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The Harappa Culture in North Gujarat: a Regional Paradigm

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Abstract

The paper presents the regional identity and distinctive features of a group of non-Harappan pottery associated with the Harappan affiliated Chalcolithic settlements in North Gujarat. The regional tradition in pottery has been equated with a distinct socio-economic group within the Chalcolithic society. The regional model questions the concept of a homogeneous Harappan society and elucidates the nature of diverse socio-economic strands in the making of the integrated Harappan society of North Gujarat.

Until a decade and a half ago, North Gujarat was considered to be the backwaters of the Harappa culture; a region not particularly preferred by the Harappan agricultural communities to settle down in. A series of explorations and excavations since 1978 have dramatically changed this belief after the discovery of more than hundred Harappan affiliated Chalcolithic sites in this region (IAR 1978-79, 1982-83, 1984-85 to 1994-95; Hegde and Sonawane 1986, Bhan 1994). Six sites among these have so far been excavated (see Hegde *et al.* 1988, IAR 1984-85 to 1990-91, 1992-93 to 1994-95). Artefact assemblages from many of these explored and excavated sites include a few pottery types, which are different from the Harappan pottery. These distinct non-Harappan pottery types are characteristic of the North Gujarat region and, therefore, can be named the "Anarta" tradition after the traditional name of North Gujarat. The Anarta tradition not only had an independent existence prior to the spread of Harappa culture but also was associated with the Mature/Urban and later Phases of the Harappa culture.

Much of the pottery belonging to the Anarta tradition had already been identified earlier in the excavation at Surkotada in Kachchh district (Joshi

1972:122-26)¹. In spite of this, it was only after the excavation at Nagwada in Surendranagar district in the late 1980's (Hegde *et al.* 1988: 60-62), which had revealed a ceramic assemblage predominated by the regional Anarta pottery types, the need to investigate the significance of this non-Harappan tradition was fully recognized. A cursory glance through the published literature on the Harappa culture in Gujarat may indicate that almost all important excavated sites like Lothal, Surkotada, Somnath (Prabhas Patan), Rojdi, Nagwada etc. (Figure 1), have brought to light cultural relics, predominantly pottery, that are different from the Harappan. The non-Harappan pottery types, which are found independently as well as in association with the Harappan relics, vary in quality and quantity from those of the Harappan. No serious attempt has been made so far to evaluate the significance of these non-Harappan components in the making of the Harappan society and culture. One way of addressing this issue is by studying the non-Harappan traits as the expression of a local tradition peculiar to a geographically and culturally circumscribed region within the large cultural domain of the Harappa culture. It is in this context the Harappan affiliated Chalcolithic settlements in North

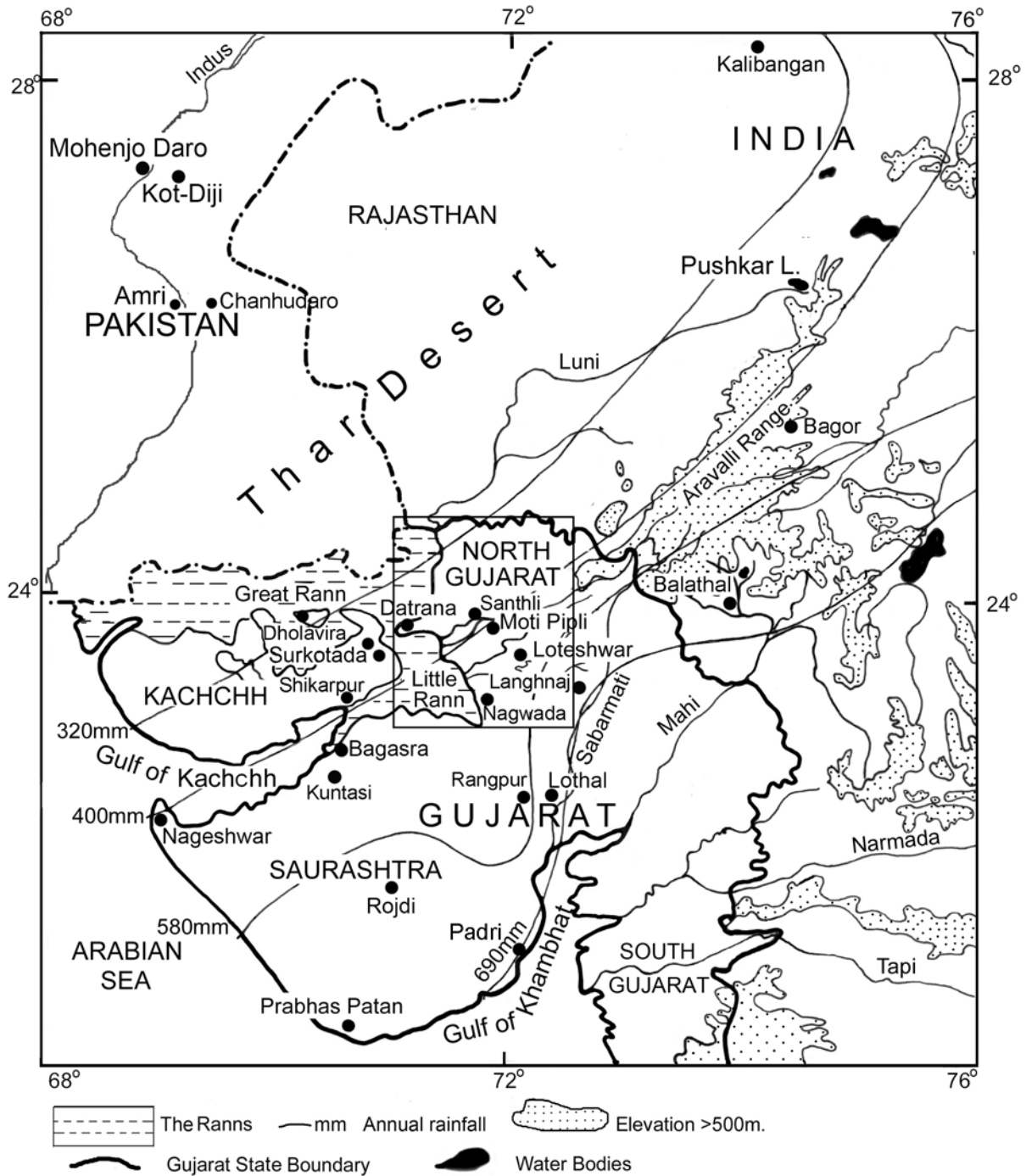


Figure 1 Location of North Gujarat and major Harappan/Chalcolithic sites mentioned in the paper
The box in the map is expanded in Figure 31

Gujarat become significant.

Problems and Perspectives

The regional paradigm for understanding the cultural dynamism of the Harappa culture in North Gujarat is

essentially based on two important assumptions, both to a large extent dependent on the ceramic assemblage from North Gujarat sites. To begin with, we assume pottery as a group identifier. The group, by and large, could be a social group (we would not like to call it an ethnic group as it has wider connotations) or sometimes it could also be an economic group. It is

not an easy task to distinguish and discriminate the two archaeologically. The truth of our interpretation, therefore, depends up on how correctly we are able to distinguish the two. One way to understand some of the general features of the model through which this complicated issue can be addressed is an ethno-archaeological investigation of pottery-using societies. Problem oriented studies, such as the recent ethnographic study on Kachchh potters by Chokshi (1995), focussing on the above features for understanding the social configuration are very much a desideratum in Harappan studies.

Very often, social and economic groups could be mutually inclusive; but not necessarily always so. One may come across two distinctive social groups having the same economic status or conversely, a single social group may have different economic strata within it. It is not our intention to reify inanimate objects like pottery at this juncture, and we are also aware of the inherent difficulties in such an attempt. But, in view of paucity of workable leads towards a better understanding of the Harappan society, it is important to have such paradigms. Changes within the conceptual frame of reference could be incorporated as we move further and as and when it is necessary.

Secondly, we assume that the Harappan pottery was heterogeneous. This, therefore, questions the homogeneous nature of the Harappan pottery and society. Most of the studies in Harappan pottery are to a great extent influenced by the meticulous description of pottery from Mohenjodaro and Chanhudaro by E.J.H. Mackay (1931, 1938, 1943) and in Gujarat by a generalized scheme of chronological framework proposed by S.R. Rao (1963: 20-25). Both studies have their merits and demerits. Mackay's description followed by Wheeler's writings (see Wheeler 1947, 1960) catered to an impression that the Harappan ceramics at Mohenjodaro and Harappa formed a homogeneous assemblage. We do not know how far the two scholars were overawed by the fine features of the well made Harappan pottery and overlooked

the coarse variety in the assemblage. In any case, their writings led to the impression of an over-standardized pottery assemblage, probably at best, applicable to the urban centres and urban economy. The standard features thus became a rooted position and a touchstone for generations of archaeologists for referring to Harappan ceramic assemblages from several sites located in different parts of the large Harappan cultural domain.

When S.R. Rao started excavating at Rangpur in the 1950's, he was faced with issues which were of a totally different nature. Two earlier excavations at the site in the 1930's by M.S. Vats (1935) and G. Ghurye (1939) had proclaimed its Harappan character and were able to propose the southward extension of the Harappa culture into Gujarat. On the other hand, M.G. Dikshit (1950), after the renewed excavation of the site in 1947, had found it difficult to ascertain the Harappan features of the assemblage. Rao took up the excavation at this ambivalent juncture to ascertain the nature of Chalcolithic settlement at the site (Rao 1963:8). While he was able to ascertain the Harappan remains unearthed in the excavations at Rangpur from 1953 to 1956, he had also reported significantly different material remains from the site which was not fitting into the homogeneous Harappan model (Rao 1963: 13-25). Rao observed that, stratigraphically the variant materials, especially pottery, were predominant in the later levels. This led to the original three fold division of the Harappa culture in Gujarat into Mature, Late and Post-Harappan. One of the merits of this framework was that it clearly defined for the first time, even though somewhat inflexibly, the three phases of the Harappa culture in terms of ceramic and other cultural indices at a time when the Harappan cultural milieu was growing into a jungle of confusion. The division is essentially chronological and to a large extent overlooks all other aspects of cultural variation. In spite of this drawback, initially, the concept of a uni-linear evolution of pottery illustrated through specific attribute variations did help to categorize sites

into different periods of cultural developments within this broad framework. In the absence of absolute dates from most of the surface sites the new scheme became an extremely useful tool in the chronological classification of Harappan sites in Gujarat. As a result, those simple criteria of chronological divisions were followed or are still being followed in Harappan site classification without considering other factors that can contribute towards variation in material culture.

Generally speaking, these two concepts – the concept of Harappan homogeneity and Rao's ideas of regional evolution – somewhat contradictory though, have greatly influenced the development of various research models on the Gujarat Harappan. During our excavation in 1985 at Nagwada in North Gujarat (Figure 1) we, however, found that neither of these concepts could be directly adopted to study the material remains, especially pottery, from the site. This realization became stronger in the subsequent excavations and explorations in the region. The amount of Mature Harappan pottery at Nagwada is meagre, constituting hardly 20% of the total collection. Yet, the site has yielded most of the characteristic remains which we generally associate with the Classical/Mature Harappan including a terracotta sealing having an inscribed seal impression. No real "Late Harappan" pottery, as described by Rao (1963), is found at the site. Instead, the assemblage is dominated by the Gritty Red ware and a few other pottery types that showed little resemblance to the Classical Harappan pottery. In fact, the new types belonged to a ceramic tradition confined to the North Gujarat region. The ceramic tradition has an individuality of its' own in terms of techniques used in clay preparation and pottery production. The individuality is visible in the vessel forms, surface treatment and even in the quality of their firing. Very often in the assemblage one comes across imitations of Harappan vessels in the Gritty Red ware. Besides, there is also another distinct set of pottery confined only to the burials excavated at the site. The burial pottery is not only different from the

Mature Harappan but also from the above regional pottery types. Clearly, none of these were fitting into the conservative homogeneous Harappan model. It is at this time we started thinking of the existence of a regional Chalcolithic tradition within the wider cultural mosaic of the Harappan tradition in North Gujarat.

In view of the above variations within the cultural remains in North Gujarat, it would be worthwhile to investigate how the variations came into being and in what way would the studies on these varying components affect our overall understanding of the Harappa culture. Proper identification of regional traditions and understanding their origin, integration and survival become important in the Harappan studies in this context. The immediate premise of our further studies would, therefore, be that the Harappan society was not a homogeneous one, but a tapestry consisting of many individual strands forming an integrated whole, probably held together by common cultural ethos. By trying to separate the elements of regional tradition we are only trying to understand and evaluate how each of these individual strands interact with and integrate into the Harappa culture. And, it is within this frame of reference we treat distinctive pottery types in a region as the material representative of a social group. The validity of this assumption could be tested by further specific studies designed for that purpose.

The pottery type vis-à-vis social/economic group equation needs further clarification. It is not our intention to treat every single and simple variation in pottery as representative of a separate social group. It is an accepted fact that a given type of pottery shows some amount of variation within a site and between sites. Such variations are a common denominator for all types of pottery. Moreover, in order to identify a group of pottery as a regional tradition, it should be distinct from the mainstream Harappan ceramic types in their form, clay texture and surface treatment and in the decorative patterns painted on the vessels. It

should also be represented by varieties of vessel forms. Besides, to designate such distinctive pottery types as part of a regional pottery tradition, it should also have a regional or geographical identity; that is, it should be present not just at one site, but in an appreciable number of sites in the region. Precisely, these are the different aspects which distinguish the non-Harappan pottery types of North Gujarat as a distinct regional pottery tradition.

North Gujarat Environmental Setting

Gujarat constitutes three important physiographic regions: Kachchh, Saurashtra and the mainland of Gujarat. The narrow corridor which connects the mainland of Gujarat with Kachchh, bordered in the northwest by the Rann of Kachchh and in the southeast by the Sabarmati, is known as North Gujarat (Figure 1). It is traditionally known by the name "Anarta" (Majmudar 1960). North Gujarat is a semiarid, sandy plain, dotted with fossil sand-dunes. The region extends in the north from the southern Rajputana and gradually merges into the alluvial plains of Saurashtra and central Gujarat. North Gujarat includes Banaskantha and Mehsana districts and the northern parts of Surendranagar, Sabarkantha and Ahmedabad districts. It is drained by the Banas, the Sarasvati, the Rupen, the Sabarmati and their tributary streams. Except the Sabarmati which flows into the Gulf of Cambay, all other rivers flow into the Little Rann of Kachchh. Except the Sabarmati, no other rivers in this region are perennial; yet, during the monsoon, they drain a large volume of water into the Rann. Also, most of these rivers and their tributaries at present contain brackish water for the major part of the year. The Banas and the Sarasvati which flow in the northern part of the region are heavily silted and have a broad and shallow channel. It is difficult to assess precisely when actually the silting started, as the region is not well studied with that as a focal point.

Silting is relatively less evident in the Rupen which, on the other hand, forms deep channel by cutting the alluvium. At places, the river section has a height of 6 to 8 m indicating a deep entrenchment of the channel.

The newly discovered Chalcolithic settlements in North Gujarat are located in the estuaries of the Rupen, the Banas and the Sarasvati forming the eastern margin of the Little Rann of Kachchh and on both side of the narrow creek-like depression that connects the Little Rann and the Great Rann. The entire area is covered by a thick deposit of sandy loams and appears dead flat except for a few stabilised sand dunes and the attendant shallow blow-outs. These inter-dunal depressions accumulate rainwater and many a times retain the water throughout the year. Since water in these village ponds remains potable, they are an important source of water for people as well as livestock.

The climate in the region is characterised by hot summers and cold winters and, therefore, a dry weather prevails in the region during most part of the year. Being situated in a climatic zone of 600 mm isohyets (Figure 1), rainfall in this region is sparse and irregular. Because of the unpredictability and the uneven distribution of rainfall, drought in this region is a recurrent phenomenon, the latest of which occurred during the year 1986 to 1990. Nearly ninety percent of the soil in this region is sandy. The black cotton soil is also not uncommon in some parts. In many areas, the soil is poor and saline and the subsoil water is brackish. The salinity rises up in summer and does not go back to the original low level because of low and scanty rainfall. At many places, such lands have developed into rich pastoral fields.

All these environmental factors have considerable influence on the subsistence activities of the present day population of North Gujarat. Millet, especially *bajri* (pearl millet) and cotton are the two important crops grown in the region, as these two do not need much moisture and, therefore, are suited to the environment. In fact *bajri* is the staple food of rural

folks in North Gujarat, Kachchh and Saurashtra today. Vast pastoral grassland and fallow-land in the region support a large population of cattle, sheep and goat. In fact, pastoralism and agriculture are the two important components of the village economy of North Gujarat at present. We will see later that the pattern was not much different during the Chalcolithic period too.

Chalcolithic Settlements and Ceramic Assemblages

As has been mentioned in the beginning, more than a hundred Chalcolithic sites have so far been located in North Gujarat (see Appendix). The artefact assemblages from these explored sites and a few excavated ones in the region show an assortment of pottery, lithic and shell artefacts and a few terracotta objects. Most of these sites are affiliated at varying degrees to different periods of the Harappa culture. In order to understand the pattern of settlement distribution during different periods, it is necessary to classify them according to their cultural affiliation. Pottery being the most abundant and chronologically sensitive artefact in most of the sites, the classification has been practically based on the presence/absence or relative abundance of chronometric pottery type-fossils belonging to different periods. Besides, rare specimens of the Reserved Slip ware sherds, triangular terracotta cakes and characteristic shell artefacts, agate weights and Rohri chert blades from the sites also helped to substantiate the classification.

Based on these considerations the entire collection of pottery from the above sites can be divided into two major categories: (a) the Harappan types and (b) the regional type or the Anarta Pottery tradition peculiar to North Gujarat and southeastern parts of Kachchh. In addition to these, there are two more important ceramic industries associated with the above assemblages: the Micaceous Red ware and the Black and Red ware of Saurashtra. Since these two industries

are not necessarily confined to North Gujarat, and have their origin outside North Gujarat, they are not part of the Anarta tradition.

The Harappan Pottery

The majority of pottery collected from the sites in this region belonged to the following successive Periods/ Phases of the Harappa culture in Gujarat: (a) the Mature/Classical Harappan, (b) the Sorath Harappan characterised by the Rojdi A, B and C (Possehl and Raval 1989, Possehl and Herman 1990) and the Rangpur Period-IIA and IIB pottery and (c) the Post-Urban Harappan represented by the Rangpur Period-IIC and Period-III pottery, particularly the Lustrous Red ware (Rao 1963: 20-25). Sites belonging to the first two periods essentially belong to the Urban Phase of the Harappa culture. General features of the Harappan pottery from these three periods are so well known and therefore no attempt is made to describe them here. The Harappan pottery includes the Red ware, Buff ware, Coarse Red ware and Coarse Grey ware with or without incised decoration and the Lustrous Red ware. Associated with them are found the Black and Red ware and rare specimens of the Micaceous Red ware in some of the sites. The vessels are similar to those from other Harappan sites in Saurashtra and their forms vary, corresponding to the Period to which the site belongs. While the type-fossils of the Classical/Mature Harappan shapes are found only at a few sites like Nagwada (Figures 2 and 3), a majority of sites belonged to the Sorath Harappan and the Late Sorath Harappan. The Lustrous Red ware of the Post-Urban, Rangpur Period III, is one of the important ceramic types reported from the sites in the region.

