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Mobility and Variation in Chalcolithic North Gujarat, India (Ca 3600 – 1800 Bc)

Abstract

Nine relatively obscure sites in the northern plain of Gujarat, India: Loteshwar, Santhli, Datrana, Nagwada, Langhnaj, Zekhada, Ratanpura and Kanewal; demonstrate a broad range of material culture traditions present in this region throughout the fourth through second millennia BC. This diversity results from the numerous economic strategies employed by the inhabitants of this region, the most important of which is mobility. Most of the sites reviewed in this work are the remains of temporary occupations, which are usually ascribed to pastoral nomads. Although pastoralism was an important subsistence strategy, a closer examination of the material culture and features at these sites shows there was a spectrum of approaches to mobility, which were related to different economic strategies. This work will show that despite many similarities, these sites do not represent a homogenous set of pastoralist camps. Instead, they document manifold activities, reflected through the uses of material culture and space.

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**MOBILITY AND VARIATION IN CHALCOLITHIC NORTH
GUJARAT, INDIA (ca 3600 – 1800 BC)**

Suzanne H. Harris

A DISSERTATION

In

Anthropology

Presented to the Faculties of the University of Pennsylvania

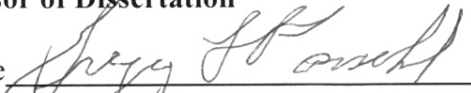
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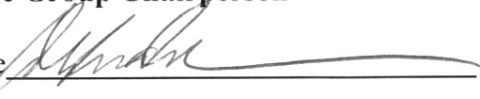
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**MOBILITY AND VARIATION IN CHALCOLITHIC NORTH GUJARAT,
INDIA (ca 3600 – 1800 BC)**

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Suzanne H. Harris

For My Father

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All long journeys require guidance, companionship and support. Mine could not have been completed without the generous help of many fellow travelers. First, this work would not exist if I had not been accepted as a doctorate student at the Department of Anthropology at the University of Pennsylvania, where Dr. Gregory Possehl was my advisor. It has been a genuine honor to study under the tutelage of one of the most prolific scholars in South Asian archaeology. I would also like to thank the other members of my committee, Dr. Lauren Ristvet and Dr. Holly Pittman, who generously contributed their attention and considerable expertise towards helping me create this finished work. Other professors who have encouraged my intellectual development over the years are Drs. Harold Dibble and Gautam Ghosh.

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ABSTRACT**MOBILITY AND VARIATION IN CHALCOLITHIC NORTH GUJARAT,
INDIA (ca 3600 – 1800 BC)****Suzanne H. Harris****Gregory L. Possehl**

Nine relatively obscure sites in the northern plain of Gujarat, India: Loteshwar, Santhli, Datrana, Nagwada, Langhnaj, Zekhada, Ratanpura and Kanewal; demonstrate a broad range of material culture traditions present in this region throughout the fourth through second millennia BC. This diversity results from the numerous economic strategies employed by the inhabitants of this region, the most important of which is mobility. Most of the sites reviewed in this work are the remains of temporary occupations, which are usually ascribed to pastoral nomads. Although pastoralism was an important subsistence strategy, a closer examination of the material culture and features at these sites shows there was a spectrum of approaches to mobility, which were related to different economic strategies. This work will show that despite many similarities, these sites do not represent a homogenous set of pastoralist camps. Instead, they document manifold activities, reflected through the uses of material culture and space.

MOBILITY AND VARIATION IN CHALCOLITHIC NORTH GUJARAT

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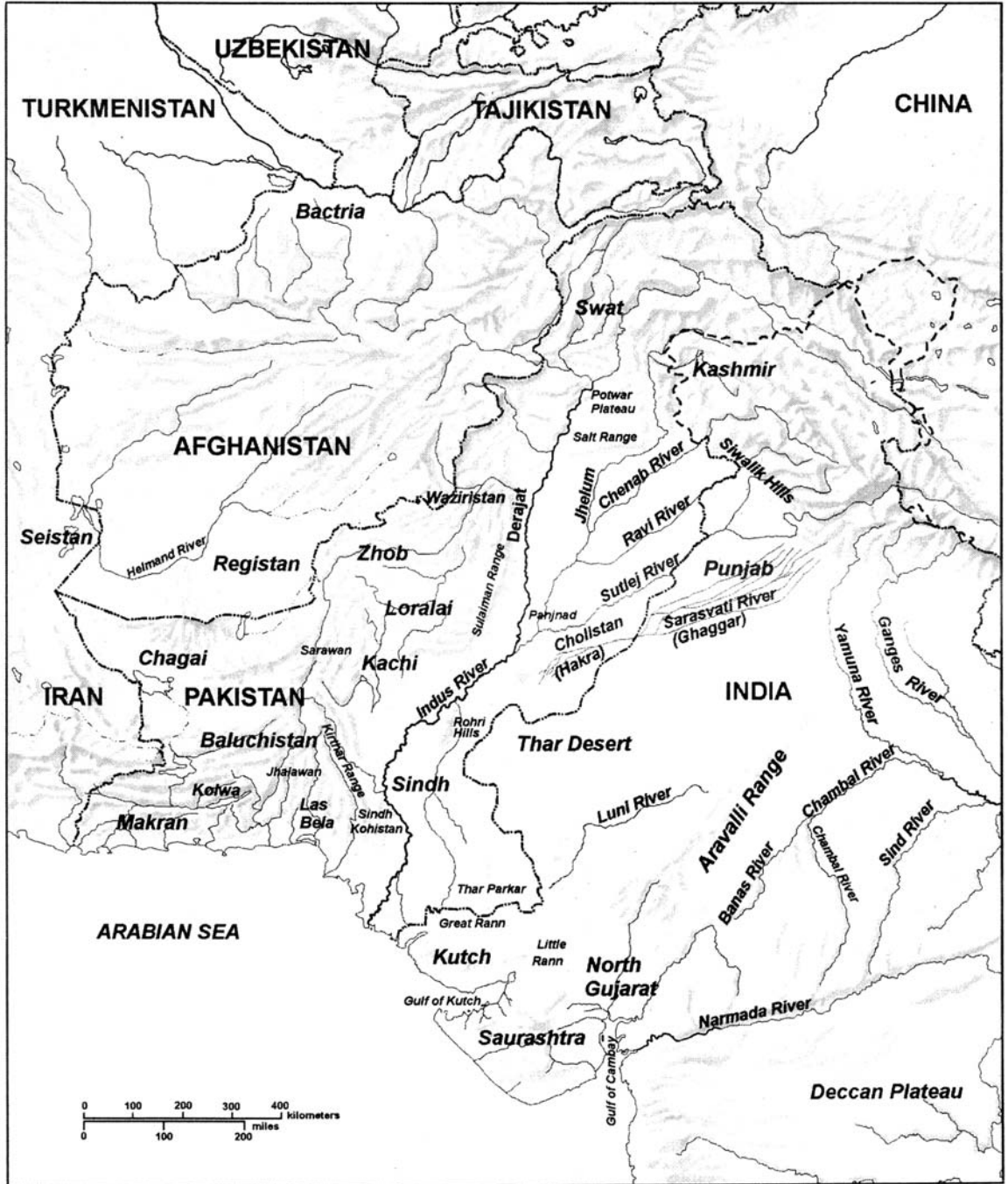
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Regions of Pakistan and Northwestern India (Possehl 1999)

Figure 1.1 Regions of Northwestern South Asia

MOBILITY AND VARIATION IN CHALCOLITHIC NORTH GUJARAT

CHAPTER ONE: INTRODUCTION

Introduction

Nine relatively obscure sites in the northern plain of Gujarat, India (Figures 1.1, 1.2): Loteshwar, Santhli, Datrana, Nagwada, Langhnaj, Zekhada, Ratanpura and Kanewal; demonstrate a broad range of economic strategies practiced in this region throughout the fourth through second millennia BC (Figure 1.3). These are expressed through the kinds of features found at sites and diversity of material assemblages. This diversity results from the numerous economic strategies employed by the inhabitants of this region, the most important of which is mobility. Most of the sites reviewed in this work are the remains of temporary occupations, which are usually ascribed to pastoral nomads. Although pastoralism was an important subsistence strategy, a closer examination of the material culture and features at these sites shows there was a spectrum of approaches to mobility, which were related to different economic strategies. This work will show that despite many similarities, these sites do not represent a homogenous set of pastoralist camps. Instead, they document manifold activities, reflected through the uses of material culture and space. The pastoral nomads living in this region made use of artifact inventories that indicate economic (and implicitly social) relationships with their sedentary neighbors, and in some cases more remote communities. This study also demonstrates how a limited amount of data yielded by small-scale excavations can be

used to create more nuanced interpretations of regional habitation and behavioral patterns.

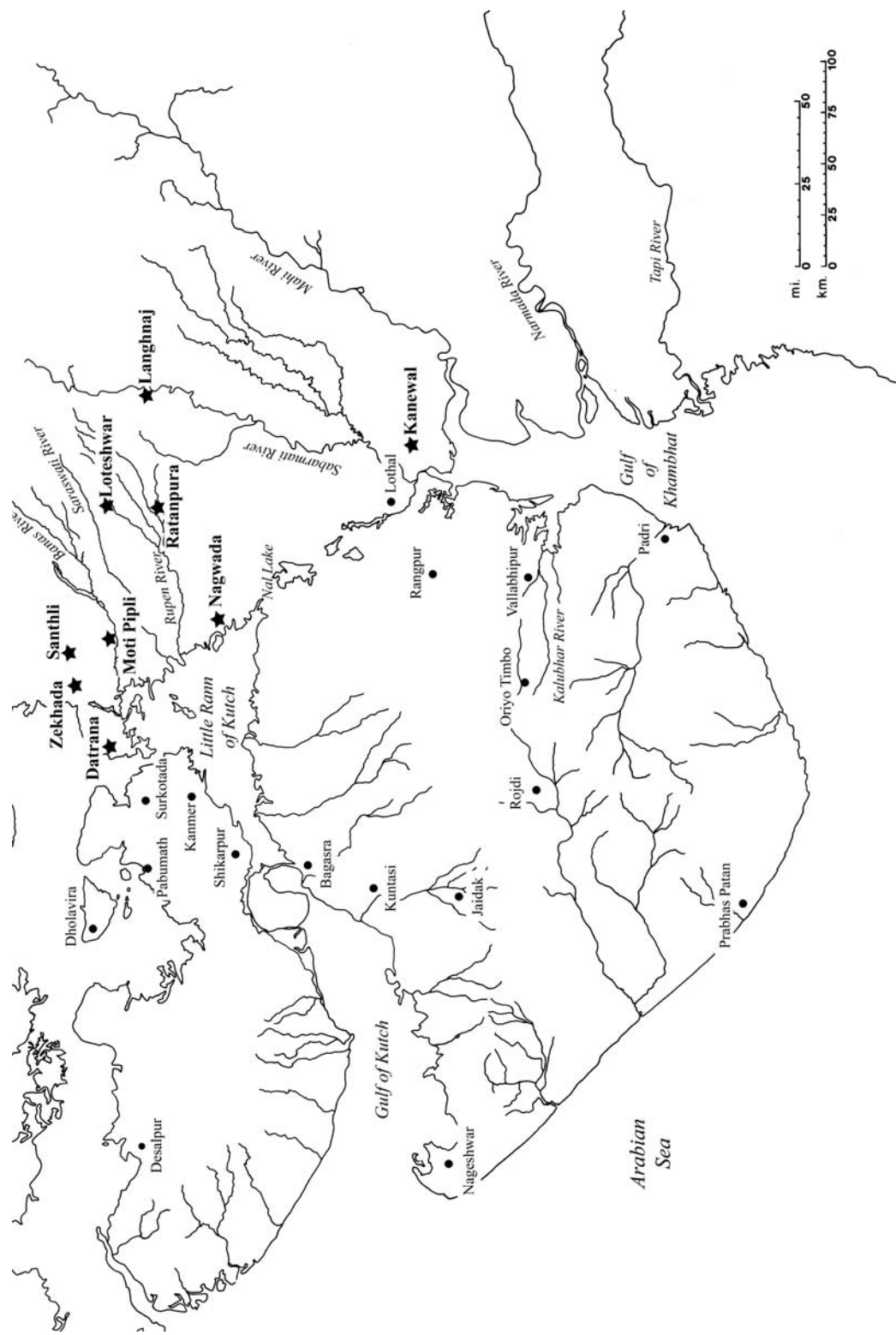


Figure 1.2 Chalcolithic Archaeological Sites in Gujarat

NORTH GUJARAT: Chalcolithic Settlements



Map courtesy of the Maharaja Sayajira University of Baroda

Figure 1.3 Archaeological Sites of North Gujarat

All Chalcolithic period sites in North Gujarat have been found through village to village surveys and are usually less than three hectares large. Most had small surface scatters of artifacts and brief test excavations revealed shallow deposits (no more than 60cm) (Bhan 1994:83). Concomitant with small habitation areas is a lack of architecture or constructed features, suggesting most sites were fleetingly occupied, though some deposits are substantial enough to indicate periodic reoccupation. The best sources of information on these kinds of sites are the excavations of nine sites in North Gujarat, dating from the fourth through second millennia BC (Figure 1.2 Archaeological Sites in North Gujarat). Enough variation exists among this sample in size and features to indicate a spectrum of mobility patterns.. The artifact assemblages reflect a variety of material culture traditions influencing local patterns of production and consumption. Such a conclusion can be drawn through the kinds of objects recovered and the range of styles discernable within each type. Artifact diversity also indicates the geographic and temporal breadth of economic networks associated with an occupation. The site data generated two heuristics – mobility and variation - which articulate how the past is reconstructed in this work.

Research objectives

During the last decade there has been much more interest among South Asian archaeologists (particularly those who focus on the Indus Civilization) in identifying and characterizing the varieties of populations that co-existed in well-defined geographic

regions (Allchin 1977; Bhan and Shah 1990; Ghosh 1965; Guha 1994; Joshi et al. 1984; Leshnik 1972; Possehl 1979, 1999; Subbarao 1958; Wright 1986). The analysis presented here demonstrates how North Gujarat contained a high degree of material cultural diversity compared to other areas of Chalcolithic South Asia. For example, geographically distinct areas such as the foothills of the Aravallis and Baluchistan supported relatively homogenous cultural complexes¹. This study shows that although many of the inhabitants of North Gujarat followed similar subsistence practices and used similar objects, they cannot be considered as belonging to a single cultural tradition as defined through ceramics and other artifact types.

The specific focus on small scale sites and populations is different from the agendas of more traditional studies on South Asian archaeology from the fourth through second millennia BC. Those studies often concentrate on the Indus Civilization and evidence for its technological, economic and social complexity. However, restricting interpretations of the past within the walls of urban centers does not provide a broad representation of interaction patterns within the greater landscape. This study provides information on how this is expressed in the past through material culture traditions and occupational histories of excavated sites. It investigates economic connections among small camps on their own terms – not as subsumed into a greater Early or Mature Harappan ecumene but as places that had some, but not necessarily consistent, connections with these systems.

¹ The Aravallis are associated with the Ahar-Banas complex (Sankalia 1969, Hooja 1988 and Possehl et al. 2004) and Baluchistan with the Kulli complex (Possehl 1986).

This project also interrogates the notion of a distinct cultural tradition specific to North Gujarat, marked by a diagnostic ceramic corpus known as Anarta Ware. An Anarta cultural tradition is typically correlated with following phenomena:

- 1) Presence of Anarta Ware and/or Early Harappan Red Ware
- 2) Small settlement size / ephemeral nature of settlements
- 3) Burials containing Early Harappan pottery
- 4) Presumably pastoral economy
- 5) Production and use of microliths

The presence of Anarta Ware and microliths within the same occupation are generally considered to be diagnostic fossils of a pastoralist population in North Gujarat. This reductive concept of an Anarta Cultural Complex warrants closer review². Two questions are raised by this notion: Are Anarta Wares accompanied by a distinct suite of artifacts? Do all sites containing Anarta Wares reflect the same behavioral and economic patterns? As a means to test this notion, other kinds of artifacts and their relative frequencies across sites are examined to determine if Anarta Wares are accompanied by a suite of material culture. But ultimately there are no easy correlations between artifacts and populations. Thus differences among sites are better determined through activity patterns and how they are expressed through the kinds of objects found and their occupational features. Scholars working in this region tend to emphasize the similarities among these small sites in order to reconstruct the development of mobile pastoralism in

² The terms “Anarta Cultural Complex” or “Anarta Tradition” are rarely used outright by authors (such as in Ajithprasad 2004:123; Possehl 2007; Sinha-Deshpande 2006) but generally implied in discussions of the distribution of the ware (Ajithprasad and Sonawane 1993; Sonawane and Ajithprasad 1994).

the region. However, closer examination reveals there are significant differences among these sites that demonstrate manifold economic strategies rather than a single form of pastoral nomadism.

This work also demonstrates that information can be gleaned through a fine-grained analysis of the material culture from small sites with regard to their residential and economic functions. Studies of the Chalcolithic phases of Western India are often dominated by work on Indus Civilization cities and larger settlements. Yet this only covers one part of the past; many people lived at the extremes or outside of Indus influence. The presence of Indus imports at the very small camp sites of North Gujarat is an important clue to how the occupants were linked, formally or informally, into greater economic networks. However, it is equally important to understand these sites within their own context, by studying their interrelationships. This study uses material culture and features to reconstruct the range of material culture traditions in circulation throughout North Gujarat during the time periods under consideration. Mobility and material variation have become themes for this work due to the broad continuums of material culture and economic strategies exhibited by the excavated sites. They also have long theoretical histories. The following review is meant to clarify how these notions are applied to the data from North Gujarat.

Defining Variation Among Occupations

“Culture,” “variation” and “diversity” are complicated concepts in anthropological theory. A discussion of how these terms are used in ethnographic literature is not productive in this work due to the enormity of the topic. Instead, this study employs an archaeological approach to differences among occupational phases at sites, an approach fundamentally based on analyses of material culture. In disciplinary parlance, the term “cultural variation” within a single site commonly refers to the range of artifacts and styles present during a particular occupation³.

Variety is a difficult concept to establish. It is usually defined according to differences between raw materials, manufacturing processes, and styles (as defined within a single artifact type). Among these indices, “style” is the most problematic as the term has different meanings and applications in archaeological scholarship. The influential approaches to style of J. R. Sackett (1977) and Robert Dunnell (1978) demonstrate two common assumptions: 1) that style is a characteristic manner of doing something and 2) that this manner is peculiar to a specific time and place. However, as Stephen Plog (1978:334) explains, if we adhere to the idea that social differentiation is reflected in style, we make the following false assumptions. First, production patterns are assumed to be non-random and therefore always intentional. Second, stylistic variation is thought of as a result of different functions and activities, not individual choices or

³ In this work, the words “variation” and “diversity” are used interchangeably.

circumstances. Finally, it is believed that production methods are consistently transmitted within specific social groups (such as families or kin-based organizations).

The use of ethnographic analogy may help overcome these assumptions and may help us to understand how multiple social processes contribute to the perception of “style.” Ethnoarchaeological approaches to style demonstrate the complexity of social and technological processes that culminate in what a researcher interprets as a style (Clark 1968; David and Kramer 2001; Hodder 1983; Miller 1985; Watson 1977; Wiessner 1983; Zagarell 1999). Based upon a comparison of ethnographic studies, Nicholas David and Carol Kramer (2001:219) conclude that style should be understood “as a relational quality, the potential for which resides in those formal characteristics of an artifact that are acquired in the course of manufacture as the consequence of the exercise of cultural choice.” In order to differentiate between recognizably different styles, a typology must be constructed. However, typology construction can be even more problematic than the definition of style.

The fundamental problem with a typology is the dataset used to construct it. Since this is always limited, most types are based on unique styles, a circumstance that affects the very usefulness of the typology (Adams and Adams 1991, Wylie 1992:489). While classes and typologies continue to develop, inconsistent uses among scholars hinder the application of these research tools to the greater discipline (Whittaker et al. 1998:130). No two archaeologists will sort material assemblages in the same way, so most typologies are based on an established framework to provide a modicum of consistency (Whittaker et al. 1998:132). For example, “Anarta Ware” is an umbrella term that refers to four

related ceramic fabrics. It was coined in the early 1990's (Ajithprasad and Sonawane 1993). Anarta Wares had been found in excavations published before Ajithprasad and Sonawane's work, such as at Surkotada (Joshi 1990), but because no concise term existed for the non-Harappan pottery found at that site, the generic term "coarse regional ware" appears in the report. This term is also used in the original Zekhada reports (Parikh 1976, 1977; *IAR* 1977-78) but the connection between Surkotada and Zekhada was not made until after the excavations at Nagwada and Loteshwar. In short, typological distinction of style is different for both producers and consumers, and cultural meanings are always variable.

The assumption that "style" universally and consistently represents a social group or cultural tradition becomes a serious problem when examining the material remains of societies that are inherently fluid, mobile, and intricately connected with others groups – nomads. The danger in relying on material typologies to distinguish social groups (as opposed to merely using them as naming conventions) is that they mask the flexibility with which people defined themselves and interacted within a geo-social landscape (Frachetti 2008: 43). However, variety in a material culture assemblage does not need to be equated with social diversity within a settlement. Rather, it more often indicates the breadth of distribution networks the local population was connected to. What the variety of material at a site (in terms of both object types and discernable styles within those object types) documents is the existence of disparate forms of material culture within a geographically coherent territory (such as the region of North Gujarat) and the ways in

which those materials were utilized within an occupation. In this work, variation within an artifact assemblage is not meant to be used as a proxy for cultural affiliation,⁴ it is meant to show the range of interactions and activities present within a particular occupational phase. For example, an occupation that has several distinct types of ceramics indicates the inhabitants participated in a relatively wide-scale interaction network. A settlement that has many kinds of objects (for example, a combination of lithics, terracotta objects, ornaments, vessels, food processing equipment, etc. as at Moti Pipli) demonstrates a wide range of economic activities. A site with a narrower artifact inventory (such as the preponderance of lithics and little else as at Langhnaj) demonstrates specific activities.

Indices of economic variation in the archaeological record

The metric for variation used here is the range of artifacts in terms of both object types (tools, ornaments, ceramics) and distinctive styles within each object type (with particular regard to ceramics). Particular attention is paid to ceramic diversity as wares specific to time periods and regions are good indicators for chronology and economic networks. Their relative frequencies within an assemblage are also important because they show which kinds were preferred by inhabitants. If a site has a large number of objects of a certain type (beads or bangles, for example), the frequencies of materials are also noted as these too indicate economic networks. Within the heuristic of “variation,” a

⁴ Although some object types strongly indicated processes of influence and interaction. Early Harappan wares are good examples of this and will be discussed in Chapter Four.

site with very few kinds of objects and a limited style repertoire is regarded as having low material diversity (and hence limited kinds of economic activities). One with a broad range of artifacts and styles (such as bead varieties) is considered to have high material diversity. This attention to diversity of occupational functions, as expressed through material culture, is directly related to mobility because mobility is an economic strategy, one that partially reflected by patterns in material culture.

Defining Mobility

For the purposes of this study the term “pastoral nomadism” refers to an economy based on animal herding over large geographic areas. However, nomadism is not always indicative of pastoralism and pastoralists are not by definition nomadic. The uncoupling of the terms “nomad” and “pastoralism” is well founded within the fields of anthropology and archaeology (Spooner 1973, Ingold 1987, Swayam 2006). Following Richard Meadow and Ajita Patel (2003), the term pastoralism used here describes the maintenance of domestic animals, which may or may not be undertaken by habitually mobile social groups. This concept has many shades of meaning as diverse peoples practice pastoralism as an economic strategy to varying degrees.

Mobility and Pastoral Nomadism

Virtually all reconstructions of prehistoric nomadic pastoralist populations are based on ethnographic analogy. It is essential here to include a cautionary note from David Clarke on the application of direct analogy (1968:13): “We must certainly try to find out the social and historical equivalents of our archaeological entities and processes but we should not delude ourselves about the simplicity of these equivalents or our success in isolating them.” Uncritical use of analogy may create poorly conceived interpretations but ethnography still provides useful templates for the kinds of spatial settlement patterns and object types common to different societies with similar sizes and behavioral patterns.

Discussions of pastoral nomadism typically emphasize the role of the environment in shaping economics and social organization. A common theme in these works is that most subsistence activity is focused on procuring resources that are predictably available during a particular season (Frachetti 2008). Nomadic communities use multiple strategies to secure resources. Many anthropologists and archaeologists reject the categorization of nomads as a specific community type because all communities display a range of subsistence-related adaptive strategies (Frachetti 2008:18, Marshall and Hildebrand 2004). Some simply rely more heavily on mobile pastoralism than others. Anthropologists and archaeologists who study mobility and sedentism agree that these exist within a spectrum and a single community may employ both as adaptive strategies depending on social and climatic conditions. However, for descriptive purposes it is most useful to regard nomads as *systematically* mobile groups and sedentary

populations as habitually settled in finite spaces. These groups, however, are not necessarily discrete and their relationship merits further examination. That is to say, that one community can have both nomadic and sedentary components.

Interrelationships between mobile and sedentary populations

A traditional anthropological model for pastoral nomadism comes from the Near and Middle East (Adams 1981; Bernbeck 1992; Cribb 1991a, 1991b; Kohler-Rollefson 1992; Zagarell 1989) where pastoralists are described as economic specialists that originally exploited marginal ecological areas not suitable for agriculture. The ethnographic studies of Frederik Barth (1961) and Philip Salzman (1980) are landmarks that articulate the relationships between mobile and sedentary groups (particularly between pastoral nomads and agriculturalists). In systematically mobile groups, strategies for producing and acquiring artifacts are more restricted than in sedentary communities (Schiffer 1987:43). The concept of change in subsistence practice as an adaptive strategy, e.g. to environmental and/or political pressures, is a common theme in discussions on the relationship between mobility and sedentism.

The interrelationships between nomadic and sedentary groups have been articulated in detail by many scholars. A review of the literature reveals two primary conceptual approaches to the discussion of nomads and their relationships to sedentary groups. The first model, in which nomads are viewed as at the fringes of a large-scale complex society, can be called the peripheral model. It is influenced by world-systems

theory as originated by Emmanuel Wallerstein (1974, 2004), incorporates the notions of “Great and Little Traditions” (Redfield 1956:53, 70-1) and is best represented by the works of Anatolii Khazanov (1990, 1994). The second model proposes nomads as conduits of culture within a greater interaction network. In this sense they are viewed as established within a greater collection of interdependent social groups that range in scales. This model can be called the interstitial model and the works of Robert Kelly (1983, 1992) most fully capture this notion. The essential difference between these two perspectives is the peripheral model characterizes relationships between nomads and sedentary peoples as hierarchical; the interstitial model proposes this relationship is symbiotic.

The peripheral model rests on an essential distinction between a diffuse mobile population and a politically centralized sedentary population. The relationship between the two indicates a degree of symbiosis but at the “fringes” of the sedentary population, both geographically (particularly couched in terms of marginal environments unsuitable for agriculture) and socially. For example, Khazanov focuses on processes of sedentization, particularly in terms of external pressures placed upon nomads (1994:199). Brian Spooner depicts pastoral nomads as “outcasts” from sedentary agricultural groups, but always partially dependent on them (1973:5). Pastoral nomadism is viewed as a subsistence practice that a population resorts to when it does not have access to land, technology or reliable resources that would allow for sedentism. However, “outsider” nomadic groups often furnish sedentary groups with valuable resources and services. LaBianca and Witzel (2007:64) posit that viewing the relationship between these groups in terms of food and subsistence alone is inadequate because this approach “does not go

far enough in helping us understand why, over the centuries and millennia, peaks and valleys occur in the intensity levels of the local food system.” They emphasize the role of the state in regulating and organizing these relationships with references to “traditions” circulating within a much greater socio-economic system.

In an interstitial model, nomads are viewed as fluid agents within, rather than at the edges of, a greater system of social and economic interactions, some of which may be coordinated or administered by a centralized political authority. They are essential conduits/perpetuators/maintainers/agents in the transmission of knowledge over large geographies. This approach emphasizes nomads and nomadic pastoralists in terms of their integration with larger sedentary groups⁵. Focus has shifted away from conceiving of nomads as marginal to seeing them as living in the “space between,” interdigitated with communities that occupy more finite and discrete territories. As Kelly states (1992:50), “the interstices between horticultural societies are frequently filled with nomadic foragers or pastoralists” as well as mobile merchants and wage labor. There are a number of contexts within which interactions can take place including gift exchange, trade, fairs, ceremonies, tribute, patronage and kinship (Swayam 2006:75). For example, Emanuel Marx’s (2007:76) ethnographic observations of modern Bedouin demonstrate the degree to which they are embedded in the urban market economy, which in turn affects their social organization and domestic economies⁶.

⁵ It owes a theoretical debt to Richard Fox’s notion of a “professional primitive” (1969) but he refers specifically to symbiotic relationships between foragers and settled communities.

⁶ There is a certain element of Structuralism here as the distinction between mobile and sedentary groups is viewed as a dialectic creation, negotiated through economic and political processes. Examples of this

Both models are employed within South Asian archaeology. The peripheral model is frequently employed in discussions of the Indus Civilization, often defined by its centralized political presence (as manifested through civil engineering and administrative tools). In contrast, the interstitial model is generated from studies of small temporary camps, with special regard to their interaction patterns with larger settlements, and is the perspective preferred here. Ethnographic analogies to modern pastoralism in the northern plains of Gujarat are used as models for interaction and a conduit for communication among all the sedentary communities of Gujarat (Allchin 1977:139; Possehl 1979, 2002a; Bhan 1989:232; Panda 2002, Swayam 2006). One of the earliest and most direct expressions of the interstitial model appears in the article “Pastoral Nomadism in the Indus Civilization: A Hypothesis” (Possehl 1979), which notes that “pastoral nomads, or other highly mobile (itinerant) occupational specialists filled the interstices in the Harappan settlement pattern” (Possehl 1979:547). Gregory Possehl’s characterization of nomadic-sedentary relations emerges from recognition of the “empty spaces” between larger sites. Both Possehl’s work in Saurashtra (1980) and Rafique Mughal’s Cholistan survey (1990, 1997) show that not only was the ancient landscape filled with hundreds of small settlements, but also that most of these sites are very small, ephemeral camps. This dissertation demonstrates what can be learned about the communities that inhabited them through archaeological indices of mobility and material variation.

include James Woodburn’s notion of “encapsulation” (1988) and the construction of social networks that Robert Whallon (2006:261) describes as “safety nets”.

