Chapter 3: Ceramic Analysis in Indian Subcontinent and the Harappan Culture

A vast number of studies are available on Indian ceramics by various scholars. These have produced a fairly good idea regarding the tradition, technology and cultural association of the ceramics. It was during the era of Sir John Marshell that pottery studies in Indian subcontinent received due attention. In the beginning, the studies were concentrated mainly on decorated potteries while the plain ones were discarded, considering them as useless. Aurel Stein's (1929) study of Cache Painted Ceramics collected from the North West Frontier province, Baluchistan and Upper Swat and adjacent hill tracts were pioneering works in ceramic studies of Indian sub continent. He studied the decorated potteries properly and tried to compare it with those from other places. His study was based on the pattern of decoration and color treatments. He tried to work out a chronology for understanding its development and cross cultural contacts (c.f. Mishra 2009: 128). He gave importance to the attributes like surface features and decorative motifs. Even though shape/forms of the vessels remained unattended, thickness, height and diameter of the vessels were given attention.
Hargreave’s (1929) excavations at Baluchistan brought a scientific outlook in to the study of ceramics. He introduced ‘form-based’, ceramic classification where rim (short, everted), mouth (narrow, wide, open), and body (straight sided, bulging, squat, elliptical) became parameters for classification. Based on the probable function he divided the vessels in to two groups i.e. domestic and funerary vessels. He devised a new classification based on the color of the slip and other fabric characters where both internal and external fabric was considered. All the visible parameters were recorded and plain and decorated potteries were treated separately after giving proper sample number. The most outstanding contribution of Hargreaves is the introduction of scientific line drawing in to Indian archaeology. He treated the pottery drawing in two halves. The left half shows the cross section of the vessel in bold lines and also portrays the decorations made in the interior of it. At the same time, the right half of the drawing shows the decoration and other exterior features of the vessel. The sizes of the vessels were specified with scales. Full vessels recovered from excavation were photographed with the help of vertical and horizontal scales as well (c.f. Mishra 2009: 128).

A detailed study of the ceramics from Baluchistan came out with the publication of Sir John Marshell’s Mohenjodaro and the Indus Civilization in 1931. He classified the ceramic assemblage in to three major wares namely the Red and Black Ware, Hybrid Ware, and Buff Ware. These wares were further subdivided in to different regional wares such as Black on Red Ware (the true Indus variety), Baluchi Ware (Coarse fabric) and Surjungal Ware. The Gray Ware was divided in to Buff Baluchi Ware, Gray Ware, Shahi tump Ware and Nal ware (Marshell 1931: 96). Piggott and Donald Mc Crown (Piggott 1946: 13, Gordon 1954-55: 176) studied the potteries of Indo Iranian boarder lands and put forward the theory of Red and Buff Ware areas which has a contrasting distribution with Buff Ware in south and Red Ware in north. He subdivided the southern zone in to three categories viz, The Quetta Culture, Amri-Nal Culture, and Kulli Culture. While the Northern Red Ware culture zone is renamed as Zhob Culture.
The systematic explorations carried out at Sind region by N.G. Majumdar and excavations of the sites like Amri and Lohunjodaro revealed an early phase of Indus Valley Civilization (Majumdar 1934, Deva and Mc. Crown 1949: 12-30). Here, the ceramics were collected and studied from its actual context and followed the stratigraphic order for analysis. He made a comparative study of the ceramics from the early and late levels based on their clay/fabric types, color and designs. He described the technique, type and decoration of Amri pottery in detail and introduced the terms like 'Poly chrome effect' and 'paste character'. His classification was based on the concept of ware which is rested on the attributes like colour of paintings, shape of the vessel and thickness of the wall. Height and diameter of the vessels were also specified in his report, though not directly contributing to the concept of Ware.

The study of M.S Vats (1940) on Harappan ceramics noticed a change in the outlook or vision in understanding divergent potential of the artifact in explaining the cultural past. He analyzed the ceramics carefully and categorized them based on its surface and textural features. An attempt has been made to interpret the painted motifs on the burial potteries in connection with the mythological characters. He thought birds like peacock has some connection with the dead and is the carriers of the spirit to heaven and used the terms like 'abode of bliss'. He considered the trident-crested animals (goat, bulls and hound) as emblems of divinity connected with the 'cult of dead' (Vats 1940:207-208). After, considering the importance of the decorative motifs on ceramics, he used the phrases like "Painted Pottery Culture" or "Painted pottery level". A major shift on the process of analysis can be seen in his works. Serious attempts were made to understand the workmanship or brush work reflected on the vessels. The decorative motifs were studied carefully in connection with the function of the vessels such as household pots and burial pots. The doctoral thesis of R. F. S. Star (1941) entitled "Indus Valley Painted Pottery" concentrated on the decorative motifs of Indus ceramics.
and derived a conclusion that these paintings have a similarity to near eastern proto types.

Sir Motimer Wheeler, has contributed to a great extent to the study of archaeological ceramics (Wheeler 1924). He followed the system of analyzing the ceramics on its stratigraphic context. In his macroscopic method of analysis Ware or Type was devised based on the surface color, slip and brightness of the shreds. The study of the fabric characters, manufacturing techniques and surface treatments were carried out. Type, size and shape of the vessels, decorative motifs etc were taken up with great importance. He introduced the system of a 'scientific pottery yard' where ceramics were arranged in its sequential order. He followed the scientific method of pottery drawing. The type and sub type wise description of drawing was provided with proper scale in centimeters and in inches. He also gave emphasis to the microscopic study of ceramics.

Post independence period saw a new energy among the archaeologists and scholars who engaged in archaeological researches. Serious attempts were made on explorations and excavations which resulted a drastic change in the study of ceramics as well. This period witnessed the use of more scientific method and theories in the study of ceramics. Processual and Post Processual ideas further accelerated the researches in ceramics. Ethno archaeological study of ceramics gained momentum during this period and became an integral part of the ceramic study. Among the works Saraswati (1979), Saraswati and Behura (1966) deserve special mention. Here, ethnographic data were used for understanding the manufacturing technology, Spatio-temporal variations, functions and socio-economic and religious values of ceramics. Works of Ansari (1964), Gupta (1969), Miller (1985), Karmar (1991), Karr et.al. (1994), Choksi (1994) are of this category. Among the studies followed B.B Lal's attempt to understand the cultural history and archaeological background of the great epics of Ramayana and Mahabharata resulted in to the identification of two new cultures, OCP (Ochre Colored Pottery)
Chapter 3 Ceramic Analysis in Indian and PGW (Painted Gray Ware). He employed the method of macroscopic observation and tried to bring parallel from ethnographic studies (Lal 1971). The classification of Kalibangan ceramics by J.S Nigam in to different fabric types based on visible textural features provided a platform for the study of early and mature Harappan ceramics in India (Lal & Thapar 1967). Here, quality of clay paste, surface finishing and decorations were given importance. S. R. Rao's (1963, 1969, 1985) excavations at Lothal and Rangpur showed a new path to the studies of ceramics in India. He divided the ceramic assemblages in to Harappan Wares, Associated Wares and Wares of Foreign Origin. The vessel shapes were studied in detail and minute details were also recorded. Variants have been identified with modification. Decorative pattern were also studied corresponding to its phase. His most important contribution is the excavation of sites like Rangpur and Lothal and the identification of the degenerated or Late Phase of the Harappan Culture.

J. P Joshi (1972) on the other hand believed more on fabric characters for classification. He gave importance to the texture of the clay, temper, firing technique, surface color and striation marks. Chemical, thermal and spectroscopic analysis carried out on the Bhagvanpur samples shows his aptitude towards scientific analysis of ceramics. Manchanda (1972) studied the ceramics from Harappa in a meticulous way. She studied the vessels carefully and identified its variants on the basis of size, shape and technique of manufacture. Based on the typological study she tried to work out the phenomenal like influence, contact and diffusion in order to explain the spread of culture. She produced a chronological pattern for ordering the ceramics. She made a comparison of painted motifs from a number of sites belonging to Pre-Harappan and Harppan phases and came to a conclusion that “The ceramic evidence in its totality does not point to the Harappan culture being the progeny of the so called Pre-Harappan culture of India and much less the progenitor of the Post-Harappan Chalcolithic Culture of India” (Manchanda 1972:380). Dales and Kenoyer (1986) studied the Mohenjodaro pottery in detail and brought out a scientific catalogue for the recording and study...
of Harappan ceramics. Type and sub types were given special attention. Attributes like rim, body and base were dealt in detail and tried to figure out the evolution of the shapes. They divided the shapes based on the function and Special care has been given to see that all the shapes of varying degree of changes were recorded and defined properly.

As far as the scientific analysis of Harappan ceramics is concerned the chemical analysis carried out by Hamid on the knobbed wares of Mohenjodarao, Sana Ullah from Harappan and microscopic observation of Reserved Slip Ware by Plenderleith (Marshall 1931: 692), Hegde (PGW, BRW and NBPW) are noteworthy. B. B. Lal scientifically analyzed the pottery from Lothal and Rangpur to understand the manufacturing technology and the nature of the materials employed in their fabrication (Rao 1963, 1985). His great contribution is the study of O. C. P (Lal1971: 71: 58) where he disproved the hypothetical presumption like (ill firing, water logging and great deluge) as the reasons for the colour of Red Ware. Through his analysis he established that the salinity of sub soil water as the reasons for the weathering of the surface of O. C. P.

The chemical analysis of ceramics carried out by G. G Majumdar on the technology and production of B. R. W (Black and Red Ware) and N. B. P. W is noteworthy. The X-ray diffraction studies of Gogte gave an impetus to the study of fabric characterization of ceramics. He has been able to identify successfully the cultural contacts through the analysis of imported potteries and their sources in Indian context (Gogte 1993, 1995, 1996).

Other works that deserves special mention are Hegde et.al. (1986). It deals with the ancient pottery kilns and the methods of firing. It also proposes inverted firing as the technique of Black and Red Ware. The chemical and petrographic studies undertaken Hegde in Harappan Ceramics at Gujarat deals with the manufacturing and Production. The Ceramics from sites like Vagad, Ratanpura and Nageshwar
Chapter 3 Ceramic Analysis in Indian

(Krishnan and Hegde 1988). Herman and Krishnan (1994) studied the Micaceous Ceramics from Bhal region and defined its characteristic types and established the existence of a regional chalcolithic phase in Gujarat during the Mature Harappan period. Krishnan's (1992) chemical analysis of the pigments in Harappan pottery is the first of that nature on Indian ceramic studies. Krishnan and Veena Rao (1994) carried out ethnographic studies on traditional potters’ workshops around Baroda and North Gujarat (Murzzapur) in order to understand the clay paste preparation techniques through grain size. Microstructural analysis is considered as the beginning of a new trend to standardize microstructure of ceramics. The work has produced a model for understanding the clay paste preparation and an insight towards the technology of manufacture. Herman and Krishnan (1995), Krishnan and Cunningham (2002) deals with the petrographic aspects of ceramics. Krishnan et.al.'s (2005) micro structural study of the Glazed Reserved Slip Ware is an example of combining chemical and petrographic study in addressing the problem of surface treatments and compositional studies. The study brought out the evidence of sintering and revealed the high quality of the workmanship of the Harappans in producing a deluxe ware. Shah (2001) dealt with the scientific analysis of Black and Red Ware from three major sites, where fabric characterization has been given importance. Compositional and technological aspects of the Black and Red Ware have been investigated along with its provenance.

