 2890
No.7, BRN 1	2492	4230 ± 100		2920 – 2640
No.3, BRN 1	2494	3750 ± 110		2310 – 1980
No.2, BRN 1	2495	4160 ± 100		2880 – 2580
No.1, BRN 1	2496	4340 ± 120		3100 – 2880
No.5, BRN 1	2497	4280 ± 110		3020 – 2700
No4, BRN 1	2499	3490 ± 120		1950 – 1640
BRN 9	2481	8350 ± 140		7570 – 7180
BRN 6	2482	4990 ± 180		3970 – 3640
KRN(K)	2502	7150 ± 130		6200 – 5850

Assessment of Dates

A general impression appears that the time bracket of Early Harappan proposed in the past for sites like Harappa, KotDiji, and Kalibangan requires a longer span of life, namely from c. 4500-3000 BCE, which will be more appropriate in understanding the cultural process in Sarasvati, Ravi and in the lower levels of Indus valley (Table 4).

Table 4:

Classification of dates from Bhirrana	Relative Chronology	Time Bracket
I 7570-7180 BCE 6689-6201 BCE	Period I (Neolithic)	IA C. 7500-6000 BCE

II 6200-5850 BCE 5316-4775 BCE	Period IIA (Transitional Period) (from dwelling pits to ground level)	IB C. 6000-4500 BCE
III 4714-4360 BCE 3970-3640 BCE 3370-2890 BCE 3100-2880 BCE 3020-2700 BCE	Period IIB (Early Harappan)	IIA C. 4500-3000 BCE
IV 2920-2640 BCE 2880-2580 BCE 2856-2414 BCE 2471-2273 BCE 2310-1980 BCE	Period III (Mature-Harappan)	IIB C. 3000-1800 BCE
V 1950-1640 BCE 1878-1839 BCE	Period IV (Late-Harappan)	IIC continuation till C. 1600 BCE

Marshall has dated the beginning of the Indus Civilization to c 3000 BCE, which was the accepted date of this civilization till the renewed excavations carried out by Mortimer Wheeler at Harappa, where he dated this culture between c 2350 – 1700 BCE. This shorter chronology was further confirmed by C14 dates for the excavations carried out later in the Indo-Pak subcontinent, especially by TIFR and PRL in India. Harappan chronology has been scrutinized based on the calibrated dates and new excavations.

Baror

Another excavated site, Baror, is located in Anupgarh Tehsil of Sri Ganganagar District of Rajasthan (Sant et al. 2004-05: 5059). It is about 100 km southwest of Kalibangan. It also revealed a three-fold cultural sequence- pre-Harappan, early Harappan, and mature Harappan. However, the excavation did not reveal any subterranean dwellings. The mud-brick structures were encountered, but the brick sizes did not conform to any regular shape or standard size.

The first settlers, i.e., pre-Harappans, used to live in huts made of wattle-and-daub in the lowest two layers (8) and (9) and were using unpainted red ware, maybe non-Harappans of local tradition, which was followed by the bi-chrome painted sherds in

the upper levels. The next period repeats the Kalibangan sequence of Early Harappan and Mature Harappan. The bi-chrome painted pottery and six other Kalibangan fabrics continued in the Early Harappan period at Baror (For antiquities, see Plate. 27).

Farmana

The excavation, which started in 2006-07, also revealed pit dwellings at the lowest levels in the Early Harappan level and gradually transformed from subterranean dwellings to over-ground rectangular mud-brick structures. (Shinde et.al. 2008: 77-158). After that, the site showed the remains of the Mature Harappan period with the continuance of earlier ceramics, which contributed to the making up of the Harappa culture (Plates. 3031).

Girawad

The excavation at Girawad revealed a ceramic assemblage at the lowest level, similar to that of the Hakra ware in the Ghaggar basin, including Cholistan (Shinde et al. 2008: 77-158). It also revealed about 13 circular or irregular oblong shallow pit-dwellings with post-holes on their peripheries, but on the side of these pits, each complex has a storage and a garbage pit (Plate. 5051).

While pit-dwellings continued, Hakra ware people also used permanent structures in the form of mud-brick houses on the ground. The site has the elements from Amri, KotDiji, and Hakra in the lowest levels of Early Harappan, and it is further confirmed by the presence of the Periano Reserve Slip and the grooved or cordoned ware in the upper layers of the occupation. The beginning of this site may be assigned in the middle to the late 4th millennium BCE. The pottery–kilns dominated the area (Plate. 28-29).

North Gujarat

In recent years, North Gujarat presented important material for understanding the cultural developments in this area, especially during the early chalcolithic period (Ajithprasad, 2011). The mesolithic hunter-gatherers using microlithic tools existed before the Chalcolithic farming communities in the area. The excavations carried out at Loteshwar and other sites of Anarta tradition mark the arrival of indigenous farming communities through some agricultural production. In the early phase, pottery technology and crested ridge blade manufacturing were seen to be datable to c. 3600

BCE. This cultural gamut is closely rooted in the farming communities of the Indus and the Ghaggar-Sarasvati valleys. This complex was further noticed at Padri and pre-Prabhas levels on the Saurashtra coast (Plate. 52). This chronology clearly outlines the stages of cultural developments that were taking place in this area and requires consistent work to know the antiquity by taking excavations at selected sites.

The excavation at Loteshwar revealed a habitational deposit ranging hardly 20-40 cm having a non-Harappan ceramic industry. It also showed a variety of circular pits varying from 0.50 - 2.00 m in a corresponding variation in depth from 0.50-2.00 m having plenty of ash and other material including pottery, skeletal remains of animals, steatite micro-beads, shell and semi-precious beads, terracotta objects and burnt clay lumps having reed impressions (Plate. 53). Similar pits were also noticed at Nagwada and Santhli. The radio-carbon dates from this deposit provide a date c. 3600-3000 BCE. Below this chalcolithic habitation, a substantial deposit of mesolithic occupation was also encountered in 4700 BCE. Still, a series of new dates (AMS estimation) put the beginning of Mesolithic at the site to 7000 BCE (Patel, 2008).

Padri, situated on the Gulf of Khambat on the Saurashtra coast, was excavated by Shinde (1991-1993), which also falls in the regional pre-urban Harappan ceramic phase. The material noticed from the pre-Prabhas level and Padri assemblage, namely the gritty and fine red wares, was put in brackets of the Anarta pottery tradition. Radiocarbon dates from Padri show a very early date going back to the second half of the fourth millennium BCE.

According to Ajithprasad and Sonawane (2011), the Anarta pottery tradition was also noticed at Baror (Sant et al. 2005), Bhirrana (Rao et al. 2005), and Girwad (Shinde et al. 2008) and in Ravi phase pottery from Harappa (Kenoyer and Meadow 2000) which confirms that pre- Urban Harappan society and that of the Indus and the Ghaggar Sarasvati basins had several shared and common cultural traits reflected in their material remains.

The recent archaeological evidence from Bagor, Balathal, and Gilund suggests that settled life was also emerging in the Mewar region contemporary with or even earlier than the pre/early Harappan of Rajasthan and North Gujarat as an internal development within the Mesolithic lifestyle of the area and the site like Bagor located on the left bank of Kothari river lies in the semi-arid environmental zone on the foot of small chains of mountainous land. As Bagor has two phases, the ceramic phase indicates the continuation of the blade industry, structural activity, and appearance of potsherds. The site of Gilund also revealed a mesolithic phase at the bottom overlain by a chalcolithic deposit showing the beginnings of a village life with agriculture and other ceramics (Misra 1973: 92-100; Shinde et al. 2006: 103- 122).

Conclusion

All these pre-Early Harappan stages (especially in northern Pakistan, Sindh, north Gujarat, Rajasthan, and Haryana) point to the beginning of primary urbanization in the Indo-Pak subcontinent on the lines of a similar developing trajectory as Mesopotamian and Egyptian cultures. A chronological comparison of early Old World civilizations has been done recently by many scholars in India and Pakistan (Kenoyer, 2011). Moreover, the archaeological data from pre-Early Harappans to early Harappans shows a smooth transition without breaking or cultural gaps in Harappa, Jalilpur, and other excavated sites in Hakra/Sarasvati valley. Thus, the 'Lost' Sarasvati/Hakra valley laid a new foundation for urban life and set in motion, one way or another, the status of the Hakra-Sarasvati region as the cradle of Indian civilization.