In addition to the above types, the Harappan pottery includes a few sherds of the Reserved Slip ware and Rusticated Red ware. Although reported only from a few sites the Reserved Slip ware sherds

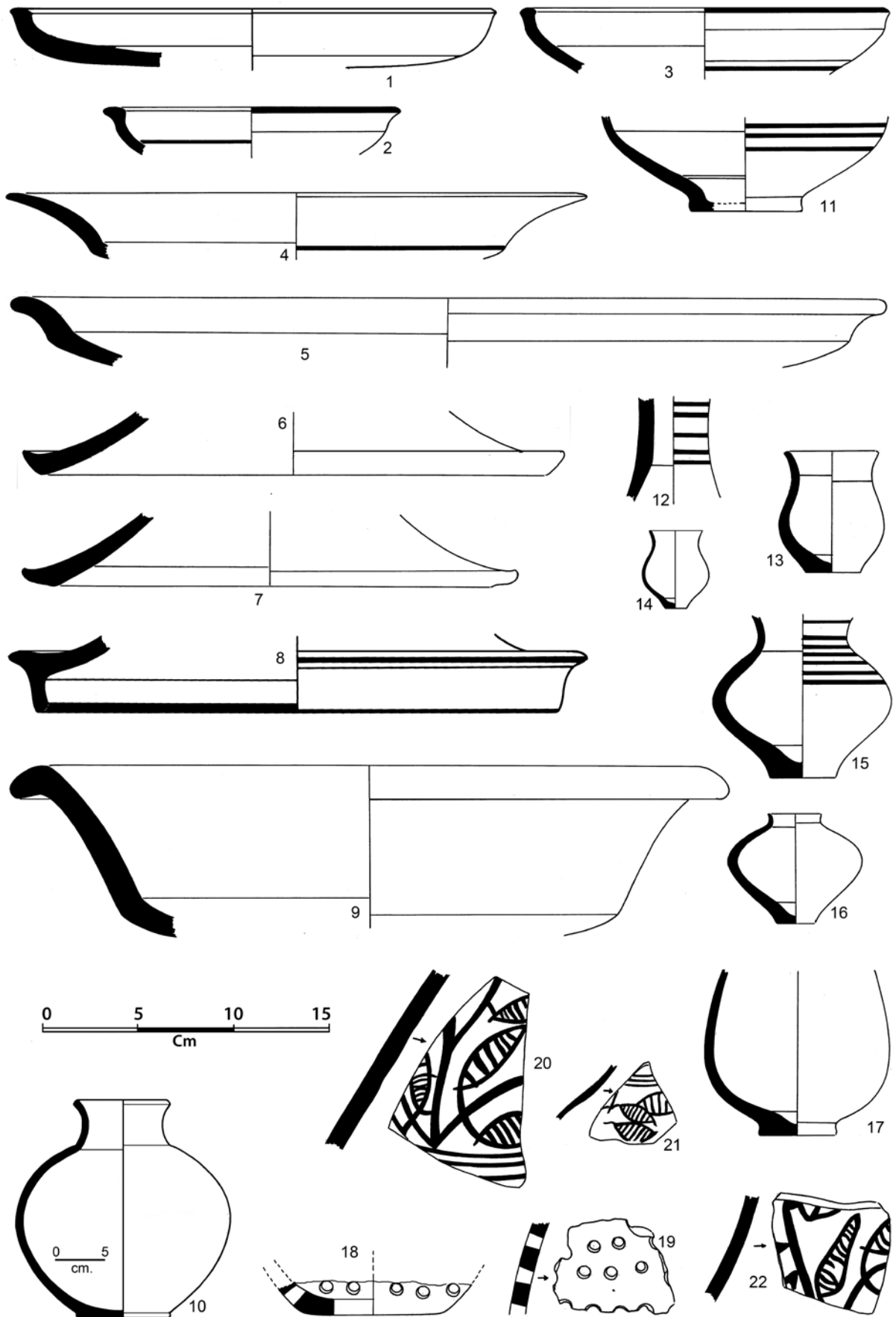


Figure 2 The Classical Harappan pottery from Nagwada excavation

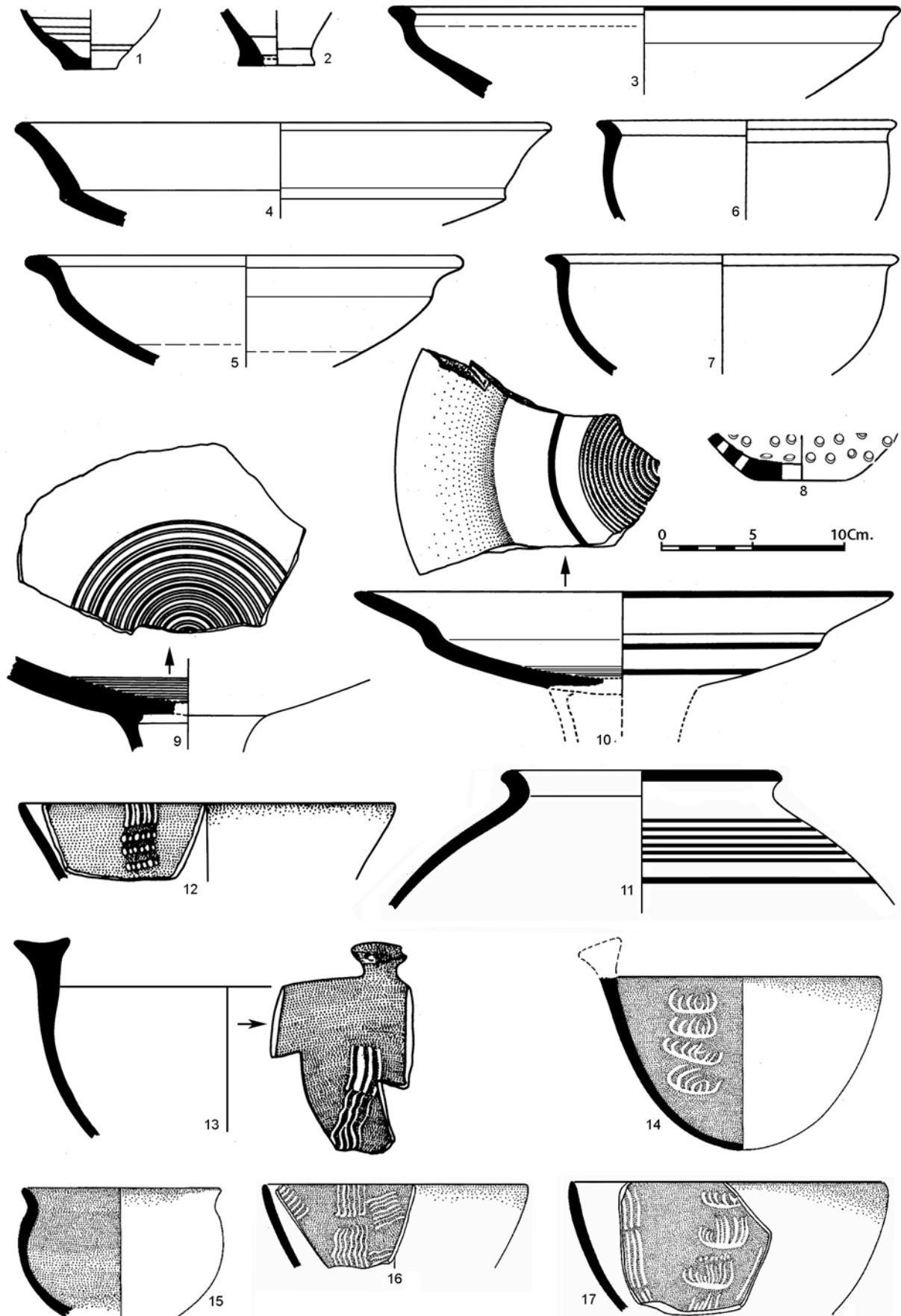


Figure 3 The Harappan pottery from Nagwada excavation: 1-3, 8 Classical Harappan; 4, 5, 9, 10 imitation of Harappan shapes in the Anarta pottery; 6 and 7 Nageshwar bowls affiliated to the Classical Harappan; 11-17 affiliated to the Sorath Harappan (12-16 Black and Red ware)

have a steel grey core, a black first slip and a bluish-grey second slip. The second slip was removed from the surface to form either parallel or wavy line pattern in the usual reserved slip technique. An appreciable number of rusticated sherds are found in the Late Sorath (Rangpur Period IIC, Rojdi C) or/and Post-Urban Harappan sites. These are the sherds of Red ware pots whose external surface was roughened with the application of sand while the clay was wet and plastic.

Anarta Pottery: The Regional Pottery Tradition of North Gujarat

The regional pottery tradition of North Gujarat needs detailed description as it is peculiar to this region. As has been mentioned earlier much of our understanding about the features of this non-Harappan pottery tradition is based on the excavations at Nagwada and Loteswar. Although the Mature Harappan pottery and other type-fossils of the Classical Harappan are recovered from Nagwada, the ceramic assemblage is predominated by the non-Harappan pottery types of the Anarta tradition which constituted more than 80% of the assemblage. A Fine Red ware, Gritty Red ware, Burnished Red ware and a Burnished Grey/Black ware are the important types so far identified in this ceramic tradition from Nagwada. The Anarta pottery at Loteswar includes potsherds with incised decoration.

The Gritty Red ware is the most important and characteristic type of the Anarta ceramic tradition. While the Fine Red ware is found in considerable quantity, the Burnished Red ware and the Burnished Grey/Black wares are rare in the collection. That, all these different types belong to the same ceramic tradition is evident from the common shapes, decorative patterns and other features of the vessels. The division, however, is made on the basis of relative fineness of the clay, variation in surface treatment and

sometimes on the basis of the colour of the pottery. The Fine Red ware and the Gritty Red ware show remarkable conformity in shape and decoration. Besides, a few Harappan type-fossil vessels like the dish-on-stand and perforated jar were imitated in both the types at Nagwada (Figure 3). Small or medium size pots are the only shape so far identified in the case of Burnished Red ware and the Burnished Grey ware. Features of the pot in these two types are similar to the small and medium pots of the Gritty Red ware and the Fine Red ware.

The Gritty Red Ware

This is the most abundant and popular pottery type of the Anarta tradition present in the North Gujarat Chalcolithic sites. It occurs in different vessel forms like pots/jars, bowls and basins, and has painted decorations different from the Classical Harappan (Figures 4-11). The clay used in the preparation of these vessels was not sufficiently elutriated and refined. As its name implies, the core has a gritty appearance because of the admixture of a considerable amount of sand. According to the size and the relative abundance of sand particles present in the clay this pottery can be further classified into a fine and a coarse variety. The vessels of the Fine Gritty Red ware, in general, have a thin body and a good coating of slip. They are decorated with paintings and well fired too. On the other hand, the Coarse Gritty Red ware generally has a thick body and was coated with a thin wash of slip or no slip at all. Often the coarse variety was indifferently fired and painted were done more casually than the fine variety.

Mode of Production

The Gritty Red ware vessels are either hand modelled or made on a slow turn-table; for the striations on the interior of the vessels are short, irregular and zigzag. However, many of the vessels show a wheel turned rim

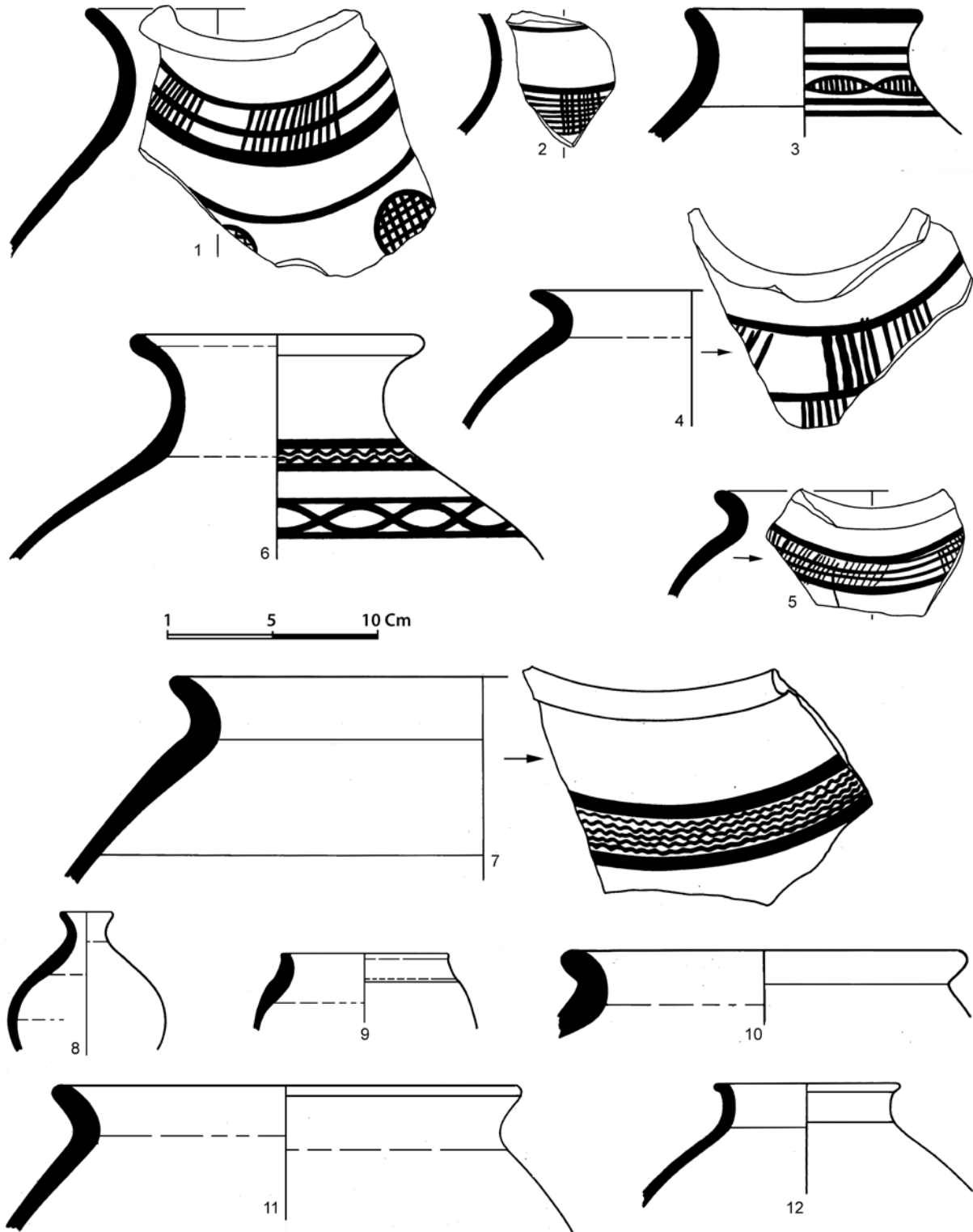


Figure 4 The Anarta pots/jars from Nagwada: 1-9 Gritty Red ware; 10,11 Coarse Grey ware; 12 Grey ware: (1, 2, 5 Cream slip)

luted to a hand modelled body. Very rarely, specimens of wheel made vessels in the Gritty Red ware are also found. For example, when the Harappan shapes like the dish-on-stand is imitated in the Gritty Red ware, they are wheel thrown. Such imitations are met

with only in assemblages that were associated with the Classical/Mature Harappan sites; for instance at Nagwada and Zekhada

The vessels show a general crudeness and coarseness in spite of various surface treatments. Two types of

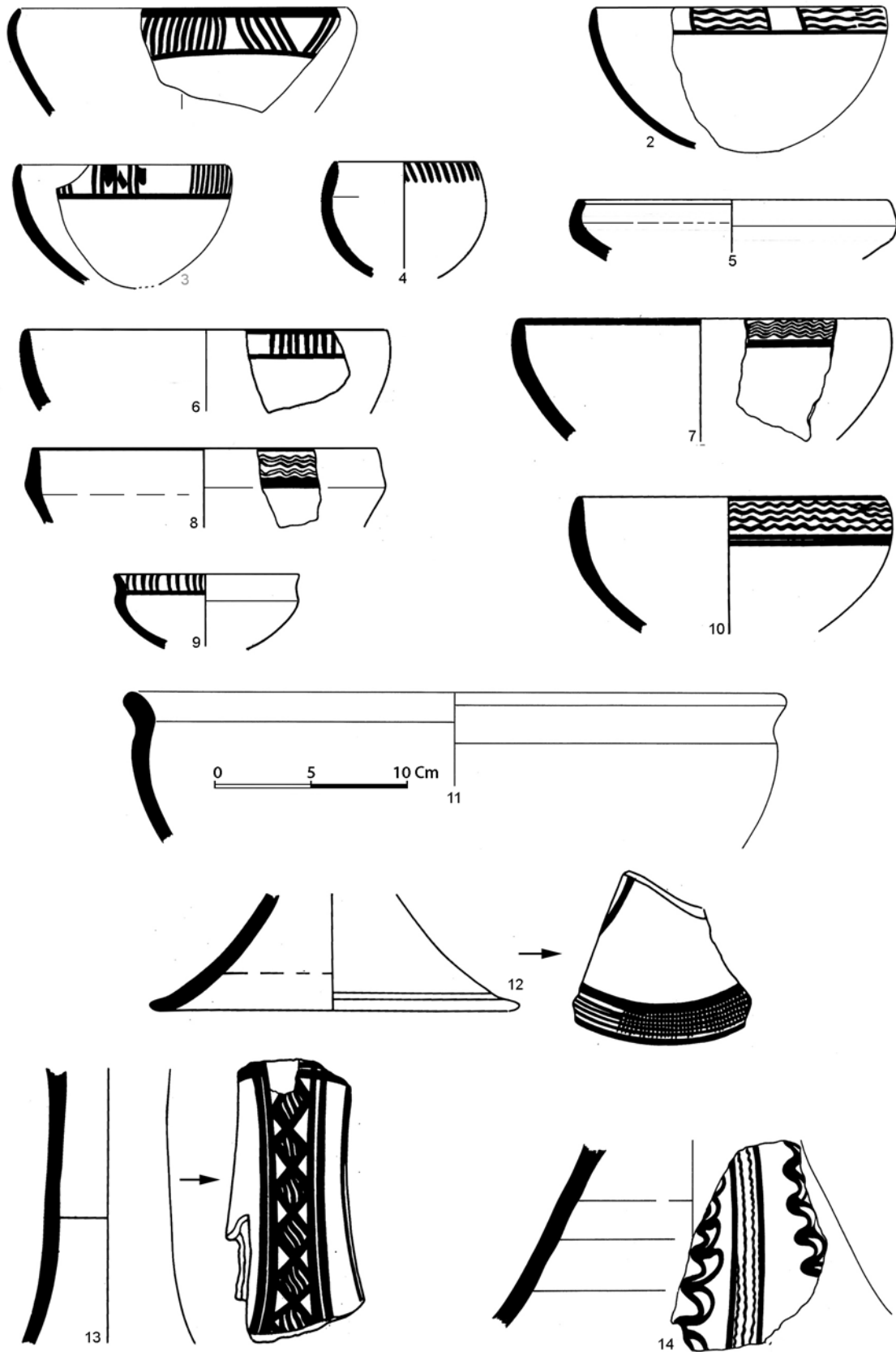


Figure 5 The Anarta pottery from Nagwada: 1 Fine Red ware; 2-14 Gritty Red ware (2, 7, 8 bichrome paintings, 3 and 5 dark brown slip, 12-14 cream slip)



