

Further Evidence of the Early Harappan Culture in the Greater Indus Valley: 1971-90

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THE STATUS OF RESEARCH BEFORE 1970

For nearly half a century after the discovery of the Indus or Harappan Civilization, the paradigms on the origin, rise and decline, the character and form, religion and art, its geographical extent and trade and other related aspects, remained largely unchanged. The materials from Mohenjo-daro, Kalibangan and Saurashtrian sites (Lothal and Rangpur) were seen in the light of the general interpretative framework of the Indus Civilization. It was not until 1960's that scholars began to re-examine the existing data and started offering interpretations that were quite different from the traditional view points. It was not due to all the new information that was turning up through excavations and field surveys, but because of basic difference in conceptual orientation of the individuals involved in research, particularly North American, who began to question the validity of long accepted views. In order to access the paradigm changes in reconstructing cultural developments from the Neolithic to the Bronze Age and in particular on the Indus Civilization, a summary of directions of research prior to 1970 is given dealing with the major issues involved before attempting to highlight the progress of research and their impact on our understanding of cultural dynamics in the Greater Indus Valley and Baluchistan.

Prior to the rise of Indus Civilization, the only evidence of a Neolithic assemblage was found at Kili Ghul Mohammad in the Quetta Valley of Baluchistan, where it was called 'Pre-pottery Neolithic', and dated at that time to at least fourth millennium B.C. (Fairservis, 1956). The Neolithic was treated as a separate cultural marker having no relation to subsequent developments. At other sites, such as Rana Ghundai and Anjira (I and II), only the lithics were defined, with no or little association with other materials. Just as at Kili Ghul Mohammad (hereafter KGM) there was an apparent cultural break or gap in our knowledge between the poorly known Neolithic and the succeeding period in Baluchistan which was known from the clusters of settlements mostly pre-dating the Indus Civilization.

Following the trail of Sir Aurel Stein, field research in northern and central Baluchistan (Fairservis, 1956 and 1959), the central Kalat plateau (de Cardi, 1964, 1983), the Makran (Dales, 1962 a & b), and the excavation at Nindowari (Casal, 1966) brought to light additional information on cultural sequences of sites and the extent of ceramic traditions, suggesting close interaction among the population of Baluchistan. A broad based sequential framework of protohistoric materials from Baluchistan was emerging, but cultural developments were traditionally seen in the context of those in neighbouring regions, especially Iran, of which Baluchistan is an integral part geographically. The 'borderland' paradigm of the archaeology of Baluchistan was reflected in the literature as was the concept of separate and local cultural developments in Baluchistan having no relation with the Indus Valley. In the detailed description of a bewildering variety of pottery the definition of Chalcolithic, following the Neolithic, was nowhere in evidence. It was, however, believed (Fairservis, 1967) that the Indus Civilization had its antecedents in Baluchistan's 'peasant communities', the existence of which was not possible to demonstrate with factual evidence.

In the case of the Harappan Civilization, a number of paradigms held the ground firmly.

- (1) The rise of the Harappan Civilization was attributed to stimulus diffusion from Iran and especially Mesopotamia where civilization arose earlier than in the Indus Valley, where it was dated between 2400 and 1500 B.C.
- (2) The civilization came to the Indus Valley in already developed form.
- (3) The Indus Civilization remained static, rigid and uniform throughout its life history which was its unique feature.
- (4) There was a direct trade link with Mesopotamia where some Harappan materials were found.
- (5) The Indus Civilization ended (a) suddenly from the invasion of Aryan speaking people in the middle of the second millennium B.C. or (b) by floods caused by holding back the Indus River due to tectonic distur-

bances, or (c) by over exploitation of the land resources. (6) The later period of the Indus Civilization, known as Jhukar in Sind and 'Cemetery H' in the upper Indus Valley, was 'Post Harappan', implying a break in the Harappan cultural tradition.

(7) The duration of full bloom for Mature Period of the Harappan Civilization before its 'demise' was short.

(8) At the sites where materials lying stratigraphically below the 'Harappan' occupations were found, they were called 'pre-Harappan', implying no positive cultural relationship with the overlying Harappan remains.

This list is not complete but is sufficient to point out significant and popular paradigms on the Indus Civilization which influenced the course of research for nearly half a century. By the mid-1960's, new discoveries of sites and excavations were already changing the direction of research and interpretation of data. As a natural consequence, the old paradigms came to be questioned as regards their validity to interpret the new body of data that had begun to accumulate. The reopening of excavations at Mohenjo-daro brought the Aryan invasion paradigm in direct conflict with the evidence found in the upper levels. Alternative explanations such as floods and over exploitation of land resources were sought for the decline of the Indus Civilization.

One major paradigm to break up was that of stimulus diffusion for the rise of Indus Civilization. A detailed analysis of the evidence from sites stratigraphically and chronologically earlier than the 'Harappan' occupations at Kot Diji (Khan, 1965), Kalibangan I (Lal, 1979; Thapar, 1985, 50-63), the pre-defence levels of Harappa (Wheeler, 1947), Gumla (Dani, 1970-71) and Sarai Khola (Halim 1971, 1972) then under excavation, Amri (Casal, 1964), and from the surface of other sites in the Punjab demonstrated that the Indus Civilization had an indigenous origin and growth, climaxing into full urbanization by the middle of third millennium B.C. The examination of all categories of available material evidence led to the conclusion that the emergence of large urban centers like Mohenjo-daro and Harappa was the result of many complex, interrelated cultural processes which were already under way, at least from the beginning of the third millennium B.C. The early materials, some of which were dated by Radiocarbon, it was argued, represented an *Early Harappan* phase of the Mature Harappan (Mughal, 1970, 1983, 1988a, 1988b). The delineation of an early formative or early urban phase received further elaboration and confirmation due to the great amount of new

information revealed at several sites during the last two decades of field research in both Pakistan and India.

The discovery of Harappan sites beyond the main Indus River Valley and its tributaries, especially in the central part of the undivided Punjab, on the (now dry) Ghaggar-Hakra River, led the present author to define the *Greater Indus Valley*, which includes the high settlement density region of the Ghaggar-Hakra River system (Mughal, 1970: 169., Fig. 10). The discovery of a third large urban center (81.3 ha.) on the Hakra River, Ganweriwala, in later years (Mughal, 1980a, 52, 1984) has now destroyed the paradigm of 'twin capitals' of the Harappan 'Empire'.

In assessing the state of knowledge in 1970, a number of problems were singled out for which future strategies for field research were proposed (Mughal, 1970, 379-383). Some of the points are recapitulated briefly to provide a background or statement of objectives of the field work programmes carried out in the Indus Valley and Baluchistan during the last two decades:-

1. It was felt that the poorly defined Neolithic Period should be investigated to provide details of material culture, the emergence and development of settled life and related aspects. Excavations were proposed at Kili Ghul Mohammad or Anjira in Baluchistan.

2. As the data on reconstructing developmental stages was very limited in 1970, Periano Ghundai (Zhob) and Dabar Kot (Loralai) were thought to be a good choice for excavation. The stage following the Neolithic was bracketed as 'Pre-Early Harappan' which covered all materials prior to the third millennium B.C.

3. The Amrian ware, best known from the excavation of Amri, needed further elaboration as regards its distribution in southwestern Sind and the character of settlements in an ecological zone that was quite different from the Indus River plain. Excavations at Amrian settlements, either Pandi Wahi or Damb Bhuti, was proposed for providing relevant data.

4. The basic frame of reference for the definition of the Early Harappan Period was the site of Kot Diji from where the stratigraphic ceramic sequence was used to define the Early Harappan (Kot Dijian) pottery types and their extensive distribution. The data came primarily from one trench (BIV/6) which was fully published. To confirm the sequence of Early Harappan occupation and for more information on other aspects of material culture, it was proposed to conduct horizontal excavations at Kot Diji, at the newly discovered site of Jalilpur on the River Ravi near Harappa, at least at one site in the Gomal Valley, Sarai Khola, and at Harappa.

5. While discussing the unpublished sites discovered

by Sir Aurel Stein in Bahawalpur (Cholistan) on the Hakra, it was observed that Cholistan appeared to be a nuclear area of the Indus Civilization, where transition and development from the Early to Mature Harappan might have taken place, and that shifts in the settlement location are linked to the changing courses of the (Hakra) river. It was suggested that the whole region should be explored with a view to locating sites of all kinds, and reconstructing an accurate picture of the settlement distribution at one specific period. It was also proposed that at least one of the two large (Harappan) sites, Treko or Lurewala, should be excavated.

6. The evidence demonstrated that the Early Harappan cultural phenomenon was confined to the main Indus River valley. It was at the beginning of the Mature Period that a shift to the coastal areas took place. In order to understand the nature of the shift, and in particular the emphasis on the sea for trade or exchange, it was proposed to dig at least one of the coastal sites.

7. For a full picture of the Harappan settlement patterns and their ecology systematic surveys of the various regions of the Greater Indus Valley were suggested.

8. By 1970, very little was known about the ancient plants and animal domesticates. It was felt that such studies should be an integral part of all future research.

9. The other points raised included study of the functions of structures based on artifact distribution; the phenomenon of the apparent abandonment of sites by the middle of third millennium, and emphasis on problem oriented research.

THE PROGRESS OF FIELD RESEARCH AND NEW PERSPECTIVES

By a happy coincidence, most field work carried out during the last two decades in Pakistan was oriented towards the solution of problems pointed out in 1970. It is not the purpose here to summarize or repeat the results of all the field work done since 1970, because the details can be found in relevant publications referred to at appropriate places. The objective is to point out significant information so far revealed in the context of overall cultural developments and changes through time from the Neolithic to the decline of the Indus Civilization and how far the results of various field programs have provided answers to outstanding questions or provided new perspectives.

1. The Neolithic Period circa 6500-5000 B.C.

The site of Mehrgarh is not located in Baluchistan, but lies in the physiographic region of the lower Indus Valley, in northwestern Sind, just as the Iranian Khuzistan region is a part of southern Mesopotamia. Its astonishingly long sequence, beginning about the end of the seventh millennium, and designated as Period IA-C (aceramic), has demonstrated a sharp shift from hunting and gathering economy to the domestication of cereal crops namely wheat and barley (91%), and animal husbandry (Jarrige, 1981, 1982, 1984a; Jarrige and Lechevallier, 1979; Jarrige and Meadow, 1980; Meadow, 1984, 1989). By Period II or the end of the sixth millennium B.C., the sheep, goat and cattle (zebu) and naked six-row barley, bread and short wheat were domesticated (Constantini, 1984). Stability of residence is indicated by an apparent continuity of domestic architecture, starting in Period I, with houses of four to six rooms built of mud bricks, compartmented storage buildings and craft specialization. These features continue into Period II, and in terms of architecture into the Chalcolithic, Period III. The presence of compartmented buildings, interpreted as granaries on the basis of charred grain found in some of them, is indicative of surplus grain available to the people. Differential social status, or wealth, is indicated by the funerary items of Period I, found with the dead, then buried in the pits, and in graves in the later period, often accompanied by up to five goats (Samzun and Sallier, 1985). The graves of Period III yielded objects of steatite, turquoise, shell and lapis lazuli - suggesting long distance exchange or access to sources of these materials in the seventh/sixth millennium. Pottery was not found in Period I, but handmade chaff-tempered pottery, some with plum-red slip, was introduced towards the end of the Neolithic, in Period II. In the subsequent Chalcolithic Period III pottery was made on the wheel and mass produced. Wide ranging contacts with other areas of Baluchistan and southern Afghanistan are indicated at that time, corresponding with an increase in craft activities, such as making beads, and items of shell and pottery, both decorated and plain. The stone tools of the Neolithic Period are mostly homogeneous, and dominated by microliths of various shapes made of flint, and suggesting a range of functions such as hunting and harvesting. Stone axe-heads were found only in the graves. The beginning of Period III marked the disappearance of microliths which were replaced by obliquely truncated blades, notched and serrated and retouched flakes. A basic change in form and apparently