Indices of mobility in the archaeological record

Archaeologists employ multiple approaches to determine the degree of mobility or sedentism apparent at a site through its artifacts and features. The first approach is to concentrate on identifying artifact types diagnostic of nomadic or sedentary communities and their methods of production. For example, Masson (1990:206) describes the material culture of pastoral nomads as a radical departure from the objects and technologies used by sedentary populations. Some of the materials needed include easily transportable shelter, specific vessel types and materials (particularly wood and leather) and special kinds of clothing (supple shoes, long trousers). However, one major problem with distinguishing “signatures” in material culture is the role of trade and other forms of interaction (Gamble 1991). As Lawrence Leshnik posits (1968), in such a case there will be a degree of shared material culture. Nomads often have no distinct artifact “styles”, thus particular categories or types cannot be the sole index through which cultural variation is determined. Since artifact variation presents interpretive ambiguities when used as a sole indicator of what kind of mobility strategy was employed by a group, a better method to distinguish mobility patterns is to incorporate the kinds of activities that took place at a particular site, namely subsistence and industrial practices, into an interpretation of site function and the lifeways of its inhabitants.

The second, and in this case more useful, form of evidence used to determine mobility is economic activity analysis. Ethnographic studies by Binford (1978, 1980, 1990) have established relationships between artifacts, modes of production and mobility. Quite a bit of work exists in this vein, particularly with regard to lithic production (Kent 1984, Schott 1986). Some activities, such as agriculture or industries reliant on advanced pyrotechnology, are associated with sedentism and full-time residency. Others, particularly resource acquisition (such as at a mine) and pastoralism, are generally associated with mobile groups.

However, the most important activities to analyze are those related to subsistence strategies. Eveline Van der Steen and Benjamin Saidel note subsistence practices shift among all groups depending on environmental conditions and political stability (2007:1). Ethnographic work shows that pastoralists often have the skills necessary to farm and farmers understand livestock maintenance; thus complicating perceptions of these groups as perpetually discrete (Barth 1961; Possehl 1999:167). When studying pastoralism in an archaeological context, faunal remains are the primary of information on subsistence economy. Information about the kinds of social relationships and populations required for the processes of husbandry, herding and consumption can be extrapolated from the faunal profile. Among pastoralists, the type of animal being raised has significant bearing on mobility and settlement patterns. In South Asia, water buffalo require standing bodies of water to bathe (Meadow and Patel 2003:76, Possehl, personal communication) and so people who maintain buffalo must have reliable access to places such as tanks and

ponds⁷. Cattle have lower water requirements and sheep and goat still less. Floral consumption differs as well; water buffalo and cattle eat grasses, requiring pasture land. Goats eat thorny scrubs, which allows for a much larger territory to roam.

Herd size can indicate the necessary amount of labor, accommodations and resources needed for maintenance. The range of mobility is proportional to herd size. The larger the herd, the greater the area the pastoralists must cover. Estimations of herd size vary widely with species, topography and resource constraints. It also depends on which commodities and services the livestock produce⁸. For example, a modern Brahui in Baluchistan considers the optimal herd size for sheep (per single shepherd with a sheepdog) to be 500 heads (Spooner 1973). In contrast, nuclear families of Bedouin are secure with 18 female camels. These two communities practice nomadic pastoralism to fulfill entirely different economic and social needs and this is reflected by their livestock.

The third type of evidence used to determine mobility is analysis of features that indicate temporary occupations such as ephemeral housing materials (Madella 2003:228, Swayam 2006), the manner in which they are organized (Varma 1991:292) and the taphonomic processes that affect them (Smiley 1979-80:163)⁹. When interpreting

⁷ This has interesting implications considering the increased consumption of water buffalo during the later occupations of the Mature Harappan phase (Chattopadhyaya 2002:394).

⁸ For example, in Gujarat prior to Independence, the most profitable pastoralist service was impregnation of village cows by bulls owned by full-time herdsman (Possehl, personal communication).

⁹ Related to this approach is evaluation of site size to estimate population density and permanency of residence, often resulting in hierarchical settlement pattern analysis (Chang 1972, Panda 2002:191). Total

campsites – whether they belong to pastoralists, foragers or hunting parties – the greatest indication of habitual mobility comes from the kinds of structures built, if any. For example, tents (identified by postholes and pounded earth floors) are usually good indicators of mobility but they can be found at permanent settlements. Nomadic groups often create structures with permanent features such as stone foundations and plastered storage pits. Such features contribute to the creation of multifunctional spaces meant to be used over long periods of time. Ilse Köhler-Rollefson (1992) explains that among modern Bedouins, stone buildings are used to house equipment and provide storage rather than function as houses. Though the populations under consideration here differ from modern Bedouins, Köhler-Rollefson’s study demonstrates the need to uncouple substantial architecture from full-time residency. Given the spectrum of mobility, it is entirely possible that an ephemeral camp was occupied by the same group that inhabited a permanent settlement elsewhere.

An ultimate goal of the above analytical stances is to reconstruct, at least in part, an emic perception of space, beyond merely cataloguing behavior. Landscape theory is an effective theoretical approach to such a problem because its principle is that “landscape cannot be fully understood without reference to a world view which integrates place and space in the production of meaning” (Snead and Preucel 1999:171). Due to the

area (usually measured through ground survey) is a good *initial* indicator of site function but more data is needed before categorizing occupations.

ambiguous relationships between features and the mobility of the people that created them, this phenomenological approach adds another dimension of interpretation. Archaeological landscape theory incorporates notions of cyclical time and transformation in patterns of revisitation and re-use of space (Bender 2002, Thomas 1986). As people return to places, they become invested with meaning, or, as Barbara Bender writes (2002:S104): “The engagement with landscape and time is historically particular, imbricated in social relations and deeply political.” Timothy Ingold (1987) proposes that pastoral nomads place the most value on mobile capital, not monumental places, and so a lack of substantial structures should not imply absence of value. Roger Cribb (1991a, 1991b:372) adds that pastoral nomads view desirable space in terms of reliable pastureland rather than concrete, permanent localities. An archaeological approach views the landscape (Anscheutz et al. 2001:186) as inherently fluid but with persistent “places.” When a group revisits the same place, even in irregular intervals, it indicates this place has meaning and value. This theoretical approach is applicable to the sites of North Gujarat as they exhibit very little monumentality. The most symbolic features are burials, which had been found at four of the nine sites under consideration in this work. Although it is problematic to assign particular features or activities to a specific population¹⁰, the act of creating a burial or building implies that: 1) the space has some value; 2) there is some intention of its reuse; and 3) a certain amount of energy and resources are used to prepare the place.

¹⁰ In North Gujarat, it is most likely the Chalcolithic burials were created by kin groups but this assertion cannot be tested.

Thus the best way to analyze features in a fluid landscape is to view them as *investments* (Spooner 1973:15). That is, structures demonstrate an investment of resources and labor deployed by a community to establish a sense of place. Ethnographic studies by Susan Kent (1992), Robert Kelly et al. (2005:410) and Swayam S. Panda (2002:93) illustrate the definite relationship between the amount of effort used to construct a structure and the intended length of stay. Length of stay itself may be indicated by the kinds of activities that took place. This is particularly true with regard to pastoralism, as different species have different ecological requirements. Burials can also be considered a means to mark territory and culturally relevant spaces, although it is difficult to reconstruct specific forms of symbolic intention without an element of monumentality. Within this study, each site description includes a discussion of the features of activity areas and structures to determine the level of sedentism required to sustain those activities over a long period. The kinds of activities (including subsistence practices) that can be inferred and the sizes and types of features are the primary indices through which mobility is evaluated.

There are many other sites elsewhere in Gujarat, like Oriyo Timbo (Rissman and Chitalwala 1990) and Bagasra (Bhan et al. 2005; Sonawane et al. 2003), at which a variety of subsistence practices, mobility strategies and material assemblages can be identified during this period. However, individual sites do not provide much evidence detailing interactions with and differences among neighboring settlements. Thus a regional scale is being used to provide a wider range of sites for comparison. North

Gujarat was chosen as the research area because it has two advantages. First, it is a well-defined geographic area with unique environmental conditions. Second, extensive research has demonstrated this region has many archaeological sites dating between the fourth through second millennia B.C., as documented by presence of numerous camp settlements. The rest of this narrative is concerned with describing, in detail, the geographic and historical contexts of the sites and how they compare along the indices of economic variation and mobility.

Summary of Chapters

Chapter 2: Research Methodology

Chapter Two provides information on two aspects of this study. First, a historical overview of archaeological research in North Gujarat is presented to show how this region has become a popular venue for projects, including this one. Second, the methods of data collection employed in this study are described to elucidate the kinds of information used for analysis.

Chapter 3: Geography and Ecology

Discussions of mobility and subsistence generally emphasize the impact of the local environment on adaptive strategies. A review of geological and ecological conditions is important to understand the reasons why mobility has been such a prominent subsistence strategy in North Gujarat. It includes information on the entire state of Gujarat to show why the North Gujarat plain is a separate and special

environment. Paleoclimatic conditions present during the period of occupation under consideration in this study (the fourth through second millennia BC) are also described. Particular focus is paid to relict sand dunes, which form important elements of the landscape as the sites reviewed in this study are located on such dunes. A description of their microenvironments demonstrates why they had been considered attractive locations for so many occupations over multiple periods.

Chapter 4: Historical and Cultural Contexts

Material culture provides significant information on the histories and varieties of cultural traditions. The artifact assemblages demonstrate how the populations of North Gujarat were interconnected. This region was, in turn, connected to other regions in different ways over different time periods. Thus the occupations of North Gujarat must be placed into greater chronological and cultural contexts. Chapter Four focuses on the major socio-cultural developments associated with specific time periods as those developments provide reasons for the occupation of North Gujarat. These periods are often marked by diagnostic artifact types, primarily pottery. Since ceramics are the most useful tools to establish relative chronology and socio-economic relationships, the descriptions of time periods are accompanied by discussions of associated wares.

Chapter 5: The Archaeology of North Gujarat

This chapter forms the bulk of the work and is a detailed examination of nine archaeological sites in North Gujarat that demonstrate the wide degrees of material culture inventories and mobility strategies through the late fourth and early second millennia BC. The sites, in rough chronological order of occupation, are Loteshwar, Datrana, Santhli, Moti Pipli, Nagwada, Langhnaj, Zekhda, Ratanpura and Kanewal. Each site description includes information on habitation patterns, material culture, craft activities and subsistence practices. Interpretation of how the site was used and who lived there relies on analysis of these four components. At the end of each is a discussion of the degree of mobility and material variation represented at the site, thus allowing for cross-comparison.

Chapter 6: Discussion and Conclusion

Patterns of mobility and material variation among all the sites are compared, demonstrating a wide spectrum of economic strategies employed reflected by the occupations of North Gujarat. Similarities and differences are discussed in detail, particularly the notion of some sort of North Gujarat burial complex. Links to the Indus Civilization are described but it will be shown that fundamentally the peoples of Chalcolithic North Gujarat lived largely independent existence from the Indus centers and in many cases, each other.

CHAPTER TWO: RESEARCH METHODOLOGY

North Gujarat and the historical trajectories of its inhabitants have fascinated scholars for more than a century. It was home to some of the earliest archaeological research conducted in all of the South Asia. There are three reasons why this area has been a popular venue for investigation. First, local rulers under British administration (such as the Gaekwad of Baroda and Thakur of Limdi) had genuine interest in history and sponsored work. Second, the arid conditions and taphonomic processes acting upon dunes preserve surface artifact clusters and reveal features, facilitating survey and collection. Finally, this area had been inhabited for a very long time and contains many sites of archaeological interest across all time periods¹. The following review of the history of research in this area illustrates how certain research agendas developed and why this study is an extension of the most current phase of scholarship.

A History of Research in North Gujarat

1890s–1940s: Preliminary Surveys and Excavations

The earliest archaeological work conducted in North Gujarat was by the geologist Robert Bruce Foote, whose primary interest was establishing the age of

¹ This is not unique to North Gujarat but this area is more accessible than many others and thus it is easier to conduct research here.

mankind in South Asia through lithic sequences. This remained a dominant theme in archaeological research in Gujarat until the 1960s.

The first major excavation within Gujarat was conducted by Father Heras at Vallabhipur, during which a knobbed lid, similar to those at Mohenjo-daro, was found (Heras 1938; Ghurye 1939). The next and more significant excavation took place at Rangpur, where studies continued for decades under different directors (Vats from 1934 to 1935, Ghurye in 1936, Dikshit in 1947, and Rao oversaw the work during the 1950s). Vats (1937:34) originally excavated it at the behest of the Thakur of Limbdi after a number of historical coins were found. The three-day excavation uncovered ceramics and other materials immediately correlated to Amri, Harappan, Mohenjo-daro and Shahi Tump (Vats 1934-35:38). This provided the first concrete evidence for the extension of the Indus Civilization in Gujarat, which became another important research agenda.

The First Gujarat Prehistoric Expedition of 1941–42 was organized by K. N. Dikshit, then director-general of the Archaeological Survey of India, who approached H. D. Sankalia and others at Deccan College to undertake survey work. The goals were to find paleontological specimens along riverbeds and Microlithic sites to correlate them to establish a chronological sequence of human settlement (Sankalia 1946:v). This survey was a direct continuation of Foote's work, and followed upon the discovery of Paleolithic materials in Punjab by De Terra and his team (1936, 1937, 1939). Particular notice was paid to North Gujarat for two reasons: 1) this was one area where Foote had worked, and 2) the team had the enthusiastic permission of

the Gaekwad of Baroda and other local leaders. The First Gujarat Prehistoric Expedition confirmed that Gujarat contained extensive evidence for Mesolithic occupation, which at the time was largely perceived as a gap between the Paleolithic and Neolithic periods. For Sankalia, the primary attraction of North Gujarat was what he interpreted as Mesolithic sites (Akhaj and Langhnaj) and their material similarities to sites along the Banas River (Sankalia 1987:5–6). With extra funding for the Gujarat Prehistoric Expedition, the geomorphologist Frederick Zeuner (1950:1) was asked by Dikshit and M. Wheeler to conduct a more detailed study of the geological formation processes of the riverbeds to determine both climatic conditions throughout Paleolithic and Mesolithic periods and the chronology of lithic industries.

1950s and 1960s: Continuing Work

The intensive focus on illuminating the Mesolithic period was soon superseded by research agendas centered on other large-scale projects conducted in Gujarat. The early excavations of Lothal (*IAR* 1954–55a:12; 1955–56a:6; 1956–57a:15; 1957–58a:12; 1958–59a:13; 1959–60:16), Prabhas Patan (*IAR* 1955–56b:7; 1956–57b:16), Rangpur (*IAR* 1953–54b:6; 1954–55b:11) and Rojdi (*IAR* 1957–58b:18–20; 1958–59b:19–21) begot wider surveys designed to establish the limits of Harappan distribution. J. M. Nanavati conducted a large, ambitious survey encompassing Saurashtra and Kutch (*IAR* 1960–61:7) specifically to document protohistoric sites. In 1964–65 (*IAR* 1964–65:10), J. P. Joshi of the Archaeological

Survey of India led a survey through the Banaskantha, Mehsana, and Surendranagar districts where distinct Microlithic and BRW sites were found.

Within North Gujarat the next major survey after Zeuner's was conducted by Laurence Leshnik and V. N. Misra in 1966. The Gujarat plains and western spurs of the Aravallis were studied to fulfill three research goals: 1) determine the westernmost extent of Harappan culture within India; 2) find evidence linking Central Indian agricultural developments to those in Baluchistan and eastward and 3) track the distribution of microliths (Leshnik 1968:296). The survey specifically concentrated on the black cotton soil series along the Luni and Banas Rivers, with the assumption it had been cultivated during the third millennium BC. It is evident in the project report that Leshnik conceived of North Gujarat as a crossroads between Neolithic and Chalcolithic cultures of Central India and those of the Indus Valley and its environs. Thus he anticipated a host of settlements documenting what could have been a transitional zone. But contrary to this expectation, the Anarta region yielded no permanent settlements of the Chalcolithic period, only camps bearing great quantities of microliths (Leshnik 1968:297).

However, the dearth of permanent Chalcolithic settlements led Leshnik's team to make an extremely important observation – the Microlithic sites (particularly Bagor and Tilwara) appeared to be contemporary with sites with pottery due to the admixture of microliths with domesticated animals² (1968:309). Since North Gujarat

² Bagor Phase I dates to between 4500 – 3500 BC.

has an arid climate conducive to nomadic pastoralism, Leshnik concluded that many of the sites he found in North Gujarat in fact belonged to ancient pastoralists or foragers. This revelation changed the course of work in North Gujarat, as it inspired two major research agendas: 1) determining the range of Harappan influence in the region and 2) tracing the local development of pastoralism.

1970s and 1980s: Broad Surveys and Problem – Focused Projects

During the later 1960s and especially the 1970s, broad surveys were conducted all over the state by both government and academic scholars to inventory the extent of archaeological materials. All sites of interest (ranging from Paleolithic tool scatters to medieval wells) were recorded. Two of the most detailed surveys were undertaken by Bridget Allchin, Andrew Goudie and K. T. M. Hegde (1978) in Gujarat and the Thar Desert, and by Gregory Possehl (1976) in the Ghelo and Kalubhar River valleys. In 1978, no fewer than 11 districts were surveyed by three different projects conducted under the auspices of the Gujarat State Department of Archaeology, the Maharaja Sayajirao University of Baroda and the Western Circle of the Archaeological Survey of India (*IAR* 1978–79b:4–7). It is during the later phase of these projects that motivations for surveys became more problem-focused. For example, one survey conducted in North Gujarat to find Late Harappan settlements yielded a cluster of 30 settlements on relict sand dunes along the eastern edge of the Little Rann (Bhan 1989; Hegde et al. 1986; Desai 1985). During the 1982–83 season, K. T. M. Hegde, V. H. Sonawane and K. N. Momin of the Maharaja Sayajirao University of Baroda surveyed the Rupen River to determine “the extension and

pattern of the immigrant Harappan relationship with the indigenous Mesolithic communities” (*IAR* 1982–83b:28). This statement reveals the influence of Leshnik and Misra’s work. The most immediate result from this particular survey was how it demonstrated the existence of concomitant diverse populations. This was also when the site of Nagwada was discovered and became the subject of the next large excavation in North Gujarat.

Though this site is more fully discussed in Chapter Four, it should be noted that this excavation was an important turning point for the archaeology of North Gujarat. Archaeologists realized that what was known about Chalcolithic material culture (and its chronological implications) in Gujarat, as constructed by Rao from Rangpur ceramics, did not universally apply (Ajithprasad and Sonawane 1993:5). For example, Micaceous Red Ware from the earliest layers and Lustrous Red Ware from the most recent layers at Rangpur were thought of as non-Harappan. Mature Harappan Red Ware was thought of as a fairly homogenous corpus with a particular unilineal evolution. As is often the case, these ceramic types were directly correlated with both chronological periods and undefined social groups .

The problem with these assumptions, as acutely demonstrated by data from Nagwada, is that there is a tendency to equate a particular kind of ceramic ware with a greater suite of associated materials and features. For example, at Nagwada, the excavators encountered a site in which only 20 percent of all pottery recovered was recognizably Mature Harappan Red Ware, yet most other characteristics of the site fell into the same patterns seen at Urban phase sites (Ajithprasad and Sonawane

1993:5). In addition to the non-Harappan habitation pottery, the burial pottery from Nagwada was also demonstrably different from both the Mature Harappan and indigenous wares. Based on the discrepancies between what was actually found at Nagwada (and subsequently other sites) and the expected Harappan sequence (as constructed from Rangpur and Lothal), P. Ajithprasad, K. K. Bhan and V. H. Sonawane hypothesized that a regional cultural tradition had existed along with the Harappan tradition within which Anarta Wares became a diagnostic fossil type (Ajithprasad and Sonawane 1993:6). Anarta Wares are more thoroughly discussed in Chapter Four but it is important to note here that they seem to be geographically restricted to sites in North Gujarat. However, as is demonstrated through the comparative chronology in Chapter Four and the appearance of these wares at many sites reviewed in Chapter Five, Anarta Wares appear at a wide variety of occupations (from small camps to fortified settlements) over a period of two thousand years and should not be considered diagnostic of a single cultural tradition.

1990s–2000s: Focus on North Gujarat

To determine the greater distribution of Anarta Wares (discussed in Chapter Four), a series of small excavations and broad surveys were performed in the Banaskantha and Mehsana districts. As an extension of the 1992–93 excavation of Moti Pipli by the Maharaja Sayajirao University of Baroda, V. S. Parekh, P. Ajithprasad, and P. C. Chaudhary conducted a survey of Santhalpur taluka in the

Banaskantha district which yielded 36 sites, ranging from the Mesolithic to the Medieval periods. The majority of these sites were found on the banks of a narrow dry creek that connects the Great and Little Ranns of Kutch (*IAR* 1992–93d:19). The other sites were located in the eastward extension of the creek and associated channels north of the Banas River. The Santhli and Datrana excavations resulted from this work (*IAR* 1992–93c:26; 1993-94; 1994-95). The Maharaja Sayajirao University of Baroda excavations of the early 1990s and the resulting publications form the bulk of information on North Gujarat archaeology that is most relevant to this study. Within the last decade, focus has shifted to other regions ringing the Great Rann of Kutch, such as the Jamnagar and Kutch districts with excavations at Bagasra (Bhan et al. 2005; Sonawane et al. 2003), Kanmer (Kharakwal et al. 2005, 2010), Jaidak (Ajithprasad 2003, 2010) and renewed work at Shikarpur (Bhan and Ajithprasad 2008) and Loteshwar (Madella et al. 2010).

Interpretive Themes in the Archaeology of North Gujarat

As the history of work in North Gujarat shows, this area has proven attractive to scholars since the very beginning of archaeological research in South Asia. But what is it about this region that so many have found compelling? A review of the works undertaken reveals three themes running through the research. These themes are pastoralism, regional cultural development, and participation within the Harappan

ecumene. These themes interrelate, and their relationships are inherently dynamic, as each is an ongoing process rather than a singular phenomenon.

Pastoralism

One of the reasons for continuing interest in the region is what appears to be the independent domestication of cattle and ensuing development of pastoralism. The importance of pastoralism in this area today has been noted by many archaeologists over the years (Subbarao 1958; Whyte 1964; Leshnik 1968; Allchin 1977; Possehl 1979), but archaeological studies of this phenomenon are relatively new. Of particular significance in this region are the studies conducted by Richard Meadow and Ajita Patel on faunal remains from the sites of Loteshwar and Santhli, both of which exhibit a change from a foraging to pastoralist economy (2003; Patel 2008, 2009). Domesticated cattle appear during Phase II at Loteshwar, and an AMS sample taken directly from a domesticated cattle bone dates to 3657, predating the earliest forms of Harappan material culture in this region by 400 years (Meadow and Patel 2003:74). Zooarchaeological research on the process of domestication has expanded into phylogenetics. For example, a study on water buffalo (Kumar et al. 2007) reveals a complicated history of gene transfer between Mediterranean and Indian breeds. As a follow-up to the zooarchaeological work, P. Ajithprasad of the Maharaja Sayajirao University of Baroda and Marco Madella of the Department of Archaeology and Anthropology, Institució Milà i Fontanals, Spanish National Research Council are

supervising a comprehensive geoarchaeological survey of North Gujarat and an attendant re-excavation of Loteshwar in order to study “social contacts, resource use and cultural landscape in a long-term perspective” (2010). A major advancement in this project is the collection of geomorphological and paleobotanical data to aid in environmental reconstruction, particularly for the era in which changed subsistence practices changed significantly (approximately 3600–2900 BC).

Regional Cultural Development

Another reason why North Gujarat continues to draw interest is the existence of Anarta Ware, which is yet another fossil type that bolsters evidence of thriving populations in the area prior to the migration (or simply economic sway) of Harappans from the Indus Valley. As such, interest in “Anarta sites” forms part of a greater attention to regionalism and the wide circulation of distinctly non-Harappan forms of pottery, particularly Pre-Prabhas Ware, Padri Ware, Micaceous Red Ware, Prabhas Ware and White-painted Black and Red Ware. The earliest types (Pre-Prabhas, Anarta and Padri Wares) are also associated with the advent of agriculture and pastoralism in Gujarat and provide temporal indicators for this particular period of development (ca. 3300–2900 BC).

Connections to the Indus Civilization

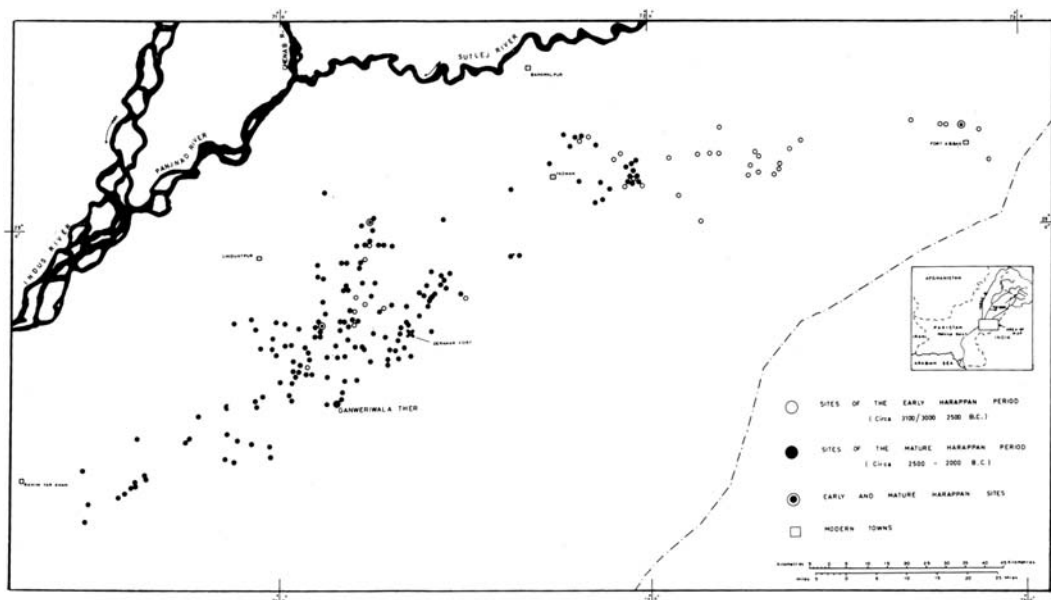
The demographics of Gujarat from the fourth through second millennia BC are generally discussed in terms of affiliation to populations of the Indus Valley. There is a spectrum of “Harappan-ness” characterized through material culture, architecture and subsistence practices. Sites in North Gujarat are often interpreted through the lens of economics, particularly how they related to greater economic and presumed social networks. Discussions often present sites as belonging to a structured hierarchy, where the very large urban centers (such as Dholavira and Surkotada) are viewed as the prime movers of the regional economy, and the peoples of the dunes are viewed as specialists living on the edge of the Mature Harappan sphere of influence.

This interpretation is very well grounded in the data, but only with regard to items that clearly were imported from afar. For example, Rohri chert blades found in North Gujarat are heavily modified versions of common ribbon blades. But what would have led the Harappans to take interest in this region as either migrants or traders? One theory is that pastoralism became a more prevalent subsistence practice during the Early Harappan period (Allchin 1977; Mughal 1974, 1986; Bhan 1990; Possehl 1999:600–603; Wright 2010). This seems to be supported by faunal data, particularly the extremely high percentage of cattle bones found at Jalilpur (Mughal 1974) and the increasing presence of water buffalo at many sites (Chattopadhyaya 2002:394). Ajita Patel notes that unlike cattle, sheep and goat have no wild predecessors native to Gujarat and must have been imported from further northwest

(Patel 2009:175). In addition to this evidence, the settlement pattern from Cholistan during this period shows a proliferation of campsites (Figure 2.1). Given the rich grasses that grow in North Gujarat, this region would have attracted nomadic communities and could be considered part of a corridor connecting Sindh to Saurashtra. Another popular interpretation is that the ecology and natural resources of this region (especially agate) shaped indigenous economies that the Harappans later incorporated into their sphere of influence. The main thesis in Sonawane and Ajithprasad's article is that

[t]he spread of the Harappa culture was, therefore, governed by areas of attraction, for example, the coastal flats along trade routes, fertile river valleys or estuarine plains depending upon the availability of resources and geographical factors conducive to their cultural dynamics. These factors partly explain not only the regional diversities in the manifestation of the Harappan civilization in Gujarat but also the innate capacity of the Harappans to mobilize different subsistence systems by integrating them into their own economic structure. (1994:129)

Thus the attractions of ecology and resources to Harappans are intertwined. At sites such as Nagwada and Datrana, lapidary industrial waste is present in the earliest Chalcolithic layers, demonstrating the importance of activity at both sites throughout their occupations. However, this is not the case at related sites such as Santhli and Moti Pipli, whose occupations seem to reflect pastoralism alone.



Early and Mature Harappan Sites in Cholistan (Mughal 1997)

Figure 2.1 Early and Mature Harappan Camp Settlements in Cholistan

The projects conducted during the latest phase of research exert the greatest influence on this study. It is evident North Gujarat is unusual among other regions of the Chalcolithic period in western South Asia because it contains sites exhibiting diverse arrays of material culture in a small area. However, there has never been a book-length synthesis produced about this region that uses both material culture and site analysis to interpret past populations beyond establishing relative chronology. More attention is devoted to interpreting behavioral patterns among populations than can be found in previous reviews of the same sites.

Archaeological Methodology in India

This work depends upon published materials; some comments regarding archaeological methodology in India will explain the context in which data is produced. The first and most extensive form of research is the surface survey. Surveys in India are typically conducted through a series of village to village visits³. Scholars interview local people on the existence of mounds (tells), old buildings or other features that contain artifact concentrations. All surveys conducted in India are reported *Indian Archaeology: A Review*, with the following information: geographic coordinates, state, district, taluka, village name and probable periods of occupation. As demonstrated by the numerous surveys reviewed in the previous section, the districts of Banaskantha, Mehsana and Surendranagar have been extensively explored to document all places of potential archaeological or historic interest.