Figure 6 The Gritty Red ware and the Fine Red ware pot/jar from Loteshwar (photo by Akinori Uesugi)



Figure 7 Pots/jars of the Gritty Red ware and Fine Red ware from Loteshwar showing the whitish background in which the paintings are executed



Figure 8 The Gritty Red ware bowls and basins from Nagwada (photo by Akinori Uesugi)



Figure 9 The Gritty ware bowls from Loteshwar



Figure 10 Basins/large bowls of the Gritty and Fine Red ware of the Anarta pottery from Loteshwar
The samples at the bottom row are light greyish and buff in colour

surface treatments can be identified in this pottery: (a) vessels coated with a slip and (b) vessels having no slip. In the latter case, the vessels are just left alone in their coarse condition, without applying any kind of slip. Large and medium size thick walled vessels generally belong to this category. Vessels in the first category are coated either with a thin wash of the slip solution or with a regular thick slip having varying shades of red, chocolate, buff or cream. In many specimens, while the whole vessels were coated with a red slip, zones at the rim, neck or at the shoulder were applied with either a cream or white slip and then painted in red or black pigment. The slip was smeared carelessly on many, especially on vessels having a chocolate slip, leaving behind the marks of the rag with which the slip was applied. Besides, vessels treated with buff and cream slip are also common in the Gritty Red ware. The vessels of the fine Gritty Red ware are generally treated with a normal thick slip of dark brown or red colour in a similar manner. The vessels treated with a wash

of slip have a drab red appearance. Many of the large and medium size pots, bowls and basins were treated with a thin slip solution. In addition to the Gritty Red ware, rare instances of Buff or Grey ware with a gritty core are also found in the assemblage. This Gritty Buff ware is similar to the Gritty Red ware except for the buff colour. Considering its small number, the ware seems to be an aberration of the Gritty Red ware than an intentional creation of the potter.

Vessel Shapes

Pots/jars, bowls and basins are the common vessels of the Anarta pottery tradition. The most popular and characteristic shape in the Gritty Red is a small or medium size pot/jar with a bulbous body, elongated and constricted neck and a widely flaring out rim (Figures 4, 6, 7, 14). Pots of similar shape are common in the Fine Red ware, Burnished Red ware and in the Burnished Grey/Black ware, indicating their popularity in the regional pottery tradition of

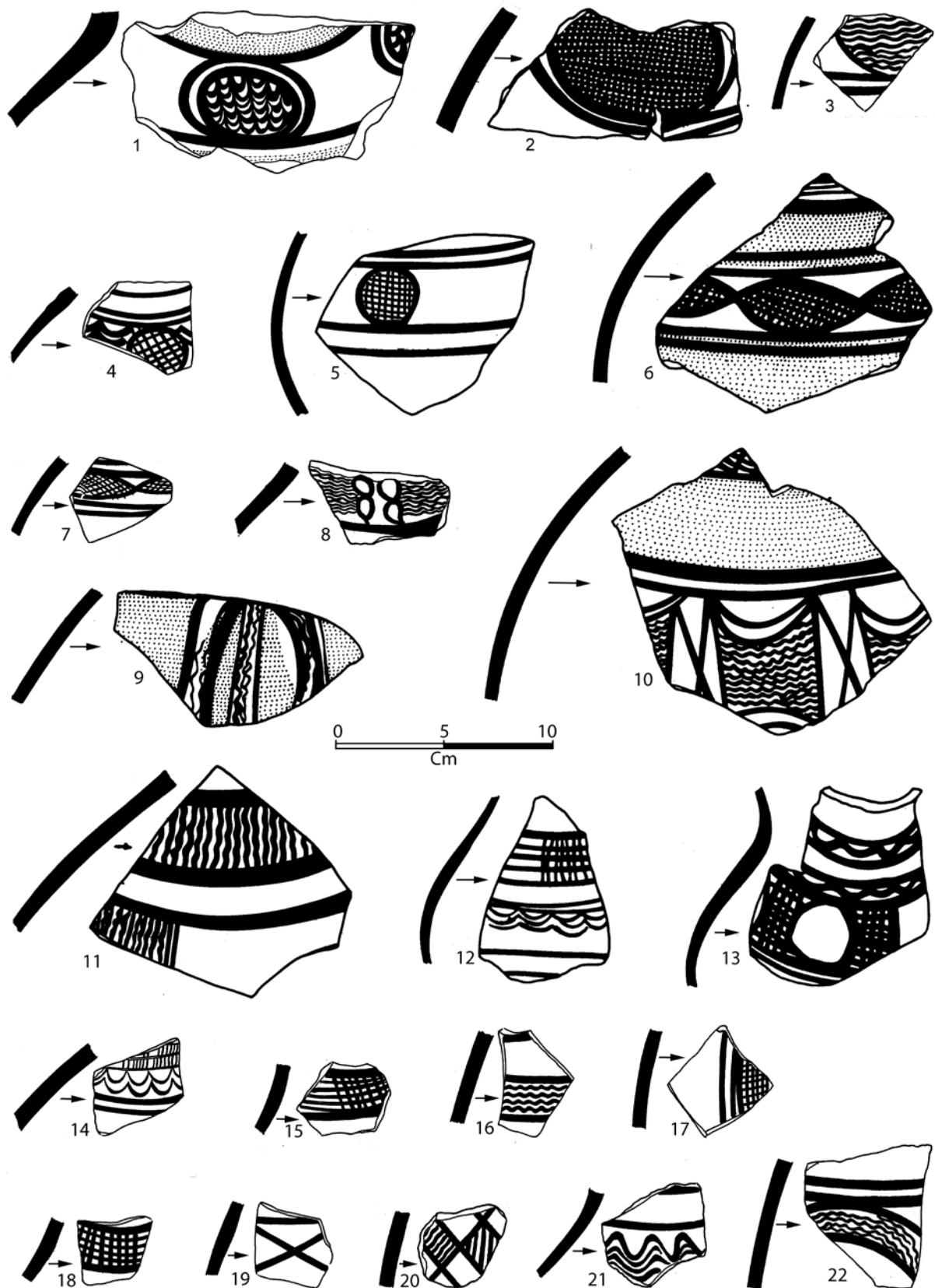


Figure 11 Painted decorations on the Anarta pottery from Nagwada: 1-6, 8-11, 14-22 Gritty red ware; 7, 12, 13 Fine Red ware; 1, 6, 9, 10, 22 bichrome (black/red in cream background); 4, 8, 11, 16, 19 cream slip

North Gujarat. Pots and jars with a short projected out or straight rims are also found in the assemblage. Bowls and Basins are second in the popularity range of Anarta pottery. Bowls have either convex or short, straight sides with a slightly incurved rim (Figures 5, 8, 9). These peculiar shapes are similar to those from the Pre-Urban Harappan levels at Amri (Casal 1964: Figures 38 and 39) or may have derived from them. Basins in the Gritty Red ware are large open-mouthed vessels with slightly convex sides and a rounded bottom (Figure 5.10). The rim is thick and projected out and there is a gentle carination where the curved rim joins the body.

In addition to the above forms, typical Harappan shapes like the dish-on-stand and the perforated jars are imitated in the Gritty Red ware at Nagwada (Figure 3). Such imitated forms were generally made of relatively fine clay, coated with slip and well fired so as to look like the Harappan pottery.

Decorations

The Gritty Red ware vessels are generally painted with varieties of complex geometric patterns, which include sets of horizontal parallel lines with another set of vertical or oblique strokes over it at regular intervals, sets of parallel wavy lines, hatched diamonds, squares and circles, series of hanging and intersecting loops and different combinations of vertical and horizontal straight or/and wavy lines (Figure 11). Black and shades of red, which ranged from bright red to dark brown, are the pigments generally used in such paintings. Sometimes white pigment was also used for painting decorative patterns and also as a background for dark brown paintings (Figures 12 and 13). The use of white painting seems to be a Pre-Urban Harappan tradition in ceramic decoration well footed in the early Chalcolithic cultures of Sindh and Rajasthan (Mughal 1974, Lal 1979). The paintings are generally confined to the rim, neck and the shoulder parts of the vessels. Very often, besides the customary red slip, a cream slip was applied either at the rim or at the shoulder

thereby forming a cream zone. This zone was then painted either in red or in black pigment producing a bi-chrome effect (Figures 4 and 7).

There is a specific scheme of design that repeatedly occurs on the medium size jars/pots with a long and narrow neck at many sites. This popular pattern is a combination of a set of thin horizontal lines intersected by another set of vertical strokes at regular intervals at the rim, neck and shoulder, and intersecting loops filled in with either wavy lines or simple hatching, just below the shoulder. The loops are generally bordered by thick lines or bands. Many a times the painted designs are executed in a cream background. This design scheme is found repeated on the jars of the Fine Red ware and the Burnished Red ware of the Anarta tradition (Figures 4 and 14).

A comparable colour scheme and pattern of design are found on the bowls too. Both the interior and exterior of the bowls are treated with slips having shades of red colour. A cream zone is produced at the rim by applying a broad band of cream slip, and over this are painted sets of horizontal wavy lines and vertical or oblique strokes, intersecting hatched loops etc., in panels at regular intervals (Figures 5, 6, 7).

The Fine Red Ware

In its general features like shape and decoration, the Red ware of the regional ceramic tradition is similar to the Gritty Red ware and, therefore, distinct from the Harappan Red ware. Unlike the Gritty Red ware, the Anarta Fine Red ware was made of well elutriated, fine clay. More often than not, the clay contained abundant mica particles. As in the case of the Gritty Red ware, the vessels are either hand modelled or made on a turn-table. The vessels are generally treated with a red or dark brown slip on the exterior. Buff or cream slip is also equally common. The Fine Red ware shapes are identical with the Gritty Red ware and include pots, jars, basins and bowls (Figures 4 and 5). The pattern



Figure 12 The Gritty and Fine Red ware sherds with bichrome paintings from Loteshwar



Figure 13 Bichrome painted pottery of the Gritty Red ware and the Fine Red ware of the Anarta tradition at Loteshwar

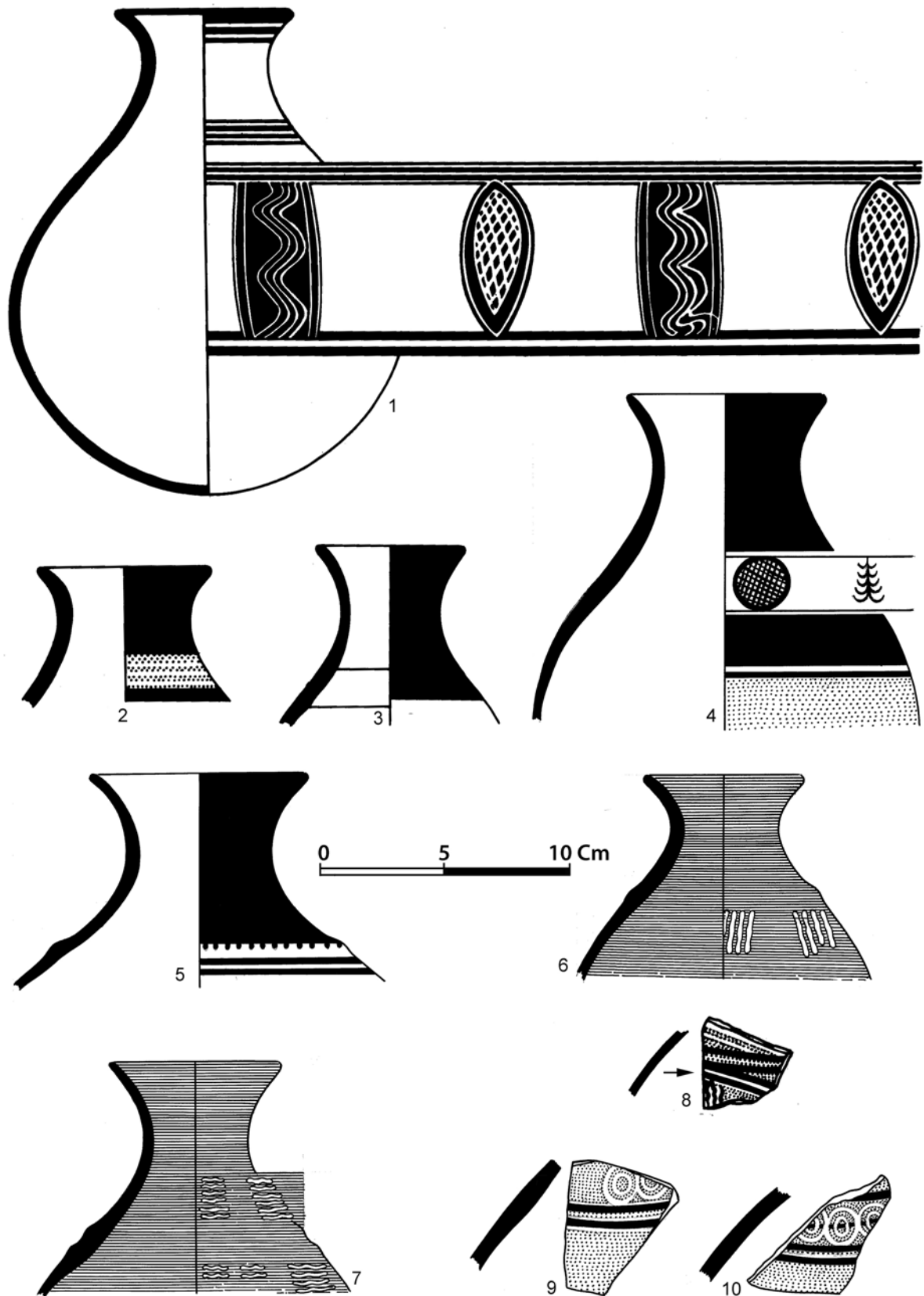


Figure 14 The Anarta pottery from Nagwada: 1, 4 Burnished Red ware; 2, 3, 8 Fine Red ware; 5, 9, 10 Gritty Red ware (5 cream slip); 6 and 7 White painted Burnished Grey/Black ware (1, 2, 4, 8-10 bichrome painting)

and colour scheme of painted designs on the vessels are also similar. These overall similarities may indicate that the Fine Red ware and the Gritty Red ware are the fine and coarse varieties of the same ceramic tradition. Sometimes, especially at Nagwada, characteristic Harappan shapes were also imitated in the Anarta Fine Red ware, which are difficult to distinguish from the real Classical Harappan vessels.

The Burnished Red Ware

The Burnished Red ware and the Burnished Grey/Black ware are distinguished on the basis of surface colour and decoration. The Burnished Red ware is so far reported only in small pots/jars: a standard shape common in the Gritty Red ware and in the Fine Red ware. It has a flaring out rim, long and constricted neck, elongated, bulbous body and a round base (Figures 14 and 15). These are thin walled vessels having a thickness ranging from 2 to 4 mm. The pot is generally hand modelled in two halves and luted at the shoulder. The upper half, especially the rim, is sometimes slow-wheel turned. It is treated with a bright red slip and burnished to produce a smooth shining surface. Some of the vessels are treated with a fine dark chocolate slip up to the shoulder. Decorative patterns are painted on the burnished surface of the pot. The pattern and scheme of paintings are the same as that of the Gritty Red ware. On some vessels a buff or a cream zone is produced at the shoulder by applying a cream slip and the patterns are executed on that background. A few pots in this type have bichrome painted decoration drawn in white on a black background too.

The Burnished Grey/Black Ware

Except for its colour, which is either grey or black, this pottery is similar to the Burnished Red ware. Pots/

jars of small size are the only shape so far found in this type, and that too are very few. The pots have a flaring out rim, long and constricted neck, and bulbous body (Figures 14 and 16). Some of them are cordoned with a ridge at the shoulder. Being fired in a reducing atmosphere the whole pot is either grey or black. A generic resemblance with the black and red ware is evident not only in the technique of firing but also in the painted patterns on the exterior of the vessel. These vessels have a well burnished exterior surface which was painted with parallel horizontal lines or sets of four or five wavy lines and dots in fugitive white pigment at regular intervals around the neck or shoulder.

Apart from the above pottery types, the assemblage at Nagwada incorporates a large number of Black and Red ware. The Black and Red ware is generally represented in large bowls having short stud-handles similar to the stud-handled bowls of the Saurashtran Harappa sites (Figure 3). These bowls are made of relatively well elutriated clay and have a burnished, smooth surface and decorated with vertical strokes, wavy lines, dots and a comb-like pattern painted in a fugitive white pigment on the black interior.

Stratigraphy and Chronology

The Anarta pottery is associated with the Mature Harappan remains at Nagwada from the earliest level onwards. No appreciable variation in their relative abundance vis-à-vis the Classical Harappan pottery is apparent in the four successive layers, although the second layer incorporates the maximum number of Harappan artefacts. A single radiocarbon date from this layer indicates c. 2200 BCE for the deposit at Nagwada (Table 1). Many of the above pottery types like the Gritty Red ware and Fine Red ware are analogous with the non-Harappan Polychrome, Bichrome and Coarse Red ware pottery excavated from Surkotada and some of the painted Coarse



Figure 15 Burnished red ware, Nagwada



Figure 16 The Burnished Red and Burnished Grey/Black wares from Loteshwar (Photo by Akinori Uesugi)

Table 1 Radiocarbon dates from Nagwada and Loteshwar

Site	Period	Sample no.	Date BC half life 5730	Calibrated dates		
				1σ	2σ	Intercept
Nagwada	IB	A 4555	1860±80 BC	2349BC(59.4%)2138BC	2470BC(95.4%)2033BC	2205calBC
Loteshwar	II (Anarta)	PRL 1564	2510±110 BC	3340BC(30.0%)3202BC 3199BC(38.2%)3018BC	3377BC(92.7%)2889BC	3090calBC
		PRL 1565	3100±110 BC	3959BC(61.3%)3760BC	4056BC(95.3%)3636BC	3790calBC
	I (Mesolithic)	PRL 1567	4060±120 BC	5053BC(64.6%)4767BC	5221BC(95.4%)4610BC	4912calBC

Calibrated using IntCal09, Calib Rev 6.0.1

Red ware from Lothal (Hegde *et al.*, 1988: 62). At Surkotada, in the south-eastern part of Kachchh, the "non-Harappan" pottery types occur in the early levels, Period-IA, dated to c. 2500 BCE along with the Mature/Urban Harappan remains. In the succeeding Period-IB, the non-Harappan Coarse Red ware outnumbers even the Harappan pottery (Joshi 1972: 129), indicating its remarkable influence on the Harappa culture at the site. Similarly, the painted Coarse Red ware vessels reported from Lothal (Rao 1985) along with the Micaceous Red ware and the Mature Harappan wares from the earliest level onwards are comparable with the Gritty Red ware, particularly in their shape and painted decoration.