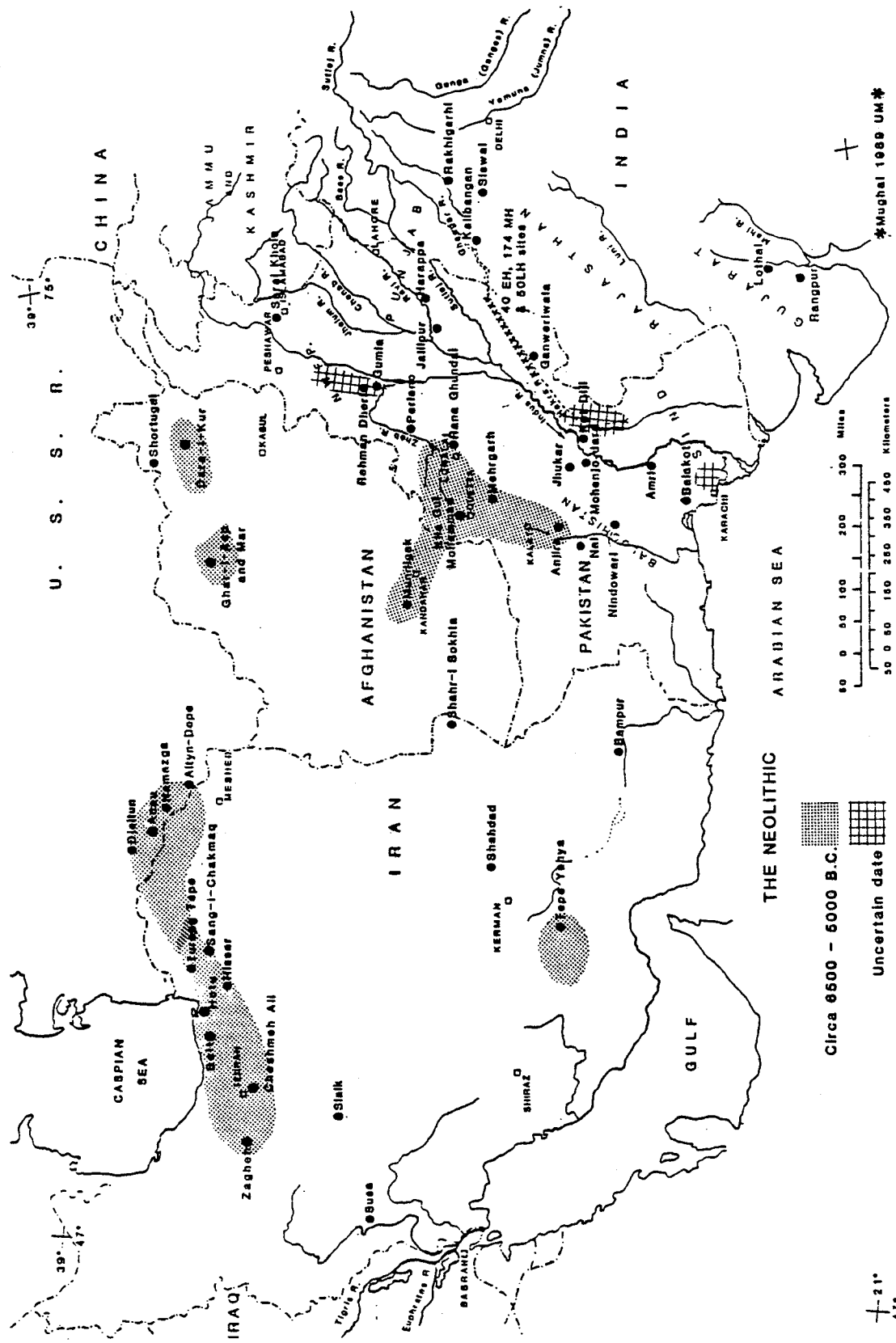


Fig. 1. Map showing the distribution of Neolithic assemblages of the sixth and seventh millennium B.C. in the Indus Valley, Baluchistan and neighbouring regions.

function of stone tools corresponded with changes at that time in architecture, ceramics and burial practices at Mehrgarh. There were at least three shifts in the settlement area through time. Therefore, the Period I and II occupation is separated from that of Period III stratigraphically. The remaining Periods IV-VII are represented by a separate area where the cemetery of Late Harappan times, containing materials of Central Asian origin, was located. The details of the Neolithic cultural horizon with information on domestication of animals, plants, craft related activities, long distance exchange, burial practices and public architecture (granaries), taken together with the time-range covering the entire Neolithic material found at Kili Ghul Mohamad, and extending back to the 7th millennium, is the most significant development in archaeological research in Pakistan. Comparable evidence is beginning to appear at Sheri Khan Tarakai in Bannu Basin, the early levels of which are dated between 4735 and 4380 B.C. (calibrated), equating with Mehrgarh IIB-C levels but later in date.

In northern Pakistan, evidence of an entirely different Neolithic tradition, of much younger date than that of Mehrgarh, was discovered at Loebanr III, Ghaligai and at an early level of Aligrama (Stacul, 1976, 1980; stacul and Tusa, 1977) and at Sarai Khola in the Taxila Valley (Halim, 1971, 1972). The handmade grey, often burnished pottery, with basket or mat impressions on the base from Swat, along with beads of jade, stone mace heads, stone shaft-holed harvesters and cult figurines, all found in the dwelling pits, are apparently related to the fourth millennium B.C. Yang-shao Neolithic tradition of China. In Swat the comparable materials are dated to the middle of second millennium B.C. A similar assemblage occurs at Burzahom and Gufkral in Kashmir, where it is dated to the first half of the third millennium B.C. (Thapar, 1985, 25-38), a date further confirmed by the presence of characteristic short necked globular vessels painted with the Kot Dijian horn motif in level IC of Burzahom. At Sarai Khola, hand made red burnished and plain pottery, associated with a celt and bone points, came from pre-Kot Dijian levels (Period I) dated to 3300-2885/3020-2525 B.C. (calibrated).

Unlike the Western Neolithic of Pakistan, as it may be called, the Northern Neolithic (including Kashmir) existed in 'refuse areas' bypassed by the developments of the Indus Valley, but occasionally showing evidence of contact, once during the Early Harappan (Kot Dijian) Period (e.g. Kashmir), and again during the Mature Harappan Period (e.g. Ghaligai II, Swat). The

western Neolithic of Pakistan (Mehrgarh I and II and KGM I), is directly related to later cultural developments that took place during the Chalcolithic and Bronze Age in the Greater Indus Valley.

The discovery of Neolithic assemblages at Mehrgarh going back at least to the end of seventh millennium B.C. and making it contemporaneous with early Djeitun at the type site and at Sang-I-Chakmaq and other sites has given an entirely new and wider perspective to the development of complex societies in the piedmont plain in Sind and the hilly regions of Baluchistan (Fig. 1). A comparison, with the Neolithic horizons of other regions has not yet been worked out.

2. The Chalcolithic Period circa 5000-3400 B.C.

The period called Chalcolithic has received definition only recently at Mehrgarh III, following the Neolithic Period II (with three sub-divisions) and reportedly continuous (in architecture) with it. Previously, the term was generally but loosely applied to the assemblages of Baluchistan, and even to the Indus Civilization, and included under the composite name Copper/Bronze Age, due to lack of definition and also differentiation. Mehrgarh Period III does not mark the first appearance of copper because a copper ring, a bead and a small ingot were found in Period IIA along with painted and plain pottery made on a 'turntable' (Jarrige, 1984a), though pottery first appeared in the upper Neolithic level IB. A bronze seal is also reported from a burial assigned to the Period III cemetery. It is evident that the Chalcolithic Period is not distinguished on the basis of the presence of copper or metal technology in Period III of Mehrgarh. It is a chronological and possibly a cultural marker to fit in between the Neolithic and the beginning of cultural processes around 3400 B.C., which now constitute the Early Harappan Period of the Greater Indus Valley. Period III at Mehrgarh was characterized by mass production of ceramics (begun in Period IIC), 40% of which were of fine fabric and painted with geometric and animal motifs that are known to be widely distributed at KGM II and III in the Quetta Valley and Togau A in Kalat. They are comparable in turn with Mundigak I, 1-3 and fall in the Namazga II time-range, or between Hissar I and Early Hissar II (Fig. 2). The beginning of the Chalcolithic is thought to be around the end of the fifth millennium B.C. (Jarrige, 1984b), but typological comparisons of Mehrgarh III materials with other sites, as pointed out by de Cardi (1984), fall in the early fourth millennium B.C. An approximate time range of

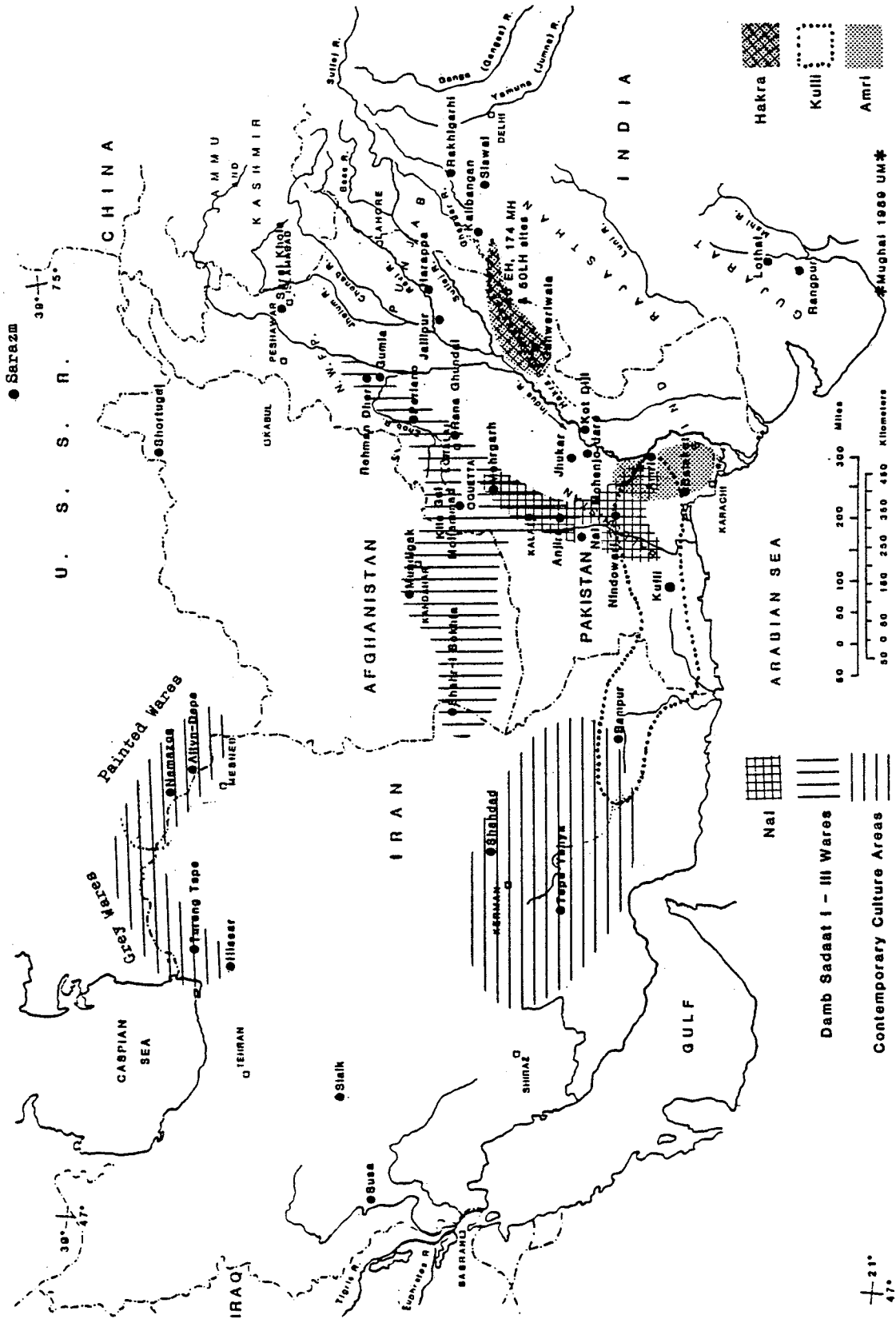


Fig. 2. Map showing the areas of occurrence of Chalcolithic and Early Bronze Age sites, mainly of the fourth and fifth millennium B.C., in the Indus Valley, Baluchistan and neighbouring regions.

between 4000-3500/3400 B.C. for the Chalcolithic Period seems to be consistent with the archaeological evidence available at present.