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Plate. 1. Satellite image of Bata Markanda Divide establishing the identity of Saraswati River south of Adi Badri (after Prof. A.R. Chaudhri, Kurukshetra University 2021)

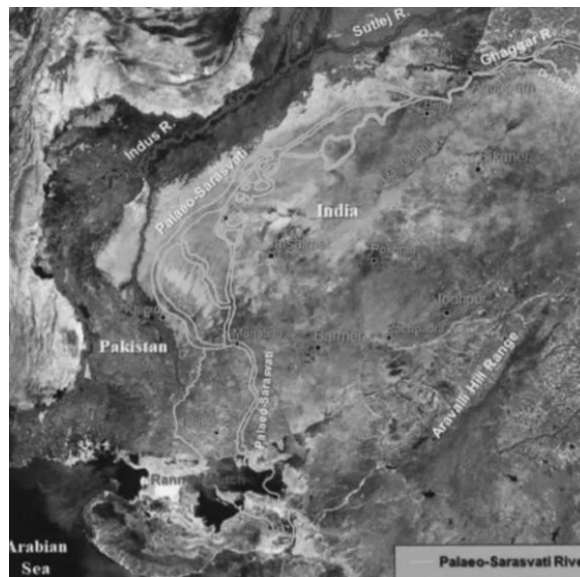


Plate. 2. Map showing the course of River Saraswati from Ghaggar to Rann of Kutch (after G. Sreenivasan et.al. 2021: 171)

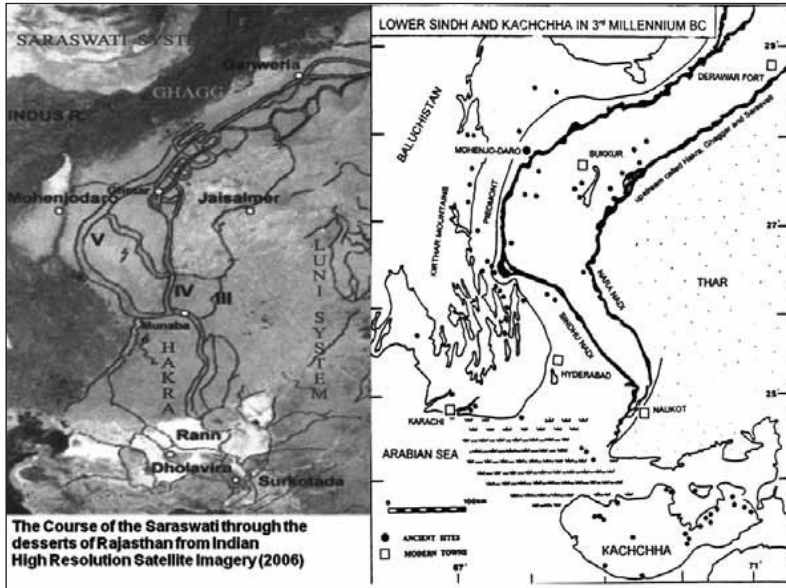


Plate. 3. High-resolution satellite Imagery showing the course of river Sarasvati



Plate. 4. A Mughal Period Map showing Indus and Palaeo-Sarasvati Rivers as parallel system (after G. Sreenivasan et.al. 2021: 169)

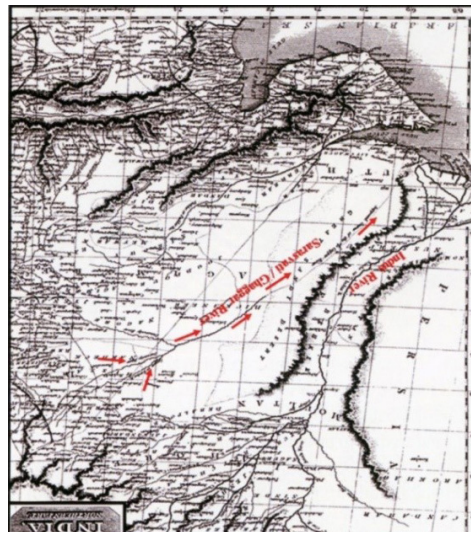


Plate. 5. Historical map of British Period showing Sarasvati River (mentioned as Sursooty) and Ghaggar (mention as Gaggar River) joining together and flowing parallel to Indus river and emptying into Gulf of Kutch (after G. Sreenivasan et.al. 2021: 170)

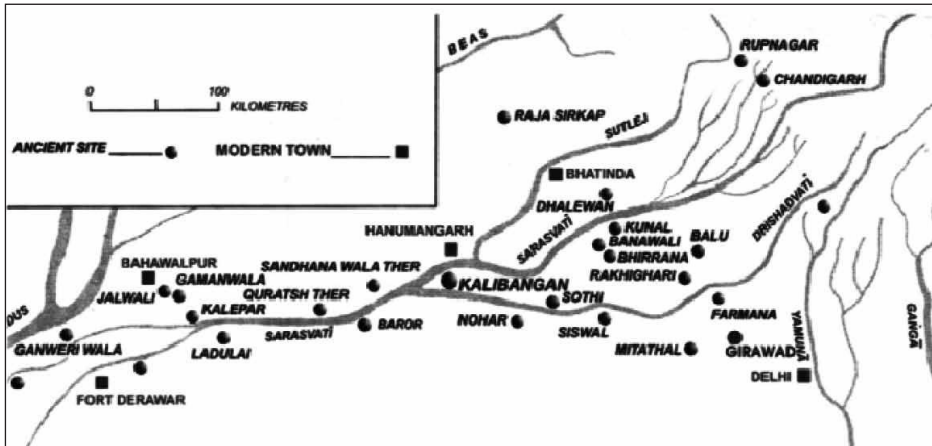


Plate. 6. Distribution of sites in the Hakra-Sarasvati basin during the 5th – 3rd millennium BCE (Possehl 1999:362-387)



Plate. 7. Map showing the Old World civilization from Indus to Mesopotamia

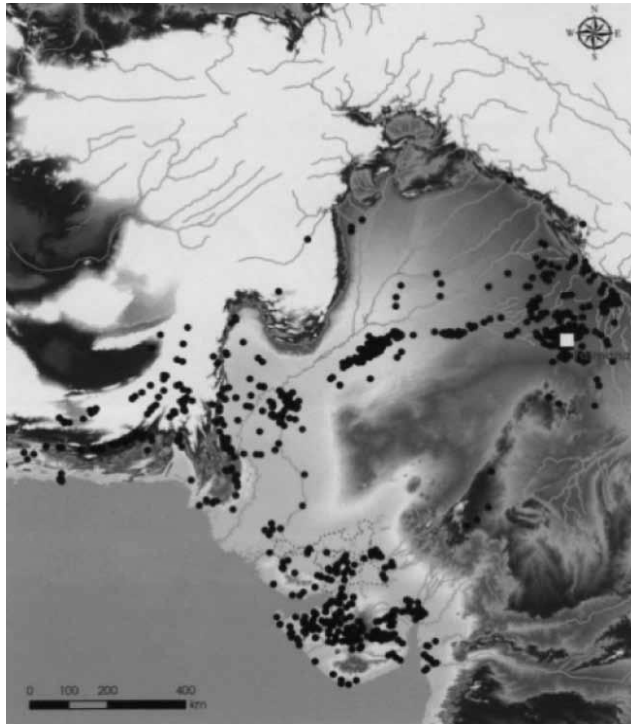


Plate. 8. Distribution of the Harappan sites

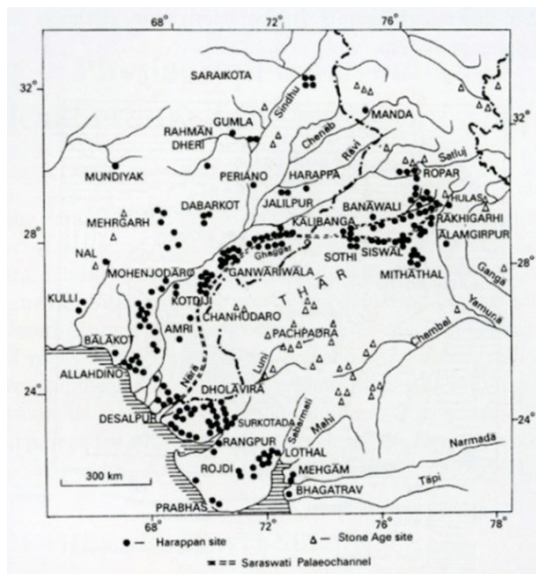


Plate. 9. The riverless tract of northwestern India having Harappan settlements ended in Gulf of Kachch (Puri 2021: 207)