The use of white colour both as a pigment as well as a background for paintings is common in the Stage-I and II, which precede the Mature Harappan Stage, at Dholavira (Bisht 1989, 1994). A similar correspondence with the Pre-Harappan Chalcolithic pottery reported from Binjor-I, RD-89 and other sites in Rajasthan by Dalal (1980, 1981, 1987) can also be cited to illustrate the general ambiance of the tradition². It should also be noted that the Anarta pottery shows several shared features, especially in the painted decorations and shapes, with the Early Harappan pottery reported from Jalilpur by Mughal (1974). It is therefore obvious that certain vessel forms in the Anarta pottery tradition, like the bowls, and the use of white pigment in painted decoration are more akin to the Pre-Urban Harappan ceramic traditions of the Indus and the Ghaggar-Sarasvati basins, than the Urban/Mature Harappan tradition. Therefore, a

generic kinship of the Anarta tradition of the North Gujarat region with that of the Pre-Urban Harappan traditions can be tentatively proposed (Ajithprasad 2002). It is noteworthy that many features of the Gritty Red ware show close resemblance, especially the vessel shapes, patterns of decorations and overall techniques of production, with the Padri ware (Shinde and Kar 1992) dating back to the second half of the fourth millennium BCE, excavated at Padri in the Saurashtra coast of Bhavnagar district. It can be, suggested that most of these regional ceramic traditions were an integral part of the Western Indian Pre-Urban Harappan village cultures of the fourth and the early third millennium BCE (Sonawane and Ajithprasad 1994). This has been validated by the excavations at Loteshwar in North Gujarat.

Anarta Tradition and Loteshwar

The Anarta tradition had an independent existence much earlier than the beginning of Mature Harappan in North Gujarat. In a few sites in the vicinity of the Khari stream, a small tributary of the Rupen, the Anarta pottery is not associated with the Harappan remains (Figure 31). Subsequent excavation in one of such sites at Loteshwar, in Mehsana (now Patan) district in 1991, revealed its independent existence prior to the beginning of the Urban Harappa culture. All the pottery types of the Anarta that are described above have also been reported from Loteshwar-I (Figures 17-19, also Figures 6, 7, 9, 10). In fact,

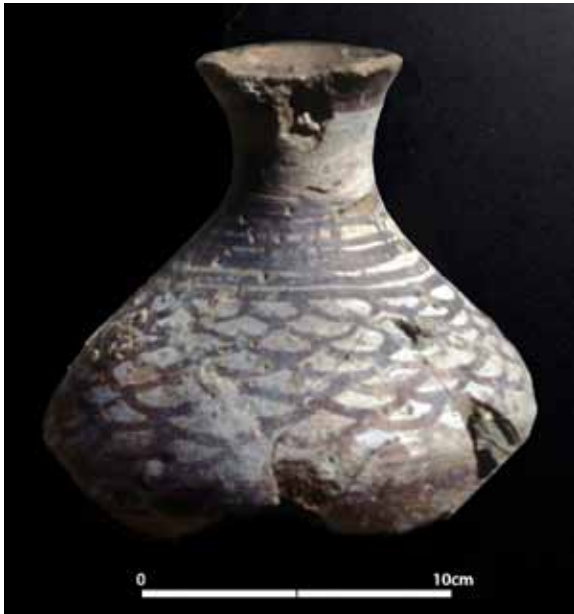


Figure 17 Gritty Red ware, Loteshwar

varieties of shapes and painted decorations, particularly the white/bichrome painted ones, are much more in the Loteshwar assemblage than in Nagwada (Figures 20 and 22, also Figures 12 and 13). In addition to these, the assemblage included a few sherds of Coarse Red ware and Coarse Grey ware with incised decoration and sherds of the Gritty Red ware vessels decorated with the "Reserved Slip" technique (Figures 21 and 22). These are different from the Reserved Slip ware found in the Classical Harappan context. They in fact are close to the Reserved Slip ware reported from the Chalcolithic assemblage dating back to 3500 BCE at Balathal in southern Rajasthan (Misra 2005), probably indicating incidents of early Chalcolithic inter-regional interaction.

Another type of pottery that is identified in the Anarta pottery collection of Loteshwar is a Coarse Red ware with matt surface (Figure 23). Sometimes a few samples of this pottery in grey colour are also found in the collection. It was made of a clay paste containing a lot of coarse sand and was reasonably well-fired. Generally, sections of broken potsherds of this category have a uniform reddish colour indicating complete oxidation of the clay. It resembles the common Coarse Red ware in overall appearance, but has a matt external

surface that was intentionally produced by scraping and paring. Medium to large size pots are the only type of vessels found in this category.

The excavation at Loteshwar revealed that the habitation deposit at the site formed discrete clusters of artefact concentrations whose depositional history could not be adequately ascertained. The overall Chalcolithic deposit at the site is meagre, ranging from hardly 20 to 40 cm. However, a conspicuous feature of the non-Harappan occupation is the presence of a number of roughly circular pits varying from 0.50 to 2.00 m in diameter and a corresponding variation in depth from 0.50 to 2.00 m. It is interesting to note that similar pits have been unearthed at Nagwada as well as in the excavation at Santhli, another site belonging to the Anarta tradition in Banaskantha (now Patan) district. The pits at Loteshwar are filled with plenty of ash and other debris of occupation including sherds of pottery, skeletal elements of the exploited animals, steatite micro-beads, terracotta objects and burnt clay lumps having reed impressions, presumably the remains of clay plaster over wattle and daub structures. A few shell beads and semiprecious stone beads are also found in the excavation. Radiocarbon assay of the charcoal samples from this deposit suggests a date c. 3600 - 3000 BCE (Table 1) thereby indicating an early beginning of the Anarta tradition in North Gujarat.

Loteshwar has a very rich and substantial deposit of Mesolithic occupation, underlying the Chalcolithic deposit. Radiocarbon date from this deposit is one of the earliest, 4700 BCE, in Western India³. A preliminary assessment of the rich collection of faunal remains from the Mesolithic deposit indicates high abundance of a few wild species of animals, especially blackbuck (*Antelope cervicapra*). This would suggest that the hunter-gatherers had probably practiced selective hunting. Whether the selective hunting eventually led to the beginning of herding and early stages of organized food production is not clear at present. In any case, this preliminary assessment

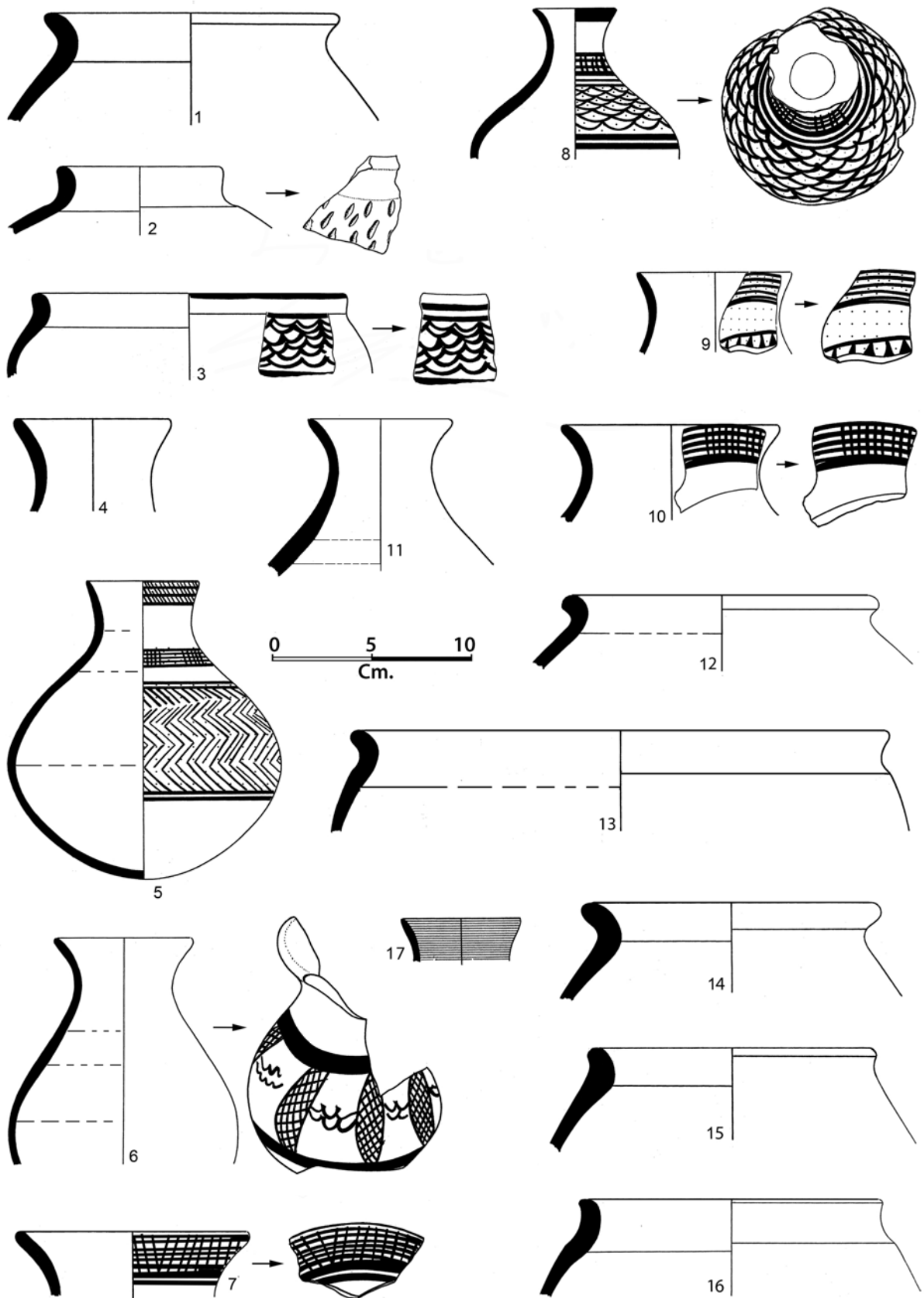


Figure 18 Loteshwar-I Anarta pottery: 1 Coarse Red ware with matt surface; 2 Coarse Grey ware (incised); 3, 4, 6, 10-15 Gritty Red ware; 5, 7-9 Fine Red ware (bichrome: black on white); 16 Coarse Red ware; 17 Burnished Grey/Black ware

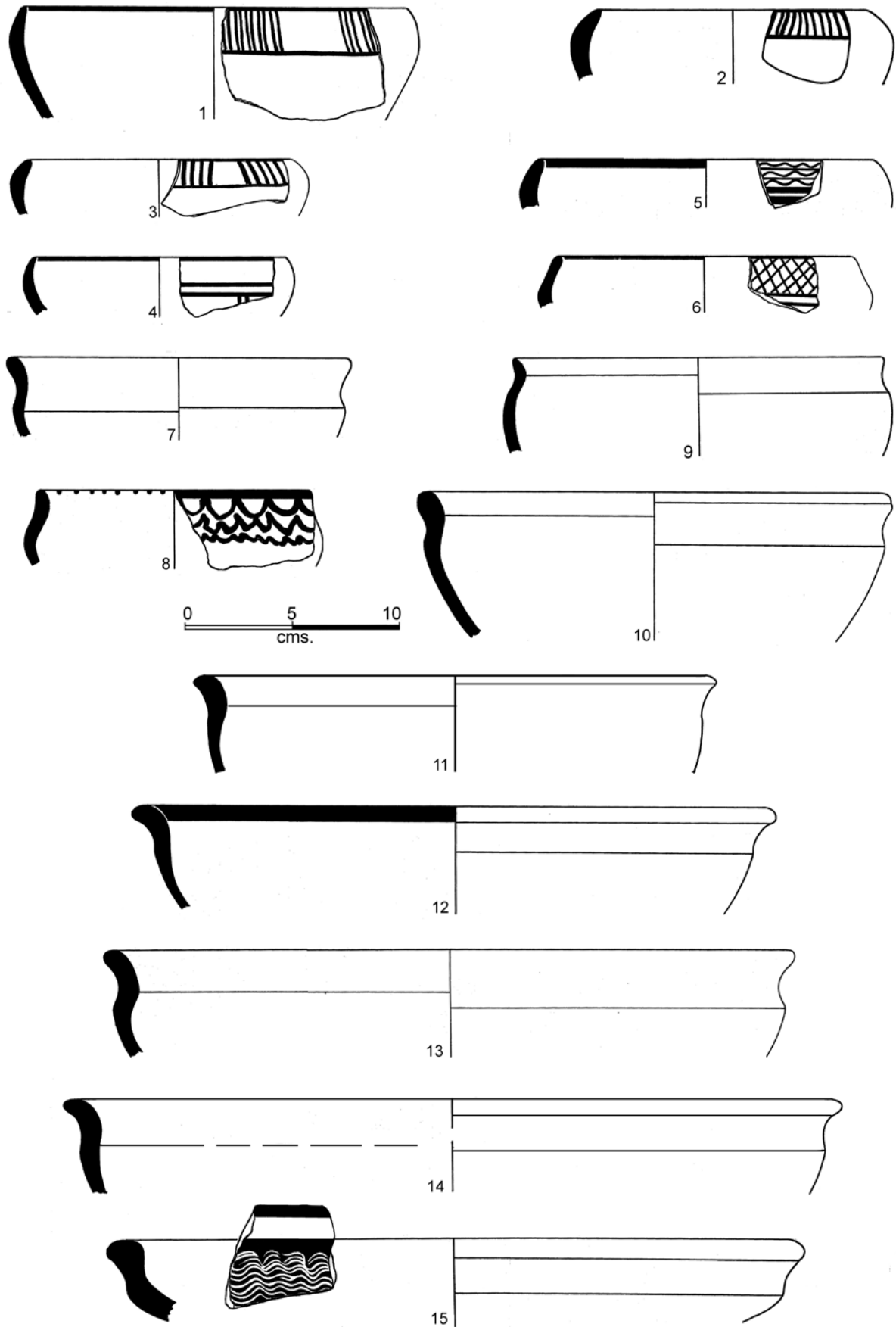


Figure 19 Loteshwar-I Anarta pottery: 1, 2, 6-8, 10, 13, 14 Gritty Red ware, 3-5, 9, 11, 12, 15 Fine Red ware (3 cream slip, 4, dark brown slip, 5 bichrome: black on cream; 15 Reserved slip)



Figure 20 White painted decorations on the Anarta pottery from Loteshwar



Figure 21 Anarta pottery from Loteshwar having Reserved slip and incised decoration

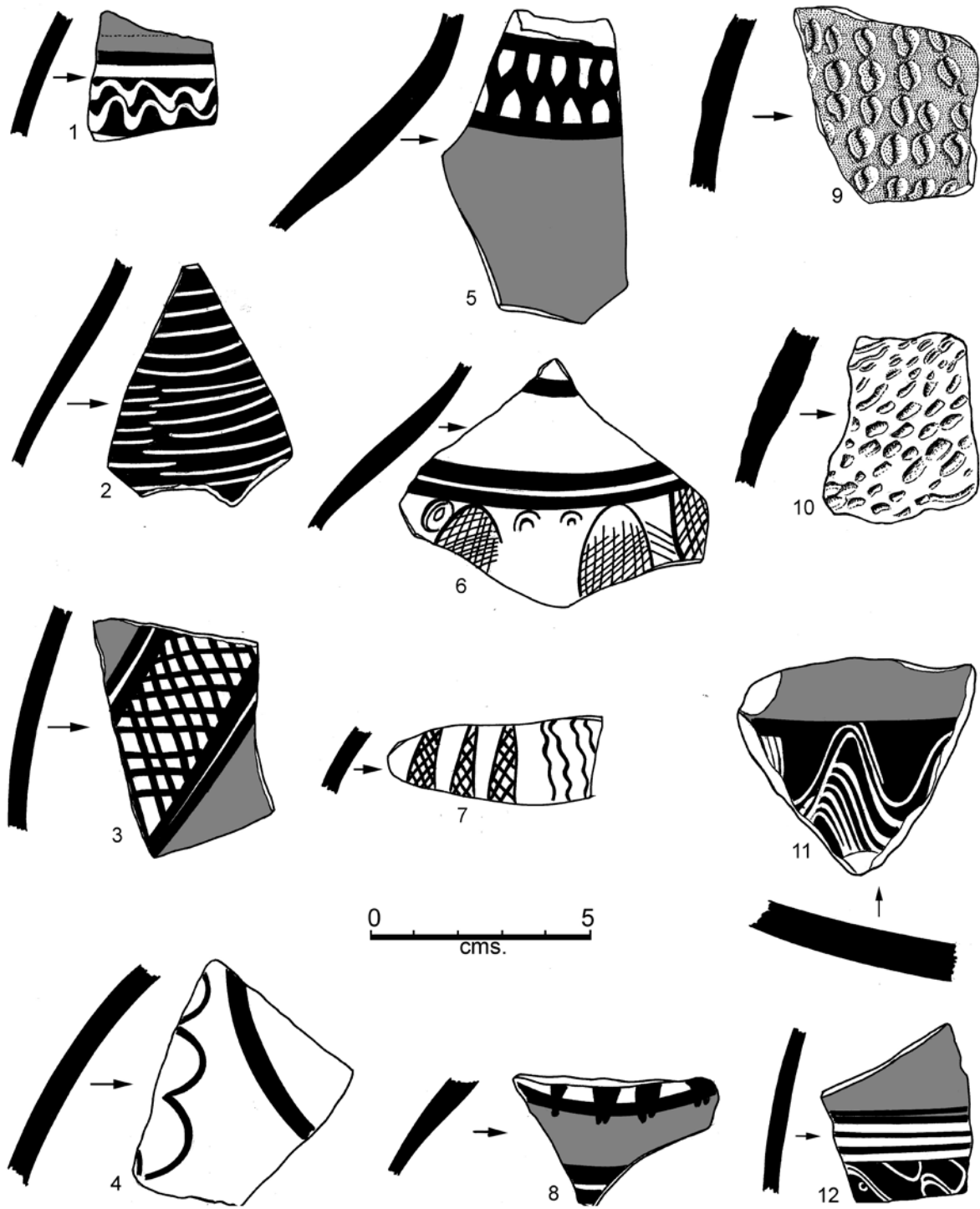


Figure 22 The Anarta Pottery from Loteshwar-I: 1, 2, 6, 12 Fine Red ware; 3-5, 7, 8, 11 Gritty Red ware; 9 Grey ware; 10 Coarse Red ware; (1-3, 5, 8 bichrome: white on black; 4 cream slip; 9 and 10 incised; 11 and 12 Reserved slip)

needs to be ascertained by further detailed analysis of the faunal remains⁴. The presence of a large number of grinding stones in quartzite, sandstone and other rocks, and the evidence of grinding and polishing to produce a smooth and bluntly pointed stone implement of unknown function in a fine siltstone

from the Mesolithic level may imply intensive food processing as well as innovations in lithic technology during the period. Stratigraphically, the Chalcolithic deposit directly overlies the Mesolithic deposit without any break. However, there are no conclusive indications of a cultural continuity from the



Figure 23 Coarse Red ware with matt surface from Loteshwar



Figure 24 Terracotta animal figurine from Nagwada



Figure 25 Terracotta Female figurine from Nagwada

Mesolithic to the Anarta Chalcolithic at the site.