The evidence mostly from Mehrgarh III and other sites when seen collectively leads to the conclusion that the Chalcolithic Period, or the beginning of the fourth millennium B.C., marks a significant and basic cultural change. Although demonstrated to be continuous in terms of architectural style, (e.g. compartmented granaries), it was in Period III that the ceramics began to be mass produced in standardized shapes, and painted designs which spread from southern Afghanistan to Kalat. Some designs such as the drumstick and rosette, compare with those of Hissar I. The lithic industry of Mehrgarh III shows a total absence of microliths which otherwise dominated in Periods I and II, maintaining a sort of homogeneity in blade production (Lechavallier, 1984). It was replaced in Period III with notched and serrated flint tools, large triangles and blades with obliquely chipped finishing. At the same time the burial practices underwent drastic change during the Chalcolithic Period. The cemetery associated with this period has no grave structures and no use of red ochre. The east-west orientation of the dead was the only feature retained from the earlier tradition. Only a few funerary items were found, but the females especially were buried with necklaces, bracelets and headbands made of lapis, turquoise, shell and steatite beads. The presence of these stones at that time is suggestive of the widening of interaction sphere of the site as is the distribution of identical pottery forms and designs mentioned above. Micro-drills of stone, and tools for shell engraving in the Chalcolithic Period are suggestive of the local production of several items, and an emergence of occupational/class stratification already by the beginning of the fourth millennium B.C.

3. The Early Harappan Period of the Greater Indus Valley circa 3400-2500 B.C.

When the *Early Harappan* Period was delineated and defined as representing an early formative, early urban or developmental stage of the Harappan Civilization in the *Greater Indus Valley* (Mughal, 1970), the demonstrable evidence to support the argument was available from four excavated sites (Amri, Kot Diji, Kalibangan and Harappa); and from the surface of four further sites (Saraj Khola, Gumla, Jalilpur and Bhoot or Kalepar); in addition to an unpublished report of Sir Aurel Stein's survey. Since then, information is available from the excavation of thirteen sites, in the Taxila Valley, Gumla (Dani, 1970-71) and Rahman Dheri

(Durrani, 1982; 1988) in the Gomal Valley, Tarakai Qila (Allchin, 1981) Lewan (Allchin, et. al., 1986) and Sheri Khan Tarakai (Farid Khan, et. al., 1986) in the Bannu Basin, Jalilpur (Mughal, 1972b, 1974a), Harappa Mound E (Dales and Kenoyer, 1988), Ghazi Shah (Flam, 1988), Mehrgarh levels IV-VII and (a section of) Periano Ghundai (Mughal, 1972c). Besides, Early Harappan (Kot Diji related) materials have been found on 95 sites: 40 in Cholistan (Mughal, 1980a, 1982), near Lahore (Dar, 1983), 3 in the Taxila Valley (Mughal, 1972a), 2 in the Gomal Valley (Dani, 1970-71), 8 in the Bannu Basin (Farid Khan, 1986), 31 (including 28 Amri related) in southwestern Sind (Flam, 1981). On the Indian side, Kot Diji - Kalibangan I related materials have been found in the excavation of Sothi (Dikshit, 1984), Binjor 3 (Dalal, 1980), Manda (Joshi and Bala, 1982), Banawali (Bisht, 1982) and Siswal (Bhan, 1971-72). Further, if identification is correct, Early Harappan materials have been reported from the surface of 131 sites, excluding the excavated sites mentioned above, (Joshi *et. al.*, 1984). It is a unique situation that soon after presenting the definition of the Early Harappan cultural stratum as existing in the Greater Indus Valley itself, the next two decades saw the excavation of 18 Early Harappan sites, and the discovery of 226 other sites! The data now available has provided additional and solid support to the concept of the Early Harappan, and further elaboration on the existence of an early urban or formative state of the Harappan Civilization. Many a gap has been filled up in our knowledge, and thus the argument regarding the beginning of the Indus Civilization and the processes leading to full urbanization or maturity has been further strengthened.

With an overwhelming amount of data and the availability of Radiocarbon dates, it is now possible to propose a subdivision of the whole body of information on the Early Harappan Period into a three fold developmental sequence, beginning around the middle of the fourth millennium B.C. (see below). The 3000 B.C. date for its beginning, suggested twenty years ago, seems now to represent the beginning of the second phase in the sequence. The evidence further suggests the continuation of Early Harappan tradition beyond 2500 B.C., or after the maturity of the Harappan Civilization, and contemporaneous with it for a short period of time before it was assimilated by the new organizational or political system associated with the Mature Harappan Period (Thomas and Allchin, 1986). In assessing the pertinent information so far revealed by the groups of Early Harappan sites in different areas, the following observations can be made without giving

the description of content of each site except when necessary to draw attention to a particular point.

The Bannu Basin

The Bannu Basin in the N-W Frontier Province of Pakistan is watered by three rivers: the Kurram, Tochi and Gambila. Nearly three dozen sites of different periods have been discovered (Farid Khan *et al.*, 1987). Of the Early Harappan Period, there are nine sites, Tarakai Qila, Islam Chowki, Mirzali Khan Dheri or Seer Dheri, Lak Largai, Takhit Khel Tarakai, Zabta Khan Dheri, Lewan or Dar-Dareez, Sheri Khan Tarakai and Barrai Khurarra among which Tarakai Qila, Lewan and Sheri Khan Tarakai have been excavated to varying extent (Fig. 3). The earliest known Radiocarbon date of 4735-4380 B.C. (calibrated) comes from the

first occupation at Sheri Khan Tarakai, an extensive site about 0.2 sq. km. reportedly of continuous occupation from 'Late Neolithic' to the Kot Dijian (Farid Khan *et al.*, 1986) representing two meter thick stratigraphy. All other settlements are Kot Dijian. The earliest date comes from Lak Largai (2905-2760 B.C.), followed by Tarakai Qila (2875-2530/1970-1740 B.C.) and Islam Chowki (2425-2160/2410-1860 B.C.). Whatever the range of dates, the materials compare with Gumla Period II-III. In addition to the mud brick structures, Lewan (Allchin, *et al.*, 1986) produced a number of pit dwellings like the Neolithic settlement of Burzahom in Kashmir. Of special interest are a large number of special tools consisting of ring stones and hammers used in their manufacture, ground stone axes, querns and hammers of various kinds found in the cultural debris of pits. A series of stone burins, points,

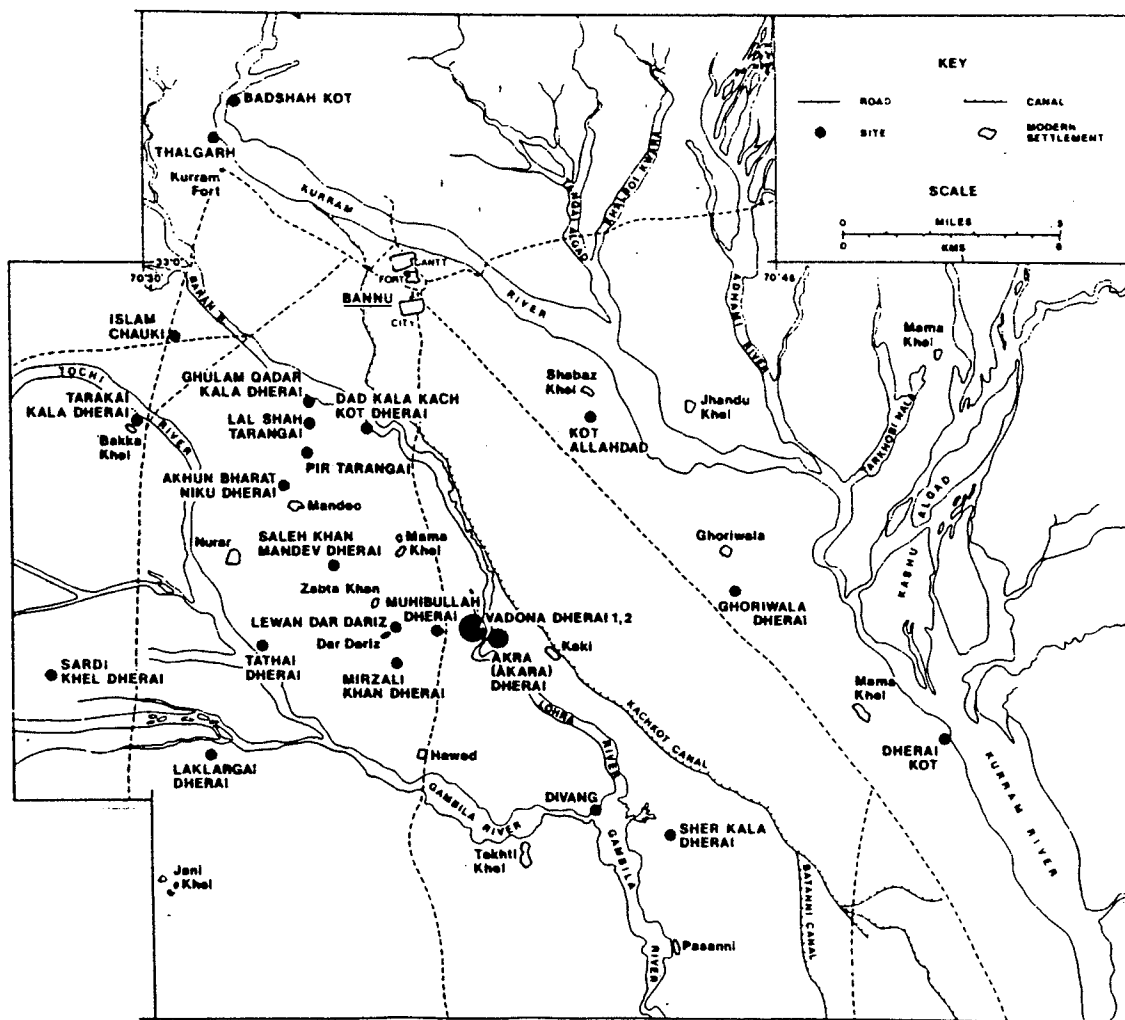


Fig. 3. Map showing early settlement sites in the Bannu Basin. (after Allchin *et al.*, 1986)

scrapers and blades, some still retaining silica gloss (due to harvesting), leaf shaped arrowheads and micro drills for making beads of turquoise and lapis lazuli locally have been found. The size of settlements ranges from 0.6 to 10 ha. There is clear evidence of wheat and barley at these sites in addition to the presence of field peas and lentils. The evidence of Mature Harappan pottery is slight at present, though the Gomal valley sites south of Bannu Basin do show limited occurrence of characteristic Mature Harappan pottery especially at Gumla.