Lot of other studies were also coming in the last few years in the form of M.A and Ph.D dissertations which needs to be nurtured for the future of ceramic studies. Mishra (2001), Bhagat (2001) are of that nature.

3.1 Indus Civilization: An Over View

The excavation at Mohenjo-Daro in Sind and Harappa in Punjab by R.D Banerjee and Dayaram Sahini under the directorship of John Marshall, brought the discovery of a new civilization on 20thsep 1924. This resulted in to extensive
excavations and explorations in Sindh, Baluchistan, Punjab and North Western Frontiers during 1920's and 1930's. Further excavations by M. S Vats, Dikshit and Mackey from 1926 to 1937 revealed a citadel and a general lay out of the city at Mohenjodaro. There was parallel research at Harappa from 1920 to 1934. Aurel Stein explored the North West frontier in 1927 and Southern Baluchistan in 1927-28. Sind region was explored and excavated by Majumdar between 1927 and 1931 (Possehl 2002:1). E. J Ross investigated Rana Ghundai in Northern Baluchistan from 1935 to 40 (Ross 1946).

Rangpur one of the major Harappan settlements in Gujarat was excavated in 1934-35 by M. S. Vats and re-excavated by S.R. Rao in 1953-54, revealed a declining phase of Harappan culture and its gradual transformation in to a Late Harappan /Post Harappan culture, which was a shock to those who believed that the civilization had a sudden abrupt end. (Rao 2006: 3). Further explorations conducted at other parts of Gujarat added a number of sites to the list. The excavation of Lothal, a port town on the Gulf of Khambath was a great achievement for Indian archaeology. The combined efforts of ASI, State Archaeology Departments, Universities and other foreign and national agencies altered the picture after partition. Now there are more than 1500 sites of Indus civilization that falls within the Indian territory (Possehl 2002). The explorations conducted on the Cholistan deserts by the Pakistani archaeologists, also added nearly 400 sites, altogether enhanced our understanding of the civilization.

The term Indus civilization is applied to all the phases of the Harappan culture named after the type site Harappa, excavated in 1920. Even though the term Indus Civilization limits the geographical extent of the civilization to the Indus Valley; it further extends to Saraswati and Yamuna valley in the east, Baluchistan in the west to the whole of Gujarat in the south and up to Afghanistan in the north, covering an area of 1.5 million sq. km (Rao 2006: 3). Various scholars proposed
different terminologies like Indus Saraswati Civilization, Sub Indus, Harappan Civilization etc to denote the Harappan way of life.

Based on the physical features, the whole region can be divided into four provinces (Rao 2006). They are;

1. The Western Province: include Baluchistan, Afghanistan and hilly areas of Iran where Khyber and Bolan passes providing access to Afghanistan

2. The Central Province: include the regions from Balakot to Harappa, specifically the flood plains of River Indus, Ravi and Satluj.

3. The Eastern Province: include Ghaggar–Hakra (Sarasvati), Chautang (Drishadvati) and Upper Yamuna basins comprising Punjab (India) Hariyana, Rajasthan and western Uttar Pradesh.

4. Southern Province: Include the regions of Kachchh, Saurashtra, North and Central Gujarat (Anarta) and South Gujarat (lata) up to Kim estuary.

Archaeologists have a general agreement regarding the beginning of agriculture / settled life as the first step towards urbanization. The Urbanization of the great Indus Valley can also be traced back to the early village farming communities of Mehrgarh.

Recent research has shown that the first agricultural community on the Indian subcontinent dates back to as early as 7000 BC. Evidence for cultivated wheat and barley as well as domestic sheep goats and humped cattle have been discovered at the site of Mehrgarh at the foot of the Baluchistan hills from the earliest period of the site (Mehrgarh I). Farming which started at Mehrgarh, gradually expanded to the entire area around the Baluchistan hills. Many farming settlements and cultures developed in small river valleys in the hilly area and around oasis. Painted pottery and clay figurines representing people and animals provide vivid expressions of those cultures (c.f. Rao 2006). Later at the beginning of the third millennium BC the alluvial plain of the Indus River system was developed and this resulted in the increase in agricultural production (Rao 2006). With this expanded
production capability as the background, large settlements with city walls such as Kot-Diji, Harappa and Kalibangan developed. As the people of these sites shared many cultural traits such as pottery, stone tools, metal tools, bricks, uniformity emerged and is altogether called the Indus Civilization.

The process that resulted in the development of the Indus civilization have not yet been clear, but we can see many factors such as technologies and religion which link the early Indus culture to the later civilizations. Therefore it can be said that the Indus civilization succeeded and developed from the earlier cultures, organizing and integrating them. In that sense the Indus Civilization is the great culmination of the agricultural society that continued for so many years after its introduction at Mehrgarh.

As far as the Indus Valley area is concerned, the Integration Era (Shaffer 1992) lasted for nearly 500 years followed by a change, Localization Era. Although much has been written about the various facets of this civilization, researchers who want to deal with the Indus valley Civilization face quite a number of problems regarding its terminologies and chronology.

3.1.1 Terms and Terminologies

The spread, variety and vast number of studies undertaken have generated a large number of terms and terminologies, which confuses the reader. Among the terminologies Indo-Sumerian Civilization, Indus Civilization, Harappan Culture, Indus Valley Civilization, Proto Indian Culture, Indus Saraswati Civilization, Indus Age are the major ones used to denote the this culture. The term Indo-Sumerian Civilization was used in the preliminary excavation reports at Harappa and Mohenjo-Daro prior to 1926. The reason may be the similarities that the remains shared with Sumeria and the belief that the contacts with Sumerians might have benefited the Indus Civilization. In 1926 Marshal dropped the term in favor of Indus Civilization (Possehl 2002: 12). Further, as the elements of the culture were widely distributed at various places on the Indus and its tributaries...
the term Indus valley Civilization came to be in use. Mackay employed the term Harappan Culture for the first time after the site of Harappa. Modern scholars prefer to call this civilization as “Harappan Culture”.

The recent satellite image study of the lost river bed of Saraswati (a sacred river of Rigveda) and the identification and discovery of more sites on the banks and tributaries of Ghaggar led some scholars to rename it as the Indus Saraswati Civilization (Gupta 1996). The major Harappan sites like Rakhigarhi, Banavali and Kalibangan are situated on the banks of the dried bed of river Saraswati.

While dealing with the evolutionary stages of culture more terms; Pre Urban, Urban, Post urban, Pre Harappan, Early Harappan, Mature Harappan, Late Harappan and Post Harappan etc are used and these need an explanation. The following table (Table 3.1) shows the major terminologies used by various scholars to distinguish different stages Harappan Culture.

**Table 3-1 Currently Used Periodizations of Harappan Culture**

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<tbody>
<tr>
<td>Pre Urban Harappan</td>
<td>Early Harappan (A)</td>
<td>Pre Harappan</td>
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<tr>
<td>Pre Urban Harappan</td>
<td>Early(Urban) Harappan (B)</td>
<td>Pre Harappan</td>
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<tr>
<td>Urban Harappan</td>
<td>Mature Harappan</td>
<td>Harappan</td>
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<tr>
<td>Post Urban Harappan</td>
<td>Late Harappan</td>
<td>Late/Post Harappan</td>
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<tr>
<td>Post Urban Harappan</td>
<td>Post Harappan</td>
<td>Post Harappan</td>
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</table>

Among the various aspects, origin and chronology of the civilization deserve special mention as it is debated over years and even till today are not able to produce a generally acceptable explanation to the same. More and more studies produce detailed or even minute observations that resulted in different periodizations. A vast literature is available on the cultural process of Indus Civilization and scholars vary their observations in terminologies and chronology of the civilization (Table 3.2). Here one can observe that the developmental stage
Chapter 3 Ceramic Analysis in Indian... of Indus Urbanization is approached differently by different scholars. Shaffer tried to see the development of culture by putting them in to four stages like Early Food Producing Era, Regionalization, Integration and Localization Eras. Possehl categorized them in to Seven Stages while Fairservis put it in five major stages.

Table 3-2 Cultural/Chronological Schemes of Indus Civilization Possehl (1999), Shaffer (1992) and Fairservis Jr (1970)