Very little is known about other cultural materials associated with the Anarta pottery apart from the steatite micro-beads, and a few beads of shell,

amazonite and carnelian; terracotta beads, pellets and pottery discs recovered from Loteshwar. A few copper wires and a large number of lithic blade tools and debitage are also part of the assemblage. The lithic



Figure 26 Early Harappan pot-burial in Nagwada

debitage and the tools recovered from the site do not reveal any evidence of the application of crested ridge technique in the blade production. Probably the early Chalcolithic community at Loteshwar was not acquainted with this technique. The assemblage also had oval and square shaped terracotta lumps and a small terracotta animal figure (Figure 24). A female figurine measuring hardly 5cm is reported from the Anarta assemblage at Nagwada (Figure 25). Decorated with steatite beads, this figurine is quite different from those found in the Classical Harappan context. Simple and minimalistic modelling style of this female figure bespeaks the individuality of the Anarta tradition.

It is apparent that the Anarta tradition continued to survive even after the Mature/Urban Phase of the Harappa culture. In many of the sites in the region the Anarta pottery is found associated with the so called "Late Harappan" pottery belonging to the Period-IIB and Period-IIC of the Rangpur sequence. It is also found associated with the Post-Urban Harappan context indicating a long period, spanning from 3600 B.C. to c. 1700 B.C. The pottery tradition

goes through perceptible changes during this long period of time. For example, the Fine Red ware and the Burnished Red ware with bichrome decoration are found only in the early stages and associated with the Mature Phase of the Harappa culture. Similarly, the use of white pigment for painting and as a background also disappeared in the later period. The scheme of yellowish slip and yellow as background colour however survived in the Sorath Harappan pottery tradition. Similarly, the Burnished Grey ware continued even in the later period but, new vessel forms were adopted. Generally, the Gritty Red ware with simple painted decoration is the only type of Anarta pottery present in the later period sites.

The Anarta Pottery and the Chalcolithic Burials of North Gujarat

A new dimension to the regional Chalcolithic tradition is added with the discovery of Anarta pottery in association with the Early Harappan/Chalcolithic

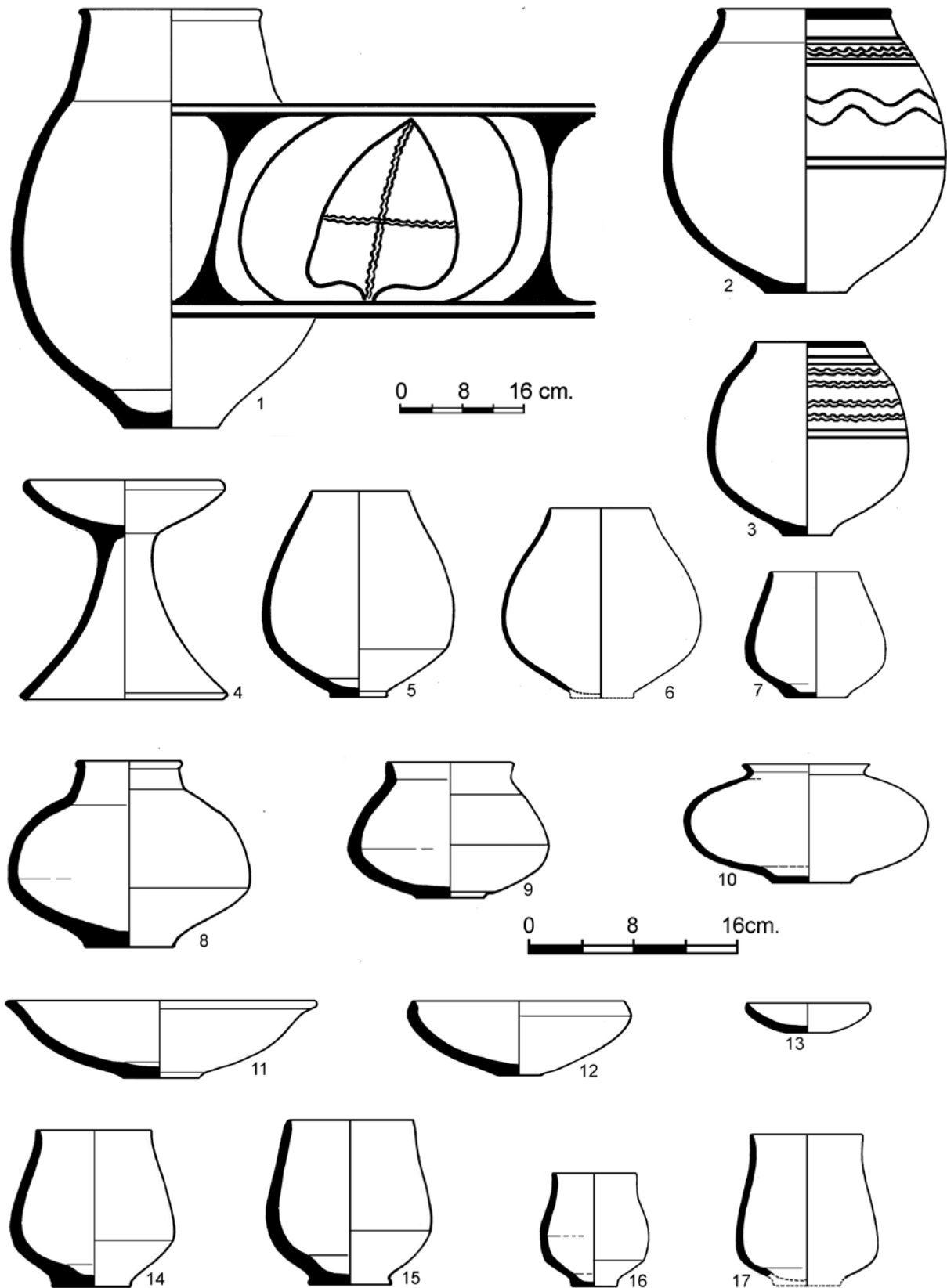


Figure 27 Early Harappan pottery from the Nagwada-I burials: 1-3, 5-7, 9, 11-17 Red ware (3 bichrome painting); 4 and 8 Grey ware; 10 Buff ware (1-6, 8, 9, 11-17 from pot-burial, 7-10 from extended burial)

burials of North Gujarat. This interesting evidence for understanding the Chalcolithic/Harappan society of North Gujarat was first brought to light from the two extended inhumation burials and three pot-burials unearthed (Figure 26) at Nagwada in the late 1980's (Hegde *et al.*, 1988: 58-59). The burials invariably contained pottery as burial good interred in the grave. The potteries that are found in these two burial types are similar, even though the number of vessels in each burial varied considerably. Red ware, a pinkish Buff ware and Grey ware are the three important pottery types found in these burials (Figure 27). They are distinct from the Harappan pottery and the non-Harappan, Anarta pottery types and are not found in the regular habitation layers at the site. The clay used in their production was well elutriated and the vessels were slipped and painted even though the slip and painting had almost completely peeled off. Characteristic shapes in the burial pottery are a large bulbous pot, flasks or beaker-shaped vases with sides converging into a rather narrow opening, beakers with slightly flaring rim, dish-on-stand, the dish with no carination and shallow bowls. The large bulbous pot has a narrow flat base, a short and straight neck and a flat rim. It is painted at the rim and sometime up to the neck with thick dark bands and at the shoulder with horizontal and wavy lines. A stylized pipal leaf motif on one of the large pots is also noteworthy (Figure 27.1).

The shapes and the decorations of the burial pottery do not resemble the shape and decoration of the Urban Harappan pottery; rather they resemble similar vessels from the Early Harappan levels at Kot Diji (Khan 1965), Amri (Casal 1964: Figure 62), and Balakot (Dales 1974, Frank-Vogt 1997, Possehl 2006). Besides, similar pot-burials were found in association with Pre-Urban Harappan sites at Nal and Damb Bhuti (Piggott 1952). Analogous pottery types have also been reported from the pot-burials unearthed from the cemetery at Surkotada by Joshi (1972) suggesting very clearly the spread of

the tradition towards the north into Kachchh. Joshi (1990) has compared the pottery from the burials with the Pre-Urban/Early Harappan pottery of Sindh and Balochistan.

Further exploration in the region in the early 1990's revealed eight more sites that incorporated the Early Harappan burial pottery types in their assemblage (Figure 31). In fact, the geographical spread of the Early Harappan burial pottery is found coterminous with the spread of the Anarta pottery tradition in the region (Sonawane and Ajithprasad 1994, Ajithprasad 2002). Excavations at two of the above sites, Moti-Pipli in 1993 (IAR-1992-93) and Santhli in 1994 (IAR-1993-94), in Banaskantha (now Patan) district, have revealed further details of the Chalcolithic community who had buried the dead with the pots (Majumdar 2001). Of the two extended burials excavated at Santhli, one is a joint/double burial with five distinct vessels similar to those found in the Nagwada burials. However, no substantial habitation deposit of the Chalcolithic community is reported from the site. This is a feature which is common to most of the above sites in North Gujarat. Moti-Pipli, on the other hand, showed a substantial (about 1.00 m) habitation deposit even though no burials were unearthed in the excavation. The site not only has all the already reported 'Early Harappan burial pottery' types in the habitation levels but also several new shapes (Figures 28 and 29) which are analogous to the Early-Harappan vessels from Kot Diji, Balakot and other sites in Sindh and Baluchistan. The Early Harappan strata at these sites have been dated from the middle of the fourth millennium B.C. to the first half of the third millennium B.C. (Possehl 1994). This evidence has important historical significance in understanding the movement of early Chalcolithic cultures as it suggests that, the Pre-Urban Harappan settlements of Sindh and Baluchistan extended further southwards into the northwestern part of Gujarat during this period (Hegde *et al.*, 1988, Majumdar and Sonawane 1996-97, Possehl 2006).

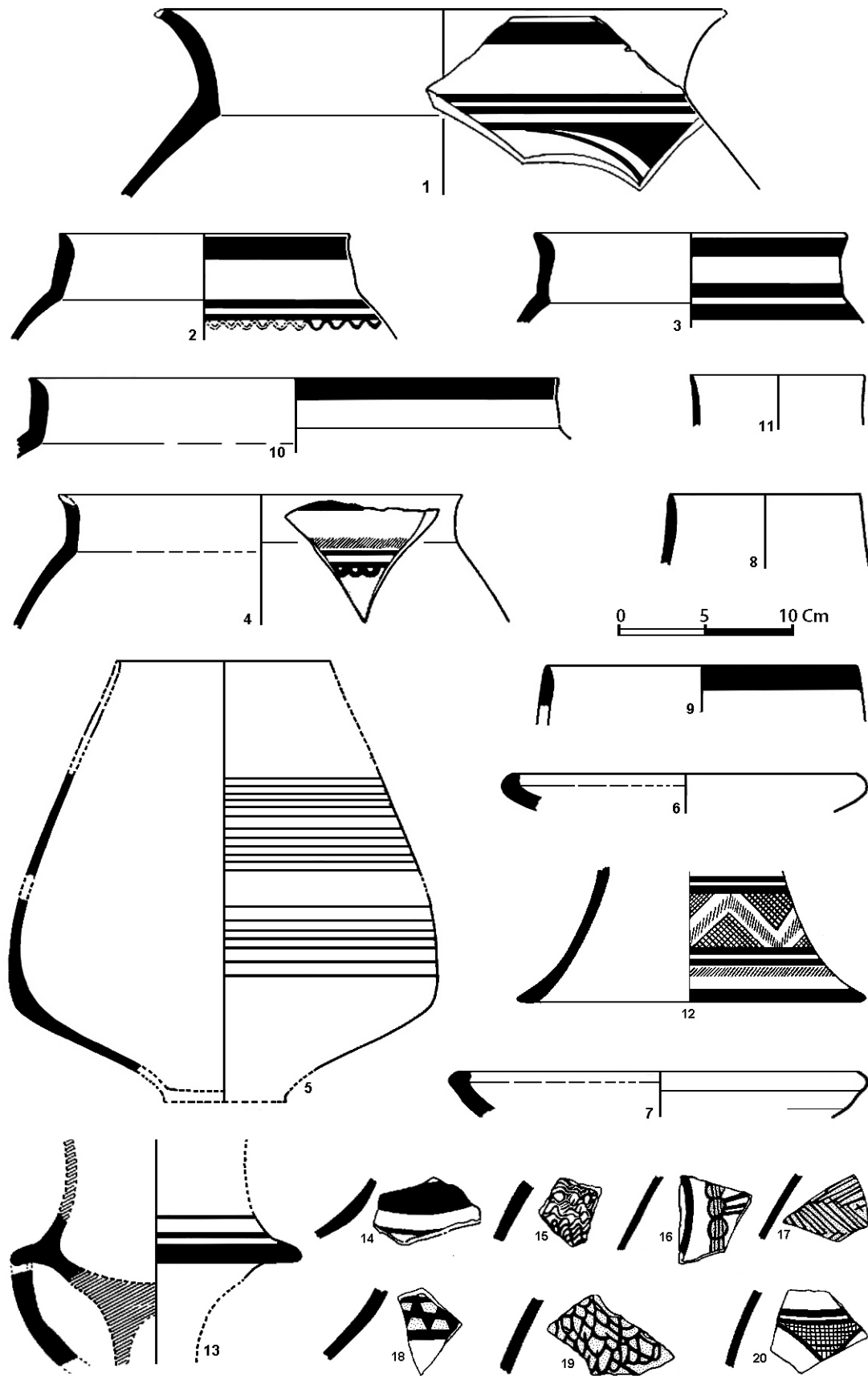


Figure 28 The Early Harappan pottery from Motipli in North Gujarat: 1-9, 12 Red ware; 10 and 11 Buff ware; 14-20 Anarta Red ware (11 dark brown slip, 12 Bichrome painting, 16-19 cream slip)

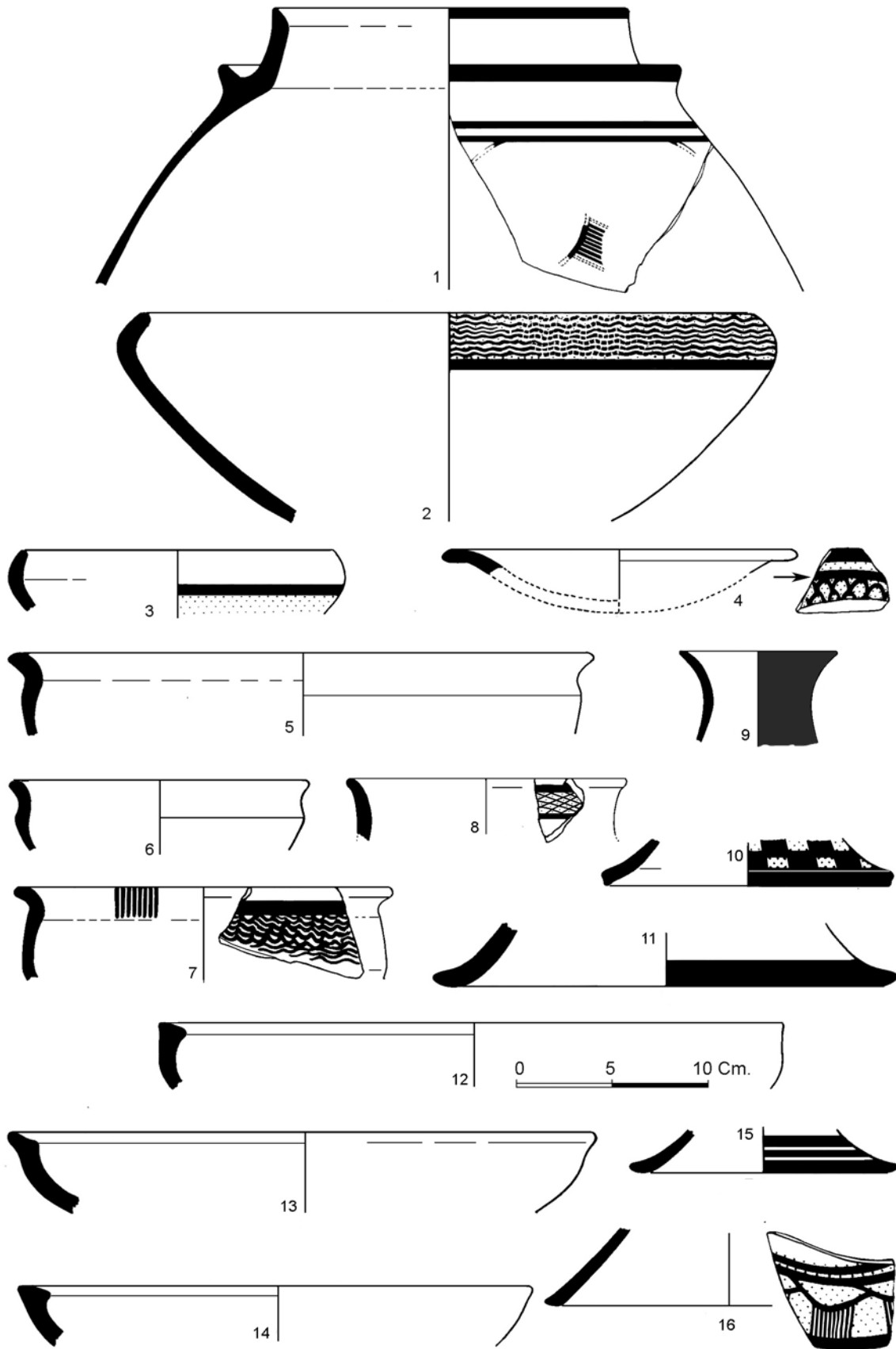


Figure 29 Motipipli, the Early Harappan (1, 3, 11-16) and Anarta pottery (2, 4-10): 1, 5, 12, 13, 16, Fine Red ware; 2, 4, 6, 10 Gritty Red ware; 3, 11, 14, 15 Buff ware (2, 4, 7, 8, 10, 16 bichrome; 3 and 14 dark brown slip)