The Gomal Valley

Among four Early Harappan sites, the chronological sequences obtained at Gumla and Rahman Dheri extend back to the second half of the fourth millennium B.C. At the other end of the bracket, the occupation of both the settlements lingered on into the Mature Harappan Period of the second half of the third millennium. This is attested by the actual occurrence of six Mature Harappan pottery types at Gumla in Period IV, consisting of the last occupation, and by the Radiocarbon dates of Period III levels of nearby Rahman Dheri, ranging between 2650-2170 and 2150-1771 B.C. There are three Mature Harappan sites in the Gomal Valley, one of which (Hisam Dheri) is a pottery firing area, not a settlement. Gumla's two C-14 dates from 'late Kot Dijian' levels do not extend beyond the mid third millennium although the site had positive contact with the Mature Harappan. This interpretation of six Mature Harappan pottery type 'intrusions' into an essentially continuous Kot Dijian occupation at Gumla, in an area where at least three Mature Harappan sites were also present, would be more consistent with the evidence than explanations such as invasions or destructions during the Mature Harappan Period. The ceramic sequence of Gumla reveals that all the Kot Dijian pottery types which appeared at the first occupation in Gumla II persisted right up to the last Period IV. There was no break in cultural continuity at Gumla. A few Mature Harappan potsherds in Gumla IV were found in association with an overwhelming amount of Kot Dijian materials.

The first occupation at Gumla I is reported to be 'Neolithic' containing no pottery, but several categories of bone and stone tools were present. That occupation still appears to be unrelated and undefined. The early 'neolithic' levels of Sheri Khan Tarakai in Bannu Basin (above) dated to the middle of the fifth millennium B.C. might shed some light on the Neolithic horizon of that region before the beginning of the Early Harappan

Period around the middle of the fourth millennium B.C.

Rahman Dheri (Durrani, 1988) in fact, presents the whole time bracket of the Early Harappan Period: Kot Dijian A, B, and C (below). Its Period I shows considerable interaction with northern Baluchistan, due to its location on the important route linking the Indus Valley with Afghanistan through the strategic Gomal Pass, and accounting for the presence of a lot of lapis lazuli and some turquoise at the site. It is around the beginning of the third millennium B.C. that 'Harappan' motifs like the peacock, pepal leaf, fish scale and intersecting circles appear, just as they occur at Kot Dijian where 'Harappan' motifs and objects begin to emerge in the middle levels. The presence of circular silos for the storage of grain (recalling multiroomed granary structures at Mehrgarh of the early fourth millennium) in Period I at Rahman Dheri could imply either availability of surplus or economic uncertainty. Though the occupation was continuous, the silos were not used in the later period. However, 'platforms' of unknown function did persist throughout until the last period. The first settlement was enclosed by a 'city wall' recalling the fortifications of early Harappa, Kalibangan I and Kot Dijian.

The Taxila Valley

In evaluating the Early Harappan evidence from three excavated sites out of five so far known in the Taxila Valley (Mughal, 1972b), a consistent pattern of abandonment before and after the Kot Dijian occupation has emerged which requires an explanation. Like the sites of the Bannu Basin, the settlements in the Taxila Valley represent a single period of occupation. Sarai Khola I is not related to its Kot Dijian occupation II. At Hathial and Jhang, the Kot Dijian occupation is sandwiched between sterile layers and the sites were reoccupied only after long abandonment. The terrain where these sites are located is broken by a number of streams some of which are perennial but have cut so deeply that water cannot be used for irrigation. The crops are dependent entirely on seasonal rains. It would appear that environmental factors limited the growth of settlements beyond a certain point and also their life span. The sites in the Taxila Valley have yielded a large number of celts and bone implements, paralleled only by Lewan in Bannu Basin, and indicating similarities of responses to ecological situations in both regions, requiring celts for activities related to subsistence and other practices. There is no Mature Harappan occupation material so far found in the Taxila Valley.

The Punjab and Beyond

The Early Harappan occupation at Harappa, as known from the pre-defence levels only, has now been confirmed at Mound E in recent diggings (Dales and Kenoyer, 1988). In the 1989 season of work, a continuous sequence from the Kot Dijian assemblages to the Mature Harappan has been revealed along with kilns and evidence of craft activities through time. The Harappa sequence could now be tied in with that found at Jalilpur (Mughal, 1972b; 1974a), where Kot Dijian occupation assigned to Period II occurs overlapping yet another but earlier occupation associated with the Hakra Wares. Now located near the bank of Ravi, the ancient environment of Jalilpur was semi-arid as the presence of gazelle among the faunal remains suggests (Meadow, 1988). A large percentage of cattle bones and those of sheep and goat suggest diversity of subsistence base which included agriculture and animal husbandry. About 250 km south of Jalilpur, 40 contemporary sites of the Early Harappan Period, of different sizes, one of which covering a 27.3 ha. area, holds considerable potential for future research. The map of Early Harappan settlements is not yet complete because the Punjab region is largely unexplored. The presence of a site 'Khadin-wala' (Dar, 1983) between Sarai Khola and Harappa is a clear indication of the presence of many more sites in the Punjab waiting to be documented.

In Pakistan, the frame of reference for identification and analysis of Early Harappan material is largely Kot Diji, and in a less specific and restricted sense Amri in southwestern Sind. The Indians use Kalibangan I (or Sothi) for determining the cultural associations of the sites of Early Harappan Period. Located on the dry bed of Ghaggar-Hakra River in northern Rajasthan, Kalibangan I, the first fortified settlement underlying the Mature Harappan (Thapar, 1985, 53) revealed a ceramic assemblage related to that found earlier at Sothi by Ghosh (1952). The pottery was initially divided, on the basis of body fabric, into six categories A to F which are somehow still being retained and used as a basic frame of reference. The author's study of Kalibangan I Fabrics A to F at Delhi in January 1986 showed that the 'Fabrics' are very confusing as they do not consider basic forms of vessels. As a result, one vessel shape is found in more than one 'Fabric' and there is no way to work out frequencies of various pottery types stratigraphically other than considering the whole block of ceramics together. This system is being used to identify Sothi or Kalibangan I pottery at other sites, and lumped into 'Pre-Harappan'. Important points emerging out of this study are that 'Fabric C' contains

diagnostic short-necked Kot Dijian globular vessels with a wide painted band on the neck. A similar type is also included in Fabric A. Fabric D includes Kot Dijian grooved ware, and 'E' cups and dishes on stands. Fabric 'B' includes specimens of Kot Dijian forms but the external surface is plain and sand-slipped ('rusticated') and is also treated with multiple wavy lines in relief, otherwise known as 'Periano Wet' in Baluchistan (Mughal, 1972c). In the assemblage are certain types which have precise parallels with those from the Early Harappan sites in Cholistan, Jalilpur, Harappa and the Gomal Valley. Buff ware specimens of typical 'Quetta Wet' wares are also included in the 'Fabrics' of Kalibangan which are reported only from the water-logged levels at Mohenjo-daro during the excavations in 1950, and earlier by Mackay (1938, Pl. LXVI, 1-4), but otherwise found at the Gomal Valley sites in association with the Early Harappan pottery.

An extension of the Early Harappan sites further to the east and north is found at the 'early' levels of Siswal, or Siswal A (Bhan, 1971-72; Shaffer, 1986), at Banawali (Bisht, 1982) located 120 km. east of Kalibangan and at Manda (Joshi and Bala, 1982) near Jammu on the right bank of the Chenab River. The diagnostic Early Harappan pottery with short necks and other related wares comparable to those of Kalibangan I and Kot Dijian sites are found, but their Radiocarbon dates mostly fall in the second half of the third millennium B.C., making these peripheral sites like some in the Bannu Basin, contemporary in part with the Mature Harappan of the Core Area of the Greater Indus Valley. The Indian archaeologists continue to apply the term 'Pre-Harappan' to all the early materials though admitting at the same time that these chronologically early materials constitute an early phase of the (Mature) Harappan. Ironically, though some make the distinction between the (Mature) Harappan and Late Harappan, the early materials representing the formative stage of the Harappan Civilization are still labelled as 'Pre-Harappan'. Dyson (1982) has rightly pointed out difficulties arising from the use of confusing terminologies in the study of the Indus Civilization and has emphasized the need for an agreed-upon terminology in South Asia.

Sind: The Lower Indus Valley

In 1970, from the stratigraphic ceramic sequence of Kot Diji, a typology of principal pottery forms was derived and defined (Mughal, 1970: 59). It was used to compare materials from other sites known at that time in the Greater Indus Valley which established a wide distribution of standardized pottery forms, and a

	LAYERS	STONE						TERRACOTTAS						METALS			SHELLS						
		Balls	Chert Blades	Chert Cores	Grinding Stone	Pestles	Gaming Discs	Cake x	Cones x	Bangles	Animal Figurines	Female Figurines	Cart Frames x	Cart-Wheels x	Beads	Beads	Rings	Misc.	Mother-of-Pearl	Bangles	Cowries	Beads	Steatite Seals
KOT DIJI II	1	14	132	31	4	1	1	5	20	123	11		10	4	15			1	3	14	1	3	3
	1A		4		1			1	7	31					1					1			
	1B	36	45	15		1	1	10	21	71	7	1	8	3	15			2	11		4		
	1C	3	6	6				2	22	10	1		2		1	1	1	2	3				
	1D		3						1										1				
	2	36	139	38	2	2	1	26	46	247	11	3	20	10	35	1	2	2	6	19		1	
	2A	8	45	12	2	2		7	1	84	5		2		8			2	7				
	2B	5	49	9				2	4	31	4	1	2	1	8		2		3				
	2C	1						1		9				1	5				1				
	2D	1	3	2				2		7					1				1				
'Burnt Level'	3	4	25	3	2	2	1	3		26	1		1	4				7	5				
	3A	4	19	3	1			1	2	29			2	1	13				2				
	3B		4						7														
	3C	2	5	3	1			1	4					3						1			
KOT DIJI IB	4	7	29	11				5	5	55	3		2	9				1	5		2	2	
	4A	2	26	6		1	1	2	1	25	3		2	2	2				4				
	4B	1	20	6		1	1	3	4	15	1			1					2		1		
	5	1	26	1	1			3	16	2				1					1				
	5A	11	1	1					10					1						1			
	6	1	46	3	1	1	1	2	2	37			2	3					3				
	6B	1	8	2	2	1				6			1				1		2				
KOT DIJI IA	7	1	8					2	6												2		
	8		11	1					5					1									
	9	1	12	5					5			2		2									
	10								1														
	11			1																			
	12	1	6											1									
	13																						
	14		2										3										
14A		2																					
15																							
16																							

Table 1. Distribution of small finds at Kot Diji Mound A, showing continuity of artefact remains from Early to Mature Harappan levels.

sphere of interaction among populations. Further digging at the Early Harappan sites has widened our knowledge of the material equipment in ceramic and other categories. However, all the material, other than pottery from Kot Dijian levels remained to be studied because the published information was very selective (Khan, 1965).

As in the case of pottery, the materials found from all the trenches at the Citadel mound of Kot Dijji was studied according to the stratigraphy proposed by F. A. Khan. The excavations at Kot Dijji have been done so methodically that it is possible to reconstruct interrelationship of the individual trenches and their stratigraphic contents. Finds of four types of material, stone, terracotta, metal and shell were tabulated according to the stratigraphic sequence of the site (Table 1). It is based on all the antiquities registered in the field from the Citadel mound. The finds from the 'lower town' or mound 'B' were not considered because of the mixed up stratigraphy resulting from soil erosion.