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<tr>
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<tbody>
<tr>
<td><strong>The Indus valley Tradition</strong></td>
<td>Stage I</td>
<td>Stage I</td>
</tr>
<tr>
<td>Early food producing Era</td>
<td>Kili Ghul Muhammad Phase</td>
<td>Stage I</td>
</tr>
<tr>
<td>6000-5000BC</td>
<td>7000-5000BC</td>
<td>Pastoralism with</td>
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<tr>
<td>Mehrgarh Phase</td>
<td>Burj barket–Marked Phase</td>
<td>limited Cultivation</td>
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<tr>
<td></td>
<td>5000-4300BC</td>
<td>6000-3300BC</td>
</tr>
<tr>
<td>Gap</td>
<td>Stage II</td>
<td></td>
</tr>
<tr>
<td>no sites discovered</td>
<td>Togau Phase</td>
<td></td>
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<tr>
<td></td>
<td>4300-3800BC</td>
<td></td>
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<tr>
<td></td>
<td>Kechi Beg/Hakra Ware Phase</td>
<td>3800-3200BC</td>
</tr>
<tr>
<td>Regionalization Era</td>
<td>Stage III</td>
<td>Stage II</td>
</tr>
<tr>
<td>4000-3000BC</td>
<td>Amri-Nal Phase</td>
<td>Developed</td>
</tr>
<tr>
<td>Balakot Phase</td>
<td>3200-2600BC</td>
<td>cultivation and</td>
</tr>
<tr>
<td>Amri Phase</td>
<td>KotDiji Phase</td>
<td>pastoralism:</td>
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<tr>
<td>Hakra Phase</td>
<td>3200-2600BC</td>
<td>Beginning of</td>
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<tr>
<td>Kot diji Phase</td>
<td>Sothi- Siswal Phase</td>
<td>regionalism</td>
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<tr>
<td>Nal Phase</td>
<td>3200-2600BC</td>
<td>3300-2500 BC</td>
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<tr>
<td></td>
<td>Damb Sadaat Phase</td>
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<tr>
<td></td>
<td>3200-2600BC</td>
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<tr>
<td>Stage IV</td>
<td>Early Harappan –Mature</td>
<td>Stage III</td>
</tr>
<tr>
<td>Integration Era</td>
<td>Harappan Transition</td>
<td>Fully developed</td>
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<tr>
<td>2500-2000BC</td>
<td>2600-2500BC</td>
<td>sedentary village</td>
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<tr>
<td>Harappan Phase</td>
<td>Stage V</td>
<td>life: regionalization</td>
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<tr>
<td></td>
<td>Sindhi Harappan Phase</td>
<td>but integrational</td>
</tr>
<tr>
<td></td>
<td>2500-1900BC</td>
<td>context</td>
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<tr>
<td></td>
<td>Kulli Harappan Phase</td>
<td>2500-2300 to2200 B.C.</td>
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<td></td>
<td>2500-1900BC</td>
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<tr>
<td>Localization Era</td>
<td>Sorath Harappan Phase 2500-1900BC</td>
<td>Punjabi Harappan Phase 2500-1900BC</td>
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<tr>
<td>2100-1300BC</td>
<td>Eastern Harappan Phase 2500-1900BC</td>
<td>Quetta Phase 2500-1900BC</td>
</tr>
<tr>
<td>Punjab Phase</td>
<td>Jhukar Phase 2500-1900BC</td>
<td>Late KotDiji Phase 2500-2900BC</td>
</tr>
<tr>
<td>Jhukar Phase</td>
<td>Rangpur Phase 1900-1700BC</td>
<td>Early Pirak Phase 1800-1000BC</td>
</tr>
<tr>
<td>Rangpur Phase</td>
<td>Jhukar Phase 1900-1700BC</td>
<td>Late Sorath Harappan Phase 1900-1600BC</td>
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<td></td>
<td>Quetta Phase 2500-1900BC</td>
<td>Lustrous Red Ware Phase 1600-1300BC</td>
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<td></td>
<td>Stage VI</td>
<td>Cemetery H Phase 1900-1500BC</td>
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<td></td>
<td></td>
<td>Swat Valley Period IV 1650-1300BC</td>
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<td></td>
<td></td>
<td>Late Harappan Phase in Haryana and western UP 1900-1300BC</td>
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<td></td>
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<td>Late Harappan–PGW overlap Phase 1000-1100BC</td>
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<td></td>
<td></td>
<td>Early Gandhara Grave Culture Phase 1700-1000BC</td>
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<td></td>
<td></td>
<td>Stage VII</td>
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<tr>
<td></td>
<td></td>
<td>Late Pirak Phase 1000-700BC</td>
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<tr>
<td></td>
<td></td>
<td>Painted Gray Ware Phase 1100-500BC</td>
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<tr>
<td></td>
<td></td>
<td>Late Gandharan Grave Culture Phase 1000-600BC</td>
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</tbody>
</table>
Shaffer (1992: 442) benefited greatly from the work of Willey and Philip (1958) and tried to explain the cultural process for the north western sub continent. He discusses about three cultural traditions Viz, the Indus Valley tradition, the Baluchistan Tradition and the Helmand Tradition. Here, a tradition is referred as “a persistent configuration of basic technologies and cultural systems within the context of temporal and geographic continuity”. A tradition can be further divisible in to Eras or Phases which shows general cultural characters. They are discussed as having no fixed boundaries and space and one may coexist contemporaneously with in the tradition. The Eras are said to be a sequential series proceeding in the same order and connoting changes in general cultural organization with in the areal tradition. They are not necessarily contemporary with the Eras of other tradition. Here four main Eras are identified in a tradition namely, Early Food Producing (an economy based on food production and absence of ceramics), Regionalization (distinct ceramic style and interaction of dispersed social groups), Integration (homogeneity in material culture and intense interaction between social groups), Localization (generalized similarity in artifact style and interaction network, indicating continued but altered). It is possible to have more than one phase in an Era. It represents “an archaeological unit possessing traits sufficiently characteristic to distinguish it from all other units similarly conceived, whether of the same or other cultures or civilization, specially limited to the order of magnitude of a locality or region and chronologically limited to a relatively brief interval of time” (c.f. Shaffer 1992).

The Indus valley tradition is dated from pre-6000BC to approximately 1500BC. Mehrgarh is the one and only excavated site belonging to the early food producing era. At Mehrgarh, Period IA is purely aceramic in nature and that shows the beginning of habitation. The phase is marked with a food producing economy, sedentary village with mud brick architecture, and the development of shell lapidary and shell working crafts.
The Regionalization Era consists of four major phases namely, Balakot Phase, Amri Phase, Hakra Phase and Kot Diji Phase. The phases are dated approximately 4000-3500 B.C., leaving a gap of 200 yrs between Balakot and Mehrgarh Phase. This Era ends at ca. 2500 B.C with the development of the Harappan phase in the Integration Era. However, some sub regions or social groups of this era are also found to be contemporary with the Harappan groups. The Integration Era, noted for its cultural homogeneity consist of only one phase, i.e., the Harappan Phase; that have the most intensive distribution in the central and northern Indus valley and is affected by the entire Indus valley and its bordering regions in varying degrees. It is during this period an urban civilization was flourished on the entire Indus domain. The Localization Era consists of different phases and has an approximate date of ca. 2100-1300BC. A general degradation is observable in the material and other aspects of culture. The major phases of the Localization Era consist of the Punjab Phase (Cemetery H), the Jhukar Phase in Sind (major sites: - Amri, Chanhudaro, Jhukar), and Rangpur Phase in Gujarat (Rangpur IIB and Lothal B).

As far as the Baluchistan tradition is concerned, some what a linear development is observable. The area representing this tradition include, Baluchistan area in western Pakistan and south eastern Iran. A date suggested for this tradition is 6000-1300 B.C. The Early food producing era is best noted at Mehrgarh IA or the Mehrgarh Phase of the Indus Valley. The Regionalization Era incorporates all archaeological phenomena subsequent to the Mehrgarh phase until the early Iron Age or ca. post 6000-1300 B.C. The major phases that comes under this categorization are the Kachi Phase, Kili Gul Muhamod Phase, Kechi Beg Phase, Damsadaat Phase, Nal Phase, Kulli Phase, Periano Phase, Bampur and Pirak Phases.

Faiservis, Jr. (1979) suggests five major stages of an independent development of the Harappan Civilization. In stage I people having domesticated cattle, sheep and
goats and practice of limited agriculture were settled in parts of the indo Iranian
borderlands. They made handmade pottery, bone needles and stone-tools. The
stage is best represented in southern Afghanistan and at Quetta, Loralai and Zhob
in northern Baluchistan and proposes a date of 3300BC.

In the second stage, advancement in agriculture is observable as the dwellings
were larger and more substantial. The ceramics include both handmade and wheel
made and the finer vessels retain the graffiti marks. Mud bricks were in use for
construction. The cultural assemblage has a wide distribution from southern
Afghanistan to Central Baluchistan and has a date of circa 3300BC. However, in its
later phase distinct regionalization occurred, superficially represented in the
pottery, decorated in poly chrome or with concentric designs of the so called Nal
type prevalent in the central Baluchistan and extending as far south of Kolwa and
Las Bela in Sind. The fine line kechi beg wares of the Quetta Valley and their
equivalents in Loralai and Zhob represent another regionalization.

The stage III represents sedentary village settlements. Here the villages achieved
their maximum size and the maximum land was used for cultivation (Shaffer
1992). A wide variety of copper and bronze pins knives and axes were in use.
Artifacts like seals, elaboratate system of potters marks, alabaster vessels, and
pottery forms were recovered. The decorations mainly include pipal leaves,
humped bulls, cobras, birds and fishes. The stage can be dated from 2500BC to ca.
2300 to 2200BC. It is widely represented in the boarder lands of Southern
Afghanistan at Quetta, Zhob, Kolwa, Nal, and Wadh in Baluchistan, Darko and Las
Bela in South Western Sind and Kachhi in Bhawalpur and in Bikaner.

Stage IV is marked with its distinctive features of Urbanization. The characteristic
features of this period are a monumental building built on the highest part of a
mound or other elevation natural or artificial. In the Indus river valley the urban
developments at Mohenjo-Daro, Judeirjo-daro, Chanhu-daro, and later at Harappa
belong to the same developmental line as that found in eastern Baluchistan and
Chapter 3 Ceramic Analysis in Indian Southern Afghanistan. A date of 2300 to 1700 BC can be assignable to the particular phase.

Stage V is the period of economic decline and the general abandonment of the Indo Iranian Borderer lands. A large number of villages were abandoned. Only the large village sites continued to be inhabited but at the same time reflect a decline in the quality of craftsmanship and degradation of building practices. In the Indus valley, only the large sites continued to be occupied in an increasingly deteriorating situation. In the latter part of the period, new cultures arrived on the scene, but as a whole only a few of these people came in to conflict with an established generation of older occupants. This period can be dated after circa 1700 BC and probably lasted late as 1200 BC.

A similar sort of development for the Indus Urbanization was also observed by Possehl. The cultural/chronological scheme proposed by Possehl (1999) tried to see the origin, development and de urbanization of the great civilization in to different stages (Stage I-VII) and phases which are explained as a tradition interconnected and continuing in to the last phase of the culture. In his classification, Stage I show the beginning of a village farming community and pastoral camps while stage II deals with a developed phase of village farming and pastoral activities. A continuation of the tradition can be observed at stage three which consist of four major phases namely, Amri-Nal Phase, Kotdiji phase, Sotshi-Siswal phase and Damsadaat phase. Stage IV is proposed as a short period of 100-200 yrs of transition from Early Harappan to the Mature Harappan. Stage V deals with the Mature Phase of Harappan occupation, consist of five major phases. They are the Sindhi, Kuli, Sorath, Punjabi and Eastern Harappan. A date of 2500-1900 BC is assigned to the particular phase. The Quetta Phase and Late Kot Diji Phase were also thought to be contemporaneous with the Mature Harappan. Stage VI deals with the post Harappan Phase, a period stretching from 1900-1000 BC. The major phases of this period are the Jhukar Phase, Early Pirak Phase, Late Sorath
Harappan Phase, Lustrous Red Ware Phase, Cemetery H Phase, Swat valley Period IV, Late Harappan Phase in Haryana and western Uttar Pradesh. While stage VII deals with the Early Iron Age of Northern India and Pakistan, deals with the phases of Late Pirak, PGW and Late Gandharan Grave. A period from 1000-600 BC is assigned to the particular phase.

Possehl (1991) in his linear cultural sequence (stage I-VII) noted the early stages of village farming at the sites of Kili Gul Muhammod and at Mehrgarh. The earliest phases were termed as the Kili Gul Muhammod Phase and the Burj Basket Marked Phase, the evidence of pottery is recorded at the site of Mehrgarh II. Here the pottery is handmade and consists of simple shapes. They are soft and chaff-tempered. During this phase the architectural features remained simple and pastoralism and domestication of animals was plasticized along with agriculture. A developed stage of village farming is observable in the Togau Phase at Mehrgarh III, has evidence of mass production of ceramics with more or less standardized shapes. The pottery is wheel made and the major ware consists of Black Painted Red Wares. The major shape includes bowls with a knife edged rim. The Kechi Beg Phase, Period IV and V at Mehrgarh are noted for the change in the subsistence from wheat to barley and metallurgy. A Poly Chrome Ware, fine Buff ceramics are noted in the phase. The Hakra Phase noted for the beginning of regionalism. The Hakra Ware consists of an entire assemblage of different pottery types. A black slipped Red Ware consist of wide shouldered vessels. It can be comparable with the ceramics reported from the sites of Kot-Diji, Sheri khan Tarakai.