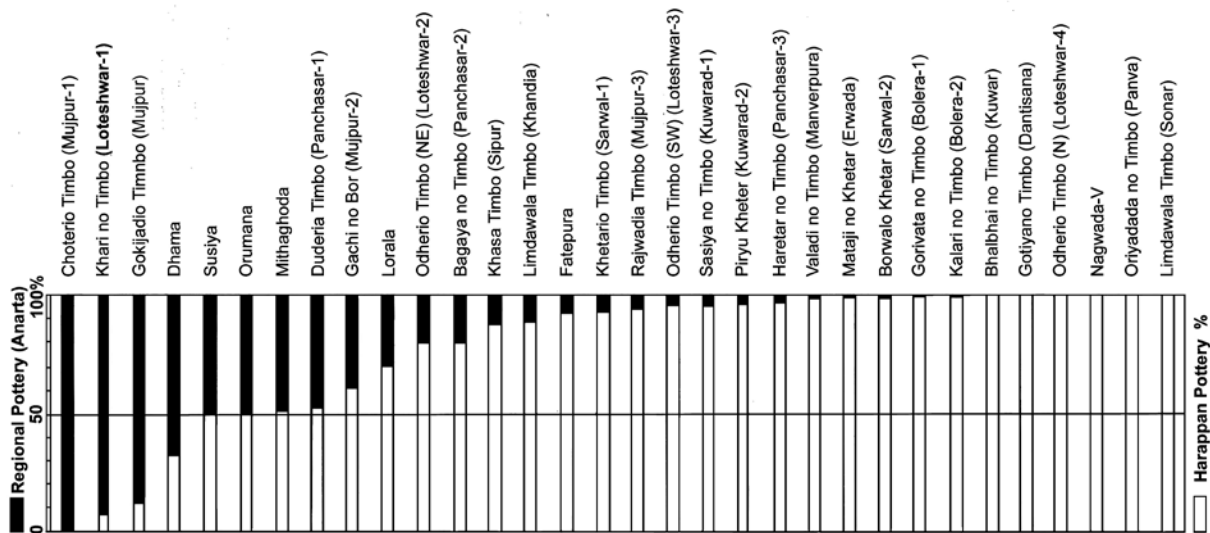


Figure 30 Relative abundance of the Anarta and the Harappan pottery in North Gujarat sites

Geographical Extension and Cultural Affiliation

In order to ascertain the regional character of the non-Harappan Anarta pottery tradition, it is also necessary to trace the geographical extension and assess their relative abundance in the Chalcolithic settlements of North Gujarat. The ceramic assemblages of 62 sites among the hundred sites so far located in this region are found to incorporate the Anarta pottery types (see Appendix). However, the relative abundance of the Anarta pottery in these assemblages varied considerably (Figure 30). The chart shows the distribution of Anarta pottery from the sites in the Rupen estuary. Sites situated further northwest in Banaskantha district were discovered later and their systematic classification is not included in the chart.

In some of the sites such as Choterio timbo and Loteshwar-I, the Anarta pottery is the most predominant pottery if not the only one. However, in the majority of sites it varied from 20 to 60% and in a few sites its presence is less than 10% of the total collection. Sites, which incorporated the Anarta pottery 10% and above are designated as affiliated to the Anarta tradition (Mahida 1992). On the basis of the above criteria two distinct cultural contexts

to which the Anarta pottery is associated with can be identified: (a) independently in the Pre-Urban Harappan context and (b) affiliated to the Urban Harappan and later context which can be further classified corresponding to the fourfold Rangpur sequence of S. R.Rao (1963). The cultural affiliation and the distribution of sites in different periods of occupation are shown in the Figure 31.

In the Pre-Urban Harappan context, the Anarta pottery is found independently at least in four sites: at Loteshwar-I, Choterio timbo (Munjpur), Go-khijadio timbo (Munjpur) and at Santhli-I. The first three sites are located along the banks of the Khari stream, a small tributary of the Rupen, within a distance of one to three kilometres. Santhli-I, on the other hand, is situated about 60 km northwest of Loteshwar. Another rich assemblage of the Anarta pottery is found at Naeka, about 8 km northwest of Loteshwar. Similarly, Moti-Pipli, about 6km southwest of Santhli-I, and Santhli-II also show a large number of Anarta pottery in association with the Early Harappan Sindh related pottery which, are similar to those found in the burials at Nagwada. In the Urban Harappan and later context, the regional pottery is associated with different Phases of the Harappa culture, starting from the Mature Phase. As has been mentioned earlier, the Harappan ceramics from these sites are classified according to

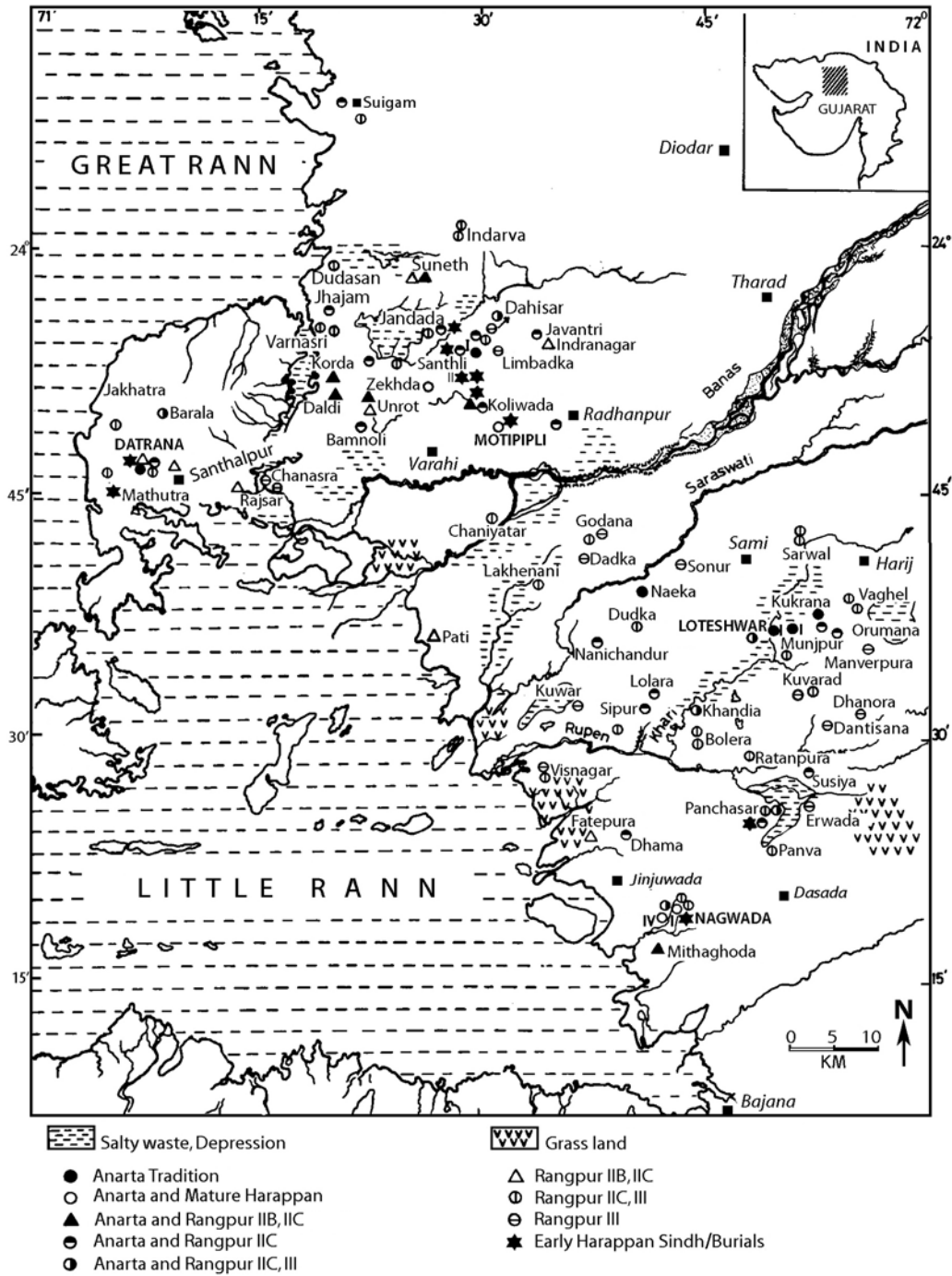


Figure 31 Locations of Chalcolithic sites in North Gujarat showing their cultural affiliation

the Rangpur Period IIA, IIB, IIC and Period III (Rao 1963: 59-137) and Rojdi Period- A, B and C (Possehl and Herman 1990, Herman 1989) classification. However, it became abundantly clear in the course of the study that, an over-simplified classification of sites following the above schemes is not feasible in the case of North Gujarat, as there are many sites in this region which show the beginning of occupation during the

Rangpur IIC Period and continued to be occupied during the succeeding Post-Urban Harappan Period marked by the Lustrous Red ware.

Sites affiliated to the Anarta tradition and the Mature Harappan together are few and far between in North Gujarat. Nagwada-I is the most important site of this category showing predominance of the Anarta pottery associated with all the Classical Harappan

remains. Other sites like Zekhada and Nagwada-IV can also be included in this category although they incorporate only a few type-fossils of the Mature Phase. Similarly, only very few sites show the Anarta pottery affiliated with the Urban Phase Sorath Harappan pottery of the Rangpur IIB or the Rojdi A&B types (Figure 31). In many sites, the Anarta pottery is associated either with the Rangpur IIC or with the assemblages incorporating both Rangpur IIC and III Period pottery. 26 sites in the region belong to this category. And, only in 5 sites the Anarta pottery is associated with the Post-Urban Rangpur III elements. However, in these Post-Urban sites the Anarta pottery is represented by less than 10%. It is, therefore, clear that the Anarta tradition had an independent origin and existence, but became an important component in the Harappan settlements of North Gujarat during the Mature and the early phase of the Post-Urban Harappan or the so called 'Late Harappan' period. The tradition, however, started losing its ground in the Post-Urban Phase of the Harappa culture.

Settlement Pattern

Chalcolithic sites in North Gujarat are located not very far away from the eastern margin of the Little Rann of Kachchh. In fact, some of them are located on all along the edge of the Rann. Almost all of them are situated at the top of fossil sand-dunes which form gentle natural eminences in an otherwise flat landscape. In the vicinity of these Chalcolithic sites are found a number of Mesolithic sites. Sometimes, the same site was occupied successively by both the Mesolithic and the Chalcolithic communities. Close to the eastern margin of the Rann the Mesolithic sites are sparsely scattered. As one moves east towards Harij and further, the Mesolithic sites outnumber the Chalcolithic ones. It may be noted that the western alluvial plain gradually merges with the rugged and severely undulating topography further east of Harij.

This eastern rugged land is more thickly vegetated than the western part and was inhabited by the Mesolithic hunter-gatherers for a long time before the Harappans came in the scene. Mesolithic sites in this area are rich in microlithic artefacts and show substantial habitation deposits. The two major excavated Mesolithic sites, Langhnaj in the southeast of Loteswar in Mehsana district and Bagor, further northeast in southern Rajasthan, are located within this geographic context. These two sites have illustrated some good evidence of Mesolithic – Chalcolithic interaction that was going on in the region (Misra 1973, Sankalia 1965). Nevertheless, it seems the Harappan peasants had penetrated probably not much further east of Harij. It is obvious that the Mesolithic hunter-gatherers and the Harappan agriculturalists coexisted in the region exploiting the same echo-niche for a long period of time. Probably, in due course of time, these two communities may have had a symbiotic existence; details of which remains to be investigated properly (Possehl and Kennedy 1979).

A feature that is been shared by many of the Chalcolithic sites of different cultural affiliation in this region is their small size (see Appendix). Most of the sites in the region measure less than 3 hectares. Many of the sites around Loteswar and Santhli measured around half a hectare only. In general, the size varied from a minimum of 0.02 hectare at Ghachi-nobor (Munjpur) to 7.00 hectare at Bagayano timbo (Panchasar). In fact, many of the relatively large sites like Panchasar and Fatepura show discrete clusters of artefacts, each one of which may be hardly a little more than 0.10 hectare. It is possible that such clusters of artefact concentration might have been occupational areas separated sufficiently by time. Large size therefore does not necessarily always indicate a single large settlement. Besides, none of the settlements appears to have a substantially thick habitation deposit either. The excavated sites in this region have shown a deposit varying from 0.20 m to a little more than 1.00 m. Some of the explored sites like Dhama, Nagwada-V,

Jhandada-II, Varanasri etc. (see Appendix), show only superficial deposit spreading to a small area. Such sites might have been seasonal settlements connected with the pastoral and agricultural activities of the Chalcolithic community.

The surface assemblages from North Gujarat sites do not reveal much evidence of structural remains or the type of dwelling structures built by the early Chalcolithic community. However, excavations at Nagwada, Loteshwar and Santhli have revealed a few tangible remains of the dwelling structures of the community. Structures in the Mature Harappan Phase at Nagwada were built of rubble stones and moulded mud-bricks. Remains of post-holes unearthed in the excavation would also suggest the presence of wattle and daub structures in the early stages of habitation at the site. Remains of clay plaster with reed impressions, probably used for plastering the structures of wattle and daub, belonging to the Anarta pottery tradition prior to the Urban Harappa culture have been excavated from Loteshwar and Santhli. Some of the dark and dense mud-walls and rubble stone structural remains unearthed from Nagwada (Hedge *et al.* 1988) may also belong to this tradition. Remains of similar wattle and daub circular structures are found at Zekhada (IAR 1977-78, Momin 1983) in the Mature/Urban Harappan Phase and at Ratanpura (IAR 1984-85, Bhan 1989) in the Post-Urban Phase, suggesting a long surviving tradition of circular huts.

Another important feature related to the distribution of the sites is their location close to the landforms which are designated as 'salty waste'. These are slightly low-lying, flat wastelands which are generally marshy throughout the year and partially covered with a salt efflorescence with the onset of summer. Although they are unsuitable for agriculture, contiguous land around such depressions forms good pastoral land for cattle and sheep, as they support many types of edible grass. Fringes of these salty wastes are generally found occupied by Chalcolithic settlements. Sites around such depressions in the

middle course of the Rupen river and near Vaghel show a close clustering during different periods of Chalcolithic occupation (Figure 31). Clustering of sites could also be seen around Korda and Jhandada, on either side of a very large natural depression locally known as Sandher. Besides these, a similar pattern of site distribution is observed in the margins of the eastward extension of the depression which connects the Great and the Little Rann. It should also be noted that many of these depressions retain potable water till the months of December and January and become brackish only with the onset of summer. In the light of considerable silting that had been happening in many of the rivers in the region, it is also possible that these depressions might have been a little more deep and retained potable water a little longer than today during the 4th and 3rd millennium BCE.

Agricultural and cattle breeding must have been the two important components of the subsistence activity of the Chalcolithic community in the region. Nevertheless, none of the sites in the region have yielded direct evidence of grain cultivation. The large faunal collection from the sites included skeletal remains of wild animals like gazelle (*Gazalla sp.*), blackbuck (*Antelope sp.*), sambar (*Cervus sp.*), nilgai (*Boselaphas tragocamelus*), chital (*Axis axis*), wild boar (*Sus scrofa*) etc. associated with the remains of the domesticated cattle (*Bos indicus*), sheep (*Ovis sp.*) and goat (*Capra sp.*). It also included the remains of aquatic fauna like fish and turtle. A large collection of cattle and sheep/goat bones recovered from the excavated and explored sites may indicate the importance of these animals in the economy of the Chalcolithic settlements in this region. Cattle bones constituted about 70% followed by sheep/goat bones represented by 20% of the total collection from different sites in the region (Patel 1989, Pratapachandran 1984, Subbarao 1984, Battacharya 1981). Besides the natural grass, to a certain extent, cattle population is known to depend on the by-products of agricultural production. In fact, even at present, pastoralism is an important

occupation of a section of the agrarian population in North Gujarat.

The surface spread of the artefacts, the thickness of habitation deposit and the presence of durable structures are considered indices of the size, intensity and duration of occupation at a site, apart from its economic status. The habitation features of North Gujarat sites do not indicate the presence of a large site in the region; nor do they indicate prolonged occupation at any of the sites. The features, in fact, indicate that almost all the sites were dependent on subsistence farming and stock raising rather than a surplus economy. In a region that had been continuously fraught with poor soil and low rainfall, development of large settlements based on surplus agricultural products would have been difficult, unless they depend on production of some such industrial craft products that can be traded and exchanged far and wide, which would have brought in the necessary economic stability. Incidentally, Nagwada was a rural centre for the production of semiprecious stone beads, steatite beads and shell ornaments during the Mature Phase of the Harappa culture (Hegde *et al.* 1988). Consequently, the economic stability and wellbeing of the settlement are reflected on the large structures of both mud-bricks and rubble stones unearthed at the site.

It can be summarized that, the economic activities of the Chalcolithic peasant communities of North Gujarat had been delimited by severe geographical and environmental constraints. The nature and distribution pattern of the sites in the region may therefore, be viewed as a reflection of the strategies adopted to overcome these constraints. It appears that the prolonged occupation at a site was influenced by at least three major factors: (a) easy access to constant source of potable water, (b) a good, fertile agricultural field around the settlements and (c) the presence of good grasslands for livestock rising. A negative shift in any one of these factors would have adversely affected the economic equilibrium resulting into

either abandoning the site or shifting off a part of the population into a more favourable location as it happens today.

Summary

The picture that emerges from the foregoing is that there seems to be two groups of pottery either associated with or affiliated to the Harappa culture in North Gujarat. These two are represented by (a) the Anarta group of pottery and (b) the Early Harappan group of pottery primarily confined to the burials. Both of these had an existence prior to the beginning of the Urban Harappa culture in the region and dated to a period at the very beginning of or even earlier than the 3rd millennium BCE. The burial pottery has a limited distribution and their origin can be traced into the Pre-Urban/Early Harappan cultures of Sindh and Balochistan. However, the mechanism of their expansion into Gujarat has not been satisfactorily explained. A study of this burial pottery together with the skeletal features of the human beings represented in the burials is expected to throw much light on the social structure of the Harappan Chalcolithic community in Gujarat.