The evidence as tabulated at once corrects the statement of the excavator that the 'burnt level' intervening between the Kot Dijian and (Mature) Harappan occupations brought about a radical change in the (material) culture. The occurrence of different categories of materials in both the Kot Dijian and Harappan levels clearly demonstrates continuity throughout. Out of 21 categories, if items like rings, cowries, beads and 'miscellaneous' objects are disregarded for the time being, the only significant difference is the absence in the Kot Dijian levels of mother goddesses, of the type and form so familiar to us from the Mature Harappan sites. In the Early Harappan Period, terracotta female figurines do occur at other sites, but are not yet reported from Kot Dijji. Their form of representation is different from those of the Mature Harappan Period.

Another conclusion that can be drawn from the statistical evidence is the presence of terracotta 'cakes', cones, cart frames and of course, cart wheels in the Early Harappan levels of Kot Dijji, confirming the evidence already obtained from the pottery types. These objects, pottery such as offering stands, and painted designs of fish scales and intersecting circles were usually associated with the (Mature) Harappan culture only. Kot Dijji is not the only site at which such pottery and other objects are found in the Early Harappan levels. All other sites whether or not reoccupied during Mature Harappan times, namely, Kalibangan, Harappa, Jalilpur, Sarai Khola, Gumla and Rahman Dheri have now revealed similar evidence.

The survey data from southwestern Sind (Flam, 1981) suggests that the ecology of the piedmont plain of

the Kirthar and Indus Kohistan hills was a preferred region for the 29 Amrian settlements so far noted there. Natural springs being the only permanent water source, limited arable land and dependence on rain water were the environmental constraints to which the population responded with subsistence strategies which included agriculture and animal husbandry. Three Kot Dijian settlements in the Amrian ecological region are located on a large alluvial area which could be irrigated by sheet flooding. The resources and strategic importance of this region on the route to southern Baluchistan is indicated by the location of at least 19 settlements during the Mature Harappan Period.

With the study of the Early Harappan settlement pattern in the Amrian geographical region, the re-opening of the excavation at Ghazi Shah, an Amrian settlement by Louis Flam (1988 and personal communication), is already beginning to provide information on the stratigraphic sequence of structural levels. These can be associated, with the aid of comparable materials, with Amri IC and D, Nal, Togau C and D and Kot Dijji, and two (calibrated) Radiocarbon dates ranging closely between 3375-3145/3370-2970 B.C. The total depth of the occupation is yet to be reached. Local production of beads is attested by the presence of drills and raw materials found in a room to which level the C-14 dates belong. A large interaction sphere is suggested by the occurrence of lapis lazuli, carnelian, agate, shell and steatite.

Being located on the border between the Indus Valley and the Baluchistan hills, the Mehrgarh levels assigned to Periods IV-VII fall between 3500 and 2500 B.C. which is the period covered by the Early Harappan. Mehrgarh IV and V equate with Kot Dijian A, and Mehrgarh VI and VII with Kot Dijian B, as the evidence both from Baluchistan and the Greater Indus Valley would suggest.

The Early Harappan: Additional Data and Discussion

Evidence on the Early Harappan Period accumulated during the last twenty years, through the excavations of thirteen sites and several extensive surveys, has overwhelmingly substantiated the argument presented in 1970 by the author that all the Kot Dijian (and contemporary Sothi and Amrian) assemblages constitute an integral component of the Harappan Civilization and represent an early or formative period of development. It entailed a long and slow process stretching over almost a millennium beginning, as the present evidence indicates, about the middle of the fourth millennium B.C. (see below). With additional data and calibrated

C-14 dates from several sites, it is now possible to suggest two phases of the Early Harappan before the beginning of the Mature Harappan in about 2500 B.C. The first phase, starting between 3500 and 3400 B.C., marks the beginning of the Kot Dijian occupation corresponding in time approximately with Mehrgarh Period IV, and possibly the Hakra Ware Period. But cultural processes involving social stratification, complexities of architecture, inter-regional contacts and communication, craft related activities and availability of economic surplus appear to have begun, or emerged, even earlier, perhaps by the fifth millennium B.C. The second phase of Early Harappan development seems to cover the first half of the third millennium. During that time, more 'Harappan' traits appear at most of the sites which eventually crystallized by the middle of the third millennium. In brief, the 'core trends' of 'Urban Revolution' (Adams, 1966, 16) though less emphatic than in the first half of the third millennium, were already evident before 3000 B.C. The beginning of those 'trends' or processes could be placed sometime in the later half of the fourth millennium B.C. in the Indus Valley. Within this time bracket fall the Namazga III assemblages, and those assigned to Periods IV or V at Mehrgarh, or to the Late Uruk Period in terms of Mesopotamian chronology.

In addition to the evidence of ceramics, architecture, metallurgy, stone tool technology, terracottas, graffiti and fauna, all discussed in an attempt to define the 'early Harappan' in 1970, supportive evidence from new investigations is of various kinds, which can very briefly be indicated here:

(a) The shape of kilns for firing objects of faience and clay that are known from Harappa, Mohenjo-daro, Bala Kot and Lothal in the Mature Harappan levels is precisely similar to those used at the Early Harappan settlements in Cholistan and most recently found at Mound E at Harappa. In fact, two kilns of identical shape have also been recorded at the Hakra Ware sites in Cholistan.

(b) The multifunctional sites, combining craft related activities with the habitation components were present during both the Early and Mature Harappan Periods in Cholistan. Such sites first emerge during the Hakra Period, representing 2% of the total number of all categories of the Hakra Ware. During the Early Harappan Period, the multifunctional sites increase to 35%. They continue into the Mature Harappan, decreasing to about 19% of the total number.

(c) There appears to be a distribution pattern of Early Harappan settlements which are located at equal distances from one another. Although the archaeologi-

cal map of the Pakistani Punjab is not yet complete, on the basis of whatever is known it can be said that Harappa, Kalibangan and Gamanwala (the largest Early Harappan site in Cholistan (27.3 ha.)) make an equidistant settlement pattern. This pattern was enlarged during the Mature Harappan time to cover the entire Greater Indus Valley.

(d) The current state of information has allowed us now to mark out the Core Areas of settlements during the Early and Mature Periods and also their maximum geographical extension in each period (Figs. 4 & 5). It will be observed that the Core Areas of the Early and Mature Harappan cover almost the entire core centre of the Greater Indus but with a difference. The Mature Harappan Core Area also includes a part of the sea coast and extends to include Saurashtra and the entire Makran coast. This significant shift only at the time of the beginning of the Mature Harappan (ca. 2500 B.C.) brings up the role of trade in the cultural processes leading to full urbanization of Indus Civilization. This line of argument may have to be reconsidered if the Kutch region also produces evidence of Amri or Kot Dijian related settlement. So far, Early Harappan occupation is absent in Kutch.

(e) It has become evident that during the Early Harappan Period, different ecological niches within the Greater Indus Valley were utilized, inducing different responses in the form of subsistence practices and cultural articulation as seen in southeastern Sind, the Gomal Valley, Bannu Basin and Cholistan. From the evidence of single period settlements and camp sites marking temporary occupation in these areas, it could be inferred that their adaptive responses to ecological situations might have included agro-pastoralism. During the Mature Harappan Period, the same ecological regions were inhabited because the sites of both the periods are present in these regions. It would appear that during the Early Harappan Period, the resources of the sea coast and Gujarat were not accessible or not exploited. Their utilization started with the beginning of Mature Period and the expansive process continued until the Late Harappan Period. Thus it is clear that all different ecological regions in the main Indus River Valley were utilized during both the Early and Mature Harappan Periods. The maturity of the Indus Civilization was marked by acceleration of the process of utilizing natural resources in direct continuation of the adaptive strategies of the Early Harappan Period.

(f) The faunal data and studies of economic plants from several sites in the Greater Indus Valley have given convincing evidence that from at least 5500 B.C. until the end of the Mature Harappan (circa 2000 B.C.)

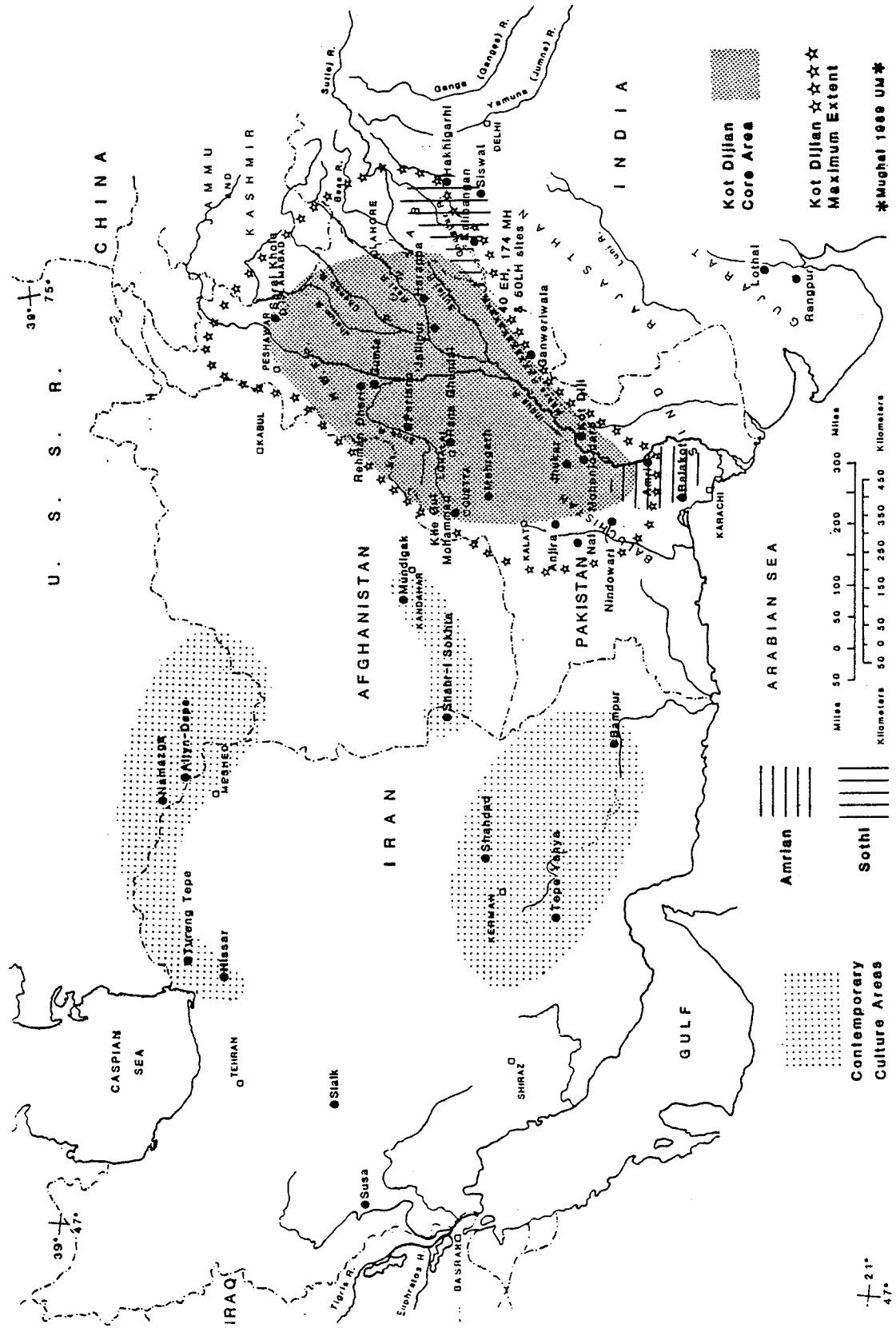


Fig. 4. Distribution map of Early Harappan assemblages, showing the core area of the Kot Dijian, and the Amrian, Sothi and other contemporary culture areas.