Stage III or the Early Harappan Phase proposed by Possehl consist of four regional phases namely the Amri-Nal, Kot-Diji, Damsadaat, and Sothi Siswal. These phases can be equated with the Regionalization Era of Shaffer (1992). A pronounced geographical extension can be observable during this phase in to Potwar Plateau, Indian Punjab, Haryana, northern Rajasthan, western Uttar Pradesh and Gujarat.
The Amri-Nal Phase is named and defined through the findings from two representative sites. The Amri material occurs mainly in Baluchistan while the Nal material is found in both Baluchistan and Sind. They are mostly fine wares, sometimes slipped and often painted in black. In the beginning the designs are exclusively geometric and later developed into curvilinear motifs. The shapes include bowls, jars, and tall vases, with simple featureless rims. The Nal ceramics are also fine wares with buff to pink in colour. The characteristic shapes include straight-sided bowls with simple knife-edged rims. Polychrome infilling of the designs includes the use of red, pink, blue, and yellow. White paintings over a black slip are also known. The Kot-Dijian archaeological assemblage is distinct from Amri-Nal with some overlap in vessel forms and decorative motifs. The pots were also made in red or buff in colour. The Damb Sadaat Phase is contemporary to Kot Diji and Amri Nal. This is a small and more localized cultural phase centered on the Quetta Valley. The pottery was often slipped. In addition to the local ceramic types, short necked globular jars of Kot-Dijian type and Faiz Mohammed Grey Ware were also found (Possehl 1991).

The Sothi-Siswal Phase cultural sites have a concentration in the dried up belt of river Saraswati and on its main tributary Drishadwati or Chautang. Most of these sites fall in the present day political divisions of Punjab and Haryana. The Sothi-Siswal Phase ceramics are mainly grouped into six fabrics, named as fabric A to F. Archaeological evidence suggest that these four complexes give rise to the integration era, which has a time bracket of 2500-2000 BC.

The excavations at Amri, Ghazi Shah, Nausharo, Kunal, Banawali, and Dholavira noticed a transition phase from early to mature Harappan. This period can be dated between 2600-2500 BC. It is relatively a short period of time, witnessed the transformation of pre urban elements to the Urban.
Chapter 3 Ceramic Analysis in Indian.....

3.1.2 The Mature Harappan/Urban Phase

Mature Harappan Culture is a term applied to all urban and rural settlements adhere to town planning, civic amenities, prosperous economic conditions as reflected by trade, industry and use of seals (Rao 2006: 7) There are five phases thought to have been contemporaneous with each other (Possehl 1999, 2002). They are the Sindhi, Sorath, Kuli, Punjabi and Eastern Harappan Phase. It has a date stretching from 2500-1900 B.C. This phase is noted for its material and cultural homogeneity. It can be equated with the integration Era of Shaffer (1992) and stage IV of Fairservis, Jr. (1970).

The major criteria which used to describe/define Mature Harappan are the thick red Harappan pottery; black on red ware with naturalistic designs, large bricks with a ratio of 4:2:1, long chert blades, cubical weights, stamp seals with scripts and usually animal motifs, triangular and round terracotta cakes, clay carts and wheel models, steatite disc beads and micro beads, long barrel shaped carnelian beads, copper or bronze razors, barbed fishhooks, and rectangular flat axes. Shell bangles with chevron marks, inlay pieces and ladles can also be included in the list. All the items do not occur all the time in every excavated Mature Harappan site. At some sites the brick architecture replaced with stone one (Rojdi). Mature Harappan phase is also noted for a well fired red ware painted with black designs of vegetal and geometric patterns. The major shapes include dish on stand, S shaped jars, straight sided beakers, pointed goblets, perforated jars etc. (Joshi 1972). Red ware was occasionally chocolate slipped, but was often painted in crimson, black and rarely in white (Rao 1985). Buff slipped ware and Buff Ware; painted in black or chocolate are also typical of this period. In Gujarat, Micaceous Red Ware, Prabhas Ware, Black and Red Ware, Coarse Gray Ware, Cream slipped Bichrome Ware, Red slipped Polychrome Ware, and Reserve Slip Ware are also been found in association with Mature Harappan Phase.
3.1.3 Late Harappan/Post Urban Phase

The term late literally mean the end or the diffusion of a civilization at climax period. The late Harappan Culture could be identified with the archaeological assemblage which follow the cultural continuity of the Mature Harappan and its associated miscellany (Lal 1997:57). The changing phase of the Harappan culture in Saurashtra and further south is denoted by Wheeler proposing a terminology of "Sourashtrian Indus" (Wheeler 1966: 87). He also called it provincial or late varieties of Indus Civilization, with a caution on the use of the term Indus. Gosh in his survey categorized the culture represented at Rangpur IIB (possibly also IIC) and allied sites in Gujarat and sites in Punjab and Haryana and western Uttarpradesh as late Harappan (Lal 1997: 55). Possehl describes it in this way as compared to Mature Harappan, a less organized less differentiated, and less specialized than the urban phase and proposed a new terminology for this kind of changes as Post Urban Harappan in the context of Gujarat (Possehl 1980: 20). Dikshit views this deduction or transformation in the internal interaction of the society as a result of the economic decline (Lal 1997: 56).

The most significant factor of the Late Harappan period is the homogeneity of the Harappan culture which existed throughout its Mature Phase was broken and its diversity became evident in the form of regional cultures (pottery types). Late Harappan Culture can be explained as a cultural phase where the evolutionary stages of the Indus Civilization took place.

Based on the present day understanding and evidences we can propose a tentative chronology for the Indus Civilization. The following chart (Table 3.3) shows some available c14 dates from the excavated sites belongs to different phases of Harappan Culture.
**Table 3.3 Chronological Bracket for Harappan Culture Based on 14 C Dates after Ajithprasad 2002.**

<table>
<thead>
<tr>
<th>Name of the Sites &amp; Period</th>
<th>C14 Dates (B.C)</th>
<th>Calibrated Date(B.C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Harappan Phase (2900-3300 B.C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harappa</td>
<td>2725 + 145</td>
<td>3338,3213</td>
</tr>
<tr>
<td></td>
<td>2725 + 90</td>
<td></td>
</tr>
<tr>
<td>Mohenjo-Daro</td>
<td>2365 +145</td>
<td>2877,2708</td>
</tr>
<tr>
<td>Mehergarh IV</td>
<td>2705 +115</td>
<td>3226,3147</td>
</tr>
<tr>
<td>Rehman Dheri II</td>
<td>2540 + 165</td>
<td>3018, 2926</td>
</tr>
<tr>
<td>Jodhpura(Ganeswar)</td>
<td>2370 +120</td>
<td>2879, 2709</td>
</tr>
<tr>
<td>Kalibangan I</td>
<td>3000</td>
<td></td>
</tr>
<tr>
<td>Kunal I</td>
<td>3680-3049</td>
<td></td>
</tr>
<tr>
<td>Padri</td>
<td>2315+135</td>
<td>2865,2668</td>
</tr>
<tr>
<td>Surkotada IA</td>
<td>2911-2892</td>
<td></td>
</tr>
<tr>
<td>Prabhas I</td>
<td>3898-2925</td>
<td></td>
</tr>
<tr>
<td>Late Harappan Phase (1900-1500 B.C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harappa</td>
<td>2470+70</td>
<td>2913</td>
</tr>
<tr>
<td>Mohenjo-Daro</td>
<td>2155+65</td>
<td>2556</td>
</tr>
<tr>
<td>(Middle/Late)</td>
<td>2245+100</td>
<td>2651,2610</td>
</tr>
<tr>
<td>Shortugai I</td>
<td>2080+135</td>
<td>2461</td>
</tr>
<tr>
<td>Lothal III B</td>
<td>2800</td>
<td></td>
</tr>
<tr>
<td>Lothal IA</td>
<td>2299-1933</td>
<td>1955</td>
</tr>
<tr>
<td>Prabhas II</td>
<td>2225+115</td>
<td>2586</td>
</tr>
<tr>
<td>Kalibangan II</td>
<td>2283-2198</td>
<td></td>
</tr>
<tr>
<td>Nagwada IB</td>
<td>2153</td>
<td></td>
</tr>
<tr>
<td>Late Harappan Phase (1900-1500 B.C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lothal VA</td>
<td>1555+130</td>
<td>1735,1701</td>
</tr>
<tr>
<td>Daimabad</td>
<td>1760 + ?</td>
<td>1961</td>
</tr>
<tr>
<td>Rojdi</td>
<td>1285 + ?</td>
<td>1424</td>
</tr>
<tr>
<td>Prabhas (Late)</td>
<td>1800 -1500</td>
<td></td>
</tr>
<tr>
<td>Bet Dwarka</td>
<td>1528 (TL)</td>
<td>1528 to 1700</td>
</tr>
</tbody>
</table>
3.2 Gujarat and the Indus civilization

Archaeological investigations in Gujarat have brought to light a detailed picture of various cultures of which the recent years witnessed much stress is the study of Harappan Culture. Although, the core region of the Harappan Civilization lies in the Indus Valley, the presence of a large number of Harappan sites of varying cultural milieu in Gujarat indicates that this region enjoyed equal importance during the Harappan Period. Some of the important excavated Harappan sites of Gujarat are Dholavira (Bisht 1989), Surkotada (Joshi 1990), Kuntasi (Dhavalikar et.al 1996), Nageswar (Hegde et.al 1990) Nagwada (Hegde et.al 1988), Rojdi (Possehl and Herman 1989), Padri (Shinde 1992) Rangpur (Rao, 1963), Lothal (Rao, 1979 & 1985) etc. The study of material remains from these and other excavated sites along with the explored materials from various parts of Gujarat have enhanced our understanding of Harappans and at the same time given rise to various debatable issues. These include their varying subsistence pattern from one region to another; regional identities; varieties of ceramics, often referred to as typical/classical, regional/indigenous and also specific types indicative of their contact with contemporary Chalcolithic cultures; their relation with the surrounding geomorphology, significance of location of settlements, function of the settlements etc. Each of these issues offers tremendous potentials to be tackled independently.

The recent excavations at the site like Loteshwar, Dholavira, Lothal Padr, Datrana, Prabhas Patan, Motipipli, Surkotada etc indicate that even prior to the Integration Era Gujarat was inhabited by the Chalcolithic communities (Sonawane and Ajith Prasad 1994; Ajith Prasad 2002). These Pre Harappan/ Non-Harappan communities can be identified based on their archaeological characteristics and geographical locations. They are the Aniarta Tradition (North Gujarat), Micaceous Red Ware and Padri Ware (Gulf of Khambat), Pre- Prabhas (Prabhas Patan) and a Poly chrome tradition of Kachchh region. Some of the recent researches further
made a categorization of the Harappan culture in Gujarat into Sindhi Harappan showing close connection with the Indus proper and Sorath Harappan having a strong regional identity (Possehl 1992). The Localization Era is best represented at the later stages of the major sites like Lothal, Dholavira, Rojdi and Rangpur in Gujarat which fall after the time period of approximately 2000 B.C.