The Anarta pottery tradition, on the other hand, is more widely spread both in time and space. Although a remote generic resemblance with certain features of the Pre-Urban Harappan pottery traditions of Sindh and Rajasthan has been alluded to, nothing concrete can be said about its origin. The pottery had an independent existence in North Gujarat prior to the beginning of Urban Harappa culture. A few more regional Pre-Urban Harappan ceramic traditions contemporary to the Anarta have been reported from Prabhas Patan and Padri in the Saurashtra coast. It can, therefore, be suggested that different regional ceramic traditions, like the Anarta tradition along with the Pre-Prabhas and the Padri assemblage, formed part of the Pre-Urban Harappan cultural mosaic during

the fourth and the early third millennium BCE in Western India. Rooted firmly in North Gujarat, the Anarta pottery tradition constitutes an important socio-economic group in the integrated Harappan society during the Mature and the later Phase of the Harappa culture in Gujarat. The tradition, however, asserts itself only when the strong urban ethos of the Harappa culture started declining towards the end of the Mature/Urban Phase, and during the period that immediately followed the Mature Harappan.

Acknowledgements

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The archaeological research in North Gujarat

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Notes

- 1) Recent excavations at Bagasra (Sonawane *et al.* 2003) in the northeastern tip of Saurashtra in Rajkot district and Kanmer (Kharakwal *et al.* 2008) and the ongoing M.S. University excavations at Shikarpur in the eastern margin of Kachchh district bordering North Gujarat have also revealed the Anarta pottery from the early layers onwards showing a wider geographical extension of the tradition than what had earlier been thought of.
- 2) Potteries quite similar to the Anarta pottery are reported in the recent studies from Baror in Rajasthan (Urmila *et al.* 2005), and Bhirrana (Rao *et al.* 2005) and Girawad (Shinde *et al.* 2008) in Haryana. Certain amount of similarity in the scheme and pattern of paintings and the choice of colours with the Anarta pottery are apparent in the Ravi Phase pottery reported from the excavations at Harappa (Kenoyer and Meadow 2000). These would confirm our position that the Pre-Urban Harappan societies of North Gujarat and that of the Indus and the Ghaggar – Sarasvati basins had several shared and common cultural traits reflected in their material remains.
- 3) A series of subsequent AMS estimation of samples collected from the Mesolithic and the Chalcolithic levels at the site has confirmed the 3600 BCE date of Anarta Chalcolithic. The new series of dates has shown that the beginning of Mesolithic at the site goes back to 7000 BCE (Patel 2008). This is one of the earliest dates for Mesolithic occupation in Western India. See Patel A.K (2008, 2009) for detailed discussion on dating and related issues regarding the Mesolithic and Chalcolithic habitation remains at Loteshwar.

4) Systematic study of the faunal remains from the site recently has brought to light the importance of faunal collection from the site in understanding the beginning of farming communities in region. Specially, important are the presence of a few wild cattle bones in the Mesolithic strata followed by the domesticated cattle bones in the Chalcolithic layers. The study has argued that North Gujarat is a potential region for investigating localized beginning of cattle pastoralism (Patel 2009). The high abundance of blackbuck bones in the Mesolithic fauna would suggest a preference for hunting this animal. And, this should be seen as an adaptive strategy of the Mesolithic hunter-gatherers in articulation with expanding food base during the early half of the Holocene. In the light of all these, it is necessary to investigate different modules of environmental resource management by the Mesolithic hunter-gatherers that would allow expansion of resource base for intensive food gathering and eventually the emergence of farming in the region.

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Appendix: List of Chalcolithic/Harappan Sites in North Gujarat¹

No.	Site Name ²	Coordinates	Village	Taluka, District	Size (m) Ha.	Period/Culture	Bibliography, Source
1	Genghda Thumdo	23°49'35.1"N 71°21'28.6"E	Bambnoli	Santalpur, Patan	30×20 0.06	Anarta ³ , RGP ⁴ IIC	IAR 1992-93: 23, Ajithprasad and Sonawane (site list 1993)
2	Ori no Thumdo	23°50'04.2"N 71°07'55.6"E	Barara	Santalpur, Patan	70×60 0.42	Anarta, RGP IIC, RGP III / LRW ⁵	IAR 1992-93: 25, Ajithprasad and Sonawane (site list 1993)
3	Gorivatano Timbo (Bolera-I)	23°29'14.8"N 71°45'54.0"E	Bolera	Sami, Patan	80×80 0.64	RGP IIC, RGP III / LRW, BRW ⁶	IAR 1982-83: 28, Hegde and Sonawane 1986: 30
4	Kalari no Timbo (Bolera-II)	23°30'21.2"N 71°45'43.4"E	Bolera	Sami, Patan	135×100 1.35	RGP IIC, RGP III / LRW	IAR 1982-83: 28, Hegde and Sonawane 1986:30, Bhan 1994:86-7
5	Chaniyathar no Thumdo (Thunda Timbo)	23°43'49.9"N 71°31'01.0"E	Chaniyathar	Radhanpur, Patan	120×105 1.26	RGP IIC, RGP III / LRW	IAR 1991-92: 19, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
6	Garasyano Thumdo (Charandha-I)	24°00'38.4"N 71°29'45.7"E	Charandha	Santalpur, Patan	40×30 0.01	RGP IIB, RGP IIC	IAR 1992-93: 23, Ajithprasad and Sonawane (site list 1993)
7	Kanakrialo Thumdo (Charandha-II)	24°01'09.3"N 71°28'48.6"E	Charandha	Santalpur, Patan	60×50 0.30	Anarta, RGP IIB, RGP IIC	IAR 1992-93: 24, Ajithprasad and Sonawane (site list 1993)
8	Chipa no Godh (Chhanasara-I)	23°45'20.2"N 71°16'30.0"E	Chhanasara	Santalpur, Patan	120×100 1.20	RGP IIC, RGP III / LRW	IAR 1992-93: 22, Ajithprasad and Sonawane (site list 1993)
9	Ishwar ghod (Chahanasara-II)	23°45'56.4"N 71°16'45.2"E	Chhanasara	Santalpur, Patan	30×30 0.09	RGP IIC	IAR 1992-93: 23, Ajithprasad and Sonawane (site list 1993)
10	Godha	23°40'44.6"N 71°35'50.4"E	Dadka	Sami, Patan	55×67 0.37	RGP III / LRW	IAR 1991-92: 19, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
11	Vokda-no Thumdo	23°50'20.4"N 71°19'27.6"E	Daldi	Santalpur, Patan	50×40 0.20	Anarta, RGP IIB, RGP IIC	IAR 1992-93: 26, Ajithprasad and Sonawane (site list 1993)
12	Godhiyano Timbo	23°30'10"N 71°53'30"E	Dantisana	Sami, Patan	100×100 1.00	RGP III / LRW	Hegde and Sonawane 1986: 30, Ajithprasad and Sonawane (site list 1993)
13	Datrana IX (Randia no Thumdo)	23°47'03.6"N 71°08'08.7"E	Datrana	Santalpur, Patan	9×6 0.005	RGP IIC	IAR 1994-95: 18
14	Datrana X (Vanta no Thumdo)	23°45'46.0"N 71°06'28.5"E	Datrana	Santalpur, Patan	22×17 0.038	Anarta, RGP IIB, RGP IIC	IAR 1994-95: 18
15	Datrana-I (Ghorapir nu Khetar)	23°46'48.2"N 71°07'53.4"E	Datrana	Santalpur, Patan	90×70 0.63	RGP IIC, RGP III / LRW	IAR 1992-93: 22, Ajithprasad and Sonawane (site list 1993)

Notes

- 1) The list was originally compiled in 1993 and was updated periodically as and when new sites were located in subsequent surveys. In March 2011 we completed a resurvey of North Gujarat Harappan sites in collaboration with the "Indus Project" of the Research Institute for Humanity and Nature, Kyoto, Japan; and were able to revisit most of the sites and record their correct geo-coordinates using GPS. The site list refers corrected GPS co-ordinates, except for a few sites which we were not able to trace. We have also tried to avoid repetition of same site in different names in the list, as it often happens due to variations in recording vernacular names by different researchers, by cross checking with published and unpublished records available to us. The list is sorted in the ascending order of village names rather than the site names. We think this would enable readers to quickly refer the number and types of sites that are found in and around a village.
- 2) Names in parenthesis are additional/alternate names of the same site.
- 3) Anarta refers to the Anarta pottery tradition of North Gujarat.
- 4) RGP IIB, RGP IIC and RGP III refer to the Rangpur Period IIB, Period IIC and Period III respectively of the Rangpur sequence.
- 5) LRW refers to the Lustrous Red ware pottery.
- 6) BRW refers to the Black and Red ware pottery.

No.	Site Name	Coordinates	Village	Taluka, District	Size (m) Ha.	Period/Culture	Bibliography, Source
16	Datrana-II (Haren Thumdo, Ravaichi mata)	23°46'52.4"N 71°07'33.5"E	Datrana	Santalpur, Patan	80×70 0.56	RGP IIC, RGP III / LRW, Microliths ⁷	IAR 1992-93: 23, Ajithprasad and Sonawane (site list 1993) Excavation in 1995
17	Datrana-III	23°46'51.6"N 71°07'55.9"E	Datrana	Santalpur, Patan	20×20 0.04	RGP IIC, RGP III / LRW, Microliths	IAR 1992-93: 22, Ajithprasad and Sonawane (site list 1993)
18	Datrana-IV (Hadkawala Timbo, Vadkiwalu khetar-II)	23°46'14.7"N 71°07'26.2"E	Datrana	Santalpur, Patan	700×500 35.00	Mesolithic ⁸ / microliths, Anarta, Early Harappan ⁹ , Pre-Prabhas	IAR 1992-93: 26, Ajithprasad and Sonawane (site list 1993) Excavation in 1994, 1995, 2010
19	Datrana-V (Patel no Khetar, Vadkiwalu khetar-I)	23°46'12.6"N 71°07'25.5"E	Datrana	Santalpur, Patan	100×70 0.70	Mesolithic / microliths, Anarta, Pre Prabhas	IAR 1992-93: 26, Ajithprasad and Sonawane (site list 1993); Excavation in 1995
20	Datrana-VI	23°46'50.5"N 71°07'55.9"E	Datrana	Santalpur, Patan	15×10 0.02	Anarta, RGP IIC, Microliths,	IAR 1992-93: 22, Ajithprasad and Sonawane (site list 1993)
21	Datrana-VII	23°46'52.1"N 71°07'55.8"E	Datrana	Santalpur, Patan	20×15 0.30	Anarta, RGP IIB, RGP IIC	IAR 1992-93: 23, Ajithprasad and Sonawane (site list 1993)
22	Datrana-VIII	23°46'51.7"N 71°07'57.6"E	Datrana	Santalpur, Patan	40×30 0.12	Mesolithic / microliths, RGP IIC, RGP III	IAR 1992-93: 23, Ajithprasad and Sonawane (site list 1993)
23	Datrana IX (Sutaria no Thumdo)	23°45'59.6"N 71°07'21.5"E	Datrana	Santalpur, Patan	95×65 0.62	Early Harappan, Pre- Prabhas	Survey 2010 (NoGAP)
24	Ganario no Thumdo (Dehisar-I)	23°55'31.6"N 71°30'23.5"E	Dehisar	Santalpur, Patan	60×40 0.24	Mesolithic / microliths, Anarta	IAR 1992-93: 26, Ajithprasad and Sonawane (site list 1993)
25	Haiduk no Thumdo (Dehisar-II)	23°55'20"N 71°30'20"E	Dehisar	Santalpur, Patan	60×40 0.24	RGP III / LRW	IAR 1993-94: 32,
26	Dhama-ni Timbo	23°23'56.8"N 71°39'33.9"E	Dhama	Dasada, Surendranagar	10×10 0.01	Anarta, RGP IIC, BRW, Microliths	Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
27	Dhanora Timbo (Deriwalu Khetar -I)	23°30'24.7"N 71°55'28.8"E	Dhanora	Dasada, Surendranagar	85×65 0.55	RGP IIC, RGP III, BRW, Microliths	Hegde and Sonawane 1986: 30, Ajithprasad and Sonawane (site list 1993)
28	Kachha no Timbo	23°59'05.4"N 71°20'17.6"E	Dudasan	Vav, Banaskantha	10×10 0.01	RGP IIC, RGP III / LRW	IAR 1992-93: 24, Ajithprasad and Sonawane (site list 1993)
29	Sai Timbo	23°37'59.1"N 71°41'09.3"E	Dudkha	Sami, Patan	150×100 1.50	Anarta, RGP IIB, RGP IIC, RGP III / LRW	IAR 1978-79: 6-7, Bhan 1994: 86- 7, Ajithprasad and Sonawane (site list 1993)
30	Janoyano Timbo (Erwada-I)	23°25'31.1"N 71°51'37.9"E	Erwada	Dasada, Surendranagar	80×60 0.48	Mesolithic / microliths, RGP III / LRW	IAR 1982-83: 28, Hegde and Sonawane 1986:31, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
31	Mataji-no Timbo (Erwada-II)	23°25'35"N 71°51'50"E	Erwada	Dasada, Surendranagar	100×100 1.00	RGP III / LRW, BRW	IAR 1982 83, Hegde and Sonawane 1986: 31, Bhan 1994: 86-7
32	Ranol-no Tekro (Ranolno Ghod)	23°23'49.9"N 71°38'37.1"E	Fatepura	Dasada, Surendranagar	200×200 4.00	Anarta, RGP IIB, RGP IIC	IAR 1984-85:19, Bhan 1994: 86- 7, Ajithprasad and Sonawane (site list 1993)
33	Kachha no Thumdo	23°53'08.3"N 71°24'41.4"E	Gadha	Santalpur, Patan	10×10 0.01	RGP IIC, RGP III / LRW	IAR 1992-93: 24, Ajithprasad and Sonawane (site List 1993)
34	Timbo-I (Godhana-I)	23°42'56.7"N 71°36'34.0"E	Godhana	Sami, Patan	93×77 0.72	RGP IIC, RGP III / LRW	IAR 1991-92: 19, Bhan 1994: 86- 87, Ajithprasad and Sonawane (site list 1993)
35	Timbo-II (Godhana-II)	23°43'05.2"N 71°36'41.9"E	Godhana	Sami, Patan	93×68 0.63	RGP III / LRW	IAR 1991-92: 20, Bhan 1994: 86-87, Ajithprasad and Sonawane (site list 1993)
36	Inderwa no Timbo-I (Inderwa-I)	24°00'20.0"N 71°29'30.4"E	Inderwa	Bhabhar, Banaskantha	80×50 0.40	RGP IIC, RGP III / LRW	IAR 1992-93: 19, Ajithprasad and Sonawane (site list 1993)
37	Inderwa no Timbo-II (Inderwa-II)	24°00'10.0"N 71°29'11.2"E	Inderwa	Bhabhar, Banaskantha	50×30 0.15	Mesolithic / microliths, RGP IIC	IAR 1992-93: 19, Ajithprasad and Sonawane (site list 1993)
38	Indranagar no Thumdo	23°54'38.3"N 71°34'48.8"E	Indranagar	Radhanpur, Patan	20×10 0.02	RGP IIB, RGP IIC	IAR 1993-94: 32, Ajithprasad and Sonawane (site list 1993)
39	Sankatrawalo Thumdo	23°53'45.6"N 71°19'53.4"E	Jamwada	Santalpur, Patan	60×50 0.30	Anarta, RGP IIB, RGP IIC	IAR 1992-93: 25, Ajithprasad and Sonawane (site list 1993)
40	Javantri	23°54'30"N 71°33'30"E	Javantri	Radhanpur, Patan	20×10 0.20	Anarta, RGP IIC	IAR 1993-94: 32, Ajithprasad and Sonawane (site list 1993)

7) Microliths at the end of the sequence refers to the micro-blade artefacts found with Chalcolithic remains.

8) Mesolithic/microliths in the beginning of the sequence refer to the possible Mesolithic substratum at the site.

9) Early Harappan refer to the Early Harappan Sindh type pottery reported from the burials at Nagwada and Santhli.