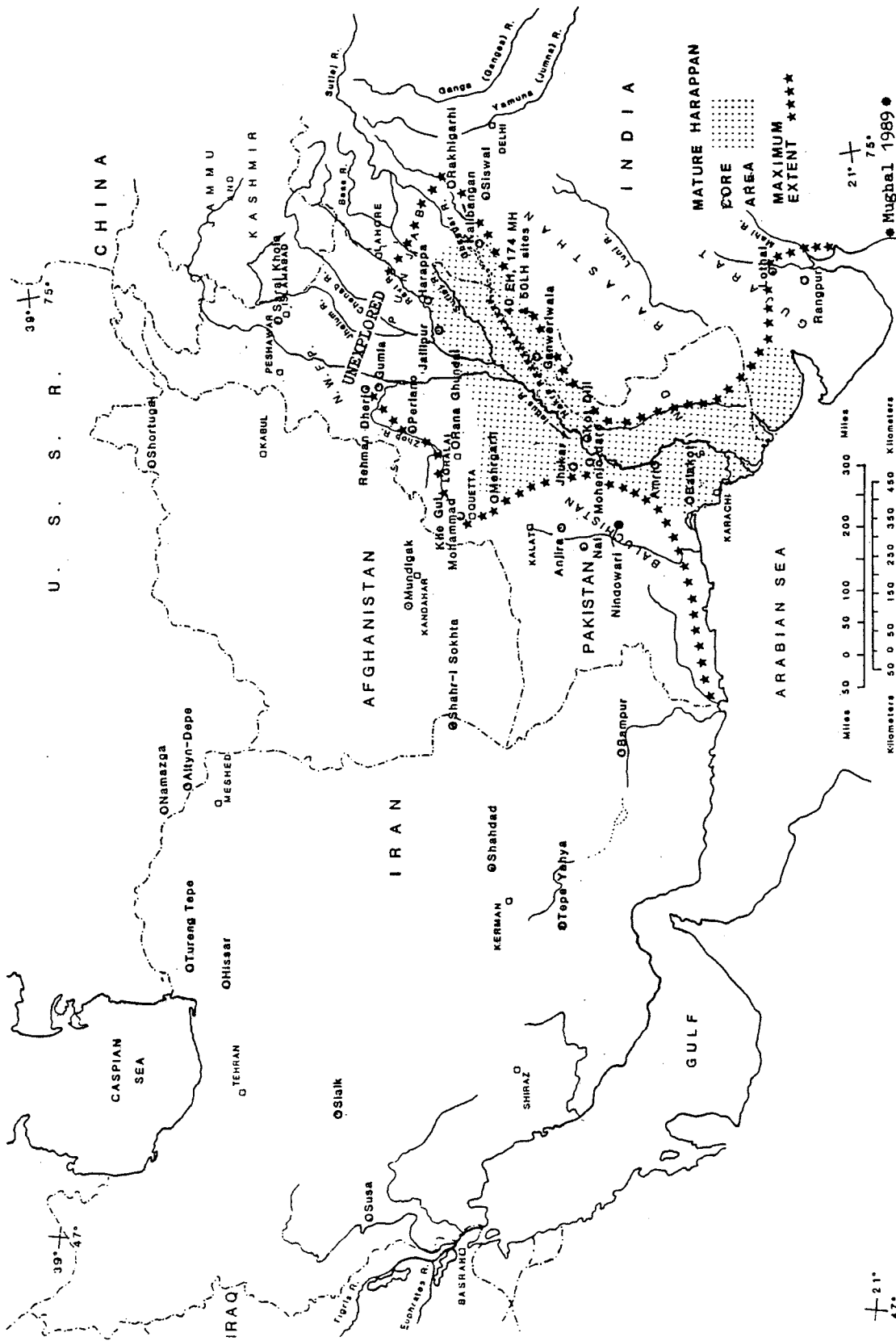


Fig. 5. Map showing the Mature Harappan core area and maximum known extent of site distribution.

single winter-sown (*rabi*) crop agriculture (wheat and barley) remained the common practice (Meadow, 1984 and 1989). At the same time, heavy dependence on cattle is noted in the faunal remains, at Jalilpur for example cattle bones constitute 70% of the total animal bones. It is evident that the conditions for agricultural subsistence and exploitation of animals remained unchanged from the end of the Neolithic Period.

(g) In 1970, almost nothing was known about the religion or religious practices in vogue during the Early Harappan Period. Now, terracotta female figurines of identical form, shown in a seated position with bent legs, flattened body like the hood of a cobra and pinched ends of the legs have turned up from the early third millennium B.C. levels at Jalilpur (Mughal, 1974a), Sarai Khola (Halim, 1972), Jhang, Gumla (Dani, 1970-71) and Rahman Dheri. The large horned motif depicted on the head of a human figure (deity?) at Kot Diji is a recurrent motif at the Early Harappan sites, for example at Sarai Khola (Halim, 1972, 60), Gumla (Dani, 1970-71, 108, 122) and Rahman Dheri (Durrani, 1988, 185, 204). One such motif is reported from Burzahom in Kashmir in later levels (Thapar, 1985, 36). The evidence strongly suggests that common religious beliefs and practices had spread throughout the Greater Indus Valley, and the representation of cult objects and religious symbolism had become formalized, implying the importance of the role of religion by the early third millennium B.C. This factor could have an integrative influence on Harappan society, and on socio-economic organization as reflected in other categories of material evidence. During the Mature Harappan Period, common religious beliefs were present as gleaned from representations of female figurines (though different in form from the preceding period), and motifs on the seals. The difference between the Early and Mature Harappan times is the degree of intensity and elaboration of religious expression, of which only a fraction is available in the archaeological contexts.

(h) In the statistical analyses of all categories of objects found at Kot Diji, as presented above (Table 1), it has been demonstrated that objects which were previously believed to occur only in the (Mature) Harappan Period namely, terracotta cakes, cones, cart wheels and frames, appeared at Kot Diji about the beginning of the third millennium and persisted (like some ceramic forms) until the end of Mature Harappan. Excavations at other sites whether or not reoccupied in the subsequent Mature Harappan Period, have now confirmed the stratigraphic evidence of Kot Diji. Terracotta 'cakes', cones (rarely), toy-cart frames and

wheels have been found associated with Kot Dijian pottery at Jalilpur II, Sarai Khola II, Jhang, and Gumla. It is evident that the use of these items started during the Early Harappan Period.

(i) The study of hierarchical patterning of Mature Harappan settlement sites, and their comparison with those of the Early Harappan, clearly demonstrates that a four tiered hierarchy had already emerged by the beginning of the third millennium B.C. and even before in the Hakra Wares Period in Cholistan (Fig. 6). This phenomenon was not confined to the riverine plain, but even in an ecologically different region such as south-western Sind, a three tiered hierarchy of settlements is evident in the sites of the Early Harappan (Amri-Kot Diji) Period. In the Mature Harappan Period, a four tiered hierarchy emerged in the lower Indus Valley with Mohenjo-daro being the largest city (Fig. 7).

The above review shows that the concept and definition of the Early Harappan presented in 1970 was soundly based, and this is now further strengthened by an enormous amount of new information revealed since then in Pakistan and India. Indeed, the new evidence has forced us to push back the beginning of cultural processes leading to urbanization into the second half of the fourth millennium B.C. The time period, c. 3000-2400 B.C. suggested earlier for the origins of the Indus Civilization in fact, marks the second phase in the long, slow process of growth which culminated in full urbanization about 2500 B.C. This period of growth cannot now be regarded or termed as 'Pre-Harappan' or 'Pre-Urban': but it certainly was, as demonstrated by the evidence of the last twenty years, the early urban period initially defined as Early Harappan.

Discussion of the Early Harappan

Credit goes to those who expressed their reactions to the delineation and definition of the Early Harappan Period of development preceding the Mature Harappan in the Indus Valley. Their observations, constructive criticisms, objections, appreciation and even total silence, prompted the author to look into the related evidence (e.g. Kot Diji antiquities) and additional information. Some of the points raised by the scholars of South Asian archaeology were clarified (Mughal, 1980b); others were answered by the actual evidence itself discovered from Early Harappan sites, and as the conceptual approach changed. Still certain clarifications are necessary on a number of points raised by Professor Gregory L. Possehl (1986, 95-96) who sees some 'profound' differences between the Mature and Early Harappan in five different features:

Settlement sites in Cholistan by size

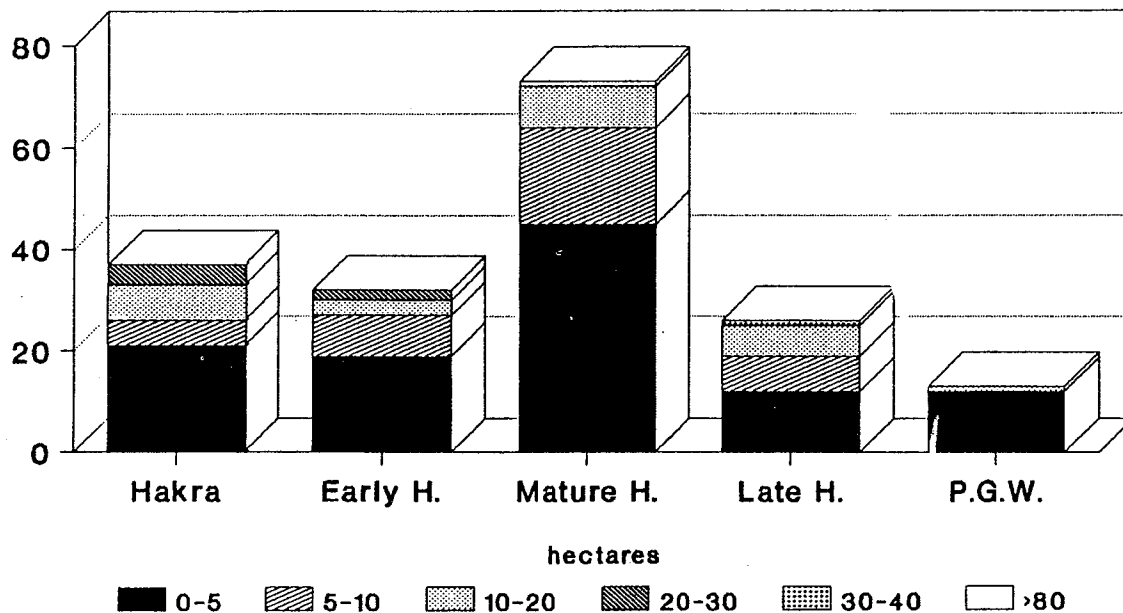


Fig. 6. Settlement sites in Cholistan, diagram showing the numbers of sites of each major cultural period, classified according to size.