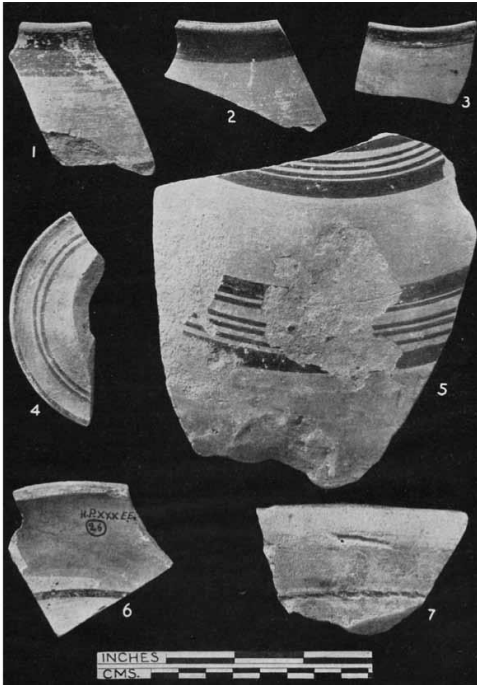


Plate. 10. Harappa: Pre-defence pottery (1946)

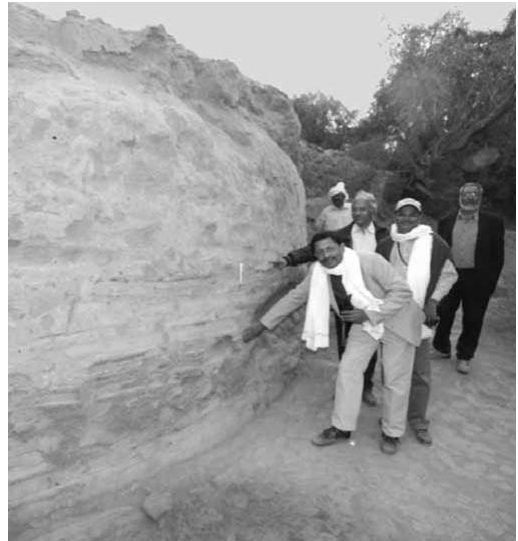


Plate. 11. A Delegation of seven Indian archaeologists (Ajith, Bhan, Sonawane, Krishanan, Shinde, Korrisettar, Dikshit) examining the lowest strata of the Harappan mound (January, 2012)

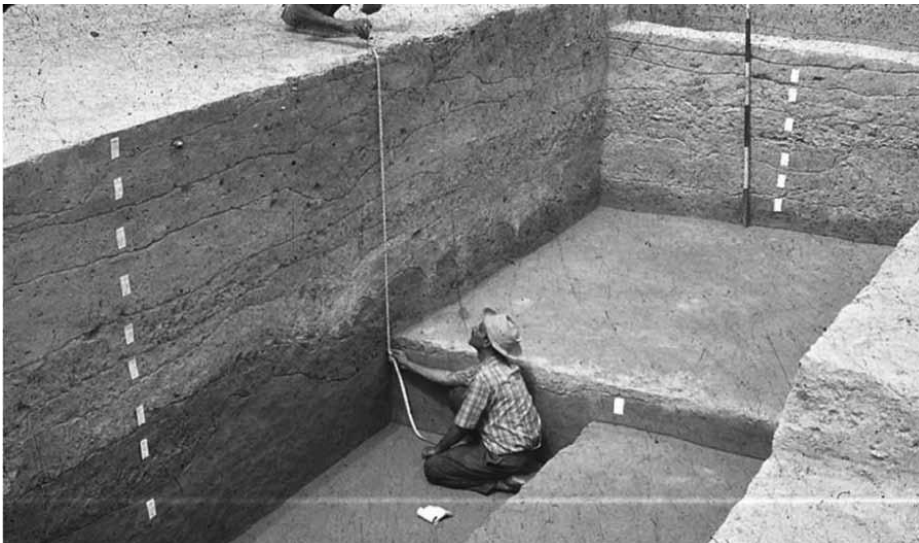


Plate. 12. Jalilpur: Hakra wares (Period- I) and Kot Dijian (Period-II)
(courtesy: M.R. Mughal)

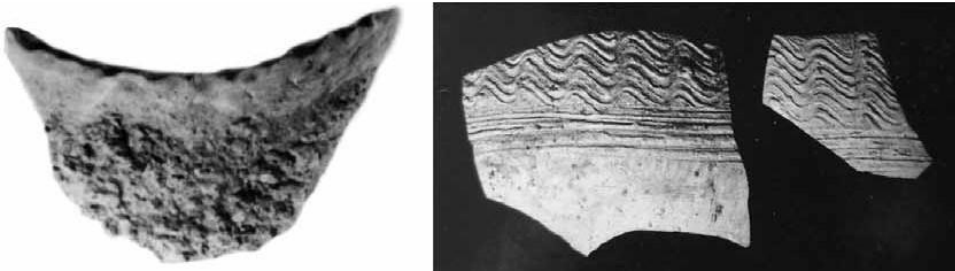


Plate. 13 Mud Appliqué and Multiple Incised lines of the Hakra Wares, Jalilpur
(courtesy: M.R. Mughal)

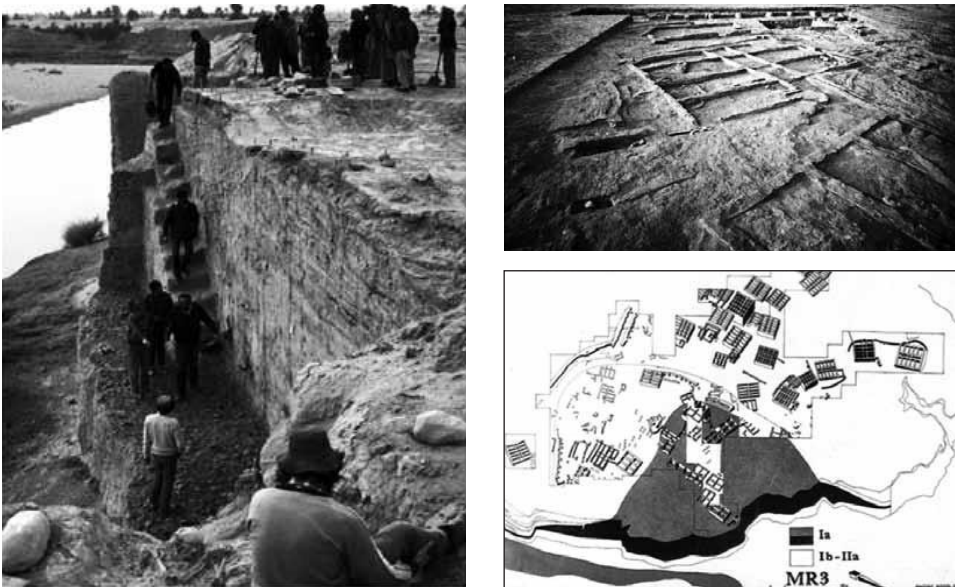


Plate. 14-15. Mehrgarh, ten meters of mound build up - 6500-5500 BC Houses from the end
of the pre-pottery Neolithic - c. 5500 BC (Courtesy: M. Kenoyer)



Plate. 16. Mehrgarh: Terracotta figurines from Fourth period (period VII, courtesy: Jarrige)