3.2.1 Early Inhabitants

The history of human habitation in Gujarat can be traced back to the Paleolithic times. The Lower Paleolithic has a wide distribution all over Gujarat, though the Middle and Upper Paleolithic are less known in terms of their distribution and chronology. The Lower Paleolithic sites were reported from the banks of river Sabarmati in North Gujarat, Orsang, Karjan, Mahi and Lower Narmada in central Gujarat (Sankalia 1974: 89). The Lower Paleolithic tools from south Gujarat, Saurashtra and Kachchh shows that the whole of Gujarat was once inhabited by the early man. In case of Mesolithic Culture, Gujarat is one of the prominent regions where researches have been carried out right from the inception of prehistoric studies in India. Langnaj is one of the most important Mesolithic sites in Gujarat (Sankalia 1965). The excavations at Loteshwar, Ratanpura, Kanewal and Tarsang indicate the existence of a Mesolithic community supplemented their subsistence with hunting and gathering. The radiocarbon dates obtained from the Mesolithic deposit at Loteshwar suggest an early beginning of microlithic tradition in Gujarat around 6th millennium BC. This tradition continued even after the emergence of the earliest farming and stock raising communities. (Sonawane 2000: 138). Detailed studies (Possehl 1976; 1980: 67-80; Sonawane 1996) presume a symbiotic relationship between the chalcolithic and microlithic using communities in Gujarat.

3.2.2 Pre and Pre/Non Harappan Cultures of Gujarat

Until recently it was believed that the early inhabitants of Gujarat are the immigrant Harappans, who established their settlements in different parts of
Chapter 3 Ceramic Analysis in Indian... Gujarat with a view to expand their industrial base during the Mature/Urban phase (Sonawane 2000). The recent studies carried out at Loteshwar, Padri, Dholavira and the reanalysis of archaeological data from Prabhas Patan, Lothal and Surkotada has suggested that prior to the coming of Harappans Gujarat was inhabited by regional Non-Harappan Chalcolithic communities (Sonawane 2000: 140). Calibrated radio carbon dates for this cultural Phase from Loteshwar, Padri and Prabhas Patan goes back to the second half of the fourth millennium BC (Sonawane 2000: 140). The region of Kachchh, North Gujarat and Saurashtra have revealed sites of Pre Urban Phase, establishing the existence of the indigenous regional chalcolithic traditions having different kind of pottery than the Harappan pottery types like the Anarta Ware (Ajithprasad and Sonawane: 1993), Micaceous Red Ware (Rao 1985; Herman and Krishnan: 1994), Padri Ware (Shinde and Kar 1992), Pre Prabhas Ware (Dhavalikar and Possehl 1992), and Black and Red Ware (Rao 1979). The table (Table 3.4) shows the distribution of Type sites, major ceramic types, and calibrated dates for the Pre/Early Harappan Phase of Gujarat.

3.2.2.1 Pre-Prabhas Ware

The Pre-Prabhas Ware is the first non-Harappan assemblage unearthed in Gujarat in 1950's during the excavations at Prabhas patan (Somnath) in Junagadh district. The non-Harappan pottery types recovered from the excavation mainly includes Coarse Red-Gray Ware, Red Slipped Ware, Black and Red Ware and an Incised Red Ware (Ajithprasad 2002). The fabric of all the above pottery was predominantly coarse and was handmade. However, the external surface is smooth and even shows fine burnishing. Wide mouthed jars and dishes are the important shapes represented by the Coarse Red-Gray Ware. On the other hand the Incised Red Ware is crude and coarse in fabric, lacks any surface treatment as such. The incised decorations mainly include bold strokes, probably executed with a blunt instrument. The major shapes include deep or shallow basins. The third category, Black and Red Ware is made of relatively fine clay and has a bright red slip on the
Table 3.4 List Showing Pre/Early Harappan Phase of Gujarat

<table>
<thead>
<tr>
<th>Culture</th>
<th>Type site</th>
<th>Period</th>
<th>Ware</th>
<th>Shape</th>
<th>Chronology</th>
<th>Remark</th>
<th>Excavated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Prabhas + Prabhas</td>
<td>Prabhas Patan</td>
<td>I and II</td>
<td>Coarse Red Ware, Red Slipped Ware, BRW, Incised Red Ware</td>
<td>Hemispherical bowl with slightly incurved and bevelled rim; medium sized jar/pot with an everted short rim</td>
<td>2892 cal BC</td>
<td>Coarse and handmade</td>
<td>State Archaeology Dept and MSU of Baroda</td>
</tr>
<tr>
<td></td>
<td>Prabhas Patan (Somnath)</td>
<td></td>
<td></td>
<td></td>
<td>2911 cal BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anarta</td>
<td>Loteshwar</td>
<td>II</td>
<td>Gritty red Ware, Fine RW, Burnished RW, Burnished Gray/Black Ware</td>
<td>Small to medium pots with flaring rim, constricted neck and a bulbous body, straight/convex sided bowls with slightly incurved rims, basin with a thick flaring out rim and a blunt carination below</td>
<td>2921 cal BC</td>
<td>Bichrome decoration painted with varying shades of black/red pigment on a white/cream background</td>
<td>MSU of Baroda</td>
</tr>
<tr>
<td>Pre-Harappan (Burrial Pottery)</td>
<td>Nagwada Moti Pilpi</td>
<td>IA</td>
<td></td>
<td></td>
<td>2200 cal BC</td>
<td></td>
<td>MSU of Baroda</td>
</tr>
<tr>
<td>Padri</td>
<td>Padri</td>
<td>II</td>
<td>Padri Ware</td>
<td>Large bulbous pots, flasks / beaker shaped vases with narrow opening, beakers with flaring rim, dish on stand with up turned rim, dish with no carination and shallow bowls</td>
<td>2200-2000 BC</td>
<td>potted are decorated with horned linear human figurines</td>
<td>Deccan College Pune</td>
</tr>
<tr>
<td>Micaceous Red Ware</td>
<td>Lothal,</td>
<td>I</td>
<td>Coarse Red Ware (Mica dusted)</td>
<td>Convex sided bowls, shallow dish/basin, basin, lamp, jar bottle and perforated jar</td>
<td>2000-2500 BC</td>
<td></td>
<td>ASI Rao (1985)</td>
</tr>
</tbody>
</table>
The shapes of the Ware include wide mouthed jars and a small carinated handy. In case of Gray Wares, they do not have a grayish surface consistently and sometimes the vessels are found in drab red color. The major shapes include dishes and wide mouthed jars. Jars with smaller mouth were also available. Some of the vessels have flat bases as well. Ceramics comparable to Pre Prabhas type were also reported from Datrana as well (Ajith Prasad 2002).

3.2.2.2 Anarta Tradition

It is mainly identified on the basis of a group of pottery which is different from the Harappan. The pottery was first identified in the excavations at Nagwada in 1985, where it was found associated with the mature Harappan elements. But the independent nature of the ceramics was established only after the excavations at Loteshwar in Mehasana district in 1991. The ceramic assemblage consist of four major types viz, the Gritty Red Ware, Fine Red Ware, Burnished Red Ware and Burnished Gray/Black Ware. Among these the Gritty Red Ware is the most dominant type with two sub types and it is followed by the Fine Red Ware. The other two types are relatively rare (Ajithprasad 2002).

The Gritty Red Ware vessels are either handmade or made on a slow wheel. The clay is elutriated and contains sand as tempering material. The major shapes include small and medium sized pots and Jars with flaring rim, constricted neck and bulbous body, large pots, convex or straight sided bowls with slightly incurved rims and basins with a thick flaring out rim and a blunt carination below it (Ajithprasad 2002). The slip varies from red to chocolate and its various shades. Most of the vessels show a bichrome decoration as they are painted with varying shades of black or red pigments on a white or cream background. The decorations mainly include geometric designs. The vessels have a dull appearance even after the application of slip and decoration (Ajithprasad 2002: 139).
The fine Red Ware, the second type, is similar to Gritty Red Ware in its shapes and decoration. Here, also the vessels are made out of elutriated clay, containing fine mica particles in it. The burnished Red ware and the Burnished Gray/Black Ware are represented by small pots with thin walls or jars with a flaring rim, constricted, elongated neck and a bulbous body. The vessels are slow wheel turned and have a well burnished smooth surface. The Burnished Red Ware is painted with parallel and wavy lines in panels using a white or blueish gray pigment on a black background over a bright red slip. The Burnished Gray/Black ware is painted with a fugitive white colour, similar to the white paintings of black and red ware of the Harappan times. All the above pottery types have common vessel forms and shares common features in their pattern and scheme of decoration, suggesting that they all belong to a single pottery tradition. (Ajithprasad 2002:143)

3.2.2.3 Padri Ware

The Padri Ware vessels are either hand modelled or made on a slow wheel and is treated with a thick red slip. It is decorate with painitng motives like geometric lines and other bresh strokes with less perfection in its application. The colour mainly preferred is black (Shinde 1992). The clay is well levigated and is fired in uniform temperature. The repertoire is comparable to Rojdi B Type ceramics further divisible in to sturdy Red and Buff Ware and thirdly Coarse Ware (Shinde 1992). The Fine Ware can be divided in to thick and thin variety. In thick variety large globular storage jars with beaded or clubbed rims and small flat bases are the most common types. Such pots are also decorated with horned linear human figurines (Shinde 1992). Cylindrical perforated jars, shallow dishes and step sided dishes are also encountered in this Ware. The thin variety includes convex sided bowls and globular pots. The midle level Padri ware is coarse and treated with a cracking thick red slip (Shinde 1992).
3.2.2.4 Micaceous Red Ware

The chalcolithic settlements in the region between Gulf of Cambay and Nal depression, traditionally known as Bhal region, revealed a distinct type of pottery. As the name indicate, the ceramics exhibits a smooth mica dusted surface with a fine slip ranging its colour from pink to red and from light brown to gray. A burnishing is also present. The surface of the vessel does not show any striations and have subdued to a marked shining (Herman and Krishnan 1994). The major shapes include convex sided bowls, shallow dish/basin, basin, lamp, jar bottle and perforated jar (Herman and Krishnan 1994). Lothal and Rangpur are the two important sites where Micaceous Red Ware is associated with the Harappan red ware. A chronological estimation of 500-700 yrs (2550-1800BC) is possible from the study of associated materials recovered from the sites like Rojdi, Vagad, Ratanpura along with Lothal and Rangpur (Herman and Krishnan 1994).

3.2.2.5 Chalcolithic burials and Pre-Harappan pottery

These types of potteries are mainly reported from the burials and a few habitation sites in north Gujarat. The major sites include Nagwada (Period IA), Santhli II, Moti Pipli and Datrana.

At Nagwada (Period IA) two types of burials were found. They are the extended inhumation and the symbolic pot burials. The major wares of the Burial pottery include Red Ware, Pinkish Buff Ware, and a Gray Ware (Hegde etal. 1988). The vessels were made out of elutriated clay and were decorated with slip and paintings, even though it was peeled off in most cases. The major shapes consist of large bulbous pots, flasks or beaker shaped vases with sides converging in to a narrow opening, beakers with slightly flaring rim, dish on stand with up turned rim, dish with no carination and shallow bowls. The bulbous pot has a flat base, short straight neck and flat rim. The paintings are found on the rims and on the shoulders and the
decorations consist of wavy lines and thick bands. These shapes and decorations show a similarity with the Pre Harappan ceramics reported from Kot diji, Amri and Balakot (Hegde et.al, 1988). Similar type of ceramics were also reported from the burials at Santhli II. In case of Moti Pipili the ceramic assemblage includes all the vessels reported from Nagwada, Santhli, and Surkotada. In addition to that certain new shapes like large pots with prominent flange below the rim at the shoulder and thick black band at the rim, dish on stand with polychrome paintings were unearthed and can be compared with the Early Harappan phase ceramics at Kot dij (Majumdar 1999).