No.	Site Name	Coordinates	Village	Taluka, District	Size (m) Ha.	Period/Culture	Bibliography, Source
41	Soont no Timbo	23°56'12.1"N 71°19'37.1"E	Jhajham	Santalpur, Patan	20×15 0.30	Anarta, RGP IIC	IAR 1992-93: 25, Ajithprasad and Sonawane (site list 1993)
42	Bhamaria Thumdo (Jhandada-III)	23°54'02.1"N 71°27'01.0"E	Jhandada	Santalpur, Patan	36×22 0.79	Early Harappan, RGP IIC	IAR 1993-94: 32, Ajithprasad and Sonawane (site list 1993)
43	Jhandada no Thumdo-I (Jhandada-I)	23°54'25.0"N 71°27'17.4"E	Jhandada	Santalpur, Patan	100×80 0.80	Anarta, RGP IIC, RGP III / LRW	IAR 1992-93: 24, Ajithprasad and Sonawane (site list 1993)
44	Jhandada no Thumdo-II (Jhandada-II)	23°54'10.4"N 71°26'21.8"E	Jhandada	Santalpur, Patan	10×10 0.01	Anarta, RGP IIC, microliths	IAR 1992-93: 24, Ajithprasad and Sonawane (site list 1993)
45	Thumba Timbo	23°48'41.4"N 71°27'17.2"E	Jorawargadh	Santalpur, Patan	47×36 0.17	Anarta	Survey 2010 (NoGAP)
46	Thikariya no Timbo	23°31'13.2"N 71°45'06.1"E	Khandia	Sami, Patan	240×120 2.88	Anarta, RGP IIB, RGP III	Hegde and Soanawane 1986: 30, Bhan 1994:86-7, Ajithprasad and Sonawane (site list 1993)
47	Bajaniyano Thumdo (Koliwada-III)	23°49'54.8"N 71°29'27.8"E	Koliwada	Radhanpur, Patan	40×30 0.12	Mesolithic / microliths, Early Harappan	IAR 1993-94: 32, Ajithprasad and Sonawane (site list 1993)
48	Patel no Khetar (Koliwada-I)	23°49'45.5"N 71°29'42.4"E	Koliwada	Santalpur, Patan	40×40 0.16	Anarta, RGP IIC	IAR 1992-93: 22, Ajithprasad and Sonawane (site list 1993),
49	Shiharu no Thumdo (Koliwada-II)	23°50'30.2"N 71°29'58.4"E	Koliwada	Santalpur, Patan	100×30 0.30	Anarta, RGP IIC	IAR 1993-94: 32, Ajithprasad and Sonawane (site list 1993)
50	Harharino Thumda (Hariharo Thumda)	23°53'00.0"N 71°23'15.8"E	Korda	Santalpur, Patan	80×70 0.56	Mesolithic / microliths, Anarta, RGP IIC	IAR 1992-93: 23, Ajithprasad and Sonawane (site list 1993)
51	Bhalibhai no Timbo Bhalbhai no Timbo	23°32'26.9"N 71°36'30.2"E	Kunwar	Sami, Patan	160×90 1.44	RGP III / LRW, BRW	IAR 1978 79: 6-7, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
52	Piriya no Timbo (Kunward-II)	23°31'40.1"N 71°51'20.2"E	Kunward	Sami, Patan	140×100 1.40	RGP IIC, RGP III / LRW	IAR 1982-83: 28, Hegde and Sonawane 1986:30, Bhan1994:86-7, Ajithprasad and Sonawane (site list 1993)
53	Sasiya no Timbo -I (Kunward-I)	23°32'31.6"N 71°52'20.4"E	Kunward	Sami, Patan	150×150 2.25	RGP IIC, RGP III / LRW	IAR 1982-83: 28, Hegde and Sonawane1986: 30, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
54	Limbakka Thumdo	23°53'40.5"N 71°30'48.7"E	Limbakka	Radhanpur, Patan	60×50 0.30	Anarta, RGP IIC	IAR 1992-93: 22, Ajithprasad and Sonawane (site list 1993)
55	Limbuni no Ghod (Suigam -I)	24°08'27.4 "N 71°21'54.0"E	Limbuni	Vav, Banaskantha	30×30 0.09	RBP IIC, Microliths	IAR 1993-94: 33, Ajithprasad and Sonawane (site list 1993)
56	Lolara (Lolada)	23°32'28.9"N 71°41'44.5"E	Lolara	Sami, Patan		Anarta, RGP IIC	IAR 1978 79: 6-7, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
57	Loteswar-I (Khari no Timbo-I)	23°36'01.8"N 71°50'11.8"E	Loteswar	Sami, Patan	135×135 1.82	Mesolithic / microliths, Anarta	IAR 1982-83: 28, Hegde and Sonawane 1986: 30, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993), Excavation 1991 & 2009
58	Loteswar-II (Odherio Timbo)	23°36'08.6"N 71°49'11.6"E	Loteswar	Sami, Patan	150×100 1.50	Anarta, RGP IIC	IAR 1990-91: 17, Bhan 1994:86-7, Ajithprasad and Sonawane (site list 1993)
59	Valivada no Timbo (Vadadi no Timbo)	23°33'38.2"N 71°53'41.7"E	Manverpura	Sami, Patan	100×50 0.50	RGP III / LRW, BRW	IAR 1982-83: 28, Hegde and Sonawane 1986:30, Bhan 1994:86-7, Ajithprasad and Sonawane (site list 1993)
60	Kanthoda no Thumdo (Mathutra -III)	23°44'27.4"N 71°06'05.3"E	Mathutra	Santalpur, Patan	14×12 0.013	RGP IIB, RGPIIC	IAR 1994-95: 18
61	Madhyva no Timbo (Mathutra -I)	23°44'42.7"N 71°05'23.1"E	Mathutra	Santalpur, Patan	40×30 0.12	Early Harappan	IAR 1992-93: 25, Ajithprasad and Sonawane (site list 1993)
62	Pagiyawala no Thumdo (Mathutra -IV)	23°44'47.4"N 71°06'31.6"E	Mathutra	Santalpur, Patan	11×7 0.008	RGP IIB, RGP IIC	IAR 1994-95: 18
63	Talavadi no Thumdo (Mathutra -V)	23 44'32.6"N 71 07'11.9"E	Mathutra	Santalpur, Patan	8×7 0.006	RGP IIC	IAR 1994-95: 18
64	Vaditalavdi no Thumdo (Mathutra -II)	23°44'02.1"N 71°06'20.2"E	Mathutra	Santalpur, Patan	10×8 0.008	RGP IIB, Early Harappan	IAR 1994-95: 18
65	Gomsar no Timbo	23°16'22.8"N 71°41'14.6"E	Mithagoda	Dasada, Surendranagar	250×200 5.00	Anarta, RGP IIB, RGP IIC, Microliths	Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
66	Solariya Timbo	23°16'41.8"N 71°42'04.2"E	Mithagoda	Dasada, Surendranagar	162×102 1.65	Anarta, Classical Harappan, BRW, Microliths,	Survey 2010 (GHSGP)

No.	Site Name	Coordinates	Village	Taluka, District	Size (m) Ha.	Period/Culture	Bibliography, Source
67	Moti Pipli (Shakatri Timbo)	23°49'24.9"N 71°30'01.8"E	Moti-Pipli	Radhanpur, Patan	255×120 3.06	Anarta, Early Harappan, Classical Harappan	IAR 1991-92: 19, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993), Excavation in 1993
68	Barvadno Timbo	23°33'54.4"N 71°51'30.02"E	Munjpur	Sami, Patan	70×65 0.46	Mesolithic / microliths, Anarta, Medieval	Survey 2010 (NoGAP)
69	Gachi no Bor (Munjpur-II)	23°36'17.8"N 71°53'07.5"E	Munjpur	Sami, Patan	20×20 0.04	Anarta, Classical Harappan.	IAR 1990-91: 17, Ajithprasad and Sonawane (site list 1993)
70	Gokhijadio Timbo	23°36'53.8"N 71°52'38.7"E	Munjpur	Sami, Patan	100×75 0.75	Anarta	IAR 1990-91: 17, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
71	Choteria Timbo (Munjpur-I)	23°36'05.7"N 71°51'07.3"E	Munjpur/ Mujpur	Sami, Patan	70×45 0.32	Anarta, Classical Harappan?.	IAR 1990-91: 17, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
72	Rajwadio Timbo-II (Munjpur -III)	23°35'00"N 71°51'10"E	Munjpur/ Mujpur	Sami, Patan	65×50 0.33	RGP IIC, RGP III / LRW	IAR 1990-91: 17, Bhan 1994:86-7, Ajithprasad and Sonawane (site list 1993)
73	Nagwada-I (Ghod)	23°18'38.8"N 71°42'59.6"E	Nagwada	Dasada, Surendranagar	140×110 1.54	Anarta, Early Harappan burial, Classical Harappan	IAR 1984-85: 19, IAR 1985-86: 20-1, Hegde et al 1988:55, Ajithprasad and Sonawane (site list 1993); Excavation 1986 to1990
74	Nagwada-II (Bhoirawalu Ghod)	23°18'38.1"N 71°43'02.7"E	Nagwada	Dasada, Surendranagar	200×150 3.00	Anarta, RGP IIC, RGP III, BRW	IAR 1984 85:19, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
75	Nagwada-III	23°18'19.7"N 71°42'38.9"E	Nagwada	Dasada, Surendranagar	100×70 0.70	RGP IIC, RGP III / LRW, Microliths	IAR 1985-86: 20-1, Hegde et al. 1988:55, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
76	Nagwada-IV	23°17'17.7"N 71°41'45.2"E	Nagwada	Dasada, Surendranagar	100×80 0.80	Anarta, Classical Harappan.	IAR 1985-86: 20-1, Hegde et al. 1988:55, IAR 1984 85, Bhan 1994: 86-87
77	Nagwada-V (Mullada -II)	23°17'50"N 71°43'00"E	Nagwada	Dasada, Surendranagar	30×25 0.08	RGP IIC, RGP III / LRW	Bhan 1994:86-7, Ajithprasad and Sonawane (site list 1993)
78	Nani Chandur	23°35'00"N 71°37'00"E	Nani-Chandur	Sami, Patan	50×25 0.13	Mesolithic / microliths, Anarta, RGP IIC	IAR 1991-92: 19, Bhan 1994:86-7, Ajithprasad and Sonawane (site list 1993)
79	Footeriya	23°37'10.6"N 71°43'25.6"E	Nayka	Sami, Patan	30×8 0.02	Anarta	IAR 1991-92: 19, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
80	Orumana	23°35'39.6"N 71°52'58.2"E	Orumana	Sami, Patan	75×60 0.45	Anarta, RGP IIC	IAR 1990-91: 17, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
81	Bagayano Timbo (Panchasar-I)	23°25'07.2"N 71°49'38.7"E	Panchasar	Dasada, Surendranagar	100×100 1.00	Anarta, RGP IIC, RGP III / LRW, Microliths	IAR 1982-83: 28, Hegde and Sonawane 1986: 31, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
82	Duderiya Timbo (Panchasar-II)	23°26'01.0"N 71°48'17.4"E	Panchasar	Sami, Patan	60×50 0.30	Mesolithic / Microliths, Anarta, RGP IIC,	IAR 1982-83: 28, Hegde and Sonawane 1986: 31, Bhan 1994: 86-7
83	Harthar no Timbo (Panchasar-II)	23°26'09.3"N 71°48'54.3"E	Panchasar	Sami, Patan	250×200 5.00	Mesolithic, Early Harappan, RGP IIC, RGP III, BRW	IAR 1982-83: 28, Hegde and Sonawane 1986:31, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
84	Oriyadada no Timbo	23°23'50.9"N 71°48'27.8"E	Panva	Dasada, Surendranagar	160×160 2.56	RGP IIC, RGP III / LRW, BRW, Microliths	Hegde and Sonawane 1986: 31, Bhan 1994:86-7, Ajithprasad and Sonawane (site list 1993)
85	Godha II	23°36'00"N 71°28'00"E	Pati	Santalpur, Patan	70×60 0.42	RGP IIB, RGP IIC	IAR 1991-92: 19, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
86	Pirojpur	23°30'44.8"N 71°42'09.8"E	Pirojpur	Dasada, Surendranagar	50×50 0.25	RGP III / LRW	IAR 1978 79: 6-7, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
87	Jamathar no Thumdo	23°45'24.3"N 71°13'58.4"E	Rajusar	Santalpur, Patan	100×100 1.00	RGP IIB, RGP IIC	IAR 1992-93: 24, Ajithprasad and Sonawane (site list 1993)
88	Lavanano Godh	23°50'39.6"N 71°35'13.4"E	Randhanpur	Radhanpur, Patan	70×60 0.42	Anarta, RGP IIC	IAR 1992-93: 22, Ajithprasad and Sonawane (site list 1993)

No.	Site Name	Coordinates	Viillage	Taluka, District	Size (m) Ha.	Period/Culture	Bibliography, Source
89	Lakahar no Thumdo	23°46'05.3"N 71°08'40.2"E	Ranmalpura	Santalpur, Patan	13×9 0.121	RGP IIC	IAR 1994-95: 18
90	Mepla no Thumdo (Ranmalpura -I)	23°46'24.4"N 71°09'24.2"E	Ranmalpura	Santalpur, Patan	80×60 0.48	Anarta, RGP IIB, RGP IIC	IAR 1992-93: 25, Ajithprasad and Sonawane (site list 1993)
91	Moda no Thumdo (Ranmalpur -III)	23°47'45.1"N 71°08'35.8"E	Ranmalpura	Santalpur, Patan	65×48 0.312	Anarat, RGP IIB	IAR 1994-95: 18
92	Panchahari no Thumdo (Ranmalpur -II)	23°45'48.8"N 71°08'28.3"E	Ranmalpura	Santalpur, Patan	12×9 0.011	RGP IIC, RGP III	IAR 1994-95: 18
93	Duwala Timbo	23°32'55.6"N 71°48'58.5"E	Ranod	Sami, Patan	38×25 0.095	RGP IIB, Microliths	Survey 2010 (NoGAP)
94	Tokariya Timbo (Ratanpura)	23°28'36.3"N 71°48'55.5"E	Ratanpura	Sami, Patan	500×200 10.00	Mesolithic / microliths, RGP IIC, RGP III / LRW, BRW	IAR 1982-83: 28, IAR 1984-85: 17-8, Hegde and Sonawane 1986: 30, Bhan 1994: 86-7, Excavation in 1985
95	Lakneyani Thumdo-I (Thumda 1)	23°39'00"N 71°34'00"E	Rupnagar	Sami, Patan	30×24 0.07	RGP IIC, RGP III / LRW	IAR 1991-92: 19, Bhan 1994: 86- 7, Ajithprasad and Sonawane (site list 1993)
96	Santhli-I (Santhli no Thumdo)	23°53'24.9"N 71°30'09.6"E	Santhli	Radhanpur, Patan	90×70 0.63	Anarta	IAR 1992-93: 22, , Ajithprasad and Sonawane (site list 1993)
97	Santhli-II (Ghachiyawado)	23°54'16.7"N 71°29'37.1"E	Santhli	Radhanpur, Patan	96×65 0.62	Mesolithic/microliths, Early Harappan Burial	IAR 1993-94: 30, Ajithprasad and Sonawane (site list 1993), Excavation in 1994
98	Santhli-III (Vajiyasri no Thumdo)	23°51'27.8"N 71°28'30.2"E	Santhli	Radhanpur, Patan	21×10 0.02	Mesolithic/microliths, Anarta?	IAR 1993-94: 32, Ajithprasad and Sonawane (site list 1993)
99	Santhli-IV (Navod no Thumbo)	23°54'36.7"N 71°28'30.6"E	Santhli	Radhanpur, Patan	10×10 0.01	Mesolithic / microliths, Ealy Harappan	IAR 1993-94: 32, Ajithprasad and Sonawane (site list 1993)
100	Santhli-V (Kalatalavdi no Thumdo)	23°54'40.2"N 71°29'54.4"E	Santhli	Radhanpur, Patan	60×50 0.30	Mesolithic / microliths, RGP IIC	IAR 1993-94: 32, Ajithprasad and Sonawane (site list 1993)
101	Santhli-VI (Haiduk no Thumdo-I)	23°54'30.6"N 71°29'30.8"E	Santhli	Radhanpur, Patan	60×50 0.30	Mesolithic / microliths, RGP IIC	IAR 1993-94: 32, Ajithprasad and Sonawane (site list 1993)
102	Borawalu Khetar (Sarwal-II)	23°42'00"N 71°51'00"E	Sarwal	Harij, Patan	100×100 1.00	RGP IIC, RGP III / LRW	IAR 1982 83: 28, Hegde and Sonawane 1986: 31, Bhan 1994: 86-7
103	Khathariya no Timbo (Sarwal-I)	23°42'15"N 71°51'20"E	Sarwal	Harij, Patan	150×100 1.50	RGP IIC, RGP III / LRW	IAR 1982-83: 28, Hegde and Sonawane 1986: 31, Bhan 1994: 86-7
104	Kasha no Timbo (Kacho timbo)	23°31'14.2"N 71°39'33.6"E	Sipur/Sibpur	Sami, Patan	130×120 1.56	Anarta, RGP IIC, RGP III / LRW, Microliths,	IAR 1978-79: 7 Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
105	Limdavallo Timbo	23°40'56.6"N 71°45'06.7"E	Sonar/Sonur	Sami, Patan	100×100 1.00	RGP III / LRW, BRW	IAR 1982-83: 28, Hegde and Sonawane 1986: 30, Ajithprasad and Sonawane (site list 1993)
106	Jakhra Pir no Thumdo (Suigam -II)	24°09'16.4"N 71°22'12.0"E	Suigam	Vav, Banaskantha	100×70 0.70	Anarta, RGP IIC, Microliths	IAR 1993-94: 33, Ajithprasad and Sonawane (site list 1993)
107	Khari-no Khetar (Suneth-II)	23°58'56.6"N 71°26'00.0"E	Suneth	Vav, Banaskantha	60×50 0.30	Anarta	IAR 1992-93: 26, Ajithprasad and Sonawane (site list 1993)
108	Mata no Thumdo (Suneth-I)	23°58'41.6"N 71°26'8.7"E	Suneth	Vav, Banaskantha	120×90 1.08	Anarta, RGP IIB, RGP IIC	IAR 1992-93: 26, Ajithprasad and Sonawane (site list 1993)
109	Gordhan Timbo (Govardhaniya Timbo)	23°28'01.1"N 71°53'57.2"E	Susiya	Dasada, Surendranagar	200×150 3.00	Anarta, RGP IIC, BRW	Hegde and Sonawane 1986: 31, Ajithprasad and Sonawane (site list 1993), Bhan 1994: 86-7
110	Bhutawed no Godh (Unrot-II)	23°50'40.8"N 71°29'56.7"E	Unrot	Santalpur, Patan	60×50 0.30	Anarta, RGP IIC, RGP III / LRW	IAR 1992-93: 22, Ajithprasad and Sonawane (site list 1993)
111	Pepadia Timbo (Unrot-I)	23°49'58.5"N 71°21'38.6"E	Unrot	Santalpur, Patan	40×30 0.12	RGP IIB, RGP IIC	IAR 1992-93: 25, Ajithprasad and Sonawane (site list 1993)
112	Vadgam	23°21'00"N 71°48'10"E	Vadgam	Dasada, Surendranagar	100×100 1.00	RGPIIC, RGP III / LRW	IAR 1964-65: 11, Bhan1994: 86- 7, Ajithprasad and Sonawane (site list 1993)
113	Veranath Timbo (Atariyano Hanuman)	23°38'13.8"N 71°54'57.2"E	Vaghel	Sami, Patan	130×120 1.56	RGP III / LRW	IAR 1982-83: 28, Hegde and Soanawane 1986: 30, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
114	Haji no Kachha (Varanasri-II)	23°53'45.9"N 71°19'51.3"E	Varanasri	Santalpur, Patan	70×60 0.42	Anarta, Microliths	IAR 1992-93: 23, Ajithprasad and Sonawane (site list 1993)
115	Katadia no Thumdo (Varanasri-I)	23°54'48.3"N 71°20'17.4"E	Varanasri	Santalpur, Patan	20×20 0.34	RGP IIC	IAR 1992-93: 24, Ajithprasad and Sonawane (site list 1993)

No.	Site Name	Coordinates	Viillage	Taluka, District	Size (m) Ha.	Period/Culture	Bibliography, Source
116	Kasano Relo (Ghod, Kasna Relo)	23°26'34.2"N 71°34'37.8"E	Visnagar	Dasada, Surendranagar	125×125 1.56	RGP III/LRW	Bhan 1994: 86-7
117	Lakhetra no Timbo (Visnagar-I)	23°28'16.5"N 71°34'05.9"E	Visnagar	Dasada, Surendranagar	62×54 0.34	RGP III / LRW	IAR 1991-92: 20, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993),
118	Linedoriwalo Khetar (Visnagar-II)	23°27'43.9"N 71°33'47.0"E	Visnagar	Dasada, Surendranagar	67×54 0.36	RGP IIC, RGP III / LRW	IAR 1991-92: 19, Bhan 1994: 86-7, Ajithprasad and Sonawane (site list 1993)
119	Zekhada (Amasrino Tekra, Jhekhda)	23°52'40.8"N 71°27'30.6"E	Zekhada	Santalpur, Patan	300×150 4.50	Anarta, Classical Harappan.	IAR 1977-78: 20, Mehta 1982, Momin 1983: 120, Ajithprasad and Sonawane (site list 1993)

The following sources are used to compile the list:

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