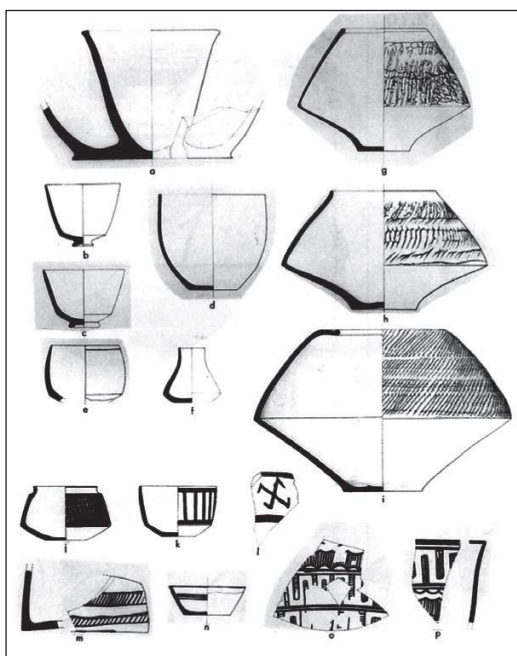


Plate. 17. Ceramics from first period (period IV): buff ware (a to f)



Plate. 18. Kot Diji Culture: Jar painted



Plate. 19. Kot Diji level: Water pitcher with
fish scale patters painted with a horned deity

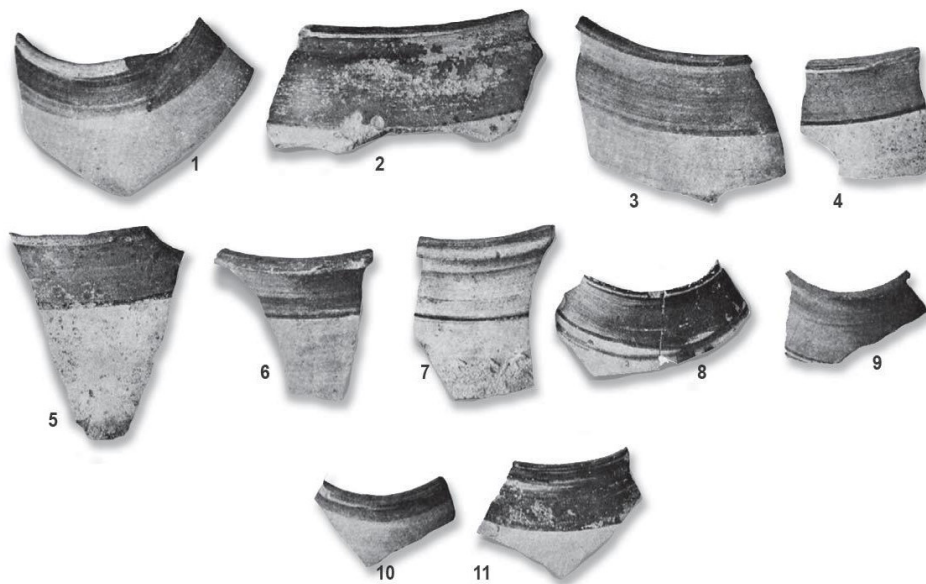


Plate. 20. Kot Diji culture: Painted pottery

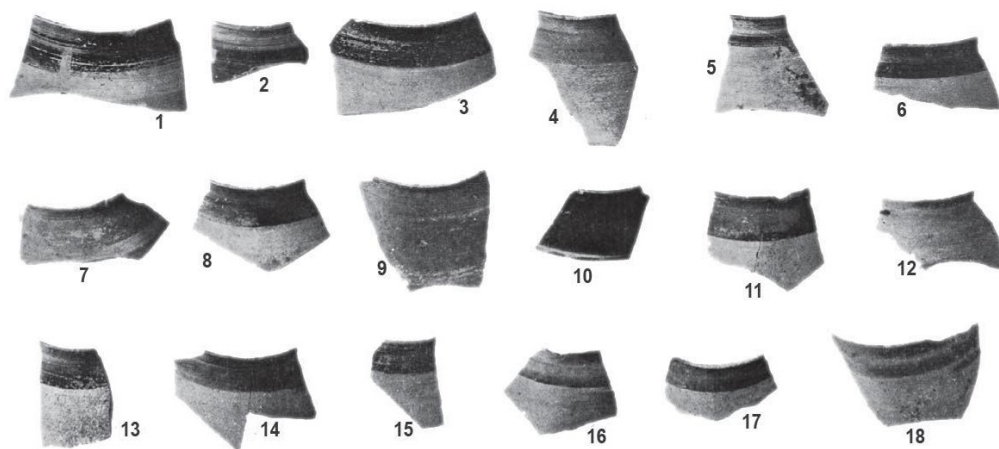


Plate. 21. Kot Diji culture: Bowls and dishes with broad neck bands in dark red, brown or sepia