Thus on the whole a Pre/Non Harappan phase is established in Gujarat after the excavations at Prabhas Patan, Nagwada, Loteshwar, Dholavira and Padri and also revealed the evidence of a settled life prior to the coming of Harappans. The evidence from the lowest levels at Lothal suggests the presence of an indigenous people practising incipient agriculture represented by a Coarse Micaceous Red Ware. The excavations at Nagwada in the Rupen River Valley in North Gujarat have yielded the evidence of human occupation. An extremely fine pink ware comparable to the early levels at Amri along with a human burial is recovered from the excavation, which can be dated to the third millennium B.C (Dhavalikar, 1995:22). The excavations at Datrana also revealed a group of pottery similar to the Anartha, Pre-Prabhas type and Early Harappan pottery reported from the burials at Nagwada and Santhili. The pre prabhas pottery from Datrana is assignable to 2900-3000 B.C (Ajithprasad, 2002: 135-136). All these shows that there must have been an indigenous population established long before the Harappans came to Gujarat which continued along with the Harappans till the end of their occupation (Bhan 1994: 78).

### 3.2.3 The Mature /Urban Harappan Phase

As a result of the recent archaeological studies, two distinct categories of settlements were identified in Gujarat during the Mature /Urban Harappan Phase. They are the
sites with Classical Harappan traits (Sindhi) and sites with regional manifestation of the Harappan (Sorath Harappan) domains respectively (Possehl 1992).

Rao (1963) cultural sequence at Rangpur acted as the chronology of the Harappan sites in Gujarat for a long time. At Rangpur, he identified three periods, period I - Microlithic Culture, period II - Harappan culture, period III - Lustrous Red Ware or Post Harappan Culture. He further divided Rangpur II or the Harappan Culture in to three phases, IIA, IIB, and IIC. He termed IIA as the final phase of Mature Harappan in relation with Phase IV of Lothal A, IIB as the Late or degenerate Harappan Culture and IIC as the transition phase of the Harappan Culture. Thus, Rangpur for the first time revealed a stratigraphic relation between the Late Harappan Phase (Rangpur IIB) and the Mature Harappan (Rangpur IIA). It was believed that most of the sites with an affiliation to Harappan Culture found in Saurashtra belonged to the Late Harappan or Post Urban phase (Possehl and Rawal 1989: 19). This argument was mainly based on the mixed subsistence economy involving pastoralism and agriculture and the stylistic comparison of the ceramics and was not supported by any carbon14 dates. The excavation at Rojdi revealed three phases labeled as Rojdi A, B and C. (Possehl and Rawal 1989). In general, the material assemblage of Rojdi A, B and C resembles that of Rangpur II B and C and the other related sites. The carbon 14 dates from Rojdi also indicate that all the sites in Saurashtra with the pottery from these two phases should be dated to the urban Harappan phase and not to the Post Urban or Late phase (Possehl 1992: 125-128). Thus Rojdi and many other sites in Saurashtra represent a newly discovered regional expansion of the Harappan urban phase and Possehl proposed the name ‘Sorath Harappan’ to the new regional urban phase culture (Possehl and Rawal 1989: 13). He also identified 152 rural settlements as Sorath Harappan. Most of these settlements are small with a stone foundation and a stone wall and have been interpreted as small rural villages and dry seasonal camps of those engaged in millet cultivation and pastoral subsistence (Possehl 1989: 27-50).
Further, Possehl (1989) broadly categorized the Harappan sites of Gujarat as ‘Sindhi’ and ‘Sorath Harappan’. He defines ‘Sindhi Harappan’ of Gujarat as the Harappans who settled mainly in and around Kachchh. They have the same cultural tradition or possess elements of the typical Harappans. These are enumerated by him as the inscribed stamp seals, Indus weights, metal works, beads, architecture and ceramics painted in classic black on red style known from the places like Mohenjo-Daro, Harappa, Kalibangan, Amri etc (Possehl 1989: 10). Possehl argues that the Sindhi Harappans were the people of Sindh who migrated to Saurashtra through Kachchh, the present border area of Gujarat about 2500 BC. They seem to have come to Gujarat in an effort to assess and utilize the material wealth of this region (Possehl 1989: 11). According to him, the main Sindhi Harappan sites in Gujarat are Surkotada, Desalpur, Pabumath, Dholavira, Nageswar, Nagwada and Lothal. The Sindhi Harappans share the material inventory of Harappan sites of Sindh along with, the local/non-Harappan and Early/Pre-Harappan ceramic types (Bhan 1989). Majority of these settlements seem to have developed to facilitate administration, which is reflected in the construction of massive lime stone walls and bastions at Surkotada, Dholavira and Desalpur and for trade and also to access raw materials as indicated by the material inventory and location of the settlements of Nagwada and Moti Pipili in north Gujarat, Nageshwar and Lothal in Saurashtra (Bhan 1994).

While discussing the pottery, there is a common agreement among the scholars that the difference between the Sindhi and Sorath Harappan pottery is marginal. The Sindhi Harappan pottery has got generally a red surface and is wheel made, although hand made specimens are also available. The regular striation marks on the pottery suggest the fast wheel turned technique of production. Sand or lime or both is used, as degraissant (Dales and Kenoyer 1986: 44). Most of the wares are sturdy and well fired. The pots and some of the jars have got flat bases. Certain types with pointed bases are also there and these require jar stand. A good percentage of them are slipped. The slip
varies from a thin to thick, colored with creamy to reddish, brownish, purplish and black. It is generally the upper part of the pots that is covered with slip; the lower portion is left rough and some times decorated with cord impressions. Some pottery shapes have got full slip, for instance the large pointed bottomed jar; very fine ring based grey ware pot and a pot of grey ware with external horizontal ridging (Dales and Kenoyer 1986: 43). The main pottery shapes are dish-on-stand, dishes, ‘S’ profile jars, pans, tumblers, beakers, goblets (tall with solid base), basins of varying forms, jar cover or lid, cylindrical jar with a wide flat base, handled cup, jar stands of varying size, the perforated pots – tall and cylindrical in form, storage jars and many other miniature forms. The painted decorations are usually over the slip or over the natural surface. These range from simple horizontal bands to intricate combinations of geometric designs, abstract and naturalistic motifs (Dales and Kenoyer 1986: 47). The potteries of the Sorath Harappans were made of well levigated clay having fine sand added as degraisant. The important vessel types are the bowls, stud handled bowls, perforated pots, pots, jars, basins, dishes, dish on stand, goblets, lamps, jar stand etc. The decorations mainly include paintings, graffiti, incisions, impressions, relief and patterns created by burnishing. Special surface treatments for fine wares include combinations of special band with slipped and unslipped zones. Horizontal bands are present on the coarse ware.

More than 500 sites with different degree of Harappan affiliation are reported from Gujarat. Among them only 25 belongs to the Mature/Urban (Sindhi Harappan) Category. Among them also a concentration of more than half is observable in the Kachchh region and the rest are meagerly distributed in other parts of the region. A close observation shows that all these sites are located either on the coastal region or the margins of Ran of Kachchh. From the location, size and nature of the settlement pattern, percentage/concentration of economic goods and manufacturing wastes shows that these settlements were engaged in specialized craft production as
industrial/manufacturing centers, or both and might have remained mainly for trade and access to raw materials required by the Harappan Urban centers (Sonawane 2000: 141) The south ward extension of the Harappan is seen mainly as to explore the natural raw material which was necessary for the trade rather than acquiring the entire territory for political dominance (Sonawane 1992).

So the regional variations of Harappan culture in Gujarat during the mature Harappan times can be explained as different sites were having a different function and degree of specialization and thus by varying location and subsistence pattern and slightly different material inventories to cope with different regional settings of Gujarat.

3.2.4 The Late/Post Urban Harappan Phase

The Late Harappan/Post-Urban Harappan phase in Gujarat is best represented at Rangpur IIC and III, Lothal B, Rojdi C, Prabhas Patan II and III, Padri III B, Kuntasi II, Vagad I B and I C (Sonawane 2002: 166). In addition to this the sites like Kanewal, Nesadi, Ratanpura, and Oriyo Timbo shows an independent existence of a Post Urban Harappan Phase. The characteristic feature of the particular phase of cultural occupation in Gujarat is the gradual economic decline in material culture which may cause for the process of de urbanization (Sonawane 2002: 167). A change in the total ceramic assemblage is observable from the Mature Phase of occupation as the characteristic forms like Indus goblets, beakers and S shaped jars completely got disappeared. However certain ceramic forms like perforated jar continue with slight changes in form and decoration as the naturalistic decorations were somewhat replaced with the geometric ones. The major changes are observable in certain shapes as the convex type bowls developed a blunt or even sharp carination at the shoulders, the stud of the stud handled bowls became longer, the stem part of the dish on stand became squat while the projected rim developed a beaded rim. Certain ware like
Lustrous Red Ware with its characteristic polished red slip and the white painted Black and Red Ware are conspicuous with their presence (Sonawane 2002: 167).

In addition to the ceramics, artifacts like long Rohri chert blades, cubical chert/agate weights, were also disappeared. The TC beads became common and some of the semi precious stone beads and shell bangles and shell objects continued to some extent because of the local availability of the raw material. Deterioration is also observable in the architecture and in the subsistence pattern as well. The massive brick structures were replaced with simple round huts with wattle and daub walls. A gradual shift in the subsistence strategy from farming to herding is also observable (Sonawane 2002).

Thus, on the whole the post urban phase witnessed a gradual decline in cultural variables and in the subsistence and settlement pattern. Even though there is a decline in the material prosperity, a continuity of the Harappan tradition was observable (Sonawane 2002: 170). Even though there is a certain decline in the material prosperity, a continuation and a transformation of urban way of life in to a rural one is observable the Late Harappan Phase. The exact reason for the decline is still not devised, attempts were made to see the climatic changes, tectonic movements, shift in the hydraulic regime, and a sudden fall in the long distance trade on the core region (Gosh 1993) as the reason.

3.3 The Site: Bagasra (Gola Dhora)

Bagasra (23°30'N;70°37'10"E), is a Harappan site located on the eastern extremity of Gulf of Kachchh in Maliya Taluka, Rajkot District, Gujarat State. The archaeological mound measuring 1.98 hector is locally known by the name "Gola Dhora" meaning round/circular mound) is located half a km north west of the present day village. The site is situated about 40 km north of Morbi town and is easily accessible either by road or rail up to Bhavpur, which is just two km east of the site. It is also approachable by
Chapter 3 Ceramic Analysis in Indian road from Dahisra village, 6 km south of Bagasra. Dahisra is connected with Morbi both by rail and road. As the site is located at a strategic point connecting Kachchh, North Gujarat and Saurashtra, the three major cultural regions of Gujarat, it shows distinct cultural traits of the above three in the Chalcolithic times (Sonawane et.al. 2003).

The site was first reported during a joint exploration carried out by the Deccan College, Pune and the Gujarat state Archaeology Department in the late 1980’s. The excavations started at the site on 1996 and came to an end on 2005. The excavation revealed a fortified settlement of the Mature phase Harappan Culture. The roughly rectangular site stands 7.50 m from the surrounding. The low lying surrounding regions accumulates water in monsoon and the mound becomes an island. The large depression between the mound and the village retains the rain water till the end of March and serves as a village tank, a mean source of water for the villagers (Sonawane et.al 2003).