SETTLEMENTS IN LOWER SIND

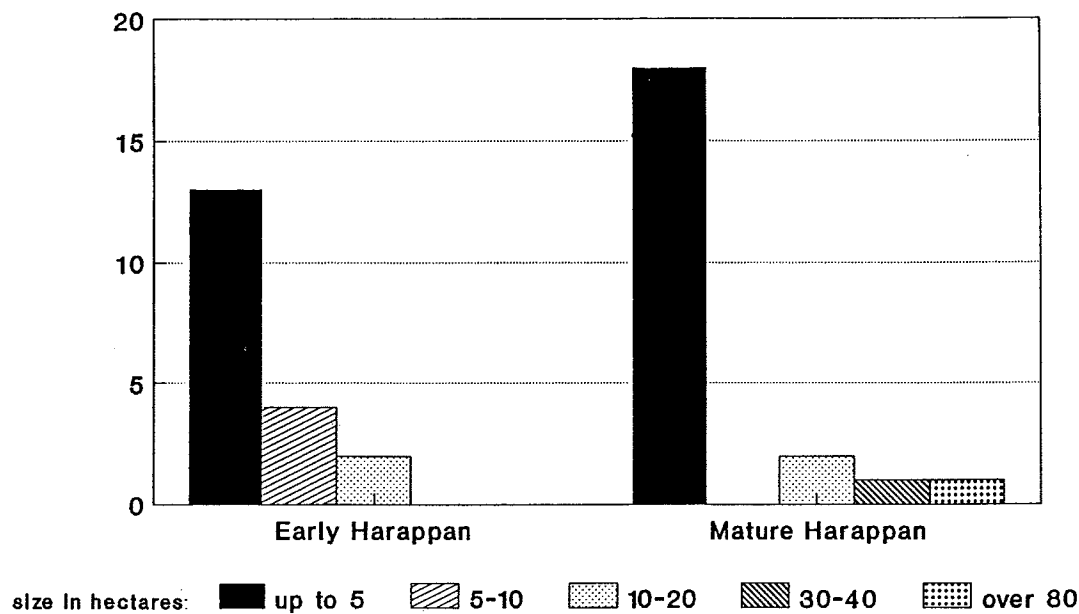


Fig. 7. Settlements in Lower Sind, diagram showing numbers of Early and Mature Harappan sites, classified according to size.

1. He finds 'undifferentiated' settlement patterns in the Early Harappan Period in terms of settlement size which are 'generally in one to six hectare range' in contrast to the 'three-tiered system' of the Mature Harappan with 'at least two urban centers' and 'reorganization of the gross settlement grid with apparent 'pioneer' migration of Harappans into Gujarat'. He also sees 'with the exception of Harappa, the apparent abandonment of all the Early Harappan settlements in Punjab and the Western borderlands'.

Two case studies of the settlement patterns in Cholistan and southwestern Sind are available which demonstrate that the Early Harappan sites in both areas were in fact differentiated, forming a four-tier hierarchy. The Early Harappan sites are not of one to six ha. in size generally but cover four distinct sizes, 0.1-5, 5.1-10, 10.1-20 and 20.1-30 ha. Evidence is not yet available to prove the three-tiered hierarchy of the Mature Harappan settlements. The data from Sind and Cholistan establish a four-tiered hierarchy with one principal urban center in each region over 80 ha. in size (Tables 2 and 3 and Figs. 6 & 7). The evidence would not support the idea of a 'pioneer migration of Harappans into Gujarat'. Excavated material from the levels of early Surkotada compare with those in the 'early' levels of Mohenjo-daro and Chanhu-daro in having 'reserve slipped' wares suggesting strongly that Kutch was the first to be settled and formed part of the 'Core Area' of the Mature Harappan (Fig. 5) giving access to

the sea coast. The Radiocarbon dates from Lothal and Rojdi suggest the middle third millenium B.C. range for the earliest occupation at these sites. Their precise beginning in relation to the Mature Harappan sites in Kutch and Sind has yet to be examined. It is however certain that both Lothal and Rangpur came into contact with Sind during the Late Harappan, as represented by the Jhukar style of pottery, which is found quite surprisingly at Lothal A and B and Rangpur II A, and II B-C. The Saurashtran stud-handle bowl type is reported from the surface of Lohumjo-daro (Sind).

As regards the 'abandonment of all the Early Harappan settlements in the Punjab and the western borderlands', with the exception of Harappa it could be true of the Core Area of the Mature Harappan. In the peripheral areas, the Radiocarbon dates have indicated that occupations of the Kot Dijian sites persisted well into the second half of the third millennium B.C. contemporaneous with the Mature Harappan as already explained by Possehl and Raval (1989, 9) that the later phase of Kot Diji falls between 2500 and 2000 B.C. The abandonment of Early Harappan sites does not necessarily imply migration or concentration of population at certain places. The Cholistan evidence vividly explains the desertion of large tracts of land due to hydrological changes in the rivers during the Early and Mature Harappan Periods. Among 73 sites of the Mature Harappan Period very few were reoccupied during the Late Harappan. Therefore, the phenomenon of aban-

		SITE CATEGORIES					Total
		0.1-5 ha	5.1-10 ha	10.1-20 ha	30.1-40 ha	over 80 ha	
EARLY HARAPPAN	Number of Sites	13	4	2	0	0	= 19
	Percentage	68.42%	21.05%	10.52%	0	0	
(Kot Dijian and Amrian)	Area	13.46 ha	33.72 ha	21.76 ha	0	0	=68.94 ha
	Percentage	15.52%	48.91%	31.56%	0	0	
MATURE HARAPPAN	Number of Sites	18	0	2	1	1	= 22
	Percentage	81.81%	0	9.09%	45.45%	45.45%	
	Area	27.07 ha	0	27.6 ha	34.4 ha	83	=172.07 ha
	Percentage	15.73%	0	16.03%	19.99%	48.23%	

Table 2. Southwestern Sind, Early and Mature Harappan sites classified according to size categories, and showing the percentage of site area occupied.

		SITE CATEGORIES						
		0.1-5 ha	5.1-10 ha	10.1-20 ha	20.1-30 ha	30.1-40 ha	over 80 ha	Total
HAKRA	Number of Sites	21	5	7	4			= 37
	Percentage	56.75%	13.51%	18.91%	10.81%			
	Area	52 ha	36.1 ha	109 ha	87.6 ha			=284.7 ha
	Percentage	18.2%	12.7%	38%	30.8%			
EARLY HARAPPAN	Number of Sites	19	8	3	2			= 32
	Percentage	59.37%	25%	9.37%	6.25%			
	Area	46.51 ha	54.8 ha	49.9 ha	49.8 ha			=210.01 ha
	Percentage	21.67%	26.09%	23.76%	23.71%			
MATURE HARAPPAN	Number of Sites	44	20	8			1	= 73
	Percentage	60.27%	27.39%	10.95%			1.36%	
	Area	111.4 ha	141.18 ha	113.6 ha			81.5 ha	=447.68 ha
	Percentage	24.88%	31.53%	25.37%			18.5%	
LATE HARAPPAN	Number of Sites	12	7	6		1		= 26
	Percentage	46.15%	26.92%	23.07%		3.84%		
	Area	28.73 ha	51.1 ha	98.3 ha		31.1 ha		=216.33 ha
	Percentage	13.3%	23.6%	45.5%		17.6%		
PAINTED GRAY WARES	Number of Sites	12		1				= 13
	Percentage	92.30%		7.19%				
WARES	Area	22.1 ha		13.7 ha				= 35.8 ha
	Percentage	61.73%		38.26%				

Table 3. Cholistan, showing the numbers of settlements of various periods classified according to size categories and percentage of area occupied.

donment cannot be used as an argument to explain differences in settlement patterns between any two periods of time, especially the Harappan.

2. Possehl sees during the Early Harappan 'little evidence for building other than domestic structures' such as a 'citadel' separated from the dwelling houses and an absence of granaries or warehouses. He also points out that areas for workshops were not isolated from the domestic quarters during the Early Harappan Period.

No large Early Harappan site has so far been excavated so extensively as to match Mohenjo-daro and Harappa. Early Harappan architectural evidence comes from Kalibangan I (4.5 ha. western mound) and Kot Diji (2.6 ha.) and to some extent from Rahman Dheri (21.7 ha.) and Sarai Khola (18.5 ha.) while digging at other sites has been restricted. Fortifications have been found at Kalibangan, Kot Diji, Rahman Dheri and (unexcavated) Kohtras Buthi in southwestern Sind. In addition, ceremonial platforms with (fire) altars are

found at Kalibangan and there is clear evidence of 'platforms' at Rahman Dheri I-III. Silos for storage of grain are found in Rahman Dheri Period I. Prior to the beginning of the Early Harappan Period (c. 3400 B.C.) granaries were constructed at Mehrgarh associated with Periods I, II and III but have not yet been found at Early Harappan sites.

During the Mature Harappan Period, areas for workshops were not always isolated from domestic quarters. Harappa and Lothal do show isolation of workshop areas to some extent, but at Mohenjo-daro kilns were found within the DK area. In Cholistan, thirty-three settlements had kilns distributed in them, despite the fact that seventy-nine exclusively industrial sites existed during the Mature Harappan Period. At the Early Harappan site of Jalilpur, a workshop area was present at one edge of the site, and in Cholistan fourteen settlements had kilns. Thus there was no real difference in internal differentiation of settlements between the Early and Mature Harappan periods when specialized activities were an integral function of the settlements. Kilns cannot be found everywhere and there is no marked difference between the industrial specialization at Chanhu-daro, Lothal or Mohenjo-daro and any Early Harappan site.

3. The inferences drawn by Possehl regarding the absence of 'emerging elite population' during the Early Harappan Period and the materials 'couched within what can only be termed as village structure' would be different if the entire body of evidence were examined, including fortifications, four-tiered hierarchy of settlements up to twenty-seven ha. in size, standardized and mass produced materials, long distance trade, geographical extent, subsistence economy, common religious beliefs, specialized craft activities, metallurgy and complexity of domestic architecture.

4. There is no system of writing except graffiti during the Early Harappan Period, and there is an absence of stamp seals, standardized cubical weights and large cities with a dichotomy of 'citadel' and 'lower town'. It seems that at the early formative stage, while in the cultural process of further development, the need for inventing a system of writing and enforcing standards of weights and measures had not emerged. The situation during the Late Harappan Period is precisely comparable when the script, cubical weight and the representation of female figurines went out of use because such items had lost their utility in the changed circumstances.

5. The distribution of Kot Dijian sites (see map, Fig. 4) will clearly show that the Early Harappan was not a 'patchwork quilt' but a unified, organized, integrated

social and economic system at an early stage of urbanism.

4. The Mature and Late Harappan Periods circa 2500-1700 B.C.

The field research pertaining to the Mature Harappan Period in Pakistan marked a significant shift in strategies and in the choice of sites. Instead of excavating large urban centers such as Mohenjo-daro in a conventional way, emphasis was put on problem oriented research to retrieve and document maximum information from the surface analysis of sites with or without selective digging. All the structural remains of Mohenjo-daro have been documented in detail and a huge body of data so collected is being re-interpreted (Jansen, 1983, 1984a, 1984b, 1984c and 1987; Jansen and Urban, 1985, Veradi, 1987 and Wanzke, 1987). Careful study of the surface features of Mohenjo-daro has revealed areas of craft activities (Balista and Leonard, 1987; Bindiole and Tosi, 1984; Vidale, 1987), of pottery production and firing (Pracchia, 1987), of kilns and bangle making (Halim and Vidale, 1984) and of manufacturing shell items (Kenoyer, 1984, 1985). At Harappa, selective digging was done to retrieve evidence of the Harappan burials and to collect information on diet, disease, and population growth rate, in addition to age and mortality rates of different age groups. Moreover, important questions such as the developmental sequence of the Indus Civilization which could not be obtained at Mohenjo-daro are thought to be found at Harappa where clear evidence of an Early Harappan occupation exists and the uppermost occupations belongs to the Late Harappan (Cemetery H) Period.

The new direction in Harappan studies is also reflected in the choice of small (village) settlements for investigation, especially when such sites are located in an environment different from that of the flood plain. The excavation at Allahdino (Fairservis, 1979; 1982), located in the Malir River Basin demonstrated that even a small settlement had most of the features of a city in the use of artifacts and pottery, drains and specialized craft activity areas. The evidence from Bala Kot, located on the Arabian Sea coast, showed that the beginning of Mature Harappan occupation was marked by a drastic shift in subsistence activities, from agriculture and animal husbandry to marine resources (Dales 1979, 1981; Meadow, 1979).