The second most important kind of project is the excavation. In contrast to the extraordinarily broad coverage undertaken by surveyors, sites are carefully chosen for investigation according to the research agenda being followed by the archaeologists and the feasibility of conducting a project at that location. A standard report includes information on chronology, features, material culture and sometimes specialized data on fauna, flora or human remains.

The sites chosen for analysis were selected because they have been excavated and published to a certain extent. However, as the published information is brief, a collections study was undertaken to produce more detailed information about the

³ Leshnik describes this process in detail (1968:298).

excavated sites. This data forms the basis for nuanced interpretations of the populations that inhabited these sites.

Data Collection

The research methodology employed consisted of a collections study at the Department of Archaeology and Anthropology at the Maharaja Sayajirao University of Baroda where the artifacts recovered from the sites of Loteswar, Santhli, Datrana, Moti Pipli, Nagwada, Zekhada and Ratanpura are stored. During the primary research period (October 2005 - May 2006), artifact storage units were examined to determine what had not been published and the possible information those materials could contribute towards a better understanding of site function and occupational history. The majority of artifacts recovered were related to the production of microliths. However, limiting this study to lithic analysis would not have yielded broad information on greater settlement and behavioral patterns so all other artifacts were studied. The most common non-lithic types of artifacts (aside from ceramics) were miscellaneous terracotta objects and ornaments in a variety of media. High resolution photographs, measurements and comments on condition were taken for individual artifacts. Not all materials of interest were accessible in the collections and in those cases it is noted where only published information was available. A short field visit was conducted among the formerly excavated sites in Banaskantha, Mehsana and Surendranagar districts to gain a better perception on the modern landscape.

While writing this dissertation, it became evident that additional information regarding the diagnostic wares associated with the fourth through second millennia BC sites in Gujarat was needed to enhance information on the various types. A second research period was conducted from October – December 2009 specifically to study ceramics, again at the Department of Archaeology and Ancient History at the Maharaja Sayajirao University of Baroda. Coincidentally, Loteshwar was being re-excavated at the time and a short visit was arranged to view stratigraphy. This result of this supplemental research period was the development of concrete distinctions between Anarta Wares, Early Harappan wares and Pre-Prabhas pottery in terms of shapes and fabrics⁴. A database was produced in which three aspects of ceramics were analyzed: fabric, shape and surface treatment. Fabric was recorded with the following information: paste texture, grit size, percentage of inclusions, porosity and interior core colors. Vessel shape was primarily determined through rimsherds, which were measured to estimate the diameter of the complete vessel and to distinguish different shapes based upon thicknesses and angles. Finally, surface texture, slip or wash colors and painted motifs were recorded. Of these three aspects of surface treatment, texture (such as corrugation or incision) is most useful for determining type⁵.

⁴ This technical study lies outside the main narrative of this work. It is better to present it as a separate project.

⁵ Color is the least useful metric due to both variability in firing environments and the wide spectrum in which color is expressed.

CHAPTER THREE: GEOGRAPHY AND ECOLOGY OF GUJARAT

The state of Gujarat encompasses nearly 200,000 km², a territory that ranges from the Aravalli piedmont to the coast of the Arabian Sea (Gujarat Vishvakosh Trust 2007:6). A review of the physical geography and climate across regions helps provide a clear context for discussions of past human ecologies. Primary focus is on North Gujarat, with particular attention paid to relict sand dunes and why these dunes have been consistently occupied by people since the Mesolithic period ¹⁶ (Allchin et al. 1978:249, 257, 326). Relationships between soil, climate and topography result in a region where mobility is the best adaptive strategy.

Historical Geology

During the Lower Cretaceous period, Gujarat was completely covered by the Deccan Trap lava flow. At the end of this period, it was covered by the sea and thus bears nummulitic marine deposits (*GSG* 1989:36). The majority of landforms (such as the Rann of Kutch) were created in the post-Tertiary period during the uplift of the Himalayas. In 1819, a large earthquake created the Allah Bund fault, and the region remains tectonically active today (as evidenced by the massive 2001 Bhuj earthquake).

There are a number of economically important mineral deposits in this state, particularly agate, which was an important commodity during the Bronze Age. Randall

¹⁶ This period has been dated to as early as approximately 30,000 BP at Fa Hien, Sri Lanka (Kennedy and Deraniyagala 1989) but the Mesolithic phase in Gujarat has been estimated to date to between 10,000 and 6,000 BP based on undated microlithic sites. More on this topic is presented in Chapter Four.

Law's study (2008:458, 462) demonstrates the importance of the Mardak Bet and Khandek deposits in Kutch as major sources of agate for Mature Harappan sites in the Indus Valley and Gujarat. In addition, kaolinite is found in large deposits along the Sabarmati River in the Sabarkantha district. Smaller deposits of kaolinite are found in the districts of Mehsana, Junagadh and Kutch. Base metals (lead, zinc and copper) are found mainly at Ambaji. Ochre deposits (yellow and red) are found in rock beds and laterite layers in the Jamnagar district, particularly in the Morbi and Wakaner talukas. White quartz is present in large veins, chiefly in the plains (north and south). Steatite is found chiefly in the Sabarkantha district.

Soils

The most agriculturally productive areas are characterized by "black cotton soil," a montmorillonite clay that retains moisture very well and supports industrial farming. It is weathered from the basalt of the Deccan Trap. This soil is found in the South Gujarat plain and Saurashtra. In contrast, the *Goradu* soil of North Gujarat and Kutch has a high content of sand and gravel, as it is primarily created from alluvium washed from the Aravallis (Dikshit 1970:46; Possehl 1980:24). Seasonal flooding (particularly through the Great Rann), poor drainage (due to the relatively flat topography) and an arid climate (resulting in mineral salt precipitation) create highly saline but still fertile soils.

Precipitation

Aside from numerous wells tapping groundwater, the most important water source in this state comes from the summer monsoon (June–August) that washes down from the higher elevations (such as the Aravalli, Girnar and Dharwar ranges) and creates annual rivers and watering holes. The majority of rivers in Gujarat result from this drainage process (see Figure 3.1). Only a few (the Sabarmati, Mahi, Narmada and Tapi) are perennial rivers that do not depend on the monsoon for replenishment (though their discharges increase significantly during the summer; see Allchin et al. 1978:14).

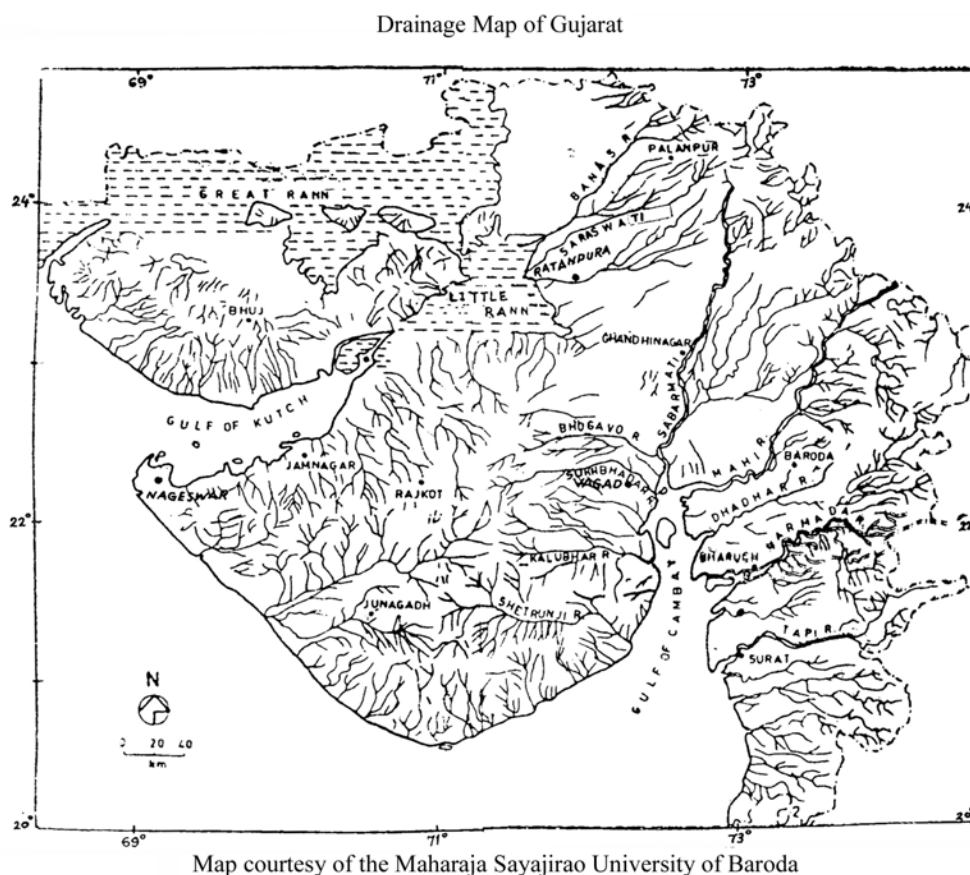
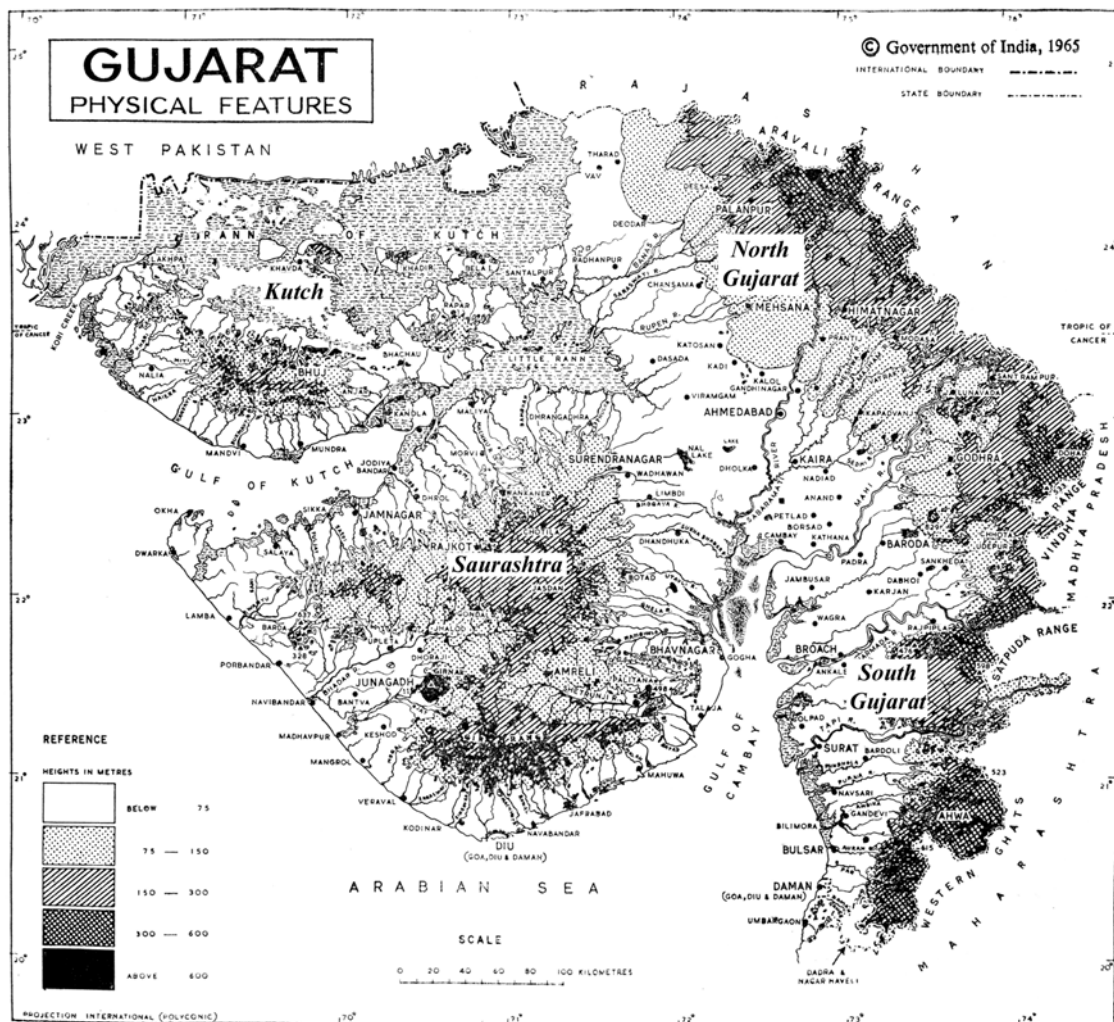


Figure 3.1 Drainage Map of Gujarat

Annual precipitation varies considerably across the state. The southern coastal regions experience up to 2000 mm of rain per year while the semiarid areas receive only 300–400 mm per year (Dikshit 1970:28). It is worth noting that the southeastern part of the state experiences the most rainfall, not just because of its proximity to the ocean, but also because of its location on the windward side of the Dharwars. Rainfall peaks in July during the summer monsoon season and is virtually nonexistent during the dry winter months.

The Regions of Gujarat (See Figure 3.2)

The state of Gujarat is generally subdivided into four distinct geographic units: 1) Kutch and associated coastal lowlands, 2) Saurashtra, 3) The Gujarat plain south of the Mahi River, and 4) The Gujarat plain northwest of the Mahi River. Supriya Varma (1991) includes two more subregions: the Nal depression, a channel that connects the Rann with the Gulf of Khambhat during the monsoon season, and the saline wetland of the Bhal district along the west coast of the Gulf of Khambhat.



Reprinted from Dikshit 1970

Figure 3.2 Regions of Gujarat

Delineating boundaries

The boundaries that divide these regions are based principally on water features and topography. Saurashtra is the most clearly defined region, as it is a peninsula separated from the rest of Gujarat on the east by the Gulf of Khambhat and the Sabarmati River and on the north by Kutch. Kutch is defined as a distinct region based on the segregation of the Kutch plateau and associated islands (Khadir and Bela) from other landforms by the Great and Little Ranns. The northern and southern plains of Gujarat are well segregated from the Deccan Plateau to the east by two primary ranges: the southern spurs of the Aravallis and the Dharwars (Dikshit 1970:6). The Gujarat plain is sometimes referred to as “mainland” Gujarat and is split into two subregions by differences in precipitation and soil. South Gujarat has more rainfall and is composed of black cotton soil (Possehl 1980:29). South Gujarat is further distinguished from the north by its large rivers carrying water and silt from the Aravallis and Deccan Plateau. North Gujarat is more arid and contains sandy alluvium. Finally, each of these regions has its own distinct drainage networks that do not articulate with those of other regions (Dikshit 1970:23).

Saurashtra

Saurashtra was formed from a lava sheet at the same time as the Deccan Traps (Dikshit 1970:17). Drainage in this region follows a radial pattern as the maximum elevation here is 1117 m at Gorakhnath Peak in the north-central Girnar Range (Gujarat Vishvakosh Trust 2007:20). The flora here is generally of the sort found in other semiarid regions (such as the *Acacia-Capparis* Series), but there are large forests toward the southern coast, the best known being the Gir National Forest (Possehl 1980:32).

Kutch

Kutch is the most physically distinct region of Gujarat, as the landmass is virtually an island. The west coast faces the Arabian Sea; the southern and northern coasts are ringed by the Great Rann, a 7000 km² salt waste that is flooded annually during the summer monsoon (Dikshit 1970:15). Research on the development of this feature suggests that Kutch was at one point an island and that the Great Rann gradually filled in with alluvial silt, thus creating the terrestrial expanse seen today (Allchin et al. 1978:7). The presence of ancient oyster beds, swash marks and fossil beaches higher than 8 m above the present surface indicate that the Great Rann was a permanent shallow bay until relatively recently, and that its current dry state was caused by changing fluvial processes and tectonic shifts (Roy and Merh 1977:199). Some scholars (Rao 1973; Gupta and Pandya 1980) believe that Kutch was an island during the Mesolithic to Early Historic periods, though Joshi (1977) contends that the Rann was dry enough to cross on foot throughout occupational periods. A current project on the geological history of the Little Rann may demonstrate that this feature held water 2-5m deep between 4000 BC – 0 AD and began to dry out at the beginning of the first millennium AD (Rajaguru and Deo 2010:3).

South Gujarat

The Mahi, Narmada and Tapi rivers are all major drainages originating in central India, and most of the alluvium from these rivers is deposited within the South Gujarat plain. High precipitation, large perennial rivers and rich soils make this a very agriculturally productive region and the only one that can support extensive rice farming.

North Gujarat

North Gujarat, a region known as “Anarta” (Majumdar 1960; Sankalia 1941:4) is a semiarid plain. The northeastern boundaries are formed by the Satpura granite hills and the schist, quartzite and granite deposits of the Aravalli foothills (Bhan 1994:73; Dikshit 1970:21). The visible southern boundary separating it from South Gujarat is the Mahi River, but distinction between the two regions is mainly determined by differences in soil composition and precipitation. It is drained by the Banas, Rupen and Saraswati Rivers into the Little Rann of Kutch.

North Gujarat

The distinctive ecology of North Gujarat provides a hospitable environment for pastoralism. And, as will be shown, such has been the case for a long time. There are three aspects of the landscape that create such an environment: drainage patterns, relict sand dunes and wild flora. The climatic shifts that occurred here during the Late Holocene have had an impact on subsistence strategies, particularly increased reliance on mobile pastoralism during the fourth millennium BC.

Drainage (See Figure 3.3)

The primary drainage in this region is the Banas River, followed by the smaller Rupen and Saraswati Rivers. These three rivers drain west into the Little Rann of Kutch. The Banas River originates near Sirohi in Rajasthan and flows westward into the Rann of Kutch in the Santalpur and Radhanpur talukas (GSG 1989:28). The Sabarmati drains south into the Gulf of Khambhat. The soil is sandy, saline and generally covered with

thorny scrub and grasses (which sprout immediately after the monsoon), making it an excellent grazing region (Sonawane 2005:208). Drainage patterns significantly affect soil quality and the availability of water (Dikshit 1970:24). The rivers and streams issuing from the Aravalli foothills do not have high enough gradients to cut deep channels and tend to move laterally. This results in a landscape with unpredictable sources of water. Thus a permanent settlement that depends entirely on monsoon drainage for its water has a serious disadvantage in the region near the Little Rann of Kutch. Well-digging techniques were certainly used at Mature Harappan urban centers, but contemporary populations in North Gujarat relied on shallow ponds, which offered only a transient water supply coincident with the summer monsoon (five to six months). The sites of Moti Pipli, Nagwada and Kanewal were located near larger lakes that would have retained water for nearly a year, as long as they were filled by a substantial monsoon (Bhan 1994:83).

The soil of western North Gujarat is conducive to pastoralism in a way that the wetter eastern soil is not. The soil of western North Gujarat is poorly drained, resulting in higher salinity; the eastern area (with a higher gradient) has better drainage and also receives more rain. Assuming this pattern held 5000 years ago, the eastern region would have been much more suitable for supporting larger, sedentary populations like those emerging in other areas of Gujarat like Saurashtra. Connecting climate with livelihood, Bhan (1994:84) posits that the western portion was preferred by pastoralists specifically because its soils support extremely productive grasslands. These grasslands would have been crucial to the development and sustainability of a pastoral economy (Bhan 1994:84).



Figure 3.3 Drainage Map of North Gujarat

Dunes of North Gujarat

Foote (1898), Sankalia (1943), Zeuner (1950) and Subbarao (1952) have all commented on the “loessic mounds and loam hills” of Gujarat and the microliths inevitably associated with them (Allchin and Goudie 1971:248; Allchin et al. 1978:82). From the very beginning of archaeological study in Gujarat, these landforms have been recognized as being particularly attractive for human habitation. These “loessic mounds” are more properly termed relict sand dunes (also called *ergs*). This term describes a dune that was formed by shifting sand but is now anchored by vegetation. All the archaeological sites considered here are located on these dunes, so a closer examination of their qualities is necessary to understand why they would have been regularly occupied, particularly by mobile groups.

Relict sand dunes are located in the estuaries feeding the Little Rann of Kutch. These dunes first formed during an arid period of the Late Quaternary period, then stabilized during a later moister period. Sand dunes are formed in deserts and along shores. They are constantly shifting masses subject to both deposition and erosion. The way that sand dunes shift has a direct effect on the stratification of archaeological deposits (Schiffer 1987:241, Reineck and Singh 1980:223). Due to various factors –dune movement, deflation and aeolian deposits – materials can either be exposed or completely buried, depending on which side of the dune they are located (Schiffer 1987:242; Wandsnider 1985). Goldberg and MacPhail (2006:77) note that modern slopes are of recent formation and thus distort interpretations of surface clustering patterns. Bare slope faces are particularly vulnerable to erosion, especially from heavy rainfall. Though the

North Gujarat dunes have been stable for some time, deposition and deflation still occur from wind and water action.

These dunes can help determine the extent of aridity during the period of their formation because they only stabilize when there is vegetation, contributing to the soil formation process. One method used to reconstruct climate fluctuations is to study strata with kankar (CaCO_3), as it can only precipitate when rainfall exceeds 250 mm per year, a limit confirmed by studies in Australia, Ethiopia and the southwestern United States (Hegde 1977:177). Another method is to examine aeolian deposits lying atop archaeological materials. Aridity contributes to wider dispersion of wind-borne sediments; without moisture to bind soils, they more easily erode. Bridget Allchin and Andrew Goudie have determined that there was no definite aeolian deposition on top of microliths found at the surfaces of Langhnaj and Mitli; therefore the modern climate is not much more arid than the period when the microliths were produced at the sites (1971:253).

The morphology of sand dunes can determine the kinds of local ecologies that form and thus affect the resources available for human exploitation. Clusters of sand dunes are associated with shallow ponds that collect water during the monsoon. Interdunal depressions are either caused by erosion or aeolian blowouts that prevent sedimentation (Boggs 2001:290). The sediments and shells found in these depressions can help reconstruct climate (Goldberg and MacPhail 2006:137; Boggs 2001:290). When the moisture in these depressions evaporates, carbonate or gypsum forms as a precipitate. Soil lenses containing these sediments and mollusks attest to wetter conditions in the past. Depressions also provide seasonally available watering holes that attract wildlife

and mobile human groups (Saxton and Sedwick 1918; Whyte 1964:120). One significant advantage that relict dunes have for pastoralists is their relatively good drainage (as they are composed of marginally elevated sandy soils), especially during rainy seasons. Dry, well-drained soil is crucial for preventing hoof disease among herds (Panda 2002:184, Spooner 1975).

Flora

North Gujarat is fertile enough to grow crops. The most common modern agricultural products are sorghum (grown mostly as a summer, or *kharif*, crop but also grown in the winter). The major winter, or *rabi*, crop is wheat. Wheat production relies on a constant water supply, which in North Gujarat is available only through irrigation, interdunal depressions and the saline lowlands that border the Gulf of Khambhat (known locally as *bhalbaru*) (Bhan 1994:73). However, wild flora are of more interest here as they have greater bearing on the development and sustainability of nomadic pastoralism.

The forest cover in North Gujarat is composed of thorns. The primary species represented are *Acacia arabica*, *Acacia leucophloea*, *Capparis ophylla* and *Zizyphus mauratiana* (Dikshit 1970:41). Modern forests are sparse but used heavily for grazing. The westernmost region bordering the Ranns has a different ecology. This region, consisting mostly of dry riverbeds and alkaline wasteland, is known as *pathdar*, which is composed of the previously described *Goradu* soil (Bhan 1994:83). Pathdar contains many grasses including bokhna (*Cressa cretica*), kharidhar (*Aeluropus flariddum*), lapdi (*Aristida redaets*), soma (*Enimochloe colonum*), jinko soma (*Panicum flaridum*), mancho

(*Dhetyloclerium egyptium*), mano (*Chlaris montani*), dhaman (*Cenchrus ciliaris*) and zinzvo (*Adropogan pumlis*) (Bhan 1994:73).

Good grasses are crucial resources for pastoralists. Within the Rann these grasses grow in “flat sandy expanses known as ‘bets,’ which are islands on which coarse grasses spring up vigorously in the monsoon” (GSG 1989:55). They also attract wildlife, particularly herds of wild ass. Bets are also found at the mouths of the four major rivers and in the Gulf of Khambhat as well (Dikshit 1970:14). Bets are thus a type of oasis exploited by modern pastoralists and they figure heavily into any discussion of human ecology in this region. The grasses sprout after the summer monsoon arrives and are primarily used by modern pastoralists for grazing livestock. They enhance milk production in cattle due to their high protein content (Whyte 1964:122). This supports a large population of *kankrej* cattle and *bregar* (wild half-ass) (Bhan 1994:73). Animal grazing induces the growth of thorny plants and the prolific number of thorny species found here (such as *Carissa spinarum*, *Zizyphus jujube* and *Zizyphus oenoplia*) indicates a long history of this activity (Whyte 1964:109).

Paleoclimate and subsistence change in North Gujarat

Information about the paleoclimate of North Gujarat comes from the palynology of Rajasthan lake sediments (Enzel et al. 1999), and geochemical research at Nal Sarovar Lake (Prasad et al. 1997) and the Mahi River (Prasad et al. 2007). These studies show that the early Holocene (10,000 BP) was relatively moist but punctuated with arid intervals. The presence of fish otoliths in the lowest layers at Loteshwar, Santhli, Datrana and Moti Pipli indicate a greater presence of freshwater during those occupations

(Ajithprasad 2004:130). Precipitation in the Thar Desert markedly increased around 5860 BC, primarily from a strong summer monsoon (Madella and Fuller 2006: 1291). This time period is coincident with the Neolithic Period as expressed in Pakistan. Marco Madella and Dorian Fuller propose this wet phase created large grazing areas that facilitated the development of pastoralism (Madella and Fuller 2006:1297). However, at approximately 4000 BC, a global climate shift occurred (Wanner et al. 2008:1792). The effect of this change on South Asia was a weakening of the summer monsoon, creating a drier climate. By 2400 BC, a strong arid phase was established in Rajasthan (Madella and Fuller 2006:1289, 1295). Within the same time period, major socio-economic changes occurred at occupations in the Indus Valley and Gujarat. These changes include the wider spread of pastoralist camp sites dating to Early Harappan phases, the proliferation of food-producing communities in Gujarat and the advent of urbanization¹⁷.

In 2200 BC, discharge from the Indus River reduced significantly, implying an abrupt shift to even drier conditions (Staubwasser 2003). Tectonic shifts altered water courses at this time, most dramatically the Ghaggar-Hakra system, leading to the abandonment of this densely populated region. These shifts also affected drainage patterns around Kutch (Madella and Fuller 2006). Within Gujarat, the two most important changes associated with this time period are the increased exploitation of millets and proliferation of small settlements. Millets are low-maintenance, drought-tolerant crops and their increasing prevalence at later periods at sites like Rojdi (Weber 1991) demonstrates how people changed subsistence practices to adapt to increasing aridity.

¹⁷ These changes are explained in greater detail in Chapter Four of this work.

The overall settlement pattern in Gujarat changed as well; urban centers were abandoned while small temporary camps became more common. As has been shown in this chapter, aridity creates favorable conditions for nomadic pastoralism and its increasing popularity during later Harappan and post-Urban phases is explained by the paleoclimatic data.

Summary

As discussed, the shallowness of drainage channels and reliance on monsoon rainfall results in a degree of unpredictability among locations and sizes of water sources. In the absence of wells or large bodies of water, sedentism is a liability. This, combined with the rich grasses that thrive in the friable, saline soil, creates an ideal environment for ungulates, including domesticated goats and cattle. Mobile pastoralism is the most efficient method of using this landscape.

In conclusion, North Gujarat contains a unique environment that over time people have found well suited to this subsistence practice. In this sense, the physical geography and its environmental consequences create a human ecology wherein mobility is the most effective economic strategy. This in turn necessitates widespread forms of social interaction, which in archaeology are generally expressed through material culture. In the next chapter, a review of the cultural geography in South Asia during the third and fourth millennia BC, will present distributions and changes in material culture. These patterns in material culture help to demonstrate how dynamic the populations in North Gujarat were during the fourth through second millennia BC.

CHAPTER FOUR: A CULTURAL HISTORY OF NORTH GUJARAT

This chapter reviews the chronology and culture history of northwestern South Asia in order to place the sites of North Gujarat within their greater historical contexts. It is organized according to archaeological phases dating to between 7000 and 1800 BC in eastern Pakistan and western India. Table 4.1 provides a list of radiocarbon dates relevant to this study. Diagnostic fossil types are particularly important for reconstructing relative chronology and determining socio-economic relationships. For example, Table 4.2 shows relative chronology based upon ceramic distribution. Issues regarding ambiguities over the classification of objects and their assignment to specific places and times are noted.

The first period reviewed is the Mesolithic and the problematic use of microliths as diagnostic of this time period rather than merely representative of a technology. The next is the Neolithic period and why this term is generally avoided by archaeologists who work in Gujarat. The Early Harappan phases in Pakistan are discussed at greater length, as many of the materials found at North Gujarat sites are related to those manufactured during this formative period. The regional manifestations of the Indus Civilization in Gujarat are also addressed. Finally, consideration is given to the “Late Harappan” period and the ambiguity inherent in this term.

**Table 4.1 Radiocarbon Dates of Sites Mentioned in Text
(C^{14} Samples Calibrated with OxCal 4.1)**

<u>Period</u>	<u>Sample Number</u>	<u>5568 Date (BP)</u>	<u>1 SD (68%)</u>	<u>2 SD (95%)</u>	<u>Median</u>	<u>Reference</u>
Loteshwar						
<u>Period I</u>	CAMS-55902				7100	Meadow and Patel 2003
	CAMS-55898				6050	Meadow and Patel 2003
	CAMS-35362				5600	Meadow and Patel 2003
<u>Period II</u>	PRL 1565	4903 ± 110	3907-3533	3957-3381	3703	IAR 1993–94
	CAMS-55903				3657	Meadow and Patel 2003
	CAMS-55904				3644	Meadow and Patel 2003
	PRL 1564	4330 ± 110	3316-2764	3348-2640	2990	IAR 1993–94
	CAMS-55905				2243	Patel 2009
Padri						
<u>PDR I / Padri</u>	PRL 1787	4820 ± 100	3706-3384	3894-3366	3591	Sonawane and Ajithprasad 1994: 133
	PRL 1785	4390 ± 90	3312-2904	3346-2888	3062	Sonawane and Ajithprasad 1994: 133
	PRL 1784	3660 ± 100	2197-1905	2340-1751	2047	Possehl 1992
Amri						
<u>Amri IB</u>	TF-864	4709 ± 108	3633-3371	3706-3105	3484	Shaffer 1992
<u>Amri IC</u>	TF-863	4585 ± 108	3510-3103	3635-3012	3309	Shaffer 1992
Kot Diji						
<u>Period I / Kot Diji</u>	P-196	4412 ± 141	3332-2910	3516-2676	3102	Shaffer 1992
	P-179	4161 ± 151	2908-2496	3320-2293	2734	Shaffer 1992
	P-180	4083 ± 137	2871-2485	3009-2207	2646	Shaffer 1992
	P-195	3925 ± 134	2617-2201	2867-2038	2415	Shaffer 1992

Prabhas Patan						
<u>Period II / Prabhas</u>	TF 1287	4280 ± 105	3086-2679	3328-2579	2903	Possehl 1992
<u>PRB I / Pre-Prabhas</u>	PRL 90	4240 ± 110	3010-2631	3314-2491	2819	Possehl 1992
<u>Period II / Prabhas</u>	PRL 91	3860 ± 165	2569-2045	2866-1897	2329	Agrawal et al. 1976
	PRL 92	3830 ± 95	2458-2148	2567-2025	2286	Possehl 1992
	TF 1284	3465 ± 95	1909-1667	2026-1531	1789	Possehl 1992
<u>Period III (LRW)</u>	PRL 20	3340 ± 105	1746-1501	1891-1417	1637	Possehl 1992
Lothal						
<u>Lothal A</u>	TF 136	4032 ± 130	2865-2352	2896-2206	2579	Possehl and Herman 1990
	TF 22	3960 ± 110	2623-2287	2866-2144	2469	Possehl and Herman 1990
	TF 27	3955 ± 110	2620-2244	2866-2141	2460	Possehl and Herman 1990
	TF 26	3945 ± 120	2619-2210	2872-2135	2444	Possehl and Herman 1990
	TF 29	3850 ± 110	2469-2146	2620-1977	2312	Possehl and Herman 1990
	TF 133	3850 ± 110	2469-2146	2620-1977	2312	Possehl and Herman 1990
<u>Lothal B</u>	TF 23	3816 ± 105	2457-2140	2567-1965	2267	Possehl and Herman 1990
	TF 19	3759 ± 135	2432-1980	2571-1777	2189	Possehl and Herman 1990
Rojdi						
<u>Rojdi A</u>	PRL 1085	4020 ± 105	2857-2354	2880-2244	2564	Possehl and Herman 1990
	PRL 1087	4010 ± 105	2849-2348	2877-2234	2549	Possehl and Herman 1990
	PRL 1283	3980 ± 100	2829-2301	2866-2204	2501	Possehl and Herman 1990
	PRL 1093	3920 ± 105	2569-2211	2854-2053	2403	Possehl and Herman 1990
<u>Rojdi B?</u>	PRL 1083	3875 ± 125	2560-2144	2849-1977	2345	Possehl and Herman 1990
<u>Rojdi A</u>	PRL 1089	3865 ± 115	2476-2144	2834-1977	2332	Possehl and Herman 1990
	PRL 1284	3810 ± 100	2457-2138	2563-1973	2259	Possehl and Herman 1990
<u>Rojdi B</u>	TF 200	3810 ± 100	2459-2136	2567-1951	2258	Sonawane and Ajithprasad 1994: 131
<u>Rojdi B?</u>	PRL 1088	3770 ± 125	2436-2027	2570-1881	2204	Possehl and Herman 1990

<u>Rojdi A</u>	PRL 1285	3740 ± 140	2394- 1951	2566- 1770	2164	Possehl and Herman 1990
<u>Rojdi C?</u>	PRL 1084	3700 ± 145	2297- 1891	2546- 1695	2109	Possehl and Herman 1990
<u>Rojdi B</u>	PRL 1281	3520 ± 110	2016- 1693	2193- 1537	1856	Possehl and Herman 1990
	PRL 1282	3470 ± 140	1973- 1616	2194- 1455	1802	Possehl and Herman 1990
Surkotada						
<u>Surkotada IA</u>	TF 1305	3890 ± 95	2477- 2206	2623- 2042	2363	Possehl and Herman 1990
	TF 1310	3810 ± 95	2457- 2138	2561- 1977	2259	Possehl and Herman 1990
	TF 1295	3780 ± 95	2396- 2039	2471- 1954	2217	Possehl and Herman 1990
<u>Surkotada IB</u>	TF 1304	3645 ± 90	2140- 1896	2286- 1760	2024	Possehl and Herman 1990
<u>Surkotada IC</u>	TF 1297	3635 ± 95	2141- 1885	2287- 1747	2011	Possehl and Herman 1990
	TF 1311	3625 ± 90	2135- 1886	2278- 1745	1997	Possehl and Herman 1990
	TF 1294	3620 ± 95	2138- 1881	2281- 1740	1991	Possehl and Herman 1990
	TF 1307	3510 ± 105	1973- 1692	2138 - 1538	1842	Possehl and Herman 1990
Langhnaj						
<u>Microlithic</u>	TF 744	3875 ± 105	2479- 2153	2831- 2028	2344	Possehl and Rissman 1992
Ahar						
<u>Period IA, bottom</u>	V 55	3825 ± 120	2467- 2136	2617- 1931	2278	Possehl 1992
<u>Period IA, middle</u>	V 56	3715 ± 95	2279- 1973	2457- 1887	2121	Possehl 1992
<u>Period IB</u>	TF 34	3570 ± 135	2132- 1743	2296- 1536	1929	Possehl 1992
<u>Period IC</u>	TF 32	3400 ± 105	1877- 1537	1956- 1452	1708	Possehl 1992
Kuntasi						
<u>Sorath Harappan</u>	PRL 1370	3710 ± 160	2342- 1893	2570- 1691	2125	Possehl 1992
	PRL 1371	3650 ± 140	2274- 1781	2461- 1691	2040	Possehl 1992
Nagwada						
<u>Period IB</u>	A 4555	3700 ± 80	2202- 1974	2389- 1883	2096	Sonawane and Ajithprasad 1994:136

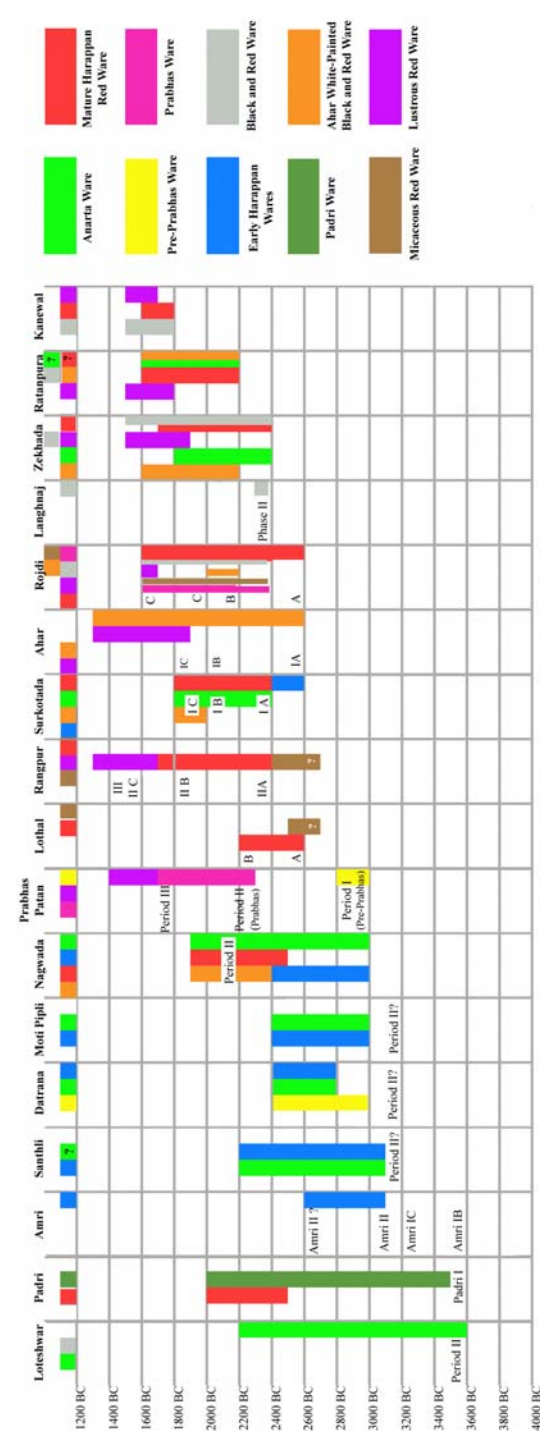


Table 4.2. Relative Chronology of Sites Mentioned in Text
 (note: some sites have confirmed radiocarbon dates; periods of occupation for undated sites are estimated by correlating ceramics)

Table 4.2 Relative Chronology of Sites Mentioned in Text

Mesolithic Phases (ca. 28,000 BC in Sri Lanka, ca. 6000 BC in Central and Western India, undated elsewhere)

Humanity has a very long history on the Indian subcontinent as indicated by Lower Paleolithic tool industries. The earliest stone tools, found in the Siwaliks of Punjab, date to 2 mya (Rendell et al. 1989; Chakrabarti 1999:53) and Acheulian tools from Attirampakkam, Tamil Nadu date to 1.6 mya (Pappu et al. 2011). Currently, the earliest site known in Gujarat is Adi Chadi Wao (ca. 69,000 BP), dated to the Lower Paleolithic period (Chauhan 2009:63) and a current project (Costa et al. 2011) has been formed to investigate the presence of Lower and Middle Paleolithic industries in Gujarat. However, the occupations studied in this dissertation are no older than approximately 7000 BC and so the earliest period to be discussed is the Mesolithic.

The term “Mesolithic” was first coined by J. A. Brown in 1892 (Kennedy 2000:25). It was proposed as a descriptive label for the period of transition between Paleolithic foraging and Neolithic food production, as seen in the archaeology of Europe and the Near East. In these regions the Mesolithic period can be placed at the beginning of the Holocene (ca 10,000 BP) and changes in subsistence practices may be related to climactic shifts at the close of the Pleistocene. Representational art provides evidence that the Mesolithic was a period of technological advances and increasing efficiency in the exploitation of natural resources. Such changes included a greater capacity for food preservation and storage, more sophisticated forms of transport (small watercraft) and the manipulation of fibers (basketry and textiles). Interest in this period in South Asia originally developed from the work of Robert Bruce Foote (1898), who surveyed broad

expanses of the subcontinent in order to study human antiquity in India. The densest clustering of Mesolithic sites occurs in Central India, which Bridget Allchin, Andrew Goudie and K. T. M. Hegde (1978:327) suggest was a result of higher rainfall. Mesolithic occupations in Gujarat have been found at many sites including Akhaj, Dhansura, Hirpura, Kanewal, Loteshwar, Mahakaleshwar, Pavi Jetpur (rock shelter), Pithad, Rangpur, ,Santhli, Tarsang and Valasana (Misra 2002:113; Sonawane 2002). However, as will be shown, this designation is often problematic.

The quintessential diagnostic artifact for this period is the microlith, a miniature blade (approximately 1–2 cm long) or cutting edge designed to be hafted into a composite tool with a wood or bone base (Allchin 1966:6). The technological sophistication needed to produce microliths required the invention of new tools (the punch) and techniques (indirect pressure). There has been some attempt to define an evolutionary sequence of microlithic production techniques in South Asia (see reports from Morhana Pahar), which has four phases: 1) non-geometric microliths; 2) geometric microliths; 3) geometric microliths with pottery; and 4) miniaturized microliths found with pottery (Misra 2002:29, 121).

A minor but possibly significant aspect of microlith production techniques is the use of crested guiding ridges in the creation of blades. This technique is used to prepare a blade core for the removal of flakes (Raczek 2007:154) and is common at sites in the Indus Valley and in the Deccan Plateau (Raczek 2007:157). At most of the sites reviewed in this work it was the prevalent production method. The single exception is Loteshwar, where there is currently no evidence for its use during either period

(Ajithprasad 2004:126). No crested ridge blades have been recovered in the Orsang Valley either (Ajithprasad 2002:169).

The total time period in which microliths are found in South Asia spans the last 35,000 years (Petraglia et al. 2009). Some modern forager groups still create microliths out of glass and ceramics (Briz et al. 2005:3). This provides strong evidence against the use of microliths as a diagnostic fossil for a particular time period and that the term “Mesolithic” as applied to South Asia is often misleading. Clearly, there is a tremendous difference between a site occupied during the early Holocene by foragers and one where microliths compose part of the material culture along with mobile phones. H. D. Sankalia (1962:126) suggests microliths in South Asia should not be considered diagnostic Mesolithic tools due to their prolonged use across historic periods and their wide distribution (Meadow and Patel 2003). This particularly holds true when discussing sites such as Ratanpura and Kanewal, where Post-Urban materials lie between strata where only microliths have been found (Bhan 1994:74). Possehl and Rissman (1992:469) present a clear discussion of the issues related to the application of microliths to relative chronology. Given the long-standing presence of microliths (including present-day production), they propose that sites bearing microliths belong to three temporal contexts: 1) Mesolithic (occupations of Holocene non-food producers), 2) food producing (occupations where microliths were part of a greater inventory), or 3) “Interactive Trade and Barter” (occupations where the people only used lithic technology but were clearly contemporary with peoples who produced food and used pottery and metal). This three-part classification is very useful for North Gujarat sites, as Loteshwar, Santhli, Datrana,

Moti Pipli and Langhnaj have lower occupation layers that only contain microliths and upper layers with greater ranges of materials (including pottery). There are no discernible stratigraphic breaks between the layers at these sites¹⁸. A Thus the term “Microlithic” is employed in this work to refer to these lower strata to avoid unwanted implications about the length of time between the two phases¹⁹.

Neolithic Period (ca. 7000 BC at Mehrgarh, ca. 6000 BC at Adamgarh Cave)

Though “Mesolithic” can be ambiguous, it remains a useful term for identifying the transition from mobile foraging to sedentary cultivation. The “Neolithic” period refers to an era when people began to grow food and tend animals in an effort to control the availability of organic resources. It also implies changes in social complexity and technology. Multiple sites in regions of Pakistan and Afghanistan (Dupree 1972; Possehl 1999) demonstrate greater reliance on agriculture, increasingly sedentary lifestyles and new technological forms. The appearance of artifacts and structures used for food storage is a landmark of these changes. Much research has been conducted on this seminal period (see Meadow 1996 and Fuller 2002 for succinct reviews). The site that best exemplifies the origins of agriculture and increasing settlement size in South Asia is Mehrgarh, which has been extensively studied (Jarrige et al. 1995).

¹⁸ A study of fluorine and phosphate deposits on bones from Loteshwar, Moti Pipli and Datrana indicates there was a significant gap between the two occupational layers at Moti Pipli and Datrana but not at Loteshwar (Ajithprasad 2004:126).

¹⁹ Ajita Patel (2009:176) prefers the term “Aceramic Microlithic,” which is more descriptive, but in this work the term “Microlithic” is used to maintain consistency with most other literature on North Gujarat.

In contrast to other regions, the term “Neolithic” is almost never applied to archaeological sites in Gujarat. The term is problematic because some sites (such as Rangpur and Langhnaj) have Microlithic and Chalcolithic occupations but no transitional phases demonstrating the advent of food production. If one adheres to the convention that “Chalcolithic” should only refer to sites where early metallurgy is present, it becomes confusing to call sites that have microliths and pottery (but not copper) “Neolithic,” especially if they are demonstrably contemporary with metal-producing communities. For example, this scheme was employed by Swayam (2006:113) to describe Langhnaj and Hirpura, microlithic sites that contain pottery and, in the case of Langhnaj, a copper knife. But neither site yields evidence of local food production. The term “Neolithic” should instead denote the advent of food production through domestication and new technologies, and is more appropriately applied to the earliest levels of Prabhas Patan, Padri and possibly Santhli and Loteshwar. Due to these quandaries, “Neolithic” is generally avoided, and the terms “Early Chalcolithic” or “Early Food Producing” are usually preferred. This matter is explored more fully in the section “Early Chalcolithic Populations in Gujarat” later in this chapter.

Early Harappan and Transitional Phases in Pakistan and India

Antecedents of the Indus Civilization are identified in terms of architectural and stylistic similarities to Mature Harappan sites and materials. Settlements with long occupation histories prior to the Mature Harappan phase include Harappa, Kot Diji,

Mehrgarh and Nausharo. The term “Early Harappan” is thus used to describe phases that immediately precede Mature Harappan occupations and is dated to between 3200–2600 BC. The manner in which this era is defined differs among scholars, as multiple material culture traditions (each of which also manifests in Mature Harappan occupations) appear to be contemporary but are distributed across different geographic regions. Associated with this period are emergent technological and social processes that underly later urbanization.

The areas in which these processes are most visible are in the Indus Valley (Harappa and Kot Diji) and the Ghaggar-Hakra system (Kalibangan and Banawali). As discussed later in this chapter, economic and technological developments in this phase have direct bearing on reconstructions of past populations in North Gujarat; thus the Early Harappan period requires considerable attention, including descriptions of diagnostic fossil types. This section is divided into three subsections: the first discusses the definition of the Early Harappan phase; the second presents diagnostic forms of material culture and the third reviews evidence for this period in Gujarat.

Defining the Early Harappan Phase

A Note about the term “Early Harappan”

The span of time between early farming villages and the rise of cities in the Indus Valley was called the “pre-Harappan phase” by archaeologists until Mughal (1970:5) – using Kot Dijian materials found below Mature Harappan strata at Kot Diji, Amri,

Kalibangan and Harappa – coined the term “Early Harappan Period” (Possehl 1999:20, 569). At approximately the same time as Mughal published his dissertation, Walter Fairservis (1971:221) also advocated the use of this phrase to describe regionally distinct strata immediately prior to the foundation of cities. Gregory L. Possehl provides a concise explanation for the difference between “pre-Harappan” and “Early Harappan” and why he prefers the latter:

The basis for this debate has a lot to do with the culture historical models that are used to grapple with the transition to urbanization. The Mughal position is anthropological and stresses continuity and internal processes of cultural change. The opposing model, or models, are more historical in nature and rely on external factors of change (diffusion, migration, even invasion) and a sense of discontinuity in the process of change. (1999:569)

He carefully notes that the term “Early Harappan” implies a degree of unilineal evolution between Early and Mature Harappan stages, which can lead to misunderstandings about how these two periods articulate at different locales (Possehl 1999:571). It is with this in mind that the concept of an Early Harappan phase has been divided into regional sub-phases based on spatial patterns in material culture.

Regional Aspects of Early Harappan Chronology: Possehl (1999) and Wright (2010)

Indus Age: The Beginnings (Possehl 1999) remains the single largest work specifically focused on the Early Harappan period. Possehl refers to the Early Harappan era as a “stage” (a term which also applies to the Mature Harappan era), and is composed of contemporary regional phases (1999:20). The primary theme in his work is the notion

of regionalism as it applies to cultural developments, indicated through subsistence practices, architectural elaboration and technological / stylistic changes in material culture. The regional sub-phases incorporated into the greater concept of an Early Harappan stage are the Amri-Nal phase (Sind, Baluchistan and Kutch/North Gujarat), the Kot Diji phase (Derajat, West Punjab and Cholistan), the Damb Sadaat phase (Quetta Valley, Kachi Plains) and the Sothi-Siswal phase (Upper Saraswati and Ganga-Yamuna Drainages) (Possehl 1999:573; see Fig. 4.1: Early Harappan cultural regions).



Figure 4.1 Early Harappan Cultural Regions (Possehl 1999)

In contrast to Possehl's interpretation of Early Harappan chronology, Rita Wright (2010) presents a slightly different version of this scheme when correlating ceramics with regions. Table 4.3 compares the two schemas. Her date ranges are the same as Possehl's, but she is much more specific with regard to geographic distinctions. She envisions cultural areas as "peer polities" (2010:80) that demonstrate both economic interaction and increasing uniformity in material culture.

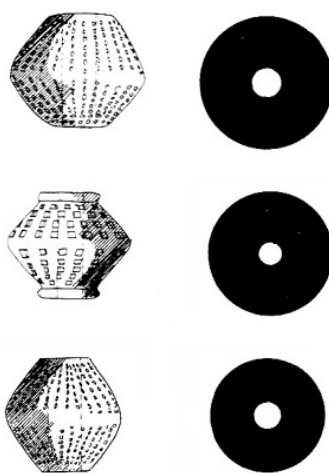
Early Harappan Chronology			
<i>Possehl 1999</i>		<i>Wright 2010</i>	
VILLAGE FARMING AND PASTORALISM		UPPER INDUS	
Togau Phase	4300 - 3800 BC	Ravi	3300 - 2800 BC
Kechi Beg Phase	3800 - 3200 BC	Early Harappan / Kot Diji	2800 - 2600 BC
Hakra Wares Phase	3800 - 3200 BC	LOWER INDUS	
		Amri	3300 - 2600 BC
		Hakra	3500 - 3000 BC
EARLY HARAPPAN		Early Harappan / Kot Diji	3200 - 2600 BC
Amri - Nal Phase	3200 - 2600 BC	GHAGGAR - HAKRA IN CHOLISTAN	
Kot Dijian Phase	3200 - 2600 BC	Hakra	3500 - 3000 BC
Damb Sadaat Phase	3200 - 2600 BC	Early Harappan / Kot Diji	3000 - 2600 BC
Sothi -Siswal Phase	3200 - 2600 BC	GHAGGAR - HAKRA IN NORTHWEST INDIA	
		Early Harappan / Kot Diji	3200 - 2600 BC
		Sothi - Siswal	3200 - 2600 BC

Table 4.3 Early Harappan Comparative Chronology

Early Harappan Material Culture

Early Harappan Beads

In this study, perforated biconical terracotta beads provide an important datum on the relationship between North Gujarat sites and the Early Harappan sites of Sindh. (For examples of this bead type, see Khan 1965: Plate XXIX, nos. 11, 15 and 16; Casal 1964 and Figure 4.2 below). This is also the period in which steatite beads proliferate – the microbead being one of the most distinctive types (see Bouquillon et al. 1995 for early steatite beads at Mehrgarh and Nausharo).



Amri
Biconical TC beads
Casal 1964

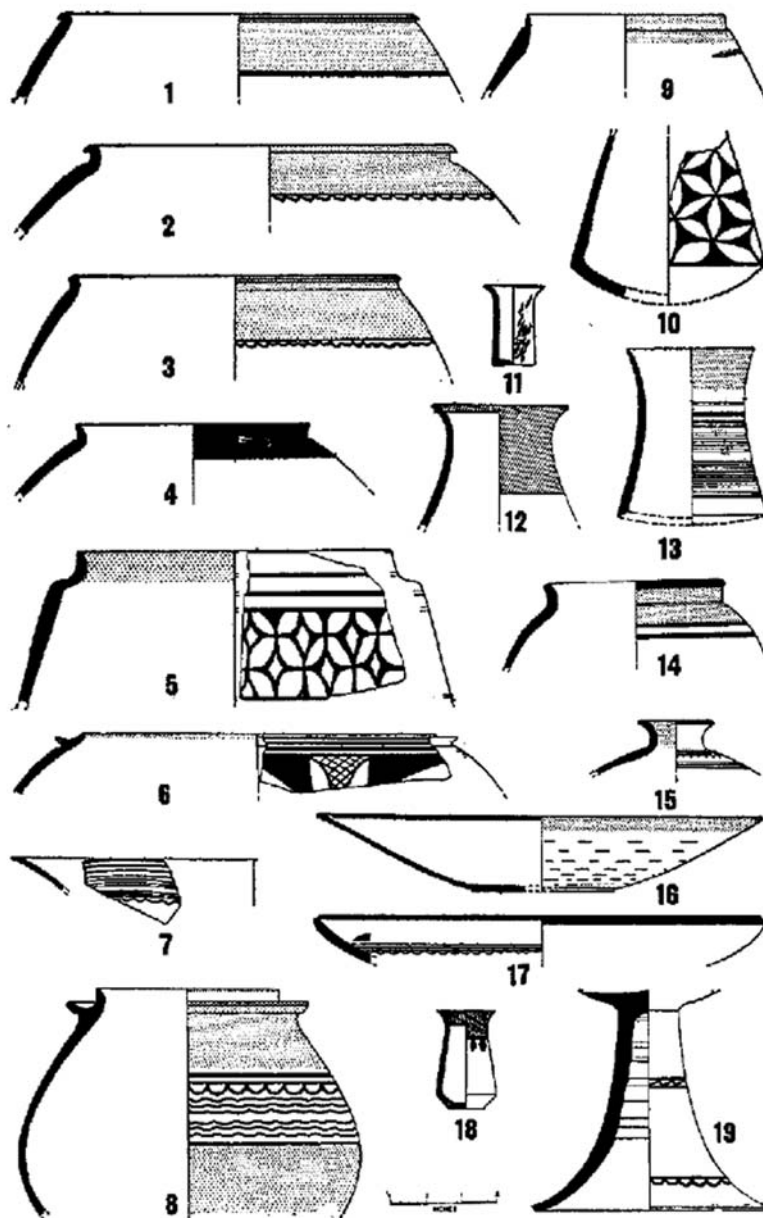
Figure 4.2 Early Harappan Terracotta Biconical Beads

Kot Dijian Pottery

F. A. Khan (1965:20) notes that underneath the Mature Harappan occupations at Kot Diji the most prominent form of pottery was a fine, thin ware painted with bands at the neck, which he terms Kot Dijian Ware (Figure 4.3: Kot Dijian Ware). Kot Diji Ware is generally thin and fine. One of the most distinctive aspects of this ware is the flanged rim (Possehl 1999:629). Surfaces are always smooth and are sometimes rather elaborately decorated with figural forms including plants, animals and landscape features (the water buffalo jar from Kot Diji is a well-known example, see Khan 1965:58, Figure 16). Over time this ware became thicker and designs more complex with the introduction of motifs that continue on or reappear in Mature Harappan Red Ware (Khan 1965:23, 31, 42). The most common shape is the globular pot with a short everted or beaded rim. Other frequent shapes include dish-on-stands, beakers and shallow dishes (Khan 1965:46).

Three subtypes of Kot Diji Ware refer to specific surface treatments (Possehl 1999:629–31). Bhoot Ware, which is only represented by globular pots, has fine deep grooves. Possehl (1999:630) proposes these grooves were not for decoration but for facilitating water evaporation through increased surface area; thus Bhoot Ware pots were probably designed for water storage. Wet Ware describes a vessel type with a peculiar surface treatment of viscous clay imprinted with cloth (see Fairservis 1956:268; Possehl 1999:630 for descriptions of this process). These vessels were also probably used for storing water. The final subtype is Sand Rusticated Ware, which was coated with thick sandy clay, possibly for greater traction (Possehl 1999:631). At Damb Sadaat this ware is

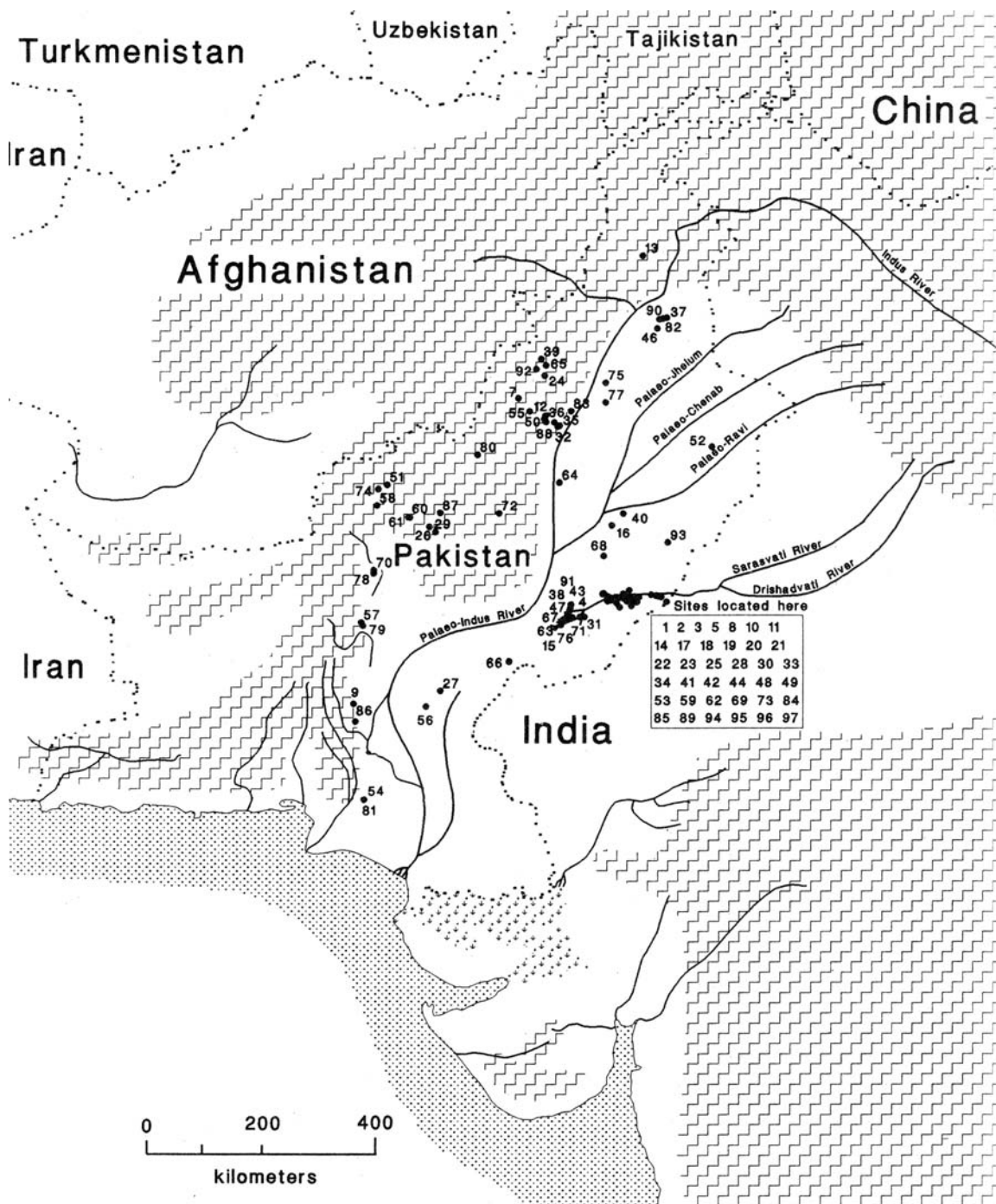
referred to as Khojak Parallel Striated Ware and at Kalibangan as Fabric B (Possehl 1999:631).



Kot Dijian Pottery (Khan 1965:54)

Figure 4.3 Kot Dijian Wares

Sites associated with Kot Dijian wares are widely dispersed (see Figure 4.4: Distribution of Kot Dijian Wares) (Possehl 1999:626). These sites cluster along the western portion of the Saraswati drainage in Cholistan (an area was intensively surveyed by M. Rafique Mughal) and Northern Sind. At some sites (most notably Kalibangan) this ware appears along with Sothi-Siswal Ware, but such co-occurrence is not found in Gujarat.



Sites associated with the Kot Diji Phase (Possehl 1999)

Figure 4.4 Distribution of Kot Dijian Ware

Amri-Nal Ware

Amri-Nal Ware, which appears primarily in Amri Period ID-II and the Nal cemetery, includes two primary subtypes. The first and most distinctive is the elaborately decorated polychrome pottery in unusual shapes, such as the cylindrical pot and ledge-shouldered jar. The second is a plain ware that sometimes has decorative bands and has shapes like the beaker and straight-sided vase (see Figure 4.5: Amri-Nal Ware). In North Gujarat only the latter variety appears; the complete corpus of Amri-Nal vessels and decorations is not represented. Not one example of an animal motif has been reported from any of the Early Harappan specimens from Gujarat. Some of the Amri-Nal ceramics from North Gujarat resemble plain Buff Ware bowls and vases from Nal (Type 1 a-d) (Hargreaves 1929:45–7, 55). But most bear more similarity to the plain vessels from Amri ID-II.

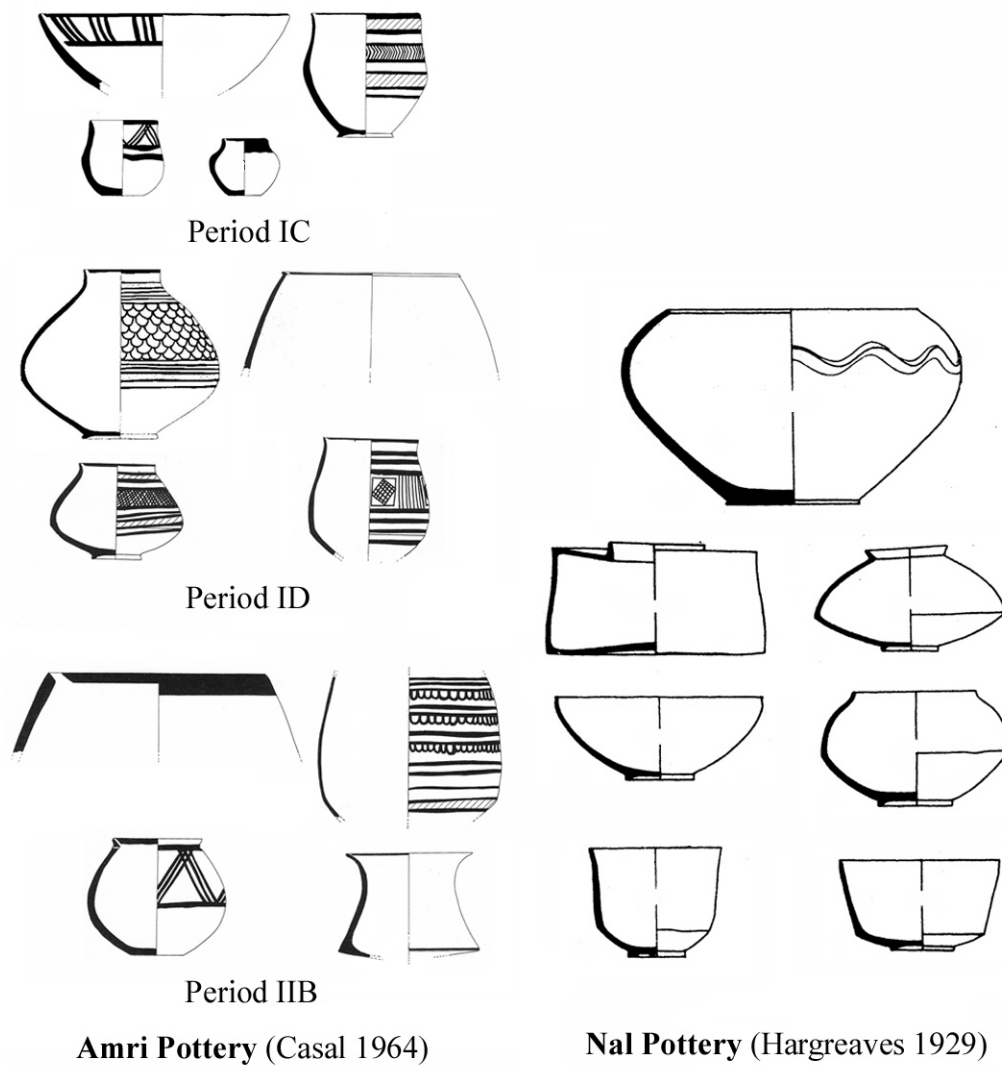
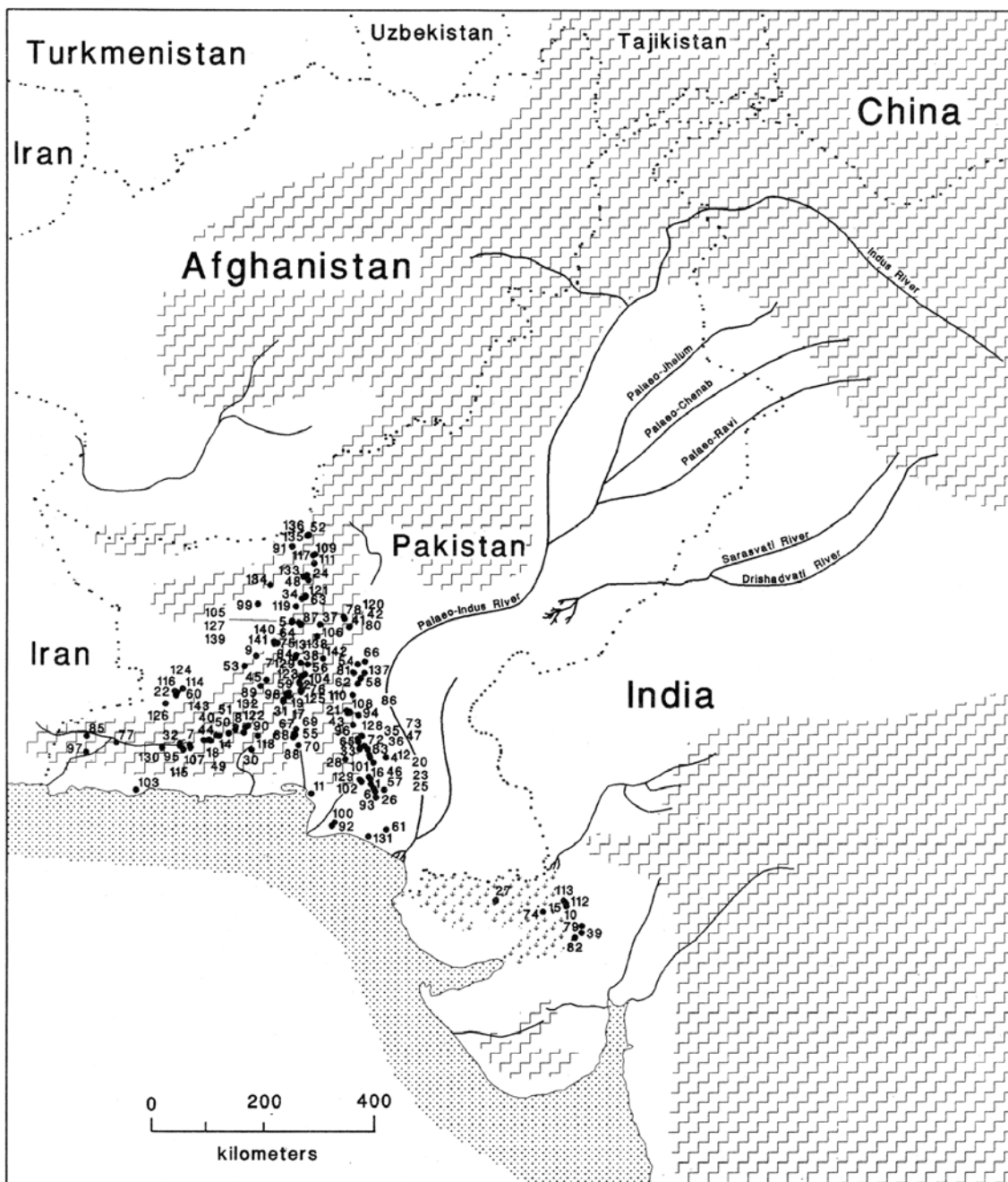


Figure 4.5 Amri-Nal Ware

The term “Amri phase” as employed by Wright (2010:99) refers to the period between 3300 and 2600 BC when Amri Ware (a highly distinctive ware with unique shapes and pigments; see Casal 1964 for detailed illustrations) was distributed throughout the Lower Indus Valley, Kutch and North Gujarat (see Figure 4.6: Distribution of Amri-Nal Ware) and are tightly clustered in lower Sind and Baluchistan within both highlands and valleys (Possehl 1999:578).



Sites associated with the Amri-Nal Phase (Possehl 1999)

Figure 4.6: Distribution of Amri-Nal Ware

The Early Harappan Phase in Gujarat

The role of subsistence practices in material distribution

Many scholars who study Early Harappan wares note the varied distribution patterns and propose there is a correlation between pre-Harappan ceramic traditions and mobility. As reviewed in Chapter Three, a climatic shift occurred at approximately 4000 BC, creating a more arid climate in South Asia. This must have affected subsistence strategies and many scholars propose this was a period in which pastoral nomadism became more common. The first to suggest this was Hargreaves (1929:37), who states that the inhabitants were semi-nomadic due to the probable aridity of the ancient environment (1929:38). Bridget Allchin (1977:207) refers to the increased specialization of stone blade industries during the Early Harappan phase (what she calls the “pre-Harappan” phase) as partial evidence of a “division of activities” among communities. M. R. Mughal (1994, 1997) noted that among 103 sites where Hakra Ware has been found, approximately half were campsites with no architecture or kilns (Possehl 1999:529). These camps also contained Early, Mature and Late Harappan wares (Mughal 1990:155). The presence of kilns at contemporary Kot Dijian sites suggests that these communities were initially sedentary, and that camps became more prevalent during the later Urban phase (Wright 2010:133). However, water buffalo were introduced to the Bannu Basin during the Kot Dijian phase and these buffalo seemed to have been used mostly for dairy and especially traction, indicating an increasing reliance on agricultural practices (Fuller 2006:31; Thomas 2003:423). So it seems that both pastoralism and agriculture became

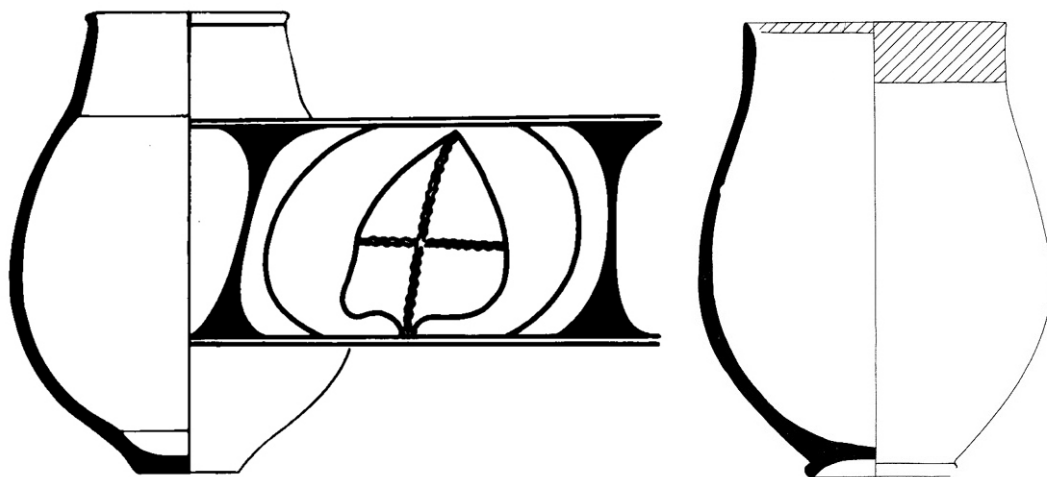
more important forms of subsistence and should be considered equally viable adaptive strategies to changing environments.

This total increase in food production is linked to increasing social complexity, particularly in terms of economic specialization. Possehl (1999:529) creates a portrait of ancient Sindhi pastoral nomads as performing a variety of activities facilitated by mobility. In this model, their camps formed part of a reciprocal system that incorporated pastoral, agricultural and specialized industrial products. Wright (2010:143, 177) interprets differences between camps and settlements as part of a greater pattern of “functional differentiation among settlements” during transitional phases of burgeoning social complexity in all regions related to the Indus Civilization.

Evidence for the Early Harappan Phase in Gujarat

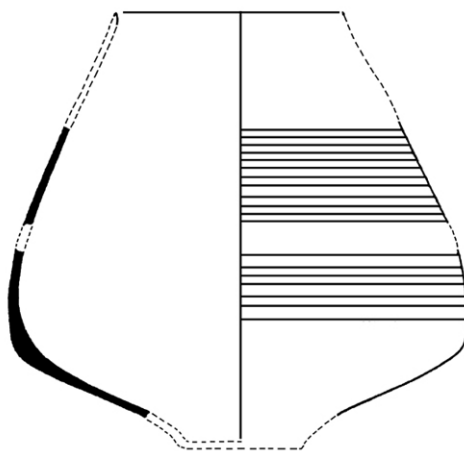
Some ceramics (and beads) from North Gujarat clearly indicate relationships to materials from Baluchistan and Sindh and when the term “Early Harappan” is employed in this work it refers to specific layers containing Early Harappan-style vessels at North Gujarat sites. In this region the wares are usually found in burial contexts. Much more on this point will be discussed in the conclusion to this work, but it is important to note here that the production centers for the Early Harappan ceramics in Gujarat remain unknown. Although the Early Harappan ceramics of Gujarat are so named because they strongly resemble vessels from sites belonging to the Kot Diji and Amri-Nal phases, there is some evidence to suggest local production. For example, a beaker from Moti Pipli and a jar

from Nagwada (Figure 4.7) do not have true equivalents in Sindh or Baluchistan. The issues of production and distribution could be resolved with a future study comparing chemical compositions and production techniques. However, as ceramics (and beads at Moti Pipli) provide the sole evidence for this phase in Gujarat, the sites where they (Figure 4.8) are found should *not* be thought of as truly “Early Harappan” because they lack evidence for the kinds of social and technological changes found elsewhere.



Nagwada
(Majumdar 1999)

Amri
(Casal 1964)



Moti Pipli
(Majumdar 1999)

Figure 4.7 Pottery from Nagwada and Moti Pipli

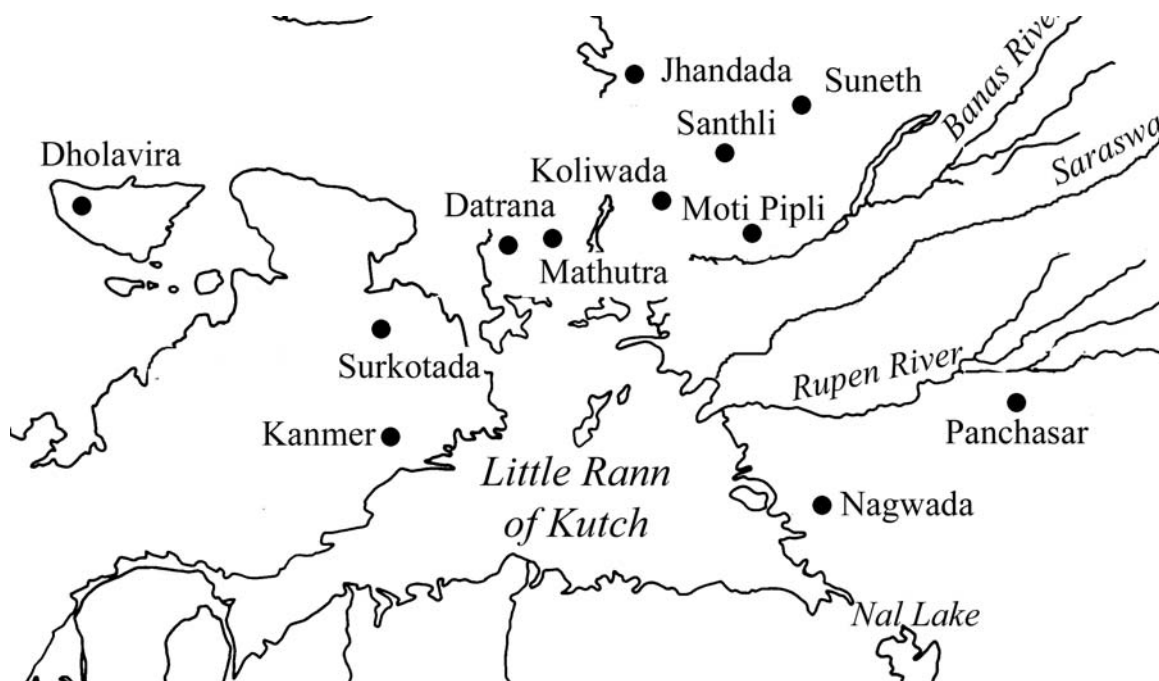


Figure 4.8 Sites with Early Harappan Pottery in Kutch and North Gujarat

In contrast to the social and technological developments of the Early Harappan phase as observed northwest of the Rann of Kutch, there are very few sites in Gujarat that can be used to demonstrate similar changes. These sites also contain regionally distinct pottery types, which most scholars agree indicates a certain amount of local technological development. These may or may not be linked to the development of subsistence practices but they do provide evidence for increasingly broad economic networks across the state.

Early Chalcolithic Populations in Gujarat (ca. 3500–3000 BC)

Food-producing occupations immediately preceding the Mature Harappan phase in Gujarat can be separated into two main types of settlements: sedentary and non-sedentary²⁰. Only a few sites provide information on this period (Figure 4.9). The first kind of society, represented by Period I at Prabhas Patan and Padri I, consists of early agriculturalists living on the Saurashtra Peninsula. These sites represent some of the earliest food-producing economies in Gujarat (Possehl and Rissman 1992:485) and date to between 3800 and 2820 BC (Dhavalikar and Possehl 1992:71). No concrete information on subsistence practices is currently available, but the use of pottery and the creation of substantial structures are used as evidence for the development of sedentary populations that probably practiced some forms of agriculture and animal tending (Thomas 1979; Shinde 1992a, 1992b).

²⁰ As discussed in the introduction, sedentism and mobility exist on a spectrum. The dichotomy presented here among sites is based on the presence of architecture alone and may not necessarily indicate full-time agriculturalist populations.

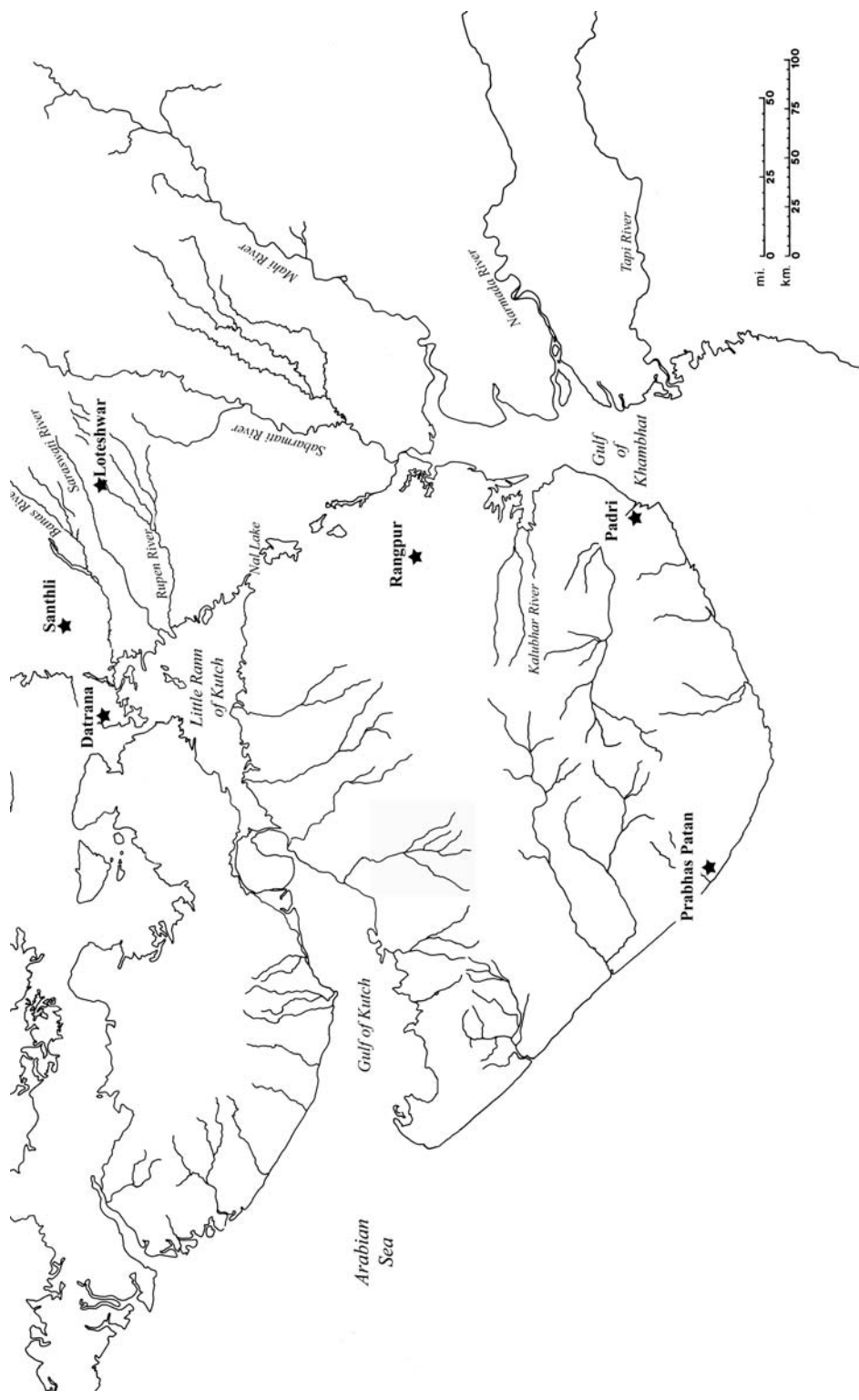


Figure 4.9 Early Chalcolithic Sites in Gujarat

Sedentary Settlements

Prabhas Patan, alternatively called Somnath (*IAR* 1955–56, 1956–57, 1971–72, 1975–76; Nanavati et al. 1971; Dhavalikar and Possehl 1992), is composed of five mounds that lie along the Heran River in the Junagadh district. According to the 1971 excavation report, Somnath is a site in the “environs” of Prabhas Patan, resulting in ambiguous nomenclature (Nanavati et al. 1971:preface). Conventionally, “Prabhas Patan” is the name given to prehistoric deposits, while “Somnath” is the name most often ascribed to historic occupations. There are three Chalcolithic-era periods represented here. The first, Period I, has subsequently been called “pre-Prabhas,” as it was found under the Prabhas period (now called Period II) during later excavations. The oldest published date is 2900 BC (refer to Table 4.1 in this chapter). The other two Chalcolithic periods are the Prabhas period (Period II) and the Late Harappan phase (Period III). The Prabhas period is contemporary with Mature Harappan phases at other sites in Saurashtra.

Padri is another site, located in the southeastern portion of the Gulf of Khambhat. Excavations have revealed three occupational phases: the Padri phase (estimated to date between 3300-2600 BC), the Harappan phase (marked by Sorath Harappan Red Ware) and an Early Historic phase overlying a large stratigraphic break (Shinde 1992a, 1992b, 2004). The Padri phase is associated with a unique type of pottery called Padri Ware, characterized as a coarse, handmade ware and is described in greater detail in the next section. In a discussion of the evidence for early agriculture at Padri, Dorian Fuller (2006:19, 37; Fuller and Harvey 2006) points to the cultivation of indigenous species, particularly local millets (*Panicum sumatrense*, assorted *Setaria* species), prior to the

introduction of crops from Western Asia. This indicates some autochthonous plant domestication and cultivation and future studies (such as the NoGAP project being conducted by Madella and Ajithprasad) should provide more information on the origins of agriculture in this state. The rectangular mud-brick structures built at Padri during the Harappan phase (see Fig. 7 in Shinde 1992a) indicate some degree of sedentism or at least the intention to reoccupy the site in a predictable pattern.

Mobile Camps

The other type of settlement, represented by the later occupation levels at Loteshwar, Santhli, Datrana and Moti Pipli, represents pastoralist nomads who lived at temporary settlements on the northern plains of Gujarat (Majumdar 1998–99:23). It is these sites that form part of the primary focus of this study and are discussed in detail in Chapter Five. These populations may have been part of the reason why Early and Mature Harappan material culture from Sindh is present in Gujarat as these mobile groups would have provided links between the Sindhi settlements and important economic resources. Both Santhli and Moti Pipli contain Early Harappan style ceramics as parts of their assemblages but Loteshwar contains only Anarta Wares and at Datrana, Pre-Prabhas pottery (described below) precedes the introduction of Early Harappan and Anarta Wares. The early layers

Early Chalcolithic Material Culture

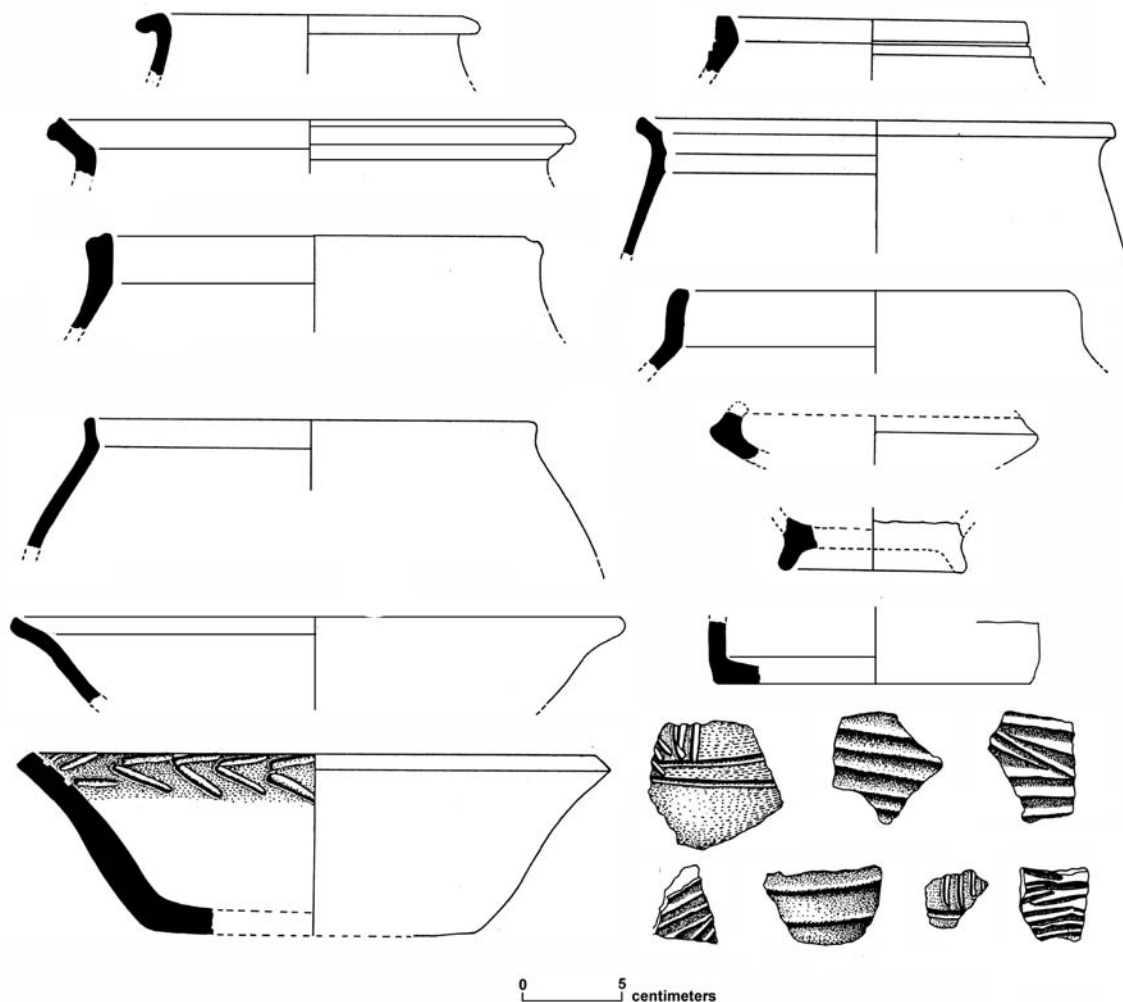
Pre-Prabhas Ware (Figure 4.10)

Prabhas Patan is the type-site for two wares: pre-Prabhas Ware and Prabhas Ware. Only pre-Prabhas Ware is relevant to this study. Dhavalikar and Possehl (1992:72–3) constructed a typology for pre-Prabhas pottery comprising four distinct wares: Red Ware, Incised Red Ware, Black and Red Ware and Gray Ware. The distribution of pre-Prabhas Ware is confined to Prabhas Patan and Datrana. This is an unexpected pattern, as Datrana is approximately 350 km northeast of Prabhas Patan and this ware has never been reported at another site. The ceramics from Datrana are described in detail in Chapter Five. A description of the four types is as follows:

- 1) Red Ware: This is a coarse ware primarily represented by wide-mouthed jars. It was made by hand and has a smooth surface.
- 2) Incised Red Ware: This is also a coarse ware with no surface treatment except for decorative incisions. Basins are the most common shape.
- 3) Black and Red Ware: This is the rarest type of pre-Prabhas Ware. Unlike Red Ware and Incised Red Ware the fabric is rather fine and silty, though the walls of jars tend to be somewhat thick (averaging approximately 6.6 mm at Datrana). The interior is a matte black, and the exterior is treated with slip ranging in color from red to orange. The most characteristic feature is the shallow horizontal ribbing on the exterior. Though not many sherds of this kind were found at Prabhas-Patan (but many at Datrana), the vessel shapes

of recovered sherds include wide-mouthed jars, carinated *handis* and jars with ring bases (Dhavalikar and Possehl 1992:73).

4) Gray Ware: This is a coarse, crudely made ware identified by a grayish core. Some sherds (but not all) also have a dark surface varying from gray to black. Dishes and jars seem to be the predominate shapes (Dhavalikar and Possehl 1992:73).



Pre-Prabhas Grey and Red Ware from Prabhas Patan
Profiles courtesy of Gregory L. Possehl

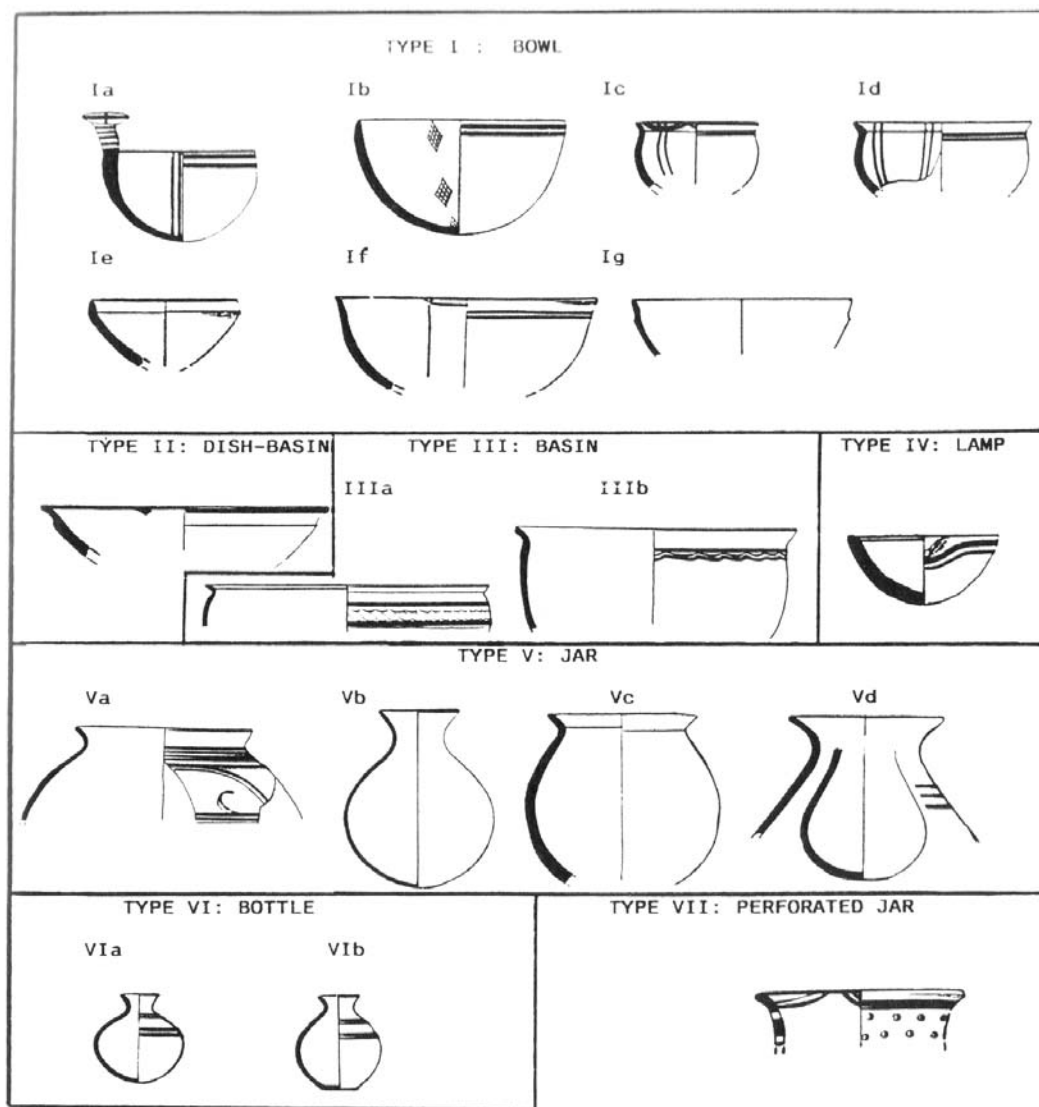
Figure 4.10 Pre-Prabhas Ware

Micaceous Red Ware

This ware was first reported at Rangpur and is found in the levels between Period I (the Microlithic layer) and IIA (the first Harappan structural phase), are referred to as pre-Harappan (Sankalia 1962). At this site Micaceous Red Ware (MRW) is associated with Sorath Harappan Fine Buff Ware and Coarse Gray Ware (Herman 1997:95). S. R. Rao (1979:23; 1985:393) notes that it was the only ceramic present in the earliest excavated levels (Sankalia 1987:40). MRW is also found at Desalpur, Kanewal, Nageshwar, Ratanpura, Rojdi and Vagad (Herman and Krishnan 1994:234; Sonawane and Mehta 1985). Herman and Krishnan (1994:233) estimate that the time span for the use of this ware ranges from 2550 to 1800 BC, as it is present in the earliest levels at Lothal (Lothal I) and continues to be present in late levels. It also appears along with Lustrous Red Ware at Ratanpura. Herman and Krishnan (1994:235–7) carefully note that MRW does not occur in any isolated context but is always found alongside other kinds of materials and cannot indicate some kind of independent material culture tradition without further evidence.

MRW is so named for the presence of fine mica particles ingrained in a thick, glossy slip that covers the entire vessel (Herman and Krishnan 1994:227). This makes them much different from Sorath Harappan ceramics, which only have slipped exteriors. MRW was most likely handmade or else formed on a slow wheel. Some sherds examined by B. B. Lal at Lothal (1985:462) show signs of being wheel-made. A preliminary vessel typology was proposed by Charles Herman and K. Krishnan (1994:229) based on samples from Lothal, Rangpur and Rojdi. Figure 4.11 is a reproduction of their

classification system. Convex-sided bowls (including those with stud handles) are the most common shape. This ware also bears the earliest examples of the stud-handled bowl, which becomes a ubiquitous shape in other wares during later periods.



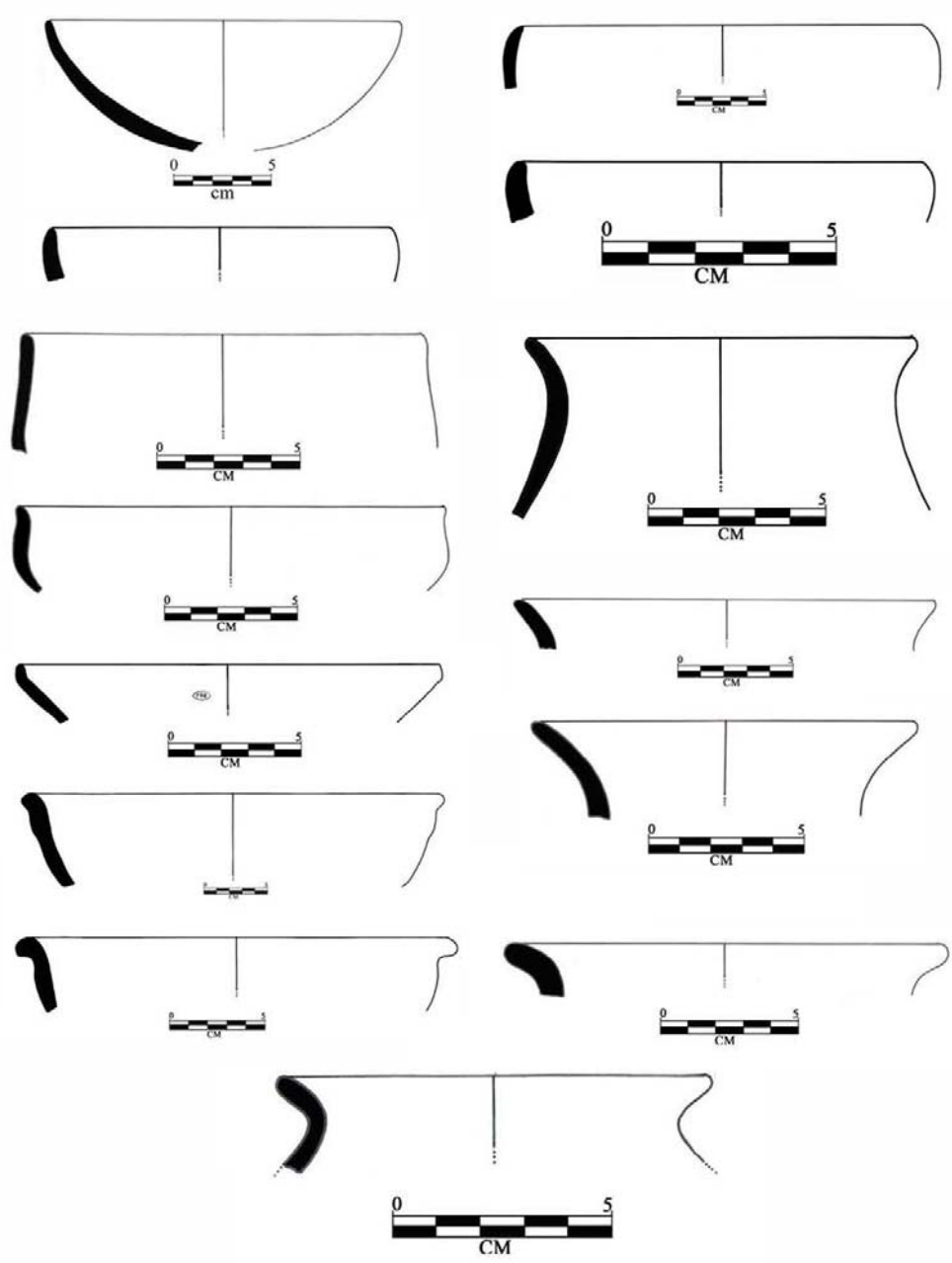
Micaceous Red Ware (Herman and Krishnan 1994)

Figure 4.11 Micaceous Red Ware Typology

Padri Ware

Although this ware is not found at any of the sites analyzed in this work, it is strongly connected to Anarta Ware (discussed in the next section). As Sonawane and Ajithprasad (1994:133) point out, Padri Ware is similar to the Gritty Red Ware of North Gujarat, particularly with regard to vessel shapes. This connection has been more fully explored by Prabodh Shirvalkar, who asserts that Padri Ware and Anarta Ware have similar enough shapes and motifs to consider them part of the same ceramic tradition (2008:152). Charles Frank Herman (1997:94) also suggests that a few examples of ceramics from early Rojdi A resemble Padri Ware.

Much like Pre-Prabhas Ware, Padri Ware (Figure 4.12) has a coarse fabric and vessels were handmade or turned on a slow wheel. The primary vessel shapes are convex-sided bowls and globular pots, though there were some perforated sherds found (Shinde 1992a:84; Shinde and Kar 1992:107). Pots are typically coated with a thick red slip and painted black (*IAR* 1990–91b:9; Shinde and Kar 1992). It should be noted that Padri Ware is exceedingly rare in Padri (merely 0.03 percent of the total number of recorded sherds) though there is a higher percentage of it in earlier layers (Shinde and Kar 1992:108). Shirvalkar (2008) proves through X-Ray Diffraction that Padri Ware was made with entirely local clays. A non-Harappan ceramic found along with Padri Ware is a coarse Red/Gray Ware that is far more common than Padri Ware (Shinde and Kar 1992). Globular pots were the most frequent shape, and decoration often consisted of appliqué or small perforations around the neck and shoulders (Shinde and Kar 1992:105).



Padri Ware

Shirvalkar 2008

Figure 4.12 Padri Ware

Anarta Ware

“Anarta Ware” is a relatively recent term. It was first used to describe pottery found in the excavations of Nagwada and Loteshwar. Site reports published before the 1990s often refer to a coarse red or gray “local” ware (such as the monograph on Surkotada, Joshi 1990), yet it merited little attention. The term “Anarta Ware” was coined by P. Ajithprasad and V. H. Sonawane (1993:1) to describe a type of non-Harappan pottery specific to North Gujarat – “Anarta” being a traditional name for this region. It has been retroactively applied to the “indigenous” wares reported at many sites throughout Gujarat, spanning the late fourth to the middle of the second millennium BC as many of those descriptions refer to a coarse, well-fired ware with red slip, black painting with certain diagnostic shapes such as the convex-sided bowl and large carinated basin (examples of the latter can be seen in Figure 5.6 of this work)..

Ajithprasad and Sonawane (1993, Sonawane and Ajithprasad 1994:135) present the most robust description of Anarta Ware and have created four subtypes, primarily constructed from Nagwada and Loteshwar samples. Gritty Red Ware is the most common type, with Fine Red Ware being the next most common and Burnished Red and Burnished Gray/Black the least. These types are all included in the category Anarta Ware because they share “common shapes, decorative patterns and other features” (Ajithprasad and Sonawane 1993:13). Divisions in the typology are based first on paste texture, next on surface treatment and finally on color (thus following a consistent, tree-shaped typology). Examples of Anarta Ware vessel shapes appear in Figure 4.13, and those specific to sites are illustrated in Chapter Five.

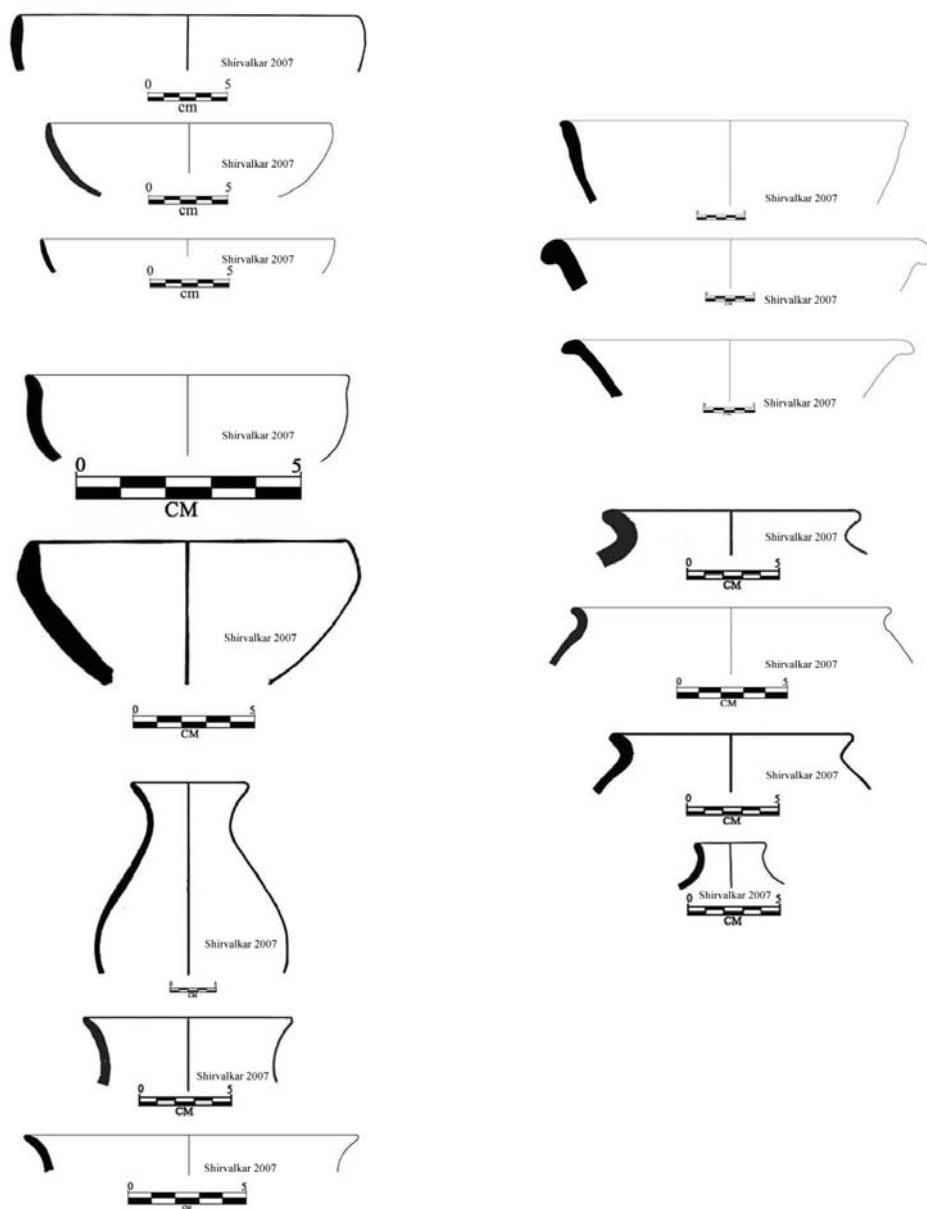


Figure 4.13 Anarta Ware

Gritty Red Ware: The hallmark feature of this ware is a coarse sand temper added to well-levigated clay. Primary vessel forms include pots, jars, bowls and basins. This ware is subdivided into coarse and fine varieties. Fine Gritty Red Ware has a thin section and thick coating of slip. Coarse Gritty Red Ware has a thick section and either a thin wash or no slip, and it is often poorly fired and decorated. The interior striations have short, irregular patterns indicating that it was made by hand or on a slow wheel. Vessels made in imitation of Harappan shapes (such as the dish-on-stand) were made on a wheel. Slip color varies from red to chocolate to buff to cream. Gritty Red Ware is typically decorated with geometric patterns in a band at the neck, although the most common decoration is a banding of parallel lines. Pigments vary from black to red. A white pigment was occasionally used to create patterns or was used as a ground for chocolate-colored painting. The use of white pigment is related to the earlier painted traditions of Sindh and Rajasthan (Mughal 1974; Lal 1979). Gritty Buff Ware is similar to Gritty Red Ware, save for its core color, and is usually covered by a chocolate or red slip.

The most common shape in Gritty Red Ware is a small to medium jar with a bulbous body and flared rim. This vessel form is also found in Fine Red Ware, Burnished Red Ware and Burnished Gray/Black Ware. Another common shape is a bowl, either convex or with straight sides. These shapes are correlated with ceramics from Amri (see Casal 1964:Fig. 38–9; Ajithprasad and Sonawane 1993:16). Another common shape is the basin, which has slightly convex sides and a rounded bottom.

Fine Red Ware: This ware has enough similarities to Gritty Red Ware to consider it a part of the Anarta corpus rather than a subtype of Harappan Red Ware. The main

distinctions between this and Fine Gritty Red Ware are how well levigated the clay is and the inclusion of mica temper. This ware was made by hand or on a slow wheel. Vessels of this type are usually slipped with colors ranging from chocolate to red to buff. Fine Red Ware is found in the same shapes as Gritty Red Ware. The painted motifs and pigments are also the same. These similarities led Ajithprasad and Sonawane (1993) to conclude that Fine Red Ware is part of the same tradition as Gritty Red Ware, albeit better executed.

Burnished Red Ware: This category was created to describe small pots and jars from Loteshwar and Nagwada that had been burnished to a high shine (Ajithprasad and Sonawane 1993:18). The shapes of the pots are identical to those of Gritty Red Ware from Loteshwar and Nagwada, but the walls are thinner and the fabric better levigated. Decorations are similar to those found on Gritty Red Ware.

Burnished Gray/Black Ware: This ware is nearly identical to Burnished Red Ware except for the color of the paste. One subtle difference is that some jars have a ridge at the shoulder.

Anarta Ware has a very wide distribution and time depth. The earliest site where Anarta Ware is found is at Loteshwar (the estimated earliest date is 3703 BC), where it has been remarked that the pottery is “devoid of Harappan elements” such as the dish-on-stand shape (Sonawane and Ajithprasad 1994:135). Since so many sites have this ware in common, it is described here with site-specific variants and frequency patterns according to individual site sections. As of 2007, Anarta Ware has been reported at 69 sites surveyed in the North Gujarat region (Rajesh and Patel 2007:91-4). In most cases this

ware forms a significant percentage (varying from 20 to 60 percent) of the total ceramic remains. Ajithprasad and Sonawane (1993:27) designate those sites with at least 10 percent Anarta Ware as affiliated with the “Anarta Tradition” (see also Mahida 1992 for Rupen River survey information). Its chronological distribution is as expansive as its spatial distribution: it is associated with Early Chalcolithic populations and has a continued presence through post-Urban occupations (refer to Figure 1.3 in this work).

1) Early Harappan Associations

Anarta Ware is definitely associated with Early Harappan wares at Datrana, Santhli, Moti Pipli and Panchasar. It is present at Surkotada and Nagwada in layers above the Early Harappan ceramics.

2) Sindhi Harappan Associations

Both wares have been reported from the following sites: Bagasra, Nagwada I, Nagwada, Lothal, Surkotada and Zekhada. “Non-Harappan Polychrome, Bichrome and Coarse Red Ware” pottery are reported from Surkotada IA and IB and Lothal IA and IB (Hegde et al. 1988:62; Ajithprasad and Sonawane 1993:20; 1994:135). Anarta Ware may be present at Desalpur, but the description is somewhat ambiguous (*JAR* 1963–64a:12). Given the similarities between this site and Surkotada, its presence is highly likely.

3) Sorath Harappan Associations

Anarta Ware is rarely associated with Urban phase Sorath Pottery (Rojdi A and B, Rangpur IIB) except at Nagwada, Padri and Bagasra. There are references to a “Grey Coarse Ware” and a “Coarse Burnished Red Ware” in the early layers of Rojdi A

(Herman 1997:94; Possehl and Raval 1989:114–17) but they are totally unlike Anarta Ware.

4) Post-Urban Associations

Anarta Ware is associated with post-Urban phase Rangpur IIC-III wares at 26 sites (Ajithprasad and Sonawane 1993:29), including Rangpur, Zekhada and upper levels at Bagasra and Datrana Five (Rajesh and Patel 2007). During her survey of the Bhogava, Sukha Bhadar and Lilkia Rivers of northeast Saurashtra, Kiran Dimri (1998–99) reported that Gritty Red Ware was found along with both Mature and Late Harappan Ware. It was most prevalent during the Urban phase and diminishes in prevalence during the post-Urban phase in this region.

Mature Harappan/Urban Phase Occupations within Gujarat (ca. 2600–1900)

Much of the archaeological investigation in South Asian is concerned with the Indus Civilization. Descriptive reconstructions of this civilization occupy a great deal of space on library shelves and thus need not be detailed here. What is important is the distinction between the Indus Civilization and the Mature Harappan phase. The Indus Civilization should be regarded as a large, complex socioeconomic system that required a high degree of social organization and coordination to maintain. This system is archaeologically manifested in the cities that the Indus people built and the sophisticated technologies they developed. The phrase “Mature Harappan” should be understood as the

time period during which sites associated with the Indus Civilization were most prosperous and densely inhabited

Much like the term “Early Harappan,” the concept of a Mature Harappan phase has its own nuances related to regional manifestations. There are many settlements associated with the Indus Civilization that contain some but not all the features and artifacts associated with its cities (e.g., baked brick architecture and steatite stamp seals). Peculiarly local attributes of material assemblages at these sites are often emphasized to support a model of the Indus Civilization as composed of diverse cultures rather than one imposed over preexisting societies. The most outspoken proponent of this approach is Possehl (1999, 2002a), who draws attention to consistent regional differences among material assemblages and forms of architecture. Based on these variations, Possehl (1999, 2001) invented the term “Urban phase” to refer to this time period in order to avoid the implication that a site dated to the Urban phase must be similar to sites in the Indus Valley region to qualify as part of the Indus Civilization.

Within Gujarat this concept of regionalism remains contentious. In the Rojdi monograph by Possehl and Raval (1989), the term “Sorath Harappan” was introduced to describe the material tradition of Rojdi, asserting that while it belongs to the greater Indus corpus of traditions it is also regionally distinct (Sorath is an alternative designation for the Saurashtra Peninsula). Other sites in Gujarat with materials more similar to those from the Indus Valley in the Urban phase were then dubbed “Sindhi Harappan.” For example, Rojdi is one of the type-sites for the Sorath Harappan tradition. Lothal is more similar to sites like Harappa, so it is classified as Sindhi Harappan. Both sites were

occupied between 2400–1800 BC and thus they define the Urban phase in Gujarat. There are sites where material culture of both “strains” is present in the same occupation. Phase III of Bagasra includes ceramics associated with Sindhi and Sorath Harappan sites, as well as Anarta wares (Sonawane et al. 2003:25). Due to the ambiguous mixture of Sorath and Sindhi materials, “Mature Harappan” is used in this work as an umbrella term to denote occupations that date to between 2500 and 1900 BC and have features *and* materials indicative of any variant of Mature Harappan cultures (Figure 4.14 is a map of sites that exemplify this phase through both features and materials).

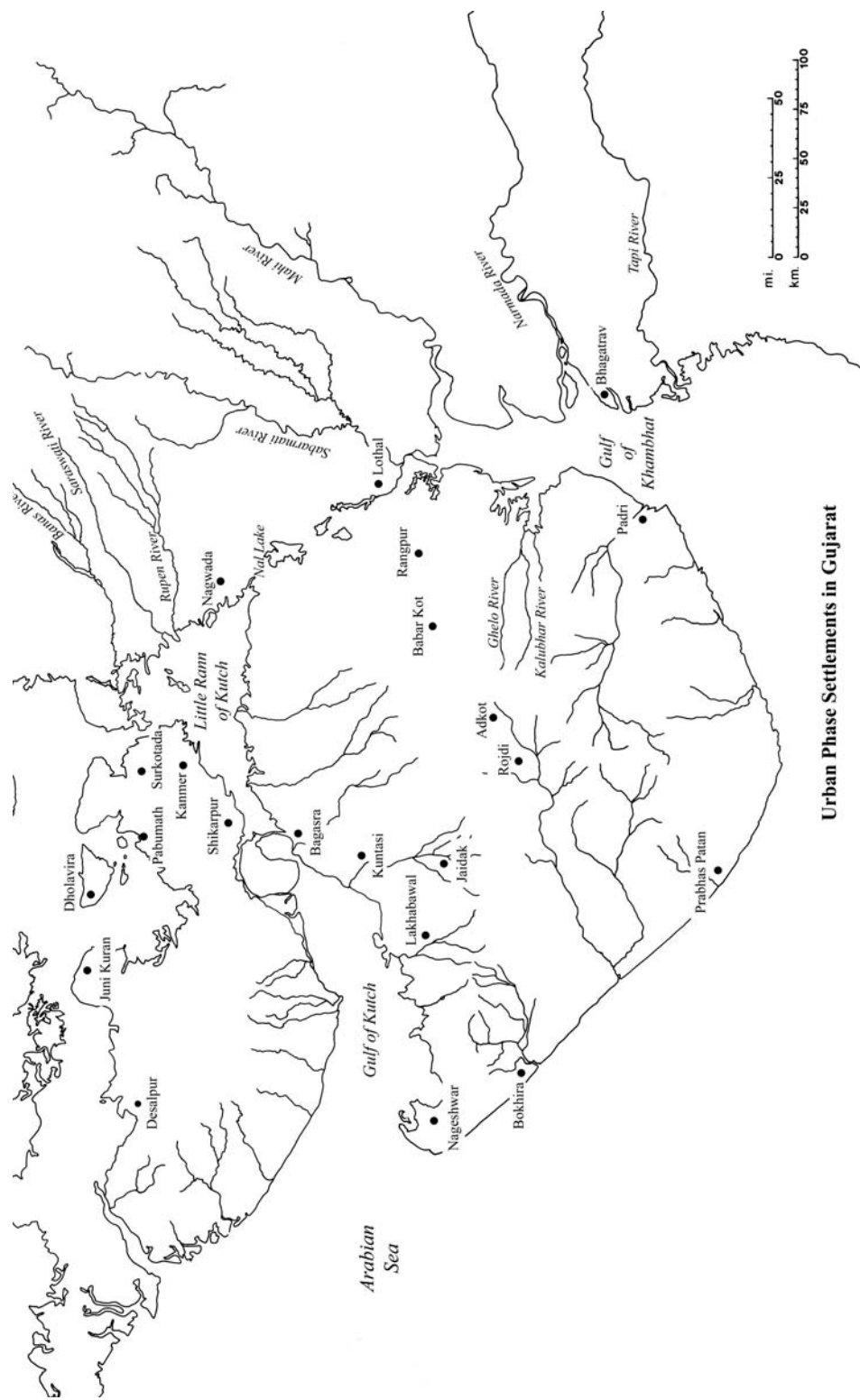


Figure 4.14 Urban Phase Sites in Gujarat

Sindhi Harappans

The Sindhi Harappan tradition is often presented as the standard by which all other contemporary and related traditions are judged. Sindh encompasses the lower part of the Indus Valley where Mohenjo-Daro and Chanhu-Daro are located. An extraordinary amount of work has been done on various aspects of Sindhi Mature Harappan material culture. A highly condensed list of diagnostic characteristics includes stamp seals, inscriptions, cubical agate weights, etched carnelian beads, faience bracelets, perforated jars, dishes-on-stands, certain figural decorations, and multi-roomed quadrilateral structures made of mud-brick and brick-lined wells or tanks.

In Gujarat this Harappan variant is best represented at Bagasra (Bhan et al. 2005, Sonawane et al. 2003), Dholavira (Bisht 1991, 1997), Kanmer (Kharakwal et al. 2005, 2010), Kuntasi (Dhavalikar et al. 1996), Lothal (Rao 1979, 1985) and Surkotada (Joshi 1990). Smaller sites include Desalpur (*IAR* 1963-64a; Joshi 1972), Nageshwar (Hegde et al. 1990) and Shikarpur (Bhan and Ajithprasad 2008; *IAR* 1963-64b; Thomas et al. 1995). Sonawane (1998–99:5) and Dhavalikar (2003) argue that since these settlements in Gujarat were primarily coastal (including those located at the edges of the Little Rann of Kutch), they were founded as industrial centers whose products were traded to Indus urban centers.

Sindhi Harappan Material Culture

Rohri chert: Though lithics are often misleading proxies for determining chronology, the source material from which they are made is chronologically sensitive. This is particularly true in the case of Rohri chert, which has well-documented origins in the Rohri hills of Sindh, close to Kot Diji (Biagi and Cremaschi 1991). Rohri chert is a distinctive stone – pinkish beige to tan and very finely grained. Evidence from early levels at the sites of Allahdino, Amri, Balakot, Chanhudaro and Kot Diji demonstrate the exploitation of this material began during the Early Harappan phase (Allchin 1977:194, 200; Biagi and Starnini 2008:81). During the Mature Harappan phase, long (6-10 cm) parallel-sided ribbon blades (Kenoyer 1984: 123) became a regular part of the material corpus at sites of all sizes (Figure 4.15). A study by Allchin (1977:180) analyzes how often these blades were reworked. She determines that the further removed a site was from the Rohri hills, the higher the percentage of reworked blades was found. Reworked blades were more common in the Early Harappan phase than in the Mature phase at the Sind sites (Allchin 1977:194). Additional studies show at least some of the chert imported to Mohenjo-daro came in the form of partially prepared cores rather than complete nodules (Allchin 1977:181; Kenoyer 1984). These blades are noteworthy because altered versions of them appear in many of the sites examined in this dissertation. However, the routes by which these blades came to the small camps of North Gujarat remain unclear.

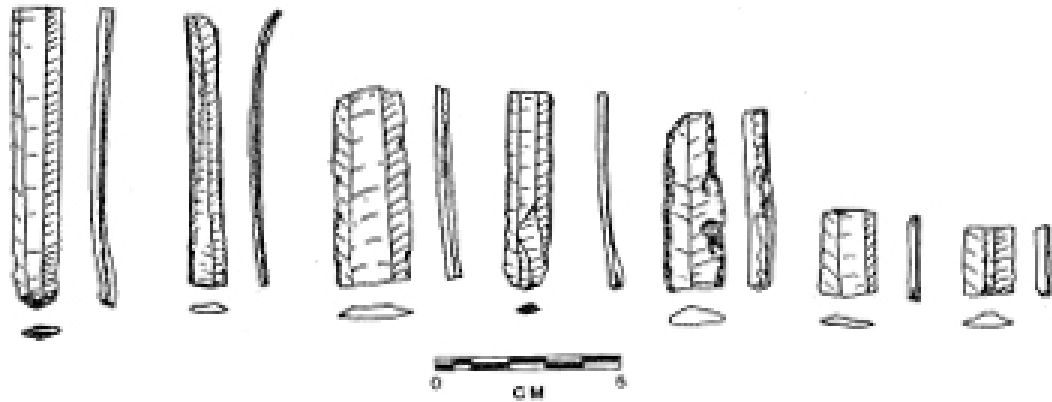
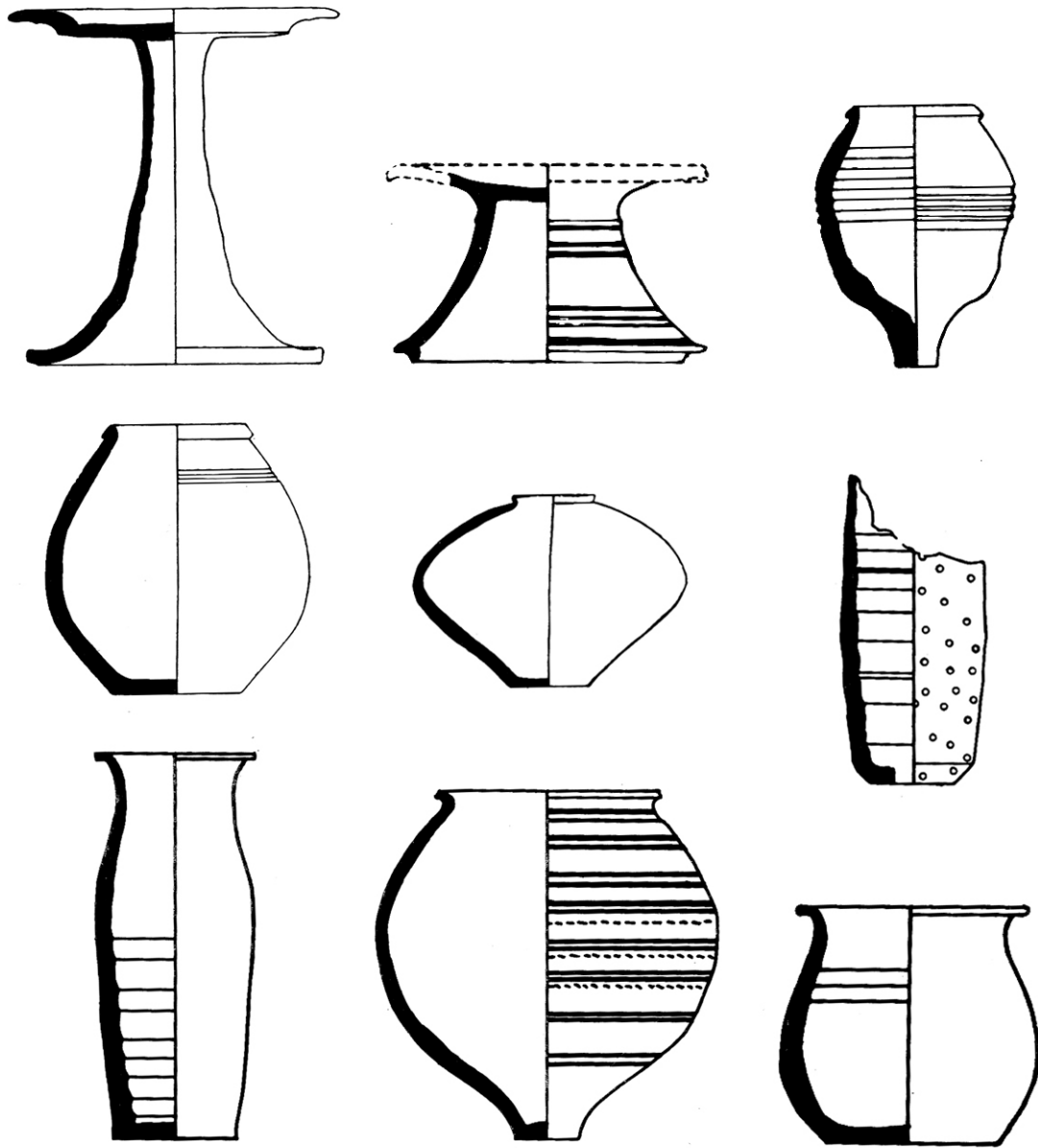


Figure 4.15 Rohri Chert Ribbon Blades (Kenoyer 1984)

Sindhi Harappan Ceramics: The landmark work on Mature Harappan ceramics remains George Dales and Mark Kenoyer's *Excavations at Mohenjo Daro, Pakistan: The Pottery* (1986). Although their typology is constructed from a single site, it is the most important index of Indus Civilization pottery. Presented here is a small selection of the most iconic vessels and decorations (Figure 4.16).



Ceramics from Mohenjo-Daro
(Mackay 1938)

Figure 4.16 Iconic Sindhi Harappan Ceramics

Sindhi Harappan materials in Gujarat are largely regarded as imports circulated through a centrally (or multi-centrally) controlled economic network, but Herman (1997:97) raises the question of what aspects of Sorath Harappan or indigenous material cultures formed part of the assemblage at urban centers in Gujarat. He refers to the change in Surkotada ceramics as diagnostic of a regionalization process. During Period IA, almost all the vessels are in Sindhi Harappan fabrics. In IB, Anarta Ware is most frequently found. Finally, during IC, Sorath Harappan and White-painted Ahar Black and Red Ware (BRW) form the majority of the corpus²¹.

Sorath Harappans

The term “Sorath Harappan,” defined at Rojdi (Possehl and Raval 1989:13), denotes a population with the civic features, decorated pottery and administrative tools that characterize all Indus sites. What makes a Sorath Harappan site different from other Mature Harappan sites are forms of architecture (Sorath sites are characterized by stone and mud structures; Sindhi settlements are primarily made of brick) and consistent stylistic differences within the material culture assemblage. Sindhi Harappan markers in other Indus domains include the Indus “goblet,” beaker, S-Form jar, perforated-handle teacup, cubical weight, stamp seal and Black-on-Red pottery. These materials are absent at Rojdi and similar sites, thus prompting Possehl (Possehl and Raval 1989:13, Possehl and Rissman 1992:489) to designate the Urban phase at Rojdi as Sorath Harappan. Other

²¹ A technical study would help determine manufacturing locations.

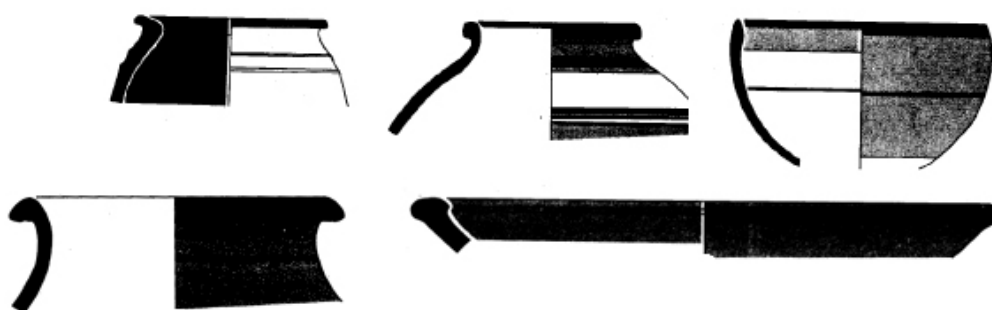
sites belonging to this regional variation are Bokhira (Gaur et al. 2006), Jaidak (Ajithprasad 2003, 2010), Juni Kuran (Pramanik 2003), Pabumath (Joshi 1972), Padri (Shinde 1992a, 1992b), and most especially Rangpur (Rao 1963).

Sorath Ceramics

The type-site for this particular pottery tradition is Rojdi, the assemblage of which contains shapes unique to Saurashtra, North Gujarat and Kutch. These diagnostic shapes include the stud-handled bowl, simple convex-sided bowl, the “Saurashtra lamp” and some dish shapes (Herman 1997:94) (Figure 4.17). Sorath pottery is also notable for the absence of elaborate figurative decorations.



Rojdi A



Rojdi B



Rojdi C

Sorath Harappan Pottery (Possehl and Raval 1989)

Figure 4.17 Sorath Harappan Pottery

Unlike the Sindhi distribution, Sorath pottery is almost entirely restricted to Saurashtra. A mineralogical comparison conducted by K. Krishnan (Krishnan and Hegde 1986–87:38–41) demonstrates that the Sorath samples from Nageshwar, Vagad and Ratanpura had very similar compositions.

Late Harappan/Post-Urban Phase of Gujarat (ca. 2100 – 1400 BC)

Due to changes in material culture and the apparent abandonment of settlements, occupation levels immediately following Mature Harappan phases have been termed “Late Harappan.” During the early to middle twentieth century this term implied a degree of “devolution” from the urbanization and sophistication of the Mature Harappan phase (Rao 1969, 1985:23). This population shift has been attributed to the rise of pastoralism as a lifestyle and the abandonment of relatively densely settled communities associated with the urbanization of Mature Harappan culture (Possehl 1980:66, Rissman 1985:367). However, application of the term “Late Harappan” to all regions becomes misleading when a Late Harappan occupation at one site is compared to the same phase at another site. The Jukhar phase in Sindh has little in common with the Lustrous Red Ware phase at Rangpur. As part of the Urban phase schema introduced by Possehl (Possehl and Raval 1989:18), the term “post-Urban” describes a time period when cities were depopulated without specifically naming the Harappan cultural tradition. In practice the terms Late and post-Harappan remain popular terms to refer to occupational levels at sites in Gujarat

that had previous Harappan deposits (e.g. the nomenclature employed in Rajesh and Patel 2007).

The most important aspect of this phase (and the reason it is called post-Urban) is the abandonment of urban centers and proliferation of small settlements. Settlement surveys by Possehl (1980), Momin (1979) and Bhan (1986) demonstrate general depopulation at the large sites with a concomitant increase in the number of small sites (Post-Urban sites that have been excavated are shown in Figure 4.18 but not shown in this map are the dense clusters of small settlements found on surveys along the Ghelo, Kalubhar and Rupen Rivers). Many reasons for this have been proposed. Possehl contends decentralization was caused by a political weakening of the Harappans (Possehl 1997b:463). Sonawane posits a more economic model (1998–99:10); he observes that this period is marked by a transition from a surplus-producing economy to a reduced subsistence economy. He also notes that the eastern portion of the Rupen River would have been more suitable for agriculture than the increasingly marshy western estuary. The fact that post-Urban settlements were clustered along the middle and western portions of the river course suggests that this region was deliberately settled because of its pastoral resources (Sonawane 1994–95:8). Noteworthy, too, is an increase in smaller, often temporary settlements, which are taken as evidence for increased reliance on pastoralism (Bhan 1989:232, 1992:178; Possehl 1980; Rissman 1985:367; 1986:259).

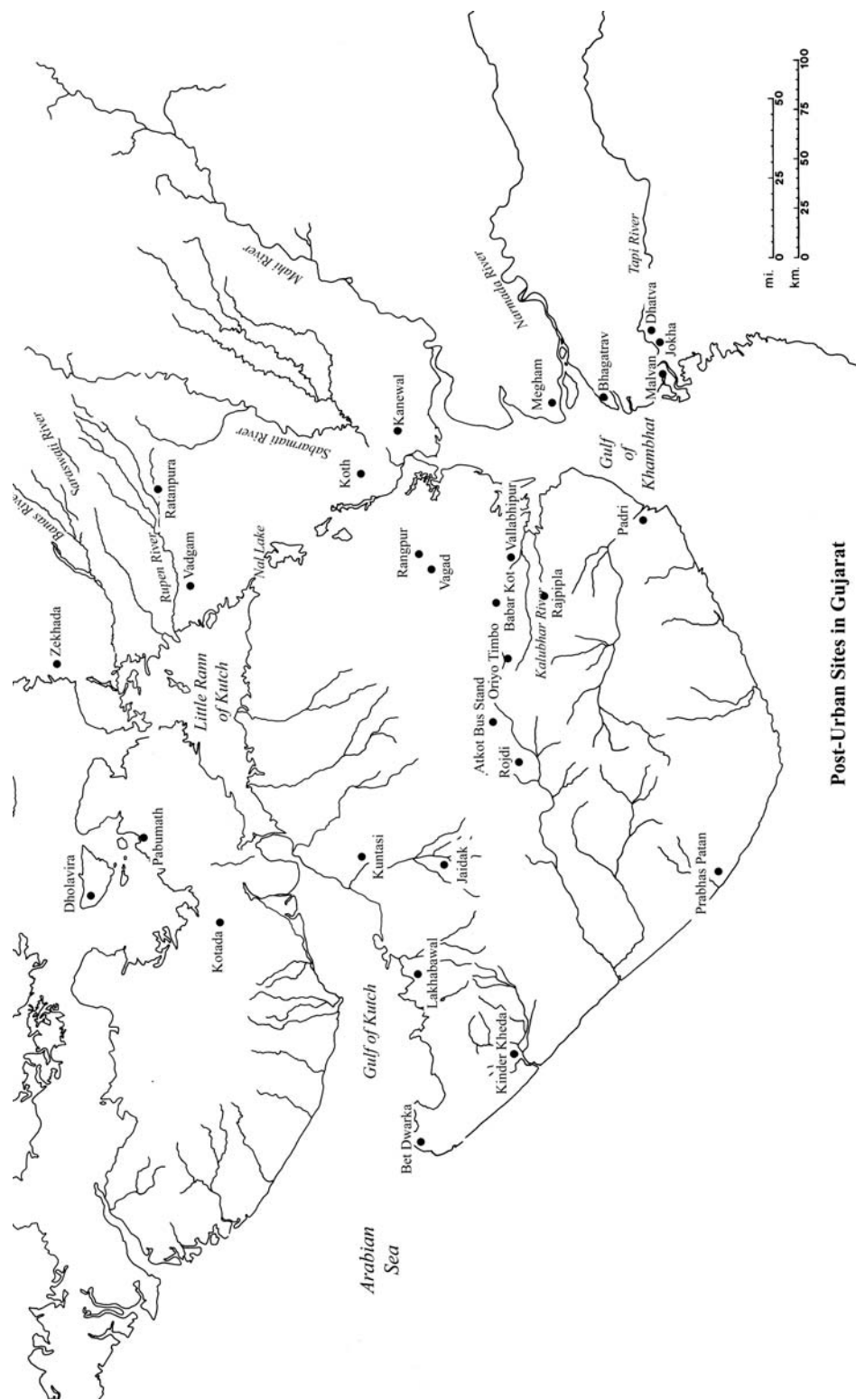


Figure 4.18 Post-Urban Sites in Gujarat

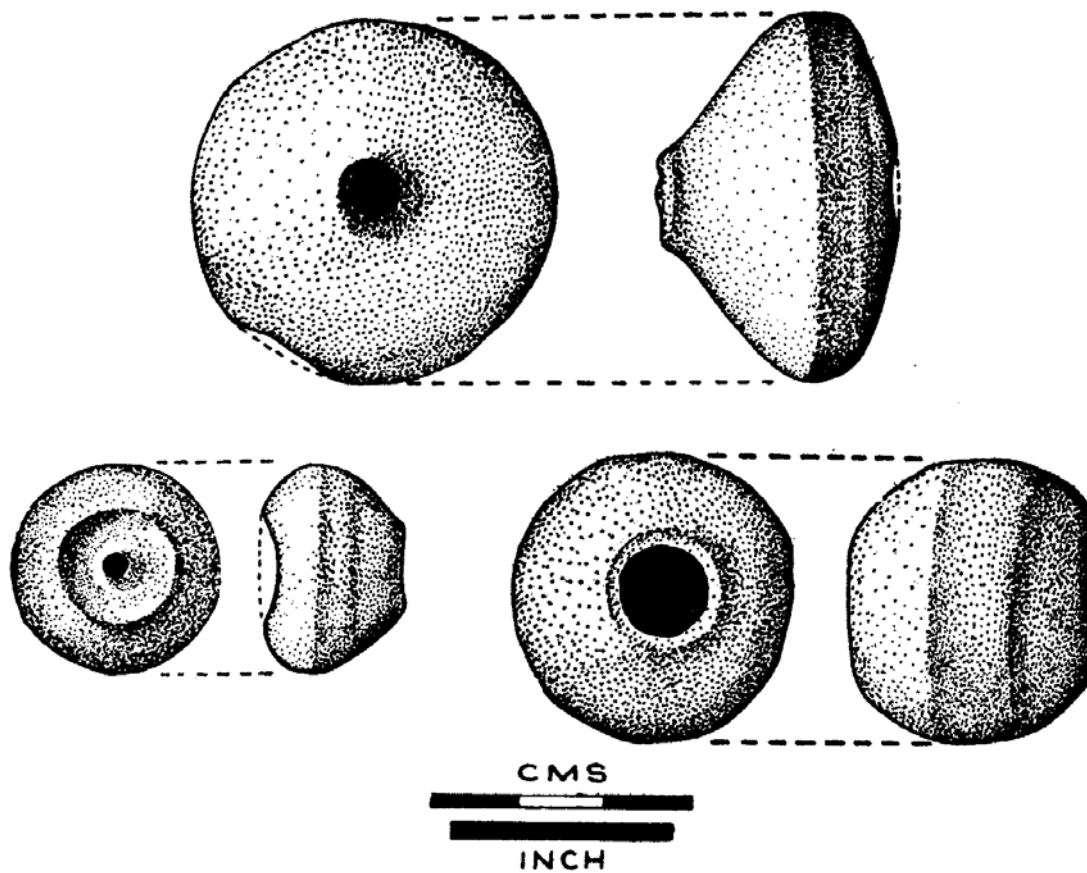
The most likely explanations for depopulation of large settlements and increase in small sites are the climatic and hydrological shifts that occurred at approximately 2200 BC (reviewed in Chapter Three). The introduction of *kharif* (summer) crops might have made certain areas more agriculturally productive than those that had been used for *rabi* (winter) crops (Possehl 1980; Sonawane 1994–95:9). Steven Weber demonstrates the significance of the introduction of millet to Saurashtra through his work at Rojdi (1991:170-86). Seetha Reddy (2003:14) studied the importance of millet varieties at Oriyo Timbo and Babar Kot to determine their uses as human food or animal fodder during the post-Urban phase. She discovered that Babar Kot was more heavily engaged in monsoon agriculture/kharif crops than Oriyo Timbo, a pastoralist settlement where millets were acquired through trade rather than locally grown (Reddy 2003:138, 153). The increased reliance on pastoralism is also indicated by the expansive geographic distribution of diagnostic fossil types such as Lustrous Red Ware, found as far as Ahar (IC) and Navdatoli (Phase I)(Sankalia et al. 1958), which is 300 km upstream the Narmada River from the Gulf of Khambhat.

The post-Urban phase in Gujarat is defined by Rangpur periods IIB and IIC, dating to roughly 2100–2000 BC and the last phase of a discernible Harappan tradition in Gujarat is represented by Rangpur Period III, also known as the Lustrous Red Ware (LRW) phase. Based on radiocarbon dates from LRW layers at Prabhas Patan, Ahar, Chandoli and Navdatoli, this phase can be bracketed to between 1900 and 1400 BC (Bhan 1994:82). Other occupations used to define the post-Urban phase in Gujarat are

Lothal B, Rangpur III, Prabhas Patan III and Rojdi C. More than 50 percent of the known Chalcolithic settlements in North Gujarat belong to this period (as they contain LRW), and sixteen of them contain various ratios of regional ceramic types (Bhan 1994:82). The kinds of wares most closely associated with this period are Lustrous Red Ware, Painted Black and Red Ware and Coarse Red Ware.

Beads

One bead shape first appears during the post-Urban phase and can be used to roughly estimate chronology. This type is a bead shaped like an areca nut (Figure 4.19). Many beads of this type were found at Ahar and divided into subgroups based on subtle differences in shape. The areca-nut beads found at Moti Pipli and Zekhada most closely resemble those recovered from Ahar periods IB-3 and IC-3. However, areca nut beads have also been reported from Prabhas Patan from the Medieval Period (in the upper layers of Trenches I and IV on Mound III) (Nanavati et al. 1971:74), demonstrating their prolonged presence in the archaeological record.



Areca-Nut Shaped Beads from Ahar
(Sankalia 1969)

Figure 4.19 Areca Nut Shaped Beads

Ceramics

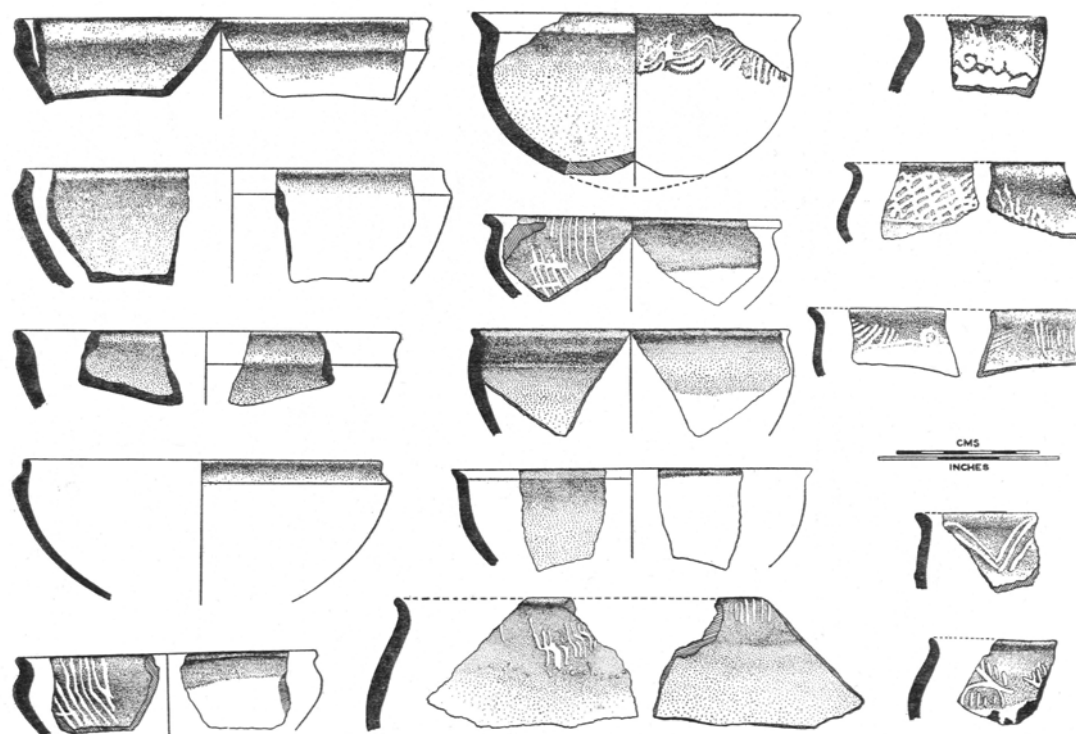
There are three principle kinds of ceramics associated with the Post-Urban Phase: Black and Red Ware, Ahar White-painted Black and Red Ware and Lustrous Red Ware. The latter two are highly distinctive, but the first presents problems when used as a type fossil.

1) *Black and Red Ware*: This term is used quite often in the archaeological literature; it ideally describes pottery that has a red-slipped exterior and black interior, a distinctive combination. This effect can be achieved through pigmented surface treatments or by using a particular firing technique wherein vessels are stuffed with organic material before firing to create an oxygen reducing environment within the vessel (Orton et al. 1993:133, Rice 1987; Miller 2007:125). However, this term is also used to refer to pottery that is generally red (due to an oxidizing firing environment) but has black patches resulting from poor temperature control during the firing process. Such variations in manufacturing technique cause ambiguity whenever the term is applied to the ceramics from a particular site as there is little uniformity across sites. Another complicating factor is the observation that most pottery from Chalcolithic Gujarat is red, black or both depending on the oxygen level within the kiln or firing pit. This is true for pottery from occupations widely separated by time and space. There seems to be a significant time gap between Loteshwar and Kanewal, but reports from both sites include references to Black and Red Ware. Thus “Black and Red Ware” has little value as a diagnostic fossil.

2) *Ahar White-painted Black and Red Ware*: An important exception to the term “Black and Red Ware” is the variety called Ahar White-painted Black and Red Ware (Ahar BRW). The type-site for this ware is Ahar and it is most closely associated with the Ahar-Banas cultural complex defined at other sites including Gilund and Balathal. Ahar sites are approximately 250 km northeast from North Gujarat in the Mewar plains of Rajasthan. This pottery is present in the earliest layers of Ahar (IA, approximately 1940–1765 BC) and continues into the beginnings of Phase II (Sankalia et al. 1969:Figure B). It should be noted that the domestic architecture at Ahar – clay structures with stone foundations furnished with *chulhas*, querns and storage pots embedded in floors – implies a very sedentary agricultural population (Sankalia et al. 1969:217). It is not clear where the Ahar BRW in Gujarat was manufactured, but given its wider regional distribution in the eastern Aravallis, it is unlikely that it was originally imported from the west by the inhabitants of North Gujarat. Although Ahar BRW is generally associated with dates somewhat later than the Urban Phase as expressed in Gujarat, it has been found in Urban Phase occupations at Lothal A and at Desalpur (*IAR* 1963–64a:12). Other sites in Gujarat where it has been found include Nagwada, Zekhada (both of which are discussed in detail in Chapter Five), Surkotada IC, Rangpur IC-III and Vagad (Herman 1997:97).

At Ahar, five principle shapes have been defined: bowl, dish, dish-on-stand, globular vessel and elongated vessel (Figure 4.20 Ahar BRW) (Sankalia et al. 1969:18), with bowls being most prominent. The vessels were constructed in two stages: first they were worked on a wheel and then hand-molded and shaped with a dabber (Sankalia et al. 1969:27). In Gujarat there is an interesting convergence with shapes typical of Sorath

Harappan pottery. At Surkotada some of the White-painted BRW bowls have a degree of carination similar to Lustrous Red Ware examples (Herman 1997:99). The Ahar BRW bowls found at Nagwada, Zekhada and Lothal A are either stud-handled, round or convex-sided. The decorations are always confined to the shoulder (Sankalia et al. 1969:27). There are sub-varieties of this ware (based primarily on surface finish) that were either left matte or were burnished (Sankalia et al. 1969:28). This likely indicates local production of Ahar BRW in Gujarat, a point discussed later in this chapter.



Ahar White-Painted Black and Red Ware
(Sankalia et al. 1969:30)

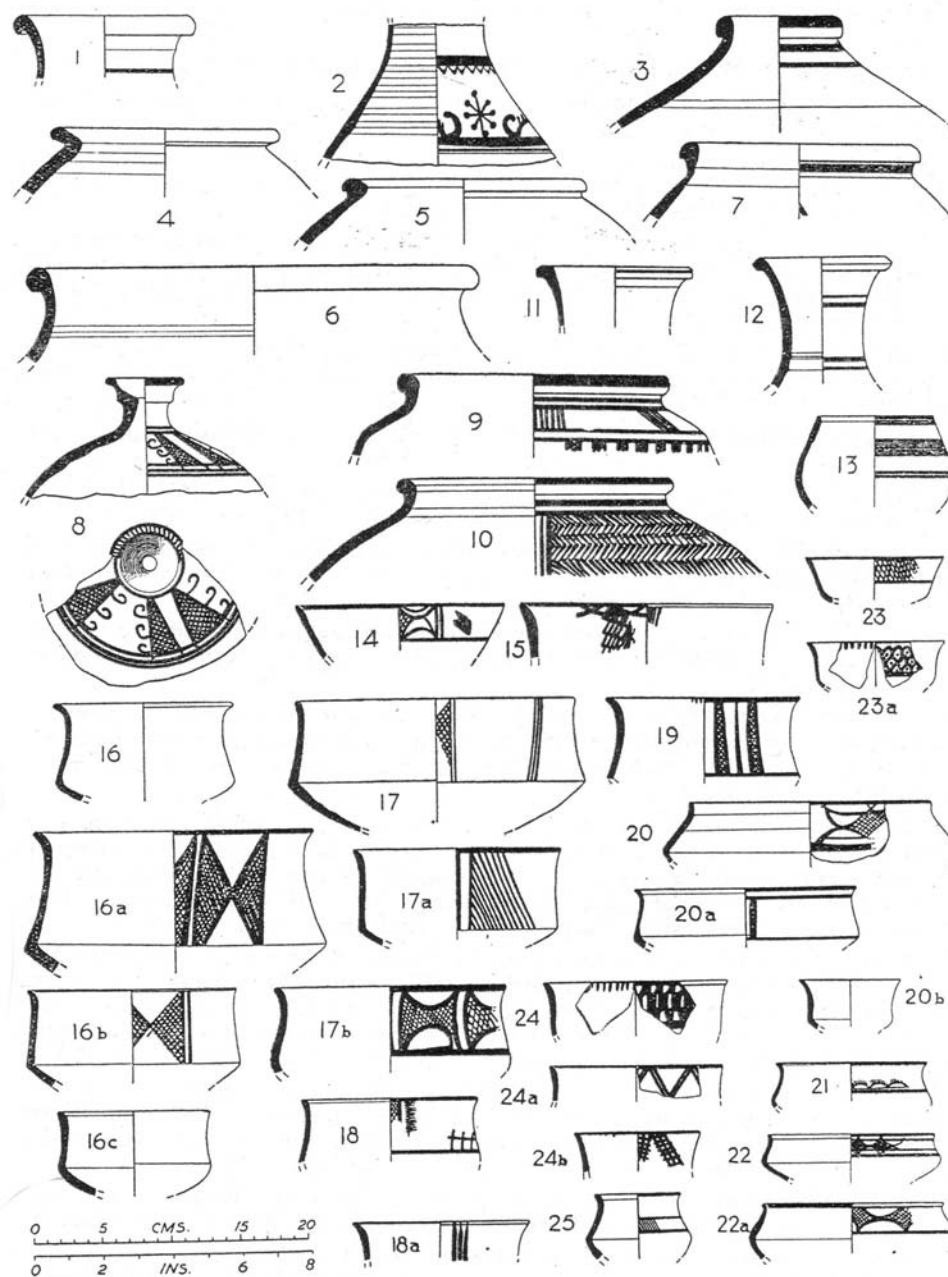
Figure 4.20 Ahar White-Painted Black and Red Ware

3) *Lustrous Red Ware*: The term “Lustrous Red Ware” refers to its distinctive surface treatment. It has a thick red slip burnished to a high gloss, making it easily distinguishable from other red wares (Possehl 1980:43). The most characteristic shapes are the sharply carinated bowl and dish with beaded rim (Figure 4.21).

In Gujarat, Lustrous Red Ware (LRW) serves as a primary marker of the post-Urban phase. Its date range is estimated to be between 1900 BC and 1400 BC based on radiocarbon determinations from Ahar, Chandoli, Navdatoli and Prabhas Patan (Bhan 1992:175). Possehl (1980:44) proposes a modified date range of between 1800 and 1200 BC to accommodate the presence of this ware in Ahar Phase IC and Navdatoli Phase IV. LRW is closely associated with Periods IIC-III at Rangpur (Herman 1997:83); this is also one of the occupations that define the post-Urban phase in Gujarat (Rao 1963). Other sites where it is reported include Adkot, Ahar IC, Kanewal, Ratanpura, Zekhada, Pithad, Oriyo Timbo, Rojdi C, Prabhas Patan III, Navdatoli Period I and Phase III and Chandoli II (Bhan 1989:226). Kuldeep Bhan makes an interesting suggestion regarding the distribution of LRW in areas far from its greatest concentration in Saurashtra. Given the rise of smaller settlements and more intense exploitation of domesticated fauna, he asserts that the presence of Lustrous Red Ware at Ahar and Navdatoli may be due to the increasing popularity of mobility as an economic strategy during this period (Bhan 1994:84).

However, not all sites in Saurashtra dating to the post-Urban phase in Gujarat produced LRW (see Rajesh and Patel 2007:112–34 for a differentiation of LRW sites from contemporary sites where it is absent). Its absence in Lothal B and its paucity in

Rajdi C are significant, as those occupations also represent the kinds of technological and population changes associated with the post-Urban phase (Herman 1997:99). In an attempt to eliminate confusion when correlating pottery with time periods, Herman (1997:99) proposed that the time period for the post-Urban phase should be truncated to between 2000 and 1800 BC (prior to the appearance of LRW).



Lustrous Red Ware from Rangpur
Rao 1963

Figure 4.21 Lustrous Red Ware

Fusion Wares and the Convergence of Material Traditions

Though this chapter has been structured chronologically, there are many ambiguities created by correlating ceramics with specific times and places. Within Gujarat – mostly at sites near the Rann of Kutch – hybrid ceramics (here called “fusion wares” as a deliberately nonspecific term) demonstrate unique connections in material traditions (Figure 4.22). Many scholars have noted the existence of imitations (such as Sindhi Harappan perforated jars executed in Gritty Red Ware) but none have discussed the implications for their existence at length. The most important example of this is the Ahar BRW stud-handled bowl. There are deeper sociocultural implications for these fusion wares when one considers the potential motivating factors behind their creation. Admittedly, their existence is difficult to establish as something other than artistic whim; however, the *systematic* appearance of certain fusion types at separate sites indicate markets for particular hybrid styles as opposed to individual creative inspiration.

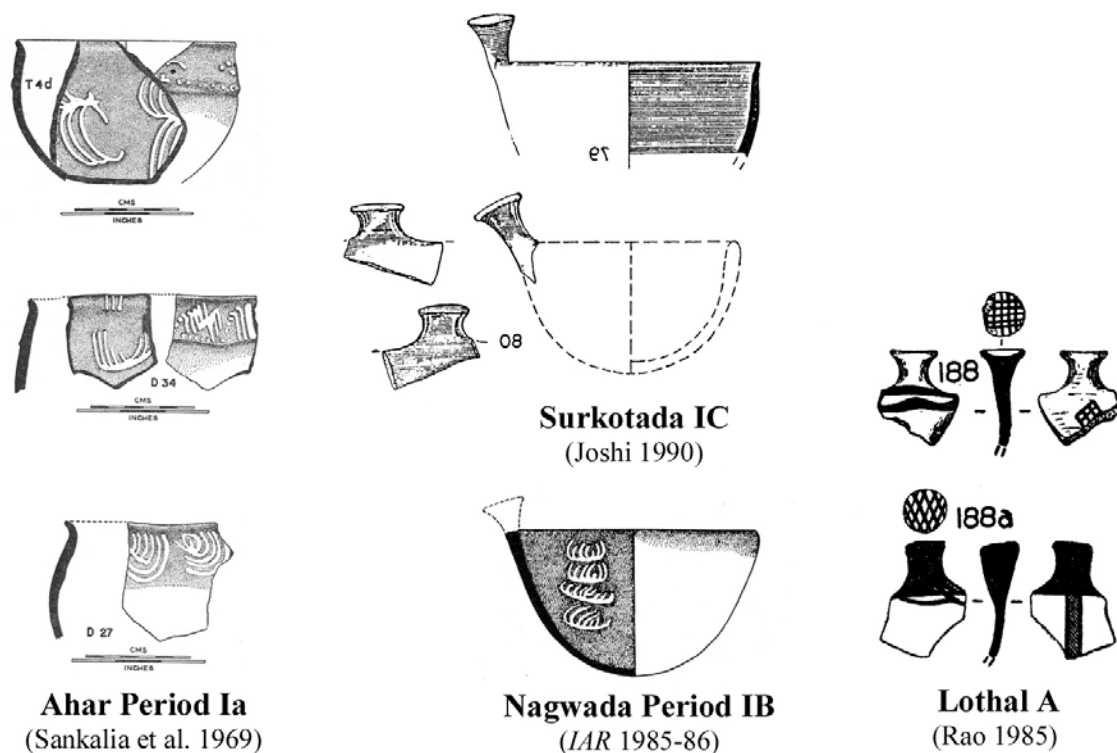
The first instance of a “fusion ware” is seen at Lothal, where vessel shapes that originally appeared in Micaceous Red Ware are copied in Harappan Red Ware (Rao 1985:395). Specific shapes are not mentioned in the monograph but this observation probably refers to stud-handled and convex-sided bowls. Some Anarta Ware vessels from Nagwada and Moti Pipli reportedly imitate Sindhi Harappan shapes (such as the dish-on-stand and perforated jar) and were made using a fast wheel as opposed to the slow wheel typically employed for Anarta ceramics but are still constructed from the same coarse

clay mixture that composes Gritty Red or Gray Ware (Ajithprasad and Sonawane 1993:13)²².

The most common shape of Ahar White-Painted BRW in Gujarat is the stud-handled bowl, which has a long history of popularity in Saurashtra. As discussed above, this shape first appears in Micaceous Red Ware in early layers at Lothal and Rangpur. This vessel type is almost exclusively found in Saurashtra *except* for the Ahar BRW specimens, which are found in North Gujarat and Kutch. One specimen was found in the uppermost layer of Phase I at Bagasra (Sonawane et al. 2003:30) though it is surprising that it was found in a level most closely associated with Sindhi Harappan and Anarta wares. Wares from Saurashtra (Sorath Harappan and Micaceous Red Ware) only begin appearing toward the end of Phase II at this site, demonstrating the popularity of this shape prior to the introduction of the kinds of wares it is typically associated with. These bowls are particularly common at Nagwada and Surkotada²³.

²² These specific vessels have not been published.

²³ Pottery analyses from Dholavira have not yet been published but it is very likely Ahar BRW stud-handled bowls also appear at this site.



Ahar Black and Red Ware Stud-Handled Bowls

Figure 4.22 Ahar BRW Stud-Handled Bowls

These fusion wares present at sites in North Gujarat provide evidence for the convergence of material culture traditions at specific locations. Most of the sites at which they are found (Bagasra, Lothal, Moti Pipli, Nagwada and Surkotada) belonged to the Indus Civilization (shown through materials such as seal impressions and brick architecture). These sites have broad artifact inventories and some of them, like Bagasra, Lothal and Surkotada, seem to be the most densely populated sites during the Mature

Harappan phase. The admixture of wares indicates a milieu of material traditions at these sites and the fusion wares were made to cater to specific tastes and markets.

This review of cultural phases, regions and material traditions creates the greater context within which the Chalcolithic sites of North Gujarat must be understood. The broad spectrum of materials in this region attests to the wide range of economic strategies and networks expressed at multiple occupations.

CHAPTER FIVE: THE ARCHAEOLOGY OF NORTH GUJARAT

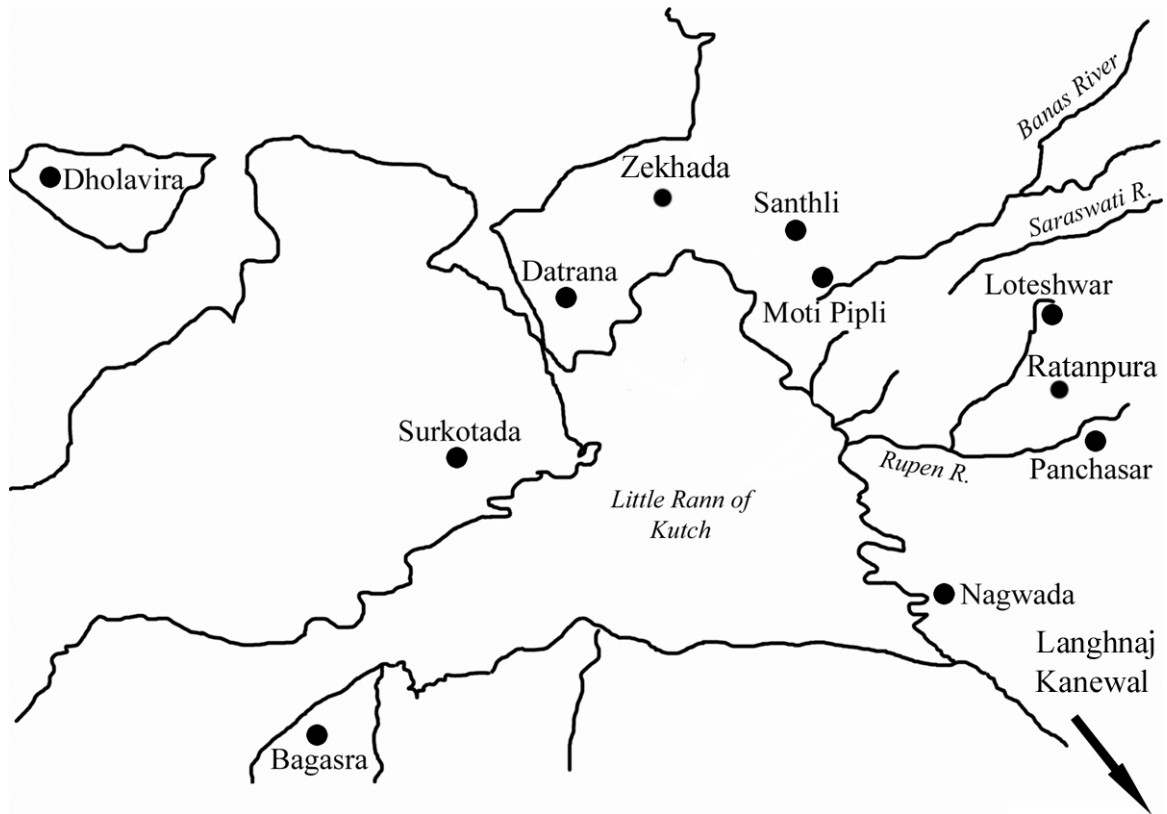
Introduction

As described in the previous chapter, there were numerous distinct forms of material culture circulating in the western portion of South Asia during the fourth through second millennia BC. More important, this is a time of florescence for forms of economic specialization among particular communities – as craftspeople, pastoralists and administrators. The manifold populations composing Chalcolithic western South Asia are best represented by the archaeological sites of North Gujarat, for within this rather small region there is evidence of numerous communities pursuing a range of lifestyles marked by patterns in material culture and occupational deposits (Figure 5.1). The unique physical features of this region – clusters of relict sand dunes and accompanying depressions – made for an environment simultaneously beneficial for pastoralists and unsuitable for long-term occupation. Mobility became a key adaptive strategy that, in turn, facilitated local circulation of peoples and various forms of material culture.

The themes of pastoralism, regional cultural development and large scale economic networks have all sprung from the small scale projects in North Gujarat. Interpretations are based on observed similarities among these sites. However, a detailed examination of each site and a systematic comparison of sites offer a more nuanced approach towards understanding past forms of cultural development and interaction. This section is composed of detailed descriptions of the following sites: Loteshwar, Santhli, Datrana, Moti Pipli, Nagwada, Langhnaj, Zekhada, Ratanpura and Kanewal that show

precisely what kinds of features and materials are present at each and how this data represents economic interactions and strategies. Each site section includes an evaluation on the degree of mobility and material variation at each site.

It should be noted that not all sites were excavated for the same amount of time. Nagwada was excavated for five consecutive seasons and Langhnaj intermittently over a twenty-four-year period. In contrast, Loteshwar, Santhli and Moti Pipli were each excavated for one season. Thus the habitation area excavated and volume of material recovered vary from site to site. However, although the relative sizes of assemblages differ, this does not necessarily alter interpretations of relative mobility and material diversity.



Chalcolithic Settlements near the Little Rann of Kutch

Figure 5.1 Sites Discussed in Chapter Five

Loteshwar

The first site presented is Loteshwar, arguably the earliest Chalcolithic site in North Gujarat. It is also a touchstone for discussions on pastoralism and Anarta Ware, phenomena relevant to other sites throughout the chapter.

Introduction

The site of Loteshwar (23° 36' 03" N; 71° 50' 20" E; Sami Taluka, Mehsana district) is located on a high sand dune on the bank of the Khari Nadi, a seasonally active tributary of the Rupen River in what is currently the Mehsana district. Initial excavations and surface collections were carried out by the Department of Archaeology and Ancient History, Maharaja Sayajirao (hereinafter MS) University of Baroda during the winter of 1990–91 on four sections of the dune. As a result of the surface collections, it was determined that the Microlithic occupation covered a much larger surface area on the mound than the later periods, which were restricted to its apex (Figure 5.2). The maximum habitation depth in all trenches was 1.65m.

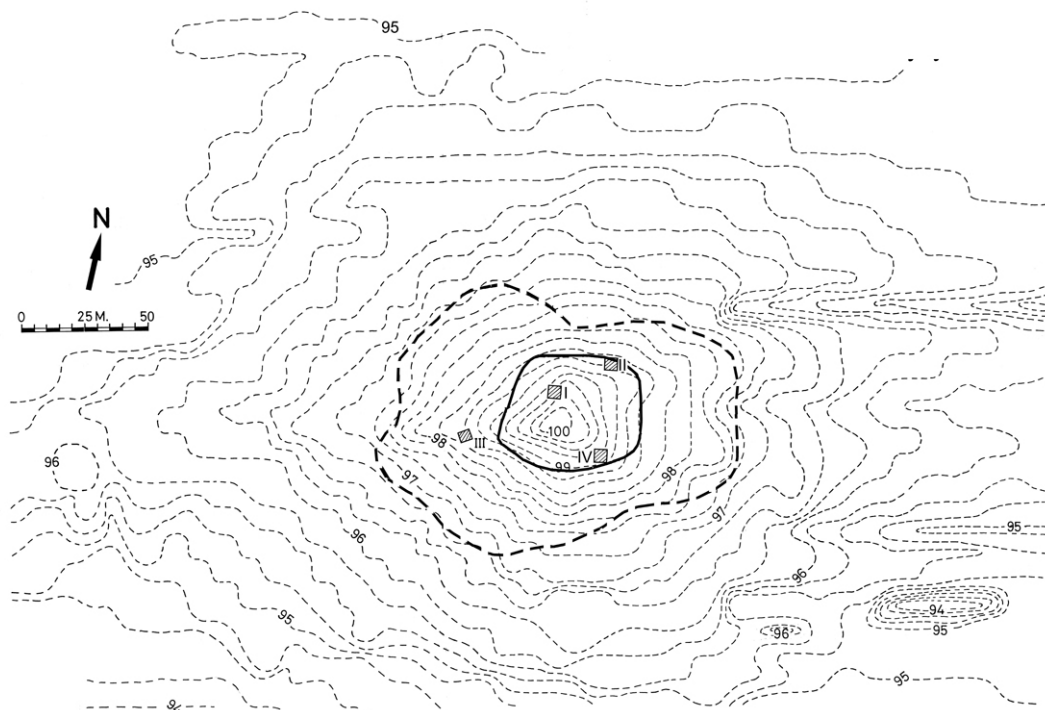


Fig. Khari no timbo, Loteshwar: Contour features and plan of excavated trenches



-  Approximate boundary of Mesolithic occupation
-  Approximate boundary of Chalcolithic occupation

Image courtesy of P. Ajithprasad, MS University of Baroda

Figure 5.2 Loteshwar Contour Map

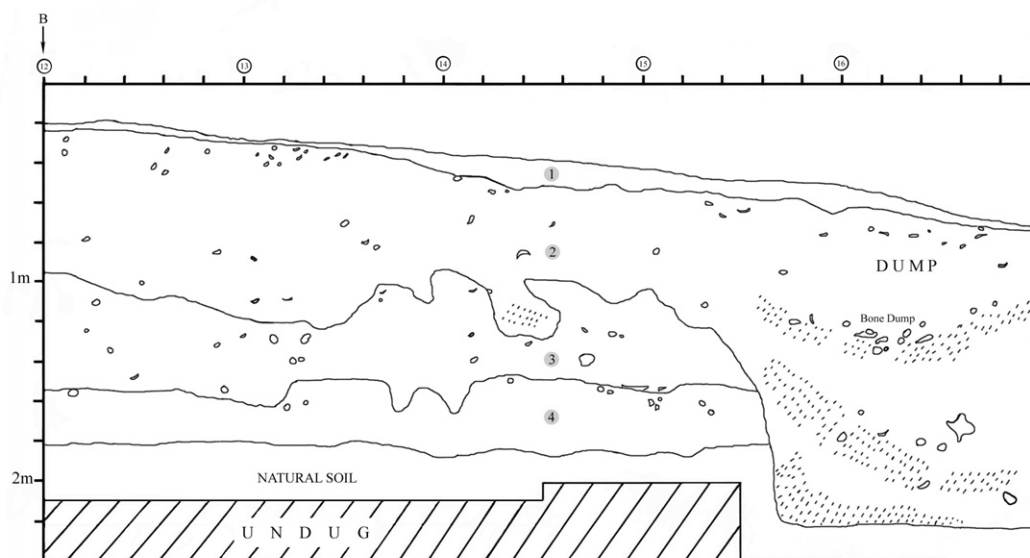
Loteshwar displays two phases of occupation. Period I (the Microlithic period) has no known features. Period II (Chalcolithic) has two human burials and a number of pits. The artifacts recovered from the second phase reflect the general selection of object classes found in Chalcolithic western India, including ceramics, stone tools, bone tools, ornaments and copper. AMS dates from Period I faunal remains give a date of approximately 7000 BC (Meadow and Patel 2003). The radiocarbon dates from Period II

date to between 3703–2250 BC (refer to Table 4.1). Loteshwar had been intermittently occupied for approximately 5000 years, only the last 1100 years of which belonging to Period II. This camp has the longest settlement history among all the sites reviewed in this chapter.

The wide gap between the dates from the Microlithic and Chalcolithic layers implies a break in occupation (Meadow and Patel 2003:74), but there is no stratigraphic discontinuity to support this and the fluorine bone tests indicate there was a shorter gap between Periods I and II at Loteshwar than at Datrana and Moti Pipli (Ajithprasad 2004). The only physical distinctions between the two occupations are the kinds of artifacts and fauna represented. Microliths are prolific in both layers, but pottery and copper are only present in Period II.

Features

No features are associated with Period I. The two types of features associated with Period II are a few very large trash pits and two burials.



Loteshwar 1991
Trench I Section facing North

Trench drawing courtesy of the M. S. University of Baroda,
Department of Archaeology and Ancient History

Figure 5.3 Loteshwar Trench Section

The pits had been cut down through the Mesolithic layers into the natural soil and backfilled with soil from all layers, which complicates stratigraphic analysis (IAR 1990–91a:16). Burnt clay lumps with reed impressions were found, suggesting ephemeral wattle and daub structures (Sonawane 2005:209). The pits contained a mixture of animal bones (suggesting an intensification of animal exploitation), ash, potsherds and *mustikas* (Bhan 1994:77). Despite the size of the pits, they covered less than 40 percent of the excavated area (Ajithprasad, personal communication).

Two human burials are associated with this period: one is in a crouched position and the other is in an extended position (*IAR* 1990–91a:16). The Trench I burial (flexed) was associated with microliths and possibly one dentallium bead. For stratigraphic reasons (taphonomic considerations notwithstanding), this burial should be assigned to the earliest phase of Chalcolithic occupation. No ceramics were associated with it. In the Trench III burial (extended), associated grave goods found deposited near the neck of the skeleton include two dentallium shells (which may have been used as pendants) and a chert blade. Additionally, a punctured bivalve shell was found in the same layer as the burial and might also have been an ornament.

Artifacts

Lithics: The Period I layer contained many microliths, flat sandstone “palettes” (similar to those from Santhli), grinding stones and hammer stones. Tools were made of chert, chalcedony, jasper, agate and quartz, all of which would have been locally available. Shouldered bone points are described by Bhan (1994:74) as “distinctive” tools, though only two specimens were found. Red and yellow ochre “crayons” bearing wear marks were also recovered.

The vast majority of lithic tools were made from the cryptocrystalline quartzes, primarily chalcedony and agate, which are today abundant in riverbeds. The vertical distribution of lithic materials indicates that lithic production was more prolific during the Period II occupation. The Period II deposits were half the thickness of the Period I layers

but had double the lithic materials (including both waste and finished tools), implying that lithic production was much more intensive during the later occupation, which seems to have been shorter. The most notable feature of the Loteshwar microliths is that there is no evidence for the use of the crested guiding ridge technique as employed at contemporary sites. Quite a few grinding stones were found as well, predominantly in layers 2 and 3 in trenches I and II.

Metal: Only two pieces of highly corroded copper were found, one during surface collection and the other recovered from a pit.

Terracotta: Thirty two terracotta pellets were found, mostly from layer 2. Pellets are associated with the use of pellet bows, tools for hunting small game (see the entry for specimen Pellet Bow 1902.88.64 at the Pitt-Rivers museum online gallery for more information on manufacture and use). One ambiguous quadruped animal figurine was on the surface. Several *mustikas* were recovered from various pits. Bhan (1994:77) remarks that typically Harappan antiquities (such as terracotta cakes) are absent at Loteshwar.

Beads: Most beads were found in layer 2 (Chalcolithic) and the pits which contained mixed materials from layers 2 and 3 (Microlithic and Chalcolithic). As shown in Table 5.1, most beads were either steatite or unaltered dentallium shell with few other materials represented. Samples of the various bead shapes are displayed in Figure 5.4. The steatite beads suggest that Loteshwar had at least partial contact with Early or Mature Harappan settlements, as there is no evidence for local steatite bead production.

<i>Bead Material Type</i>	<i>No. of Specimens</i>	<i>Stratigraphy</i>
Steatite	36	Surface; layers 1, 2, 3; pits
Dentallium	28	Layers 1, 2, 3
Shell	5	Layer 2
Amazonite	2	Layer 2; pits
Carnelian	1	Layer 1
Terracotta	1 (possible spindle whorl)	Pit

Steatite



(side and cross section views) (1 of 11 beads)

Shell



(front and back)

(front and back)

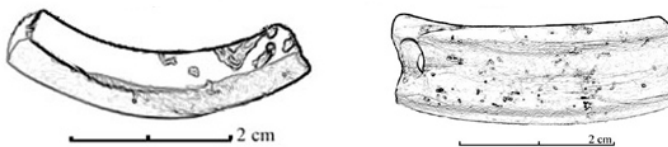
Amazonite



Carnelian



Shell Bangles



Loteshwar Ornaments

Figure 5.4 Loteshwar Ornaments

Bangles: The bangles were universally made of shell and came in varied shapes and thicknesses (Figure 5.4). There were two primary varieties: smooth and beveled. The example on the left is of the beveled variety, resulting in a diamond-shaped cross-section. Some pieces have more intricate design, such as the example on the right, which has a concave surface and at some point was perforated (possibly a reuse of the object after the bangle had broken). The type of shell used to make these bangles is *T. pyrum*; the use of this species is well documented at the sites where shellwork formed a major industry (Nagwada, Nageshwar, Kuntasi and Bagasra). The ornaments from this site must have been acquired elsewhere because there is no evidence for lapidary or shellwork. The bangles were all found from layers 1 and 2 and from the pits, placing them firmly within the Chalcolithic context.

Pottery

- 1) Anarta Ware
- 2) Black and Red Ware
- 3) Reserved Slip Ware
- 4) Mature Harappan Red Ware

The ceramics from Loteswar are particularly important to the study of Chalcolithic North Gujarat, as this is the type-site for Anarta Ware. The paucity of Mature Harappan pottery supports the idea that the inhabitants were relatively independent of Indus social and economic networks (Ajithprasad 2002:144). Only a handful of sherds of other kinds of pottery were found here, including BRW, Reserved Slip Ware and Mature Harappan Red Ware (Yadav 2005).

The Loteshwar assemblage demonstrates the wide variety of subtypes grouped under the term Anarta Ware. The majority of Anarta ceramics studied have been classified as either Gritty Red Ware (the primary version of Anarta Ware) or Red Ware. They are generally “handmade or partially wheel made vessels having a gritty core and indifferent firing” (*IAR* 1990–91a:16) and are compared in terms of shape and decoration to pottery from Nagwada, “polychrome pottery from Surkotada” (*IAR* 1990–91a:16), Sothi ware, the bichrome wares of Jalilpur and Kalibangan Type A (Ajithprasad 2002:143) and “non-Harappan” ceramics from Surkotada and Nagwada (Bhan 1994:77). Its most important similarities are to Padri Ware (Shirvalkar 2008). These analogies are based primarily on the presence of white and cream pigment, which was most popular during the Early Harappan phases at the sites previously mentioned. Prominent shapes at Loteshwar include bowls, basins and medium-size jars/pots.

Typology of Anarta Ware from Loteshwar

(adapted from Yadav 2005)

Thickness and Texture

Gritty Red Ware (59.5%)

Gritty Red medium grit

Gritty Red coarse grit

Gritty Red with Buff slip

Gritty Buff Ware

Fine Red Ware (4.08%)

Coarse Ware

Coarse Red with matte surface (32.8%)

Coarse Grey with matte surface (0.7%)

Burnished Red Ware (0.6%)

Burnished Grey Ware (0.2%)

Surface Treatments

Burnish

Burnished Red

Burnished Grey

Slip

Red slip

Chocolate slip

Buff Slip

No slip

Decorations

Reserved pattern

Painted

Monochrome

Bichrome

Horizontal lines

Vertical lines

Wavy lines

Net pattern

Fish scale

Latticed circles

Incised

Strokes

Slashes

Figure 5.5 provides a sample of the most frequent shapes found in Anarta Ware at this site, particularly Gritty Red Ware. The pot is the most common shape in Anarta Ware at Loteshwar²⁴, generally with a flared rim, constricted neck, bulbous body and round base. Large pots have a thick rim, short neck and bulbous body (Yadav 2005:60). The basin is the second most common shape, almost all of which were made in Gritty Red Ware. Bowls were found in Gritty Red Ware, Fine Red Ware and Black and Red Ware. The rims of bowls display many variations. Common shapes include a bowl with a straight or slightly curved rim and a convex body. In contrast, dishes and dish-on-stands were very rare. Loteshwar pottery is intricately painted with black, chocolate and white pigments in motifs distinct from the Urban Harappan corpus (refer to Figure. 5.6) (Yadav 2005:66). Unlike the ceramics of the other Anarta ware sites (Datrana, Nagwada, Santhli and Zekhda), the Loteshwar assemblage has little association with Early or Urban Harappan wares. The other wares found here – Black and Red Ware, Reserved