Since the site is situated in a semi arid zone the climate is dry and the rainfall varies from 250 to 450 mm annually. The subsistence is mainly based on agriculture, stock rising and salt production etc. The crops mainly include wheat, horse gram, bajra, and cotton. Among the crops wheat and horse gram were cultivated with the help of irrigation, while bajra and cotton is mostly dependant on the monsoon. The seasonal agriculture is supplemented by stock rising, mainly carried out by two communities, Bharwards and Rabaris. Salt production, undertaken by two large companies and some other entrepreneurs of the village also act as a source of income. Fishing, another economic activity is heavily dependant on the ebb and flow of high tides. This is carried out by the kolis, the fishing community, who stays at Maliya, about 20 km north east of Bagasra on the main shore of Gulf of Kachchh (Sonawane et.al 2003).
3.3.1 Nature and Stratigraphy

The archaeological mound measuring approximately 160x20m is roughly rectangular in shape and has a height of 7.50m from the surrounding plain. On the southern side it is a small rectangular area measuring 12x8m and gently slopes towards the agricultural fields. The north western part of the mound is a large open area measuring 100x50m, slopes towards the north to a minimum height of 5 m. The intact periphery wall under the soil cover on the northern part keeps the mound steep on the northern portion of the site. The trenches at the site is designed, first by the main 300x300m grid number (1 to 9) followed by a 100x100m grid (A to I), followed by a 20x20m grid (a to y) and finally by the 5x5m grid (1 to 6) layout (Sonawane et al 2003: 24).

Among the six trenches selected to expose the complete stratigraphy, Er13 and Eq2 were located at the highest part of the mound in the eastern side, while Do5 and Do7 on the south and Es4, Es10 were located on the southern portion of the mound. However the trenches Do7 and Es4 excavation did not touch the natural soil. Among the four trenches Er13 has a cultural deposit of 7.75m. Seventeen layers have been identified in this trench. Eq2 another deep trench stands second with a cultural deposit of 6.5 meter consisting of 20 layers. Based on the structural features and material remains, the habitation deposit can be divided in to four phase of Harappan occupation (Table 3-5). Here, the first three phases belongs to Urban and the fourth one to the post-Urban comparable to Rangpur period IIC and Rojidi-C.

3.3.1.1 Phase I Occupation

Phase I represent the early stage of urban phase Harappan occupation at the site. It is also called the pre fortification phase due to the absence of the fortification. The average thickness of the cultural deposit is from 1.00 to 1.75m. The structures of this phase were built of dark mud bricks, which follow the standard Harappan ratio 1:2:4
in their measurement. Associated with the structures, a series of ashy floors with white plaster at regular intervals were also found (Sonawane et.al. 2003).

Table 3.5 Cultural Sequence of Bagasra (After Sonawane et.al. 2003)

<table>
<thead>
<tr>
<th>Phases</th>
<th>Diagnostic Association: Statigraphic, Artefactual and Architectural</th>
<th>Cultural affiliation and Correspondence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase -I Early Urban</td>
<td>Pre Fortification</td>
<td>Classical Harappan/Urban Sindhi Harappan and Anarta</td>
</tr>
<tr>
<td>Phase- II Urban</td>
<td>Fortification</td>
<td>Classical Harappan/Urban Sindhi Harappan and Anarta</td>
</tr>
<tr>
<td>Phase -III Late Urban</td>
<td>Sorath Harappan (Rangpur- IIA and IIB)</td>
<td>Classical Harappan/Urban Sindhi Harappan, Anarta and Sorath Harappan (Rangpur- IIA and IIB; Rojdi A and B)</td>
</tr>
<tr>
<td>Phase -IV Post Urban</td>
<td>Sorath Harappan (Rangpur- IIC)</td>
<td>Post-Urban Sorath Harappan (Rangpur IIC and Rojdi C)</td>
</tr>
</tbody>
</table>

The Ceramic assemblage of this phase consist of Classical Harappan red ware with some characteristic shapes such as the dish on stand with incised decorations, perforated vessels, deep basins with tapering bottoms, and shallow dishes etc., the “Anarta” pottery types of the North Gujarat region (Sonawane and Ajitprasad 1994) and vessels belonging to the local ceramic tradition including some bichrome slipped pottery (Particularly Fine Red Ware pots). Micaceous Red Ware was also found which is believed to be closely related to the similar type of transition stage between the Pre Urban and Urban Harappan at Dholavira.

In addition to pottery, shell industry waste, finished shell bangles, terracotta cart frames and wheels, triangular terracotta cakes, copper implements, a small cubical agate weight, beads of lapis lazuli and carnelian were also found from these deposits.
This indicates that the economic base for the later urban way of life had already emerged by the end of this phase. The ceramic assemblage recovered from this phase is somewhat comparable with Surkotada IA, which has a C14 date of ca 2450 B.C.

3.3.1.2 Phase-II Occupation

The presence of the massive fortification wall, association of the craft activities (shell, faience, stone bead, copper working etc) and evidence of seals and sealing with writings along with variety of other cultural artifacts, planned structure, and the dominance of Classical Harappan pottery with naturalistic paintings raise the status of Phase II as the most prosperous period in history of Harappan occupation at the site. The association of the Classical Harappan artifacts like the inscribed steatite seals, terracotta sealing, beads of steatite, faience, lapis lazuli, amazonite and carnelian, long blades of Rohri chert, shell bangles with chevron marks, terracotta cart frames and triangular cakes, copper, bronze spear heads and chisels etc shows the urban character of the phase. The cultural debris of the phase at site is not less than 5 meters and is best represented in trench Eq2, where layers 17-1 represent the urban habitation. Three successive stages of construction of fortification wall are observable at the trench. The layers from 17-13 is associated with stage I, 12-8 to stage II and 7-1 to stage III (Sonawane et.al. 2003).

The ceramic assemblage of this phase incorporated three distinct types of pottery: the Classical Harappan pottery, the Anarta pottery of the North Gujarat region and local ceramic types. Harappan pottery recovered from these deposits included large storage jars, deep basins with narrow bottom and flat bases, shallow dishes, dishes on stand with a sharp carination, beakers, sherds of perforated jar, S-profile jars and black slipped jars in both Red Ware and Buff Ware. Several sherds with characteristic Harappan painted motifs and incised decorations such as crescent shaped nail impressions at the center in some of the dishes on stand were present. The presence of
Sorath Harappan sherds (convex sided bowls) in the upper levels of the phase indicates the beginning Sorath Harappan interaction at the site, which became prominent in the succeeding phase III (Sonawane et.al. 2003: 31).

This phase is also emphasized by the discovery of two inscribed steatite seals and a few terracotta sealings bearing inscribed seal impressions. Other Urban Harappan relics such as beads of carnelian, amazonite, lapis lazuli,steatite and faience, shell bangles with chevron decoration, long blades of Rohri chert, copper/bronze spearhead and chisels, terracotta toy cart frames and triangular cakes were also recovered from this deposit.

3.3.1.3 Phase-III Occupation

This is the terminal stage of the Urban Harappan occupation at the site. A change is observable in the material remains from the previous phase. It is distinguished from the preceding phase-II by the preponderance of the Sorath Harappan artifacts. It has an average thickness of 1.20m, though at places it increases to a maximum of 2m. It does not incorporate remains of regular habitation floors. It also revealed several clay lined storage silos and large storage pots generally embedded in the floor have also been excavated from this phase. Not many constructions took place in the phase as such while the phase II structures were reused. The presence of pits and improper waste disposal clearly shows the disarray in construction. The different craft activities are supposed to have continued during the phase but may be in a less organized way.

This phase incorporates several sherds of the Sorath Harappan pottery including the convex and straight sided bowls, stud handled bowls, large and medium sized jars and pots with distinct rim features and basins and dishes in Red Ware and Buff Ware. Besides these, also found Micaceous Red Ware and Black Ware. Other artifacts like variety of beads, shell bangles and terracotta cart frames and triangular cakes and a cubical chert weight are also found from this phase.
3.3.1.4 Phase- IV Occupation

The last Phase is characterized by the dominance of Sorath Harappan pottery, which is compared with the Rangpur-IIC and Rojdi-C periods. An interesting feature of the cultural occupation at the site is that the entire phase is found confined to the southern part of the mound which extends 35 to 40 m from the fortification wall which was followed by huge pits full of ashy materials (Sonawane et.al. 2003). No building remains are traceable except a few rubble stone structures in the trenches like Es3 and Es4. There are some pits on top of the massive mud-brick wall. This phase shows a few copper hooks, a chisel, and a small rectangular knife, and reasonably well made pottery.

Even in a general observation it is evident that most of the trenches were concentrated on middle of the mound and extending to the southern portion. This is mainly due to the nature of the mound as the northeastern and northwestern portion of the mound has a sudden steep and is suddenly encountering the agricultural fields, which is presently devoid of artifacts. The structures inside the trenches on the northern side of the mound reveal the story of a fortification with inner bastions. The overall view of the artifacts in the excavation reveals the fact that there existed some sort of industry and specialization in the site that abruptly came to an end in the third phase. The fourth phase material confined outside the fortification continued without any cultural break. Due to the nature of occupation (small but protected with huge fortification) and the geographical position (falling in the centre or equal distant from the three geographical divisions of Gujarat) and the availability raw materials like coral reefs, the habitat of shell and local chert and the close proximity of the sea; force us to presume that the site must have been acted as a contact area or a halting place of the long distant traders of Indus, and supplied some item for trade (shell, faience, stone beads etc.) The sudden fall in the internal and external trade, which is...
one of the probable causes of the decline of Indus Civilization (Joshi 1990) might have caused the de urbanization of the site. But the production of pottery which is inseparable to any kind of society, stayed there without much harm though they are getting some new local shapes in the fourth phase. It can be assumed that the local tradition continued in absence of a supreme controlling authority due to the fall in the long distance trade. Thus the fortification became unnecessary in absence of craft production and the people started moving out of the fortification.

3.3.2 Fortification and Structural Remains

The excavations of the ten continuous field seasons have revealed remains of various structural remains including that of a massive fortification which divides the settlement into two halves (1) The fortified northern half and (2) The southern half laying outside the fortification. Most of the structures clearly comes inside the fortification and belong to the phase I and II of the Harappan occupation, while phase III and IV does not show any new structural activity as such except a few flimsy structures. It is found that the structures of the Phase II are in use in the third phase as well but were partially destroyed by many pits in the IVth phase.

3.3.2.1 Phase I Structures

The structural remains of the first phase of Harappan occupation at the site is noted from the earliest levels of the deep trenches at the site. Among the excavated mud brick structures, the structure at Eo10, located outside the fortification stands as the best example. Here the structure is made out of fine, dark-gray mud of uniform composition. The structure measuring 3.7x 3.3m with two doorways, basically constructed over the debris of an even earlier structure. It stands nearly 1 m in height, with a thickness of 0.65m and incorporates 8 to 9 vertical courses of mud bricks. The clay mortar used as a binding medium is of very fine quality and of light in color than the bricks. A thick white color paste was used to plaster the floor level. A large pot
was also seen buried in the floor resting on the natural soil. The findings of house
hold objects and other materials clearly indicate that the structure is of a regular
house of the early levels of habitation. The structures which show remnants of craft
activity (Eb11, copper working), pointing the economic prosperity of the settlement
in this phase.