Of the Late Harappan Period, only the site of Jhukar was investigated (Mughal, 1974b). The evidence of continuity from the Mature to the Late Period is strong

enough to regard the appearance of 'Jhukar pottery culture' as only a style associated with the Mature Harappan pottery forms (Mughal, 1989). Further studies are suggesting links between the Lower Indus Valley and Saurashtran sites of Lothal and Rangpur where Jhukar style of pottery was found and pointed out by the excavator, but has not received due emphasis.

The surveys of unexplored regions of Pakistan, and the restudy of previously known areas and sites done during the past two decades have resulted in the documentation of a large number of Harappan sites in addition to the collection of a great deal of data. The survey of northern Baluchistan (Mughal, 1972c), southwestern Sind (Flam, 1981), of lower Sind by Mohammad Sharif, parts of Punjab, especially Cholistan (Mughal, 1980a, 1981, 1982), the Gomal Valley (Dani, 1970-71) and Bannu Basin (Farid Khan, 1987) have changed the archaeological map of Pakistan. On the Indian side, an impressive list of 136 Early Harappan, 239 Mature Harappan, and 783 Late Harappan sites in the Punjab, Rajasthan, Haryana, Uttar Pradesh and Gujarat (Joshi *et al* 1984), illustrate both the interest in and effort devoted to the study of Indus Civilization.

5. Chronology of the Harappan Civilization

The recently calibrated Radiocarbon dates from the Greater Indus Valley and Baluchistan sites compiled by Possehl (1989) have given us a new time range as compared to that of MASCA 'corrected' dates. The implications of calibrated dates for the Harappan chronology in particular are important, among other things, with regard to the question of the beginning of the Indus Civilization, expressed as the Early Harappan Period, and the time of maturity or full urbanization. Recently, it was realized that the old paradigm of the late origin of the Indus Civilization could no longer be maintained in the case of the Indus Valley (Dyson, 1982). There was an increasing body of data pertaining to the early or formative stage available in the Indus Valley which demonstrated an independent origin and growth of the Harappan Civilization. The calibrated Radiocarbon dates of the Early Harappan and of the earlier Chalcolithic and Neolithic Periods now equate the developments in the Indus Valley and Baluchistan with those in Trukmenistan and southern Afghanistan. There are also some problems of reconciling some C-14 dates from Mehrgarh with the relative dates demonstrable by comparison of the archaeological materials with those from other sites.

The Radiocarbon dates of Mehrgarh have given a time bracket of the Neolithic Period (IA, B and C and IIA, B and C) between at least 6250 B.C. and 4500 B.C., thus bringing in its fold the entire non-ceramic Period I of Kili Ghul Mohammad. Pottery appears somewhere in the middle of Period II at Mehrgarh, assigned to the end of the sixth millennium B.C. (almost 5250 B.C.) by Jarrige (1984b), which on typological parallels is dated to ca. 3900 B.C. by de Cardi (1984) and is compared to Mundigak Period I.

The most serious difference is the time Period of Mehrgarh III, marking the beginning of the Chalcolithic Period and a basic change in the level of material development. Jarrige places the beginning of Period III around the end of the fifth millennium (or about 4250 B.C.). The ceramic forms and painted designs of Mehrgarh III on the other hand, compare well with Togau A and Kili Ghul Mohammad III-IV and are assignable not earlier than 3700 B.C. (de Cardi, 1984). The present author agrees with an early fourth millennium B.C. date for Mehrgarh III since the material has good ties with contemporary sites in northern Baluchistan especially with the Loralai Valley. Even more serious than the dating of Period III is an apparent chronological gap before the beginning of period IV if we accept Jarrige's chronology. De Cardi correctly places the beginning of Mehrgarh IV around 3500 B.C. and the end around 2500 B.C. in Mehrgarh Period VII. The 3700 B.C. date assigned to Period III at Mehrgarh by de Cardi seems to be consistent with the chronology of Baluchistan and the Indus Valley. Mehrgarh IV, V, VI and VII cover the entire Early Harappan (Kot Dijian-related) Period (Mughal, 1983), now confirmed by the Radiocarbon dates from the Kot Dijian settlements.

It had long been suspected that the Radiocarbon dates of the Kot Dijian levels (even MASCA corrected) needed to be revised (Mughal, 1973). There was strong evidence that the earliest occupation at Kot Diji did not begin around 3000 B.C., but began at least four hundred years earlier between 3500 and 3400 B.C. The argument is still valid and is now supported by more dates from contemporary sites. The second sub-Period IB at Amri has given a calibrated date ranging between 3660 and 3365 B.C. There is no date from the earliest Period IA (underlying IB), but diagnostic wheelmade Kot Dijian red globular vessel forms with black painted bands around the neck were found among the Amrian IA pottery which was overwhelmingly (82%) handmade (Mughal, 1970, 84-85). Amri IC, the sub-Period above IB, has been dated to 3375-3020 B.C. (calibrated). At another contemporary site, Ghazi Shah, the Amrian assemblages in the 'upper levels', comparable to

Amri IC-ID are dated to 3375-3145/3370-2970 B.C. At Kot Dijji, the third occupational layer above the bedrock (14A), at the 'citadel', gave a calibrated time range of 3370-2900 B.C. whereas at Amri, characteristic Kot Dijjian ware occurs at levels earlier than those dated to between 3660 and 3665 B.C. This date may not be too 'early' because dates from the succeeding Period IC at Amri, and for comparable materials at Ghazi Shah, fall between 3375 and 3020/3145 B.C. It would seem that the date from Kot Dijji is somewhat 'younger' than the actual date which may be placed somewhere between 3500 and 3400 B.C., and at a point in time when the wheelmade Kot Dijjian pottery appeared at Amri IA. Therefore, as Amri-Kot Dijji assemblages fall within the Early Harappan Period, on the present evidence, the beginning of Indus Civilization in the Greater Indus Valley now ought to be considered to be from at least 3400 B.C., if not earlier. This time Period marks the beginning of the Bronze Age at that site as being at about the middle of the fourth millennium B.C. The same time marks the beginning of Namazga III Period in Turkmenia and Damb Sadaat I or Kili Ghul Mohammad IV. The time bracket of 3500/3400 to 3000 B.C. represents the early phase of Kot Dijjian A (Mughal, 1988a, 52) (layers 8 to 16) while the second phase, Kot Dijjian B (layers 4 to 7) according to the Radiocarbon dates falls between 3000 and 2500 B.C., comparable with Mehrgarh VI and VII, the Early Bronze Age of Turkmenia or what otherwise is called Namazga IV, Mundigak III and Shahr-i Sokhta I-II.

Rahman Dheri is the fourth site the earliest Kot Dijjian occupation of which is dated to the fourth millennium B.C., falling between 3300 and 3040 B.C. It is significant to note that three out of four Early Harappan sites (Amri, Ghazi Shah and Rahman Dheri) are located on the piedmont plain. The two Kot Dijjian occupation sites of this early Period suggest that the early settlements were located between the Gomal Valley and upper Sind where other sites of comparable date are expected to be found.

Most of the Kot Dijjian sites belong to the first half of the third millennium B.C., while occupation appears to have begun during the first quarter of the early third millennium in the Gomal and Taxila Valleys, Bannu Basin and at Kalibangan I. This Period equates well with Kot Dijjian layers 4 to 7, as pointed out before, but emphasizes the fact that most cultural traits which were previously thought to be associated with the Mature Harappan appear in Kot Dijjian B as discussed several years ago (Mughal, 1970; 1980, 52 and this work Table 1). Forty Kot Dijjian sites in Cholistan and those in Indian territory often called Sothi or Kalibangan I are

undated, but may belong to the second Kot Dijjian B phase.

It is now possible to delineate a third Kot Dijjian phase on the basis of Radiocarbon dates and other developments in the Greater Indus. Some Early Harappan sites especially in the peripheral areas or outside the Core Area, such as Bannu Basin and Taxila Valley have provided clear evidence of continuity of Early Harappan (Kot Dijjian) occupation well into the second half of the third millennium B.C. (Thomas and Allchin 1986). As discussed above, the Harappan Culture had achieved maturity or full urbanization around 2500 B.C. in its Core Area (Fig. 5). It seems that while transformation from the Early to Mature stage had taken place in the Core Area by the middle of the third millennium, the early form of social organization continued to persist for sometime in the peripheral areas, and they existed contemporaneously with each other until absorbed or brought under the changed form of economic and socio-political organization of the Mature Harappan. It was a gradual process of change rather than a sudden take over. The evidence of 'burning' at the Kot Dijjian sites requires reconsideration. The antiquities from Kot Dijji as tabulated (Table 1) do not show any abrupt break. The last Kot Dijjian occupation which was contemporary with the Mature Harappan represents the Kot Dijjian C phase. The time range of the three Kot Dijjian phases is proposed as follows:

3500-3000 B.C.	Early Harappan A Phase
3000-2500 B.C.	Early Harappan B Phase
2500-2100 B.C.	Early Harappan C Phase

The three phases of the Early Harappan, A, B and C, correspond in time with Namazga III, IV and V respectively. Mehrgarh IV and V would equate with Kot Dijjian A, and VI and VII with Kot Dijjian B.

The period between 3500-2500 B.C. was most important as it marks the beginning of Indus Civilization, emergence and formation of cultural Harappan traits and development of full urbanization. The Early Harappan C phase represents the lingering occupation in the tradition sometimes called 'Kot Dijjian-Sothi-Kalibangan.' With the weight of new information and revision of C-14 dates, the chronology of the Early Harappan, starting from 3000 B.C., proposed earlier by the present author, stands revised.

With the revision of dates of the Early Harappan Period, the beginning of the Mature Harappan seems to be at least one hundred years earlier than the 2400 B.C. date suggested by the author in 1970. There is a further strong possibility that it may be pushed back to 2550

B.C. because C-14 dates from the Mature Harappan levels at Mohenjo-daro, Harappa, Kalibangan II, Bala Kot, Nausharo Allahdino and Shortugai consistently show a tendency toward 2600 B.C. Further research might suggest a different time range than that available at present, especially for the sites in the Core Area of the Mature Harappan Period. At present, the central date of around 2500 B.C. when the Harappan Civilization was already at a mature stage is generally acceptable (Shaffer in press).

Towards the close of the third millennium B.C., the pan-Indus cultural integration of the Indus Civilization was weakened and three regional patterns emerged. The beginning and the end of the Late Harappan Period is not yet known in each region. They are as follows:— (a) Cemetery H in the Punjab, (b) Jhukar in Sind and (c) Rangpur IIB-C in Gujarat. The beginning of the decline in each region was induced by causes of a local or regional nature which were not generated simultaneously (Dyson, 1982). Radiocarbon dates from the Late Harappan sites of the Punjab region are very few. Four C-14 dates (calibrated) from Cemetery H related occupations at Sanghol range between 2175-1715 and 1785-1560 B.C. One date from the 'late'; (Jhukar) levels of Mohenjo-daro falls between 2165-1860 B.C. The true status of sites in Gujarat regarding the beginning of 'late' Harappan Period is not known. The available dates from the Lothal A and B Periods, vary from 2655-2185 to 1950-1570 and 2320-1955 to 2315-1865 B.C. respectively and both periods contain Jhukar style (Late Harappan) pottery. At Rojdi the dates from the early period A vary between 2640-2150/2410-1945 and 2680-2515/2660-2385 B.C. whereas the distinctive Indus painting style and some characteristic vessel forms are not similar to those found at Surkotada or Mohenjo-daro (Possehl and Raval, 1989). In brief, the few C-14 dates have not helped to reconstruct stages of decline of the Indus Civilization.

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