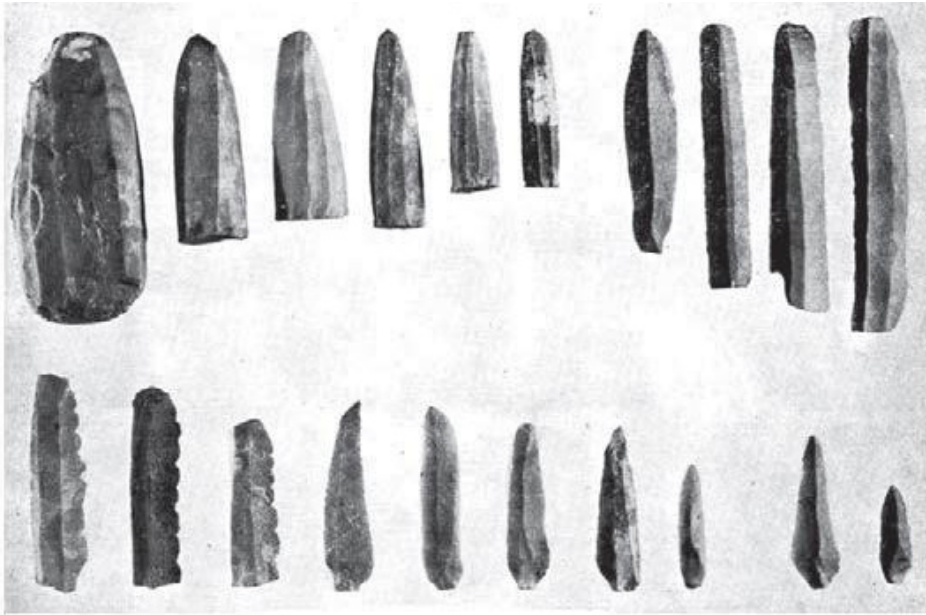


Plate. 22. Chert blades and cores: Kot Diji

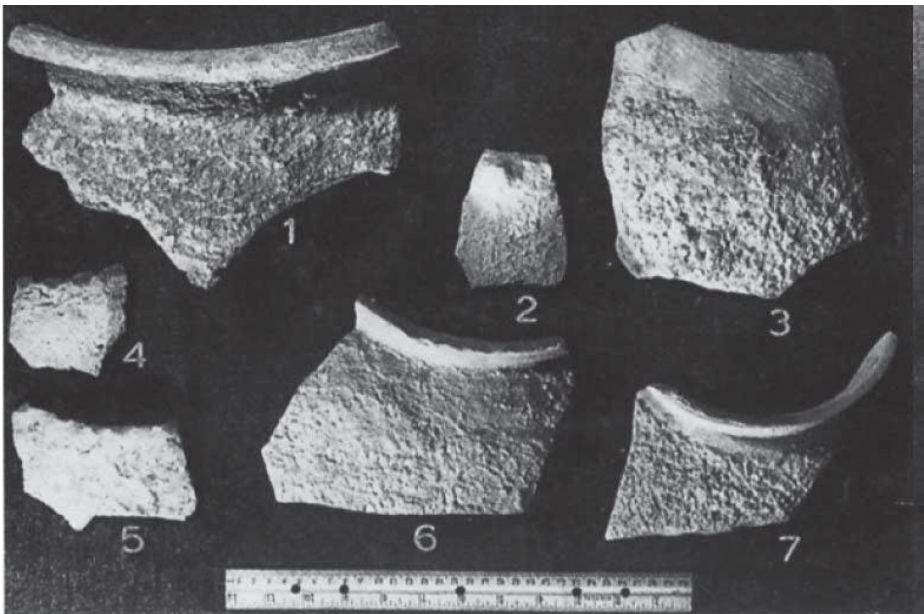


Plate. 23. Hakra appliqué pottery from Kalepar

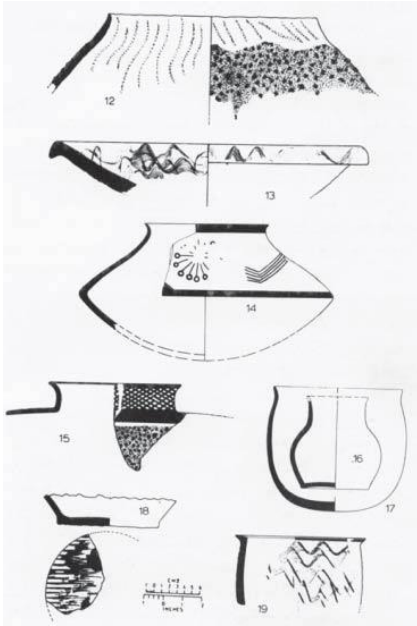


Plate. 24. Pottery of the Hakra wares period

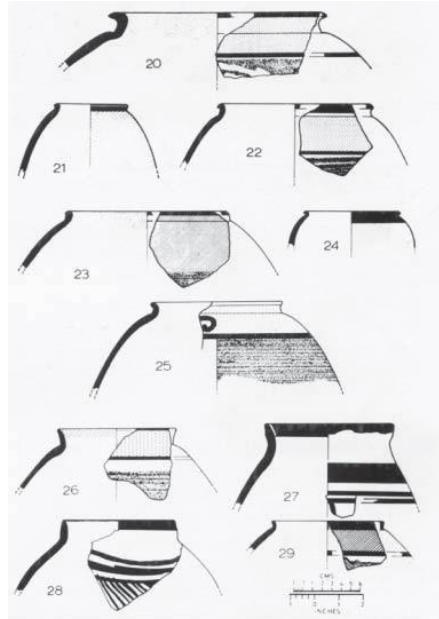


Plate. 25. Pottery of the Early Harappan period

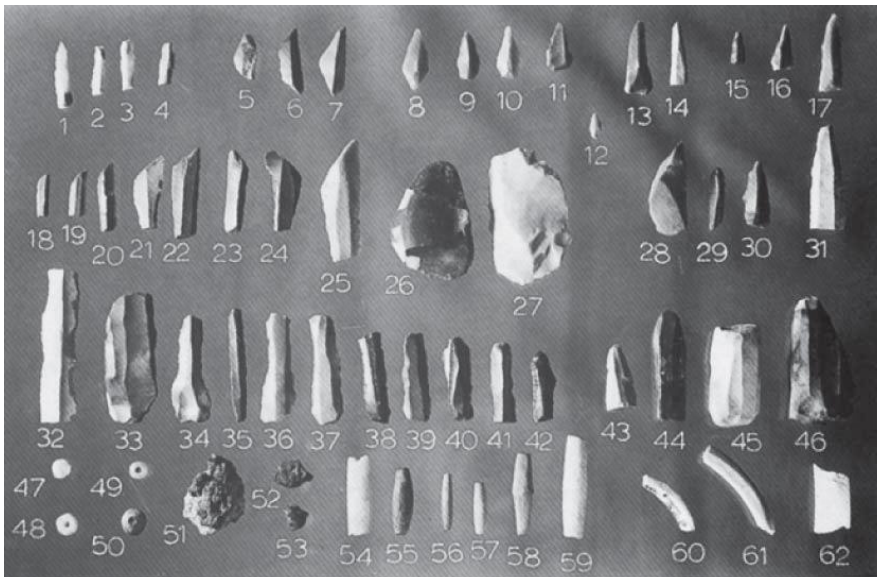


Plate. 26. Lithic materials associated with the Hakra wares (Nos. 1-46); and beads of terracotta, stone, bits of copper and shell pieces (courtesy: Mughal)

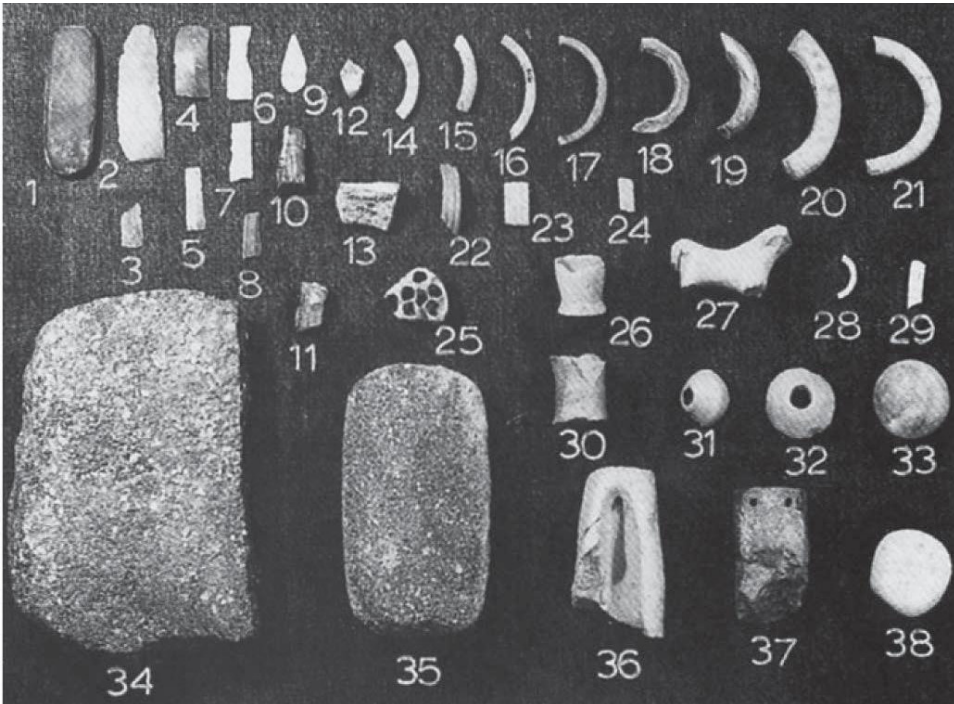


Plate. 27. Stone mullers, Lapis Lazuli (Nos. 12 and 13), terracotta, shell objects of the Early

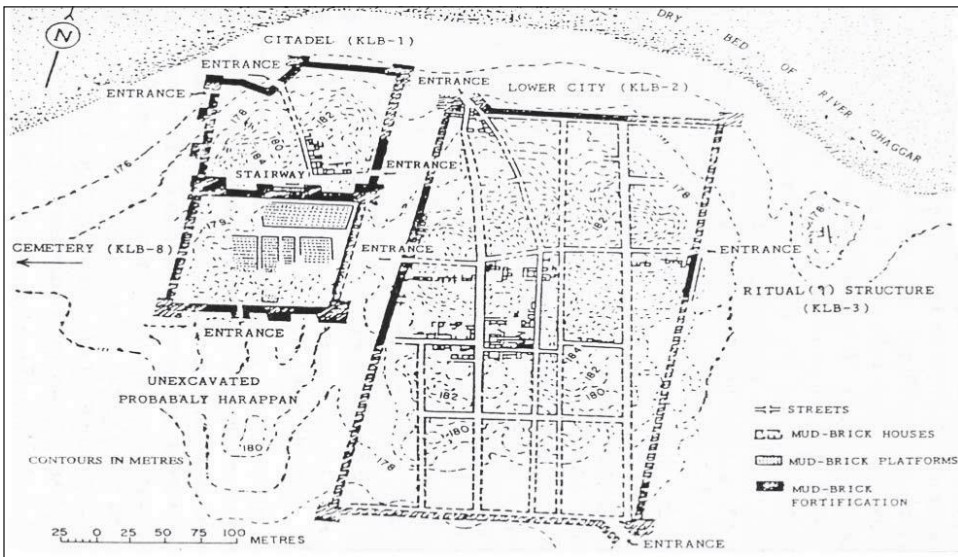


Plate. 28. Kalibangan: Harappan settlement, period



Plate. 29. Kalibangan Agricultural field c. 2800 BCE (after B.B. Lal 2021: 2)

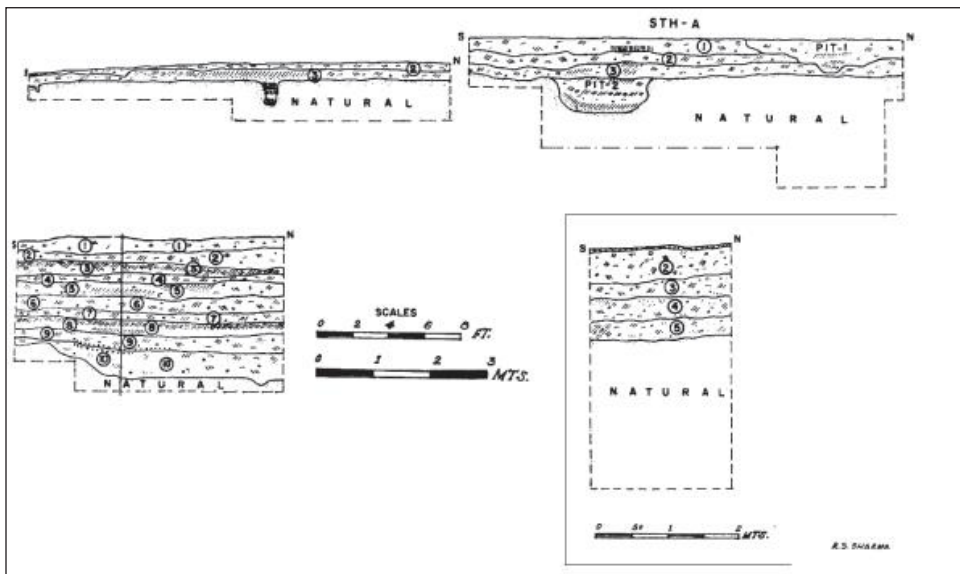


Plate. 30. Sections of Sothi Excavation 1950-51 and 1977-78

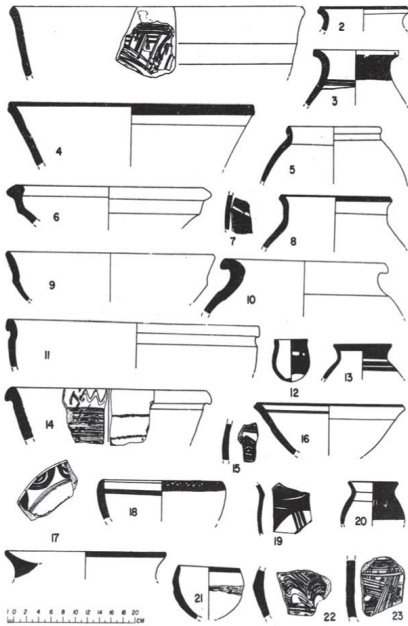


Plate. 31. Sothi: Early Harappan wares

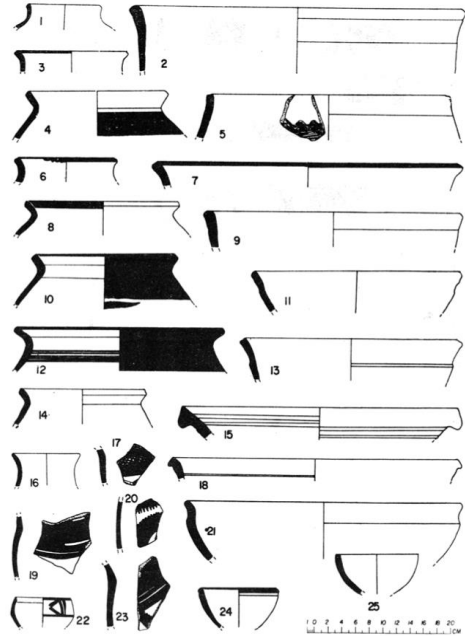


Plate. 32. Nohar: Early Harappan wares

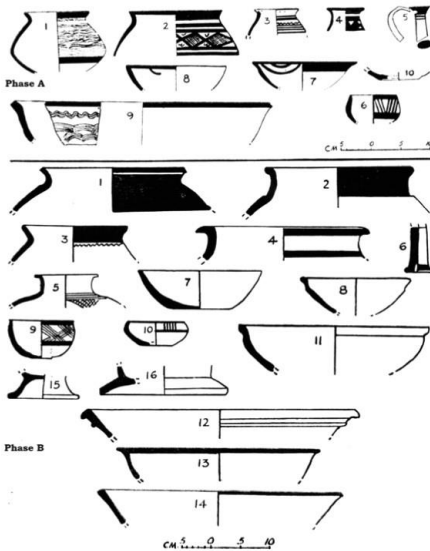


Plate. 33. Siswal: Pottery, Phase A and B

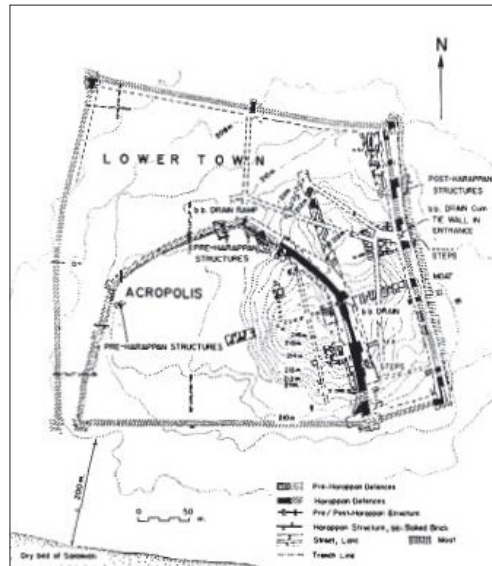


Plate. 34. Banawali Excavations

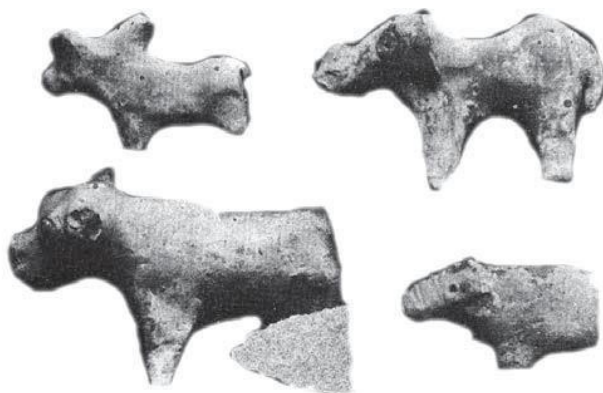


Plate. 35. Terracotta animal figurines, Period I



Plate. 36. Terracotta, human figurines, Period I



Plate. 37. Terracotta, addorsed bull, Period II B

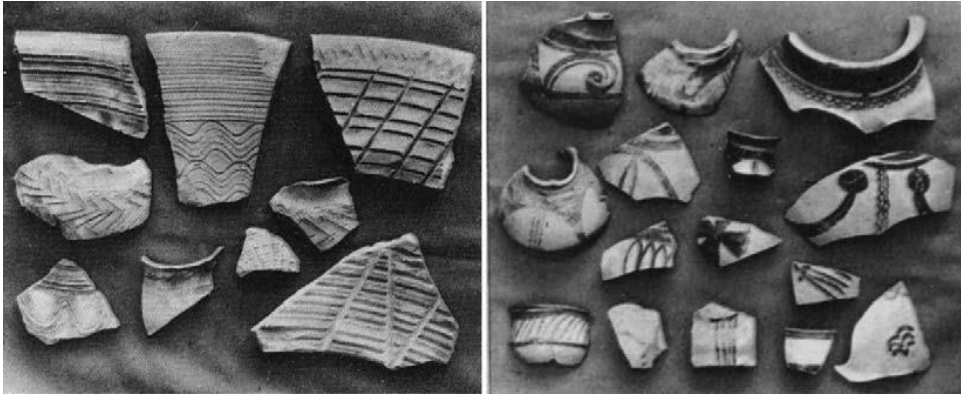


Plate. 38. Steatite seal and sealing, Period II

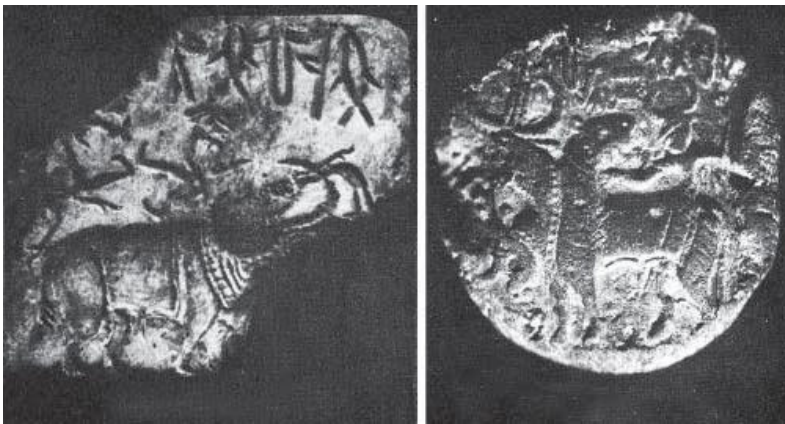


Plate. 39. A terracotta sealing, Period II



Plate. 40. Banawali: Early Harappan



Plate. 41. General view of the site of Rakhigarhi; Localities 1,2 and 3 are visible whereas Localities 4 and 5 are under the modern occupation
(after Shinde 2021: 131)



Plate. 42. General view of the excavated trenches (RGR 2) showing structural remains of the Mature Harappan phase



Plate. 43. Rakhigarhi: Seals and amulet from the the upper mature Harappan phase, Rakhigarhi mature Harappan phase

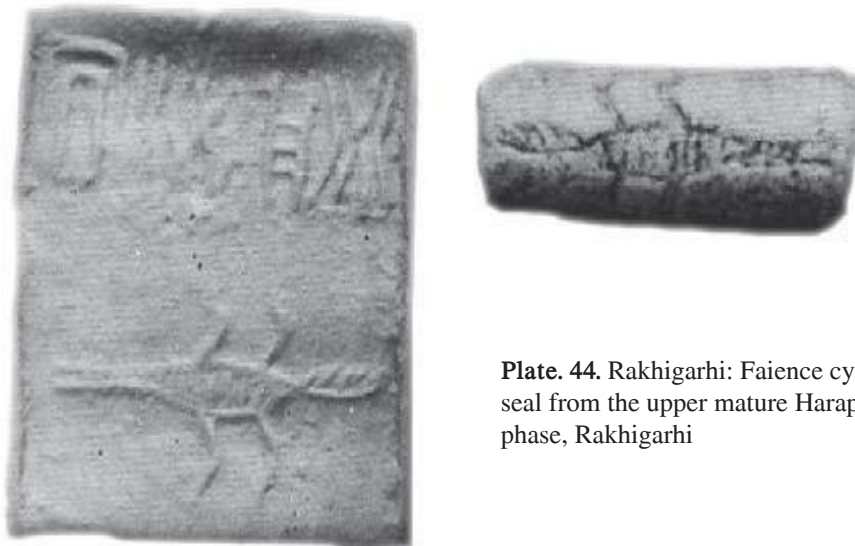


Plate. 44. Rakhigarhi: Faience cylindrical seal from the upper mature Harappan phase, Rakhigarhi

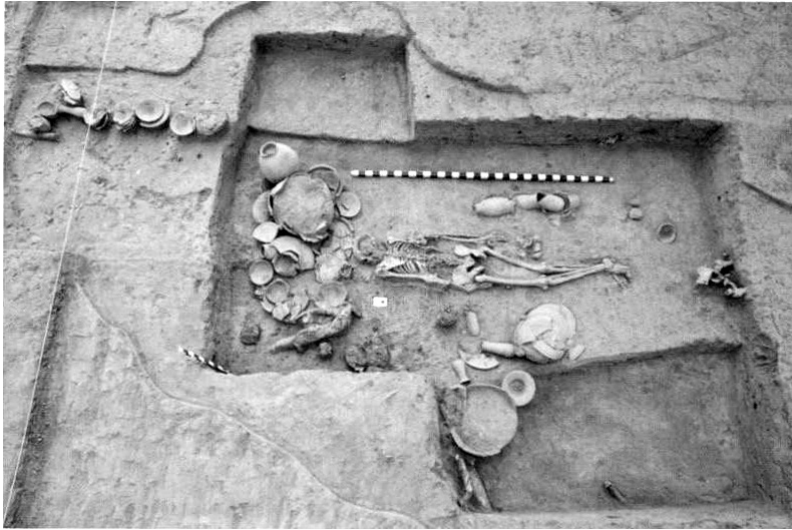


Plate. 45. Rakhigarhi: Burial of a lady that produced authentic signatures of a DNA
(after Vasant Shinde, 2022)

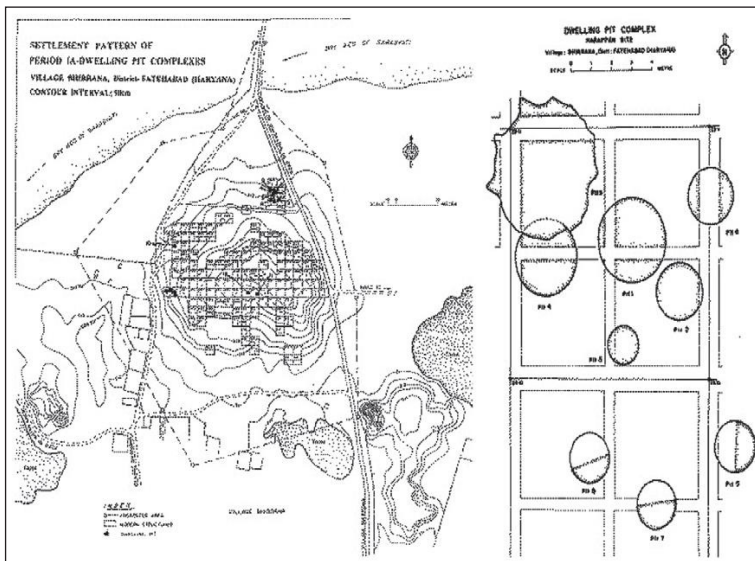


Plate. 46. Location map of Dwelling- pit Complex



Plate. 47. Bhirrana: Structures of period I (courtesy: L.S. Rao)

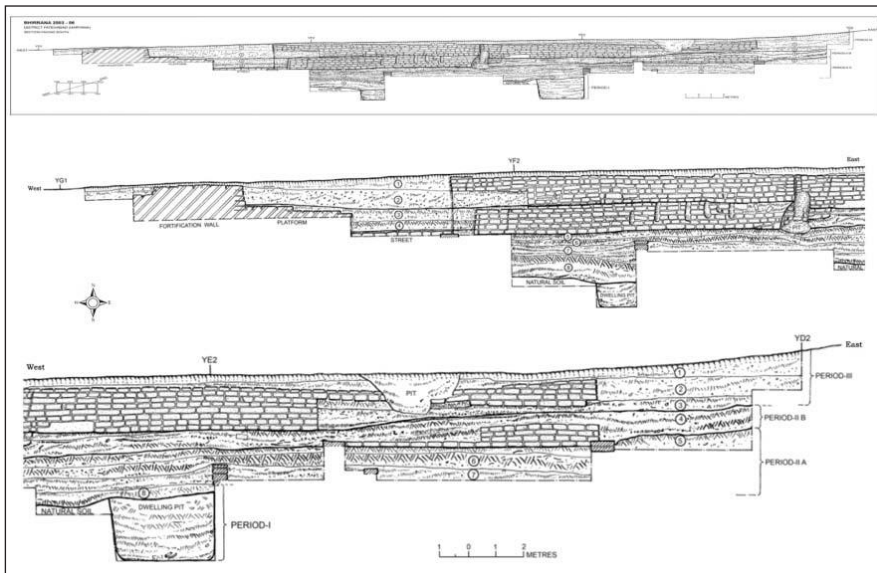


Plate. 48. Bhirrana: Section Facing South

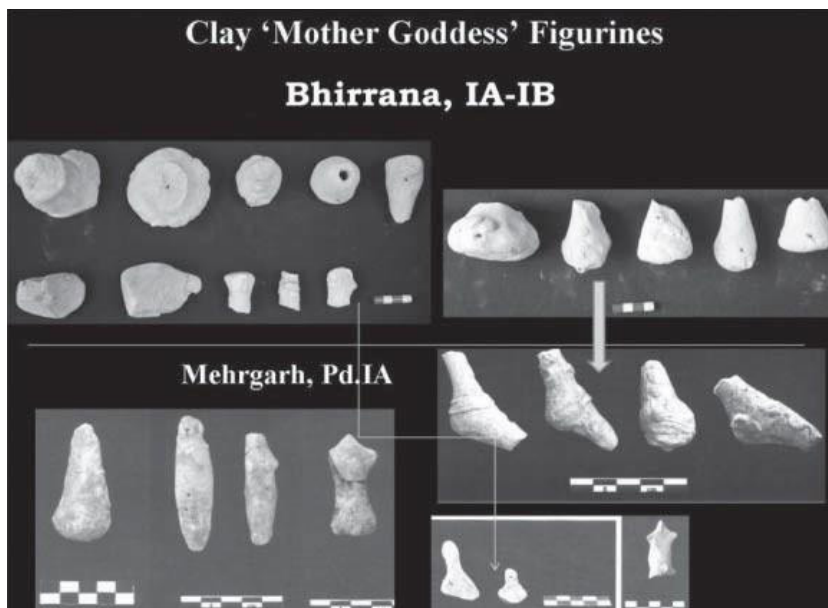


Plate. 49. Bhirrana and Mehrgarh: Comparison of Mother Goddess figurines



Plate. 50. Girawad: General view of excavated features from west



Plate. 51. Girawad: Pit-dwelling nos. 5 & 6, from south

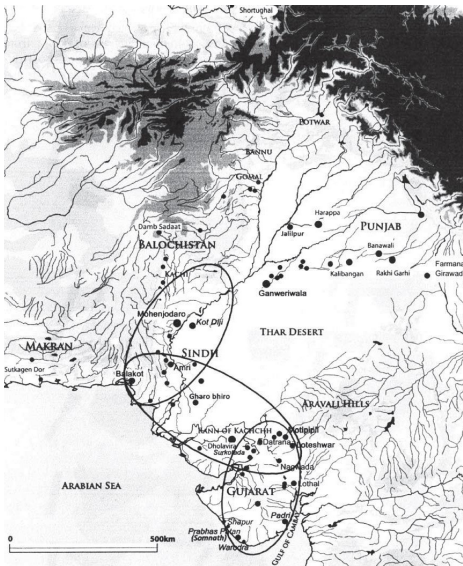


Plate. 52. Early Harappan interactive zones and Gujarat (courtesy: P. Ajithprasad)

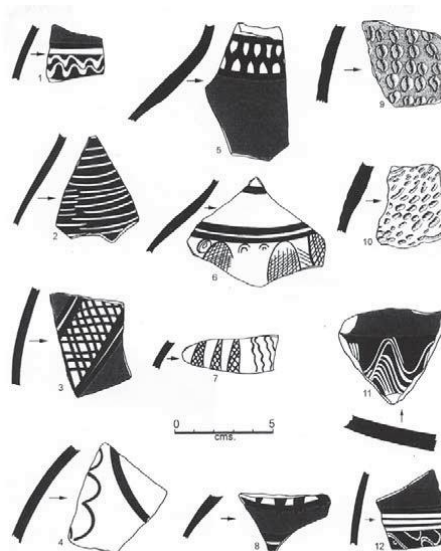


Plate. 53. Lotheswar – I: The Anarta Pottery



Plate. 54. Harappa: Hakra Mud Appliqué ware (Ravi Culture)
(courtesy: R.H. Meadow and J.M. Kenoyer)



Plate. 55. Harappa: Terracotta wheel from Ravi Phase
(courtesy: J.M. Kenoyer)



Plate. 56. Jalilpur – I & II Pottery painted with white and black on red, black and brown on red or white slip (courtesy: M.R. Mughal)



Plate. 57. Rehman Dheri: Painted pottery fish showing lion and ass, period II; motifs
(courtesy: Durrani)
Hathala birds; Gumla: horned deity from period III.
(Courtesy: Dani)

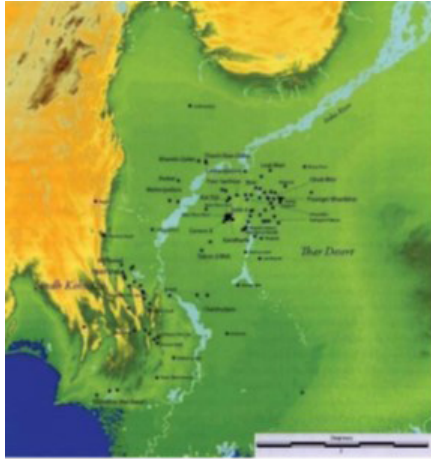


Plate. 58. Main archaeological sites in Sindh (courtesy: Qasid H. Mallah)



Plate. 59. Early Harappan pottery from Kalibangan



Plate. 60. Early Harappan pottery from Kalibangan



Plate. 61-62. Early Harappan pottery from Kalibangan (courtesy: BB Lal) The Kalibangan-I has been compared with Amri-IC-IIB (Casal 1964), Gumla II-III (Dani 1970-71), pre-defence Harappa (Wheeler 1947, Kenoyer and Meadow 2000), Kot Diji-I, Jalilpur-II (Mughal 1974) and Sarai Khola II (Halim 1972). However, later on this phase of pre-Harappa was accepted as the 'Early Harappans' as a few of the traits of the Mature Harappan such as brick sizes in the ratio of 1:2:4 were present in this level



Plate. 63. Kunal: Early Harappan Pottery, painted with two colours: black outline and white in filling



Plate. 64. Kunal: A pot (courtesy: J.S. Khatri and M. Acharya)



Plate. 65. General view of Dwelling-pit Complex, Bhirrana



Plate. 66. Pre- Early Harappan wares: mud appliqué designs – Hakra ware
(dominant fabric in lowest levels of dwelling-pits IA)



Plate. 67. Deep incised ware from dwelling pits IA



Plate. 68. Light incised ware IA-IB



Plate. 69. Black burnished ware IA-IB



Plate. 70. Bichrome ware IA-IB



Plate. 71. Tan/Chocolate ware IA-IB



Plate. 72. Incised Pottery (Internally) (Pd. IIA), Bhirrana



Plate. 73. Rusticated Pottery (Pd. IIA), Bhirrana



Plate. 74. Buff and Mixed Ware (Pd. IIA – Grey Ware), Bhirrana



Plate. 75. Buff and Mixed Pottery (Pd. IIA–Buff Ware), Bhirrana



Plate. 76. Black on Red Ware (Pd. IIA), Bhirrana



Plate. 77. Bichrome Ware (Pd. IIA), Bhirrana



Plate. 78. Bhirrana – Antiquities from period IA-IB (courtesy: L.S. Rao)



Plate. 79. Baror (courtesy: Archaeological Survey of India (1:4))



Plate. 80. Girawad, Mud Applique Ware Plate



Plate. 81. Girawad, Chocolate slipped and Red wares



Plate. 82. Tan Slipped and Bichrome wares, Farmana



Plate. 83. Farmana: Pottery from pre-Early Harappan levels (1-4)
(Courtesy Shinde)