3.3.2.2 Phase II Structures

The presence of the massive fortification which surrounds the entire northern half of
the settlement and the systematic planning and layout of the settlements clearly
differentiates this phase from the rest and clearly indicate the economic status of the
phase. Majority of the structures unearthed in the excavation also belong to this
phase. Among the structures of the phase, the fortification walls, which surround the
entire northern half of the settlement deserves special mention.

3.3.2.2.1 Fortification

The most impressive structural construction happened in the second phase, the
fortification wall, is an imposing structure built in three successive stages with a view
towards increasing its height. The fortification measuring 65x57m is roughly
rectangular in plan with the longer side oriented east-west (Figure 3.1). The presence
of internal bastions further strengthens the fortification. At the south eastern and
north eastern corners it is jetting outward and measures 3.80m from the fortification
wall. The wall is better preserved in the eastern side while on the western side it
suffered extensive stone robbing. In the well preserved eastern side, the total height
of the wall, comprising all the three stages of construction is 5 m., tapering from both
sides, has got a trapezoidal cross section with the broad base of the wall measuring
7.75m and the narrow top at 5m height measuring only 5.20m.
Good quality sandstones were used for the basement of the fortification. These sandstone slabs might have been quarried from the nearby local sandstone sources which are still in use. These stone slabs were subjected to a preliminary dressing for providing a rough rectangular shape. In case of corner stones, they were cut and dressed to a perfect angle and a smooth surface. The ripple-like, shallow scoop marks on the stones indicate the use of some copper/bronze celts with long edges. The stone base is followed by a few courses of mud bricks. This pattern is followed in all the three stages, except in stage – III, where a stone bracing is replaced the solid stone.
base. Even though, the mud bricks used in the construction of the wall follow the standard Harappan ratio (1:2:4), are varying in color, composition and size.

3.3.2.2.2 The Entrance or Gate

The narrow depression on the extant surface of the eastern fortification wall dug into the entrance of the fortification at Bagasra in the 2005 field season. Earlier, the passage excavated in the southern wall in the trenches Eh1 and Eh2 evoked the feeling of an entrance/exit to the fortification. But, the narrow appearance of 1.04m creates doubts about whether it is a closed drain or an entrance as such? Due to the robbing of the stones it became very difficult to ascertain whether the passage was built over a closed drain, which was the general practice of the Harappans. Further excavations established it as a narrow passage between the southern area and the area enclosed by the fortification.

The excavations conducted on Ep2, Ep3, Ep6 and Ep7 on the eastern side of the fortification revealed a large gap cutting across the 5.25m thick fortification wall. This was filled with brickbats, stone rubbles, occasionally pot shreds and animal bones. The absence of the phase III material in the above filling suggests the phase II date for the building activity. The passage or entrance is located a few meters off of the eastern wall which is 59 m long and the passage is 1.82m wide as well. Two stages of construction of the entrance are identified in relation with the increase in the height of the habitation level. The level I construction of the entrance has got a height of 3.10m from the base. The entrance at this stage was 2.20m wide and probably had stone bracing on both sides of the wall. The post holes at the edges of the porch on the east evoke the feeling of a canopy like roof over wooden pillars. In the second stage when the height was increased the floor level was paved with mud bricks. The opening of the gate at this level is further reduced in to 1.80m by adding 20cm thick stone wall on both sides. The porch in front of the gate was replaced by 4.00m broad
rampart or an approach road adhering to the fortification wall. The rampart has got a maximum of three courses which is resting on the phase II deposit. The absence of the phase III material either in the filling or in the rampart road clearly suggest that the construction was happened in the II phase itself and was in use in the III phase as well.

Among the other structures of phase II, the Rampart/retaining wall on the south western corner in the second stage of construction deserves special mention. It was constructed by using the sand stones about 1.80m away from the outer edge of the main wall and was filled with mud and probably consolidated by ramming at the top. The extent length of this wall along the western side from the corner is about 7.10m and on the southern side is over 4m. Another retaining wall with similar structural features appears parallel to the first one, which shows six vertical courses at the corners. From the quality and workmanship of the sand stones and from the associated finds it is clear that both the retaining walls were constructed during the terminal phase of stage II. The best examples of the phase II structures (Wb1, Wb1a, Wb1b, Wb2, Eb9, Eb2, Eq2 etc) shows the urban pattern belong to the stage I and II of construction.

3.3.3 Craft activity and Cultural evolution at the site

Craft, one of the essentials of urbanization (Childe 1958), reflects the social stratification of the society and understanding the degree of craft specialization existed at the site may throw light on various aspects of production and distribution. The excavation at the site revealed a number of craft items having economic importance in the Chalcolithic times. Among the artifacts some items like shell, semi precious stone beads and lithic production, faience and copper working deserve special mention.
3.3.3.1 Shell Working

One of the most important activities pursued in great extent at the site was shell working. The working include the production of shell bangles from T.pyrum, ladles (minor) from Checorious Rinocirous, inlays etc is evidenced from the huge percentage of manufacturing waste, unfinished and finished artifacts of shell. One of the fascinating discoveries associated with this craft was a mud brick structure measuring approximately 5.60mx3.20m with an adjoining chamber situated on the north western periphery inside the fortification. Within this structure three large heap of shell resting against the western wall were uncovered that contain thousands of unused shell of T.pyrum. In between the two shell heaps, thousands of unfinished and finished shell cirecles and large quantities of micro shell wastes produced during cutting of the shell and a grinding stone resting below the bangles are really unique and undoubtedly indicate the existence of a shell workshop of Harappan times. The segregation of the shell piles based on quality indicates an eye towards a quality product and a specialized workman ship.

The presence of huge amount of manufacturing waste, several times than the final products, and the percentage of bangles showing different stages of production, recovered from the site clearly indicate the surplus production. The close proximity of the sea and the presence of coral reefs, the habitat of shell justifies the location of the site. Even though shell ladles and inlays recovered from the site fall short for any sort of exchange hence assures that the inhabitants were known the technology of laddle manufacturing and inlay decorations.

3.3.3.2 Lithic Activity

Among the lithic activity production of beads and blades from semi precious stones and faience objects deserves special mention. The excavation of the southern half of the mound (out side fortification), revealed a fairly good number of stone beads
showing different stages of production. The materials include agate, chert, chalcedony, carnelian, and a locally available chert/blood stone? The presence of a good quantity bead roughouts and beads showing different stages of production, number of polishers and huge quantity lithic debitage of different size and shape of different raw material, etc clearly indicate production of stone beads at the site. Assemblage associated with the stone bead production also include tapered cylindrical drills made of chert, jasper, and chalcedony and constricted cylindrical drills made of metamorphic rock that is referred to as earnestite, for drilling soft and hard stones respectively. The presence of raw (Jasper) material neatly segregated and kept in clay lined bins clearly indicate the stockage of raw materials which were used for bead manufacturing. A detailed study of lithic debitage in association with finished products (blade and bead) and usage of a material is essential to explain the process existed at the site during the Mature Harappan times.

As far as the faience working is concerned, it is evidenced from the abundant number of faience tubular and disc beads of different colors and bangles of different size and thickness. The distribution of the faience objects inside the fortification along with bangles and beads, the presence of large white rock quartz, indicate the faience production. One such interesting area measuring 3.5x2m is situated close to the eastern periphery of the fortification wall. Among the discoveries a faience chain containing 56 tubular faience beads with an electrolite/gold pendent from the top of the fortification wall on the southern side deserve special mention as it support the distribution of faience beads from inside the fortification.

3.3.3 Copper Working

The amount of copper recovered from the site is quite high when it is compared to the total size of the settlement. The findings mainly include a copper vessel containing eight bangles and an axe perhaps stored for recycling the precious metal,
knives with bone handles, a unique battle axe i.e., 'Parasu' and a variety of small copper objects. No evidence of copper smelting has been found so far from the site. However, recovery of a few heavily sand tempered clay crucibles with copper adhering in them might have been used in melting the copper. The absence of moulds as such perhaps may be due to the use of sand moulds which will leave very little or no traces.

3.3.4 Chronology and Conclusion

The site is important in many ways as it has a close proximity of important resources such as the marine gastropod shells (shallow sea along the coastal areas of Gulf of Kachchh) and the semi precious stones of Saurashtra. The presence of Classical Harappan elements along with Anarta and Saurashtrian ceramics and the location of the site (equal distant from Kachchh, North Gujarat and Saurashtra), shows that the site played a major role in the cultural transaction between Kachchh, Saurashtra and North Gujarat regions during the Chalcolithic times. The most important aspect of the site is that it revealed a stratigraphic context of Anarta, Sorath and Classical Harappan assemblages for the first time reported in Gujarat. So it is important to understand the process of interaction and integration of the above said cultures. In addition to that it also shows a Post Urban Phase of Harappan culture in a well defined stratum.

Excavations revealed three architectural developmental stages, represented as three phases. Phase I is the pre peripheral wall phase and is represented by Harappan pottery, Anarta Pottery, lithic tools, shell objects and plastered floors. During phase II the site seems to have enclosed with in a peripheral wall and also see the development of various industrial crafts like faience, stone bead and shell manufacturing industries etc. Phase III is represented by Sorath Harappan pottery and the function of the fortification wall seems to have come to an end. Phase IV shows post urban features and is confined to the southern part of the mound and is conspicuous with the
absence of any craft and structural activity. The phase I occupation at the site can be compared to the period IA of Surkotada and Stage III/Transition stage between the Early Urban and Urban Stages of Dholavira. Thus a date close to 2450 BC can be assigned to it.

Phase II is noted as the most prosperous period of habitation at the site. In addition to the massive fortification and well built structures, the phase is marked with remarkable increase in the Classical Harappan artifacts. They mainly include the inscribed seals and sealing, etched carnelian beads and agate weights. As far as the pottery is concerned, S profile jars, dishes on stand, beakers, pedestelled vases, black slipped jars etc dominate. The paintings and decorations on ceramics of phase II were comparable with the pottery reported from the Mature/Urban phase of the Harappan culture, especially period IIIA and IIIB at Harappa and indirectly suggest a date of 2400-2100 BC for the particular phase at the site.

Phase III is noted for the dominance of Sorath Harappan assemblage. The artifacts and ceramics recovered from the phase is comparable to Rangpur IIA and IIB, Rojdi A and B and Lothal A. Even though the ceramics retains the classical shapes the absence of new structures indicate the set back in economy of the occupation. Since Rojdi B has a c14 date of ca 2200-1900 B.C. A similar date can be assigned to the Phase III of Bagasra. Phase IV occupation at the site can be comparable to the Rangpur IIC and Rojdi C due to the presence of Post Urban Sorath Harappan features like blunt carinated bowls, dishes with drooping rims and pots/jars with elongated neck and beaded rims. On the basics of the c14 dates of Rojdi C we can suggest a date of 1900-1700BC for the phase IV of Bagasra.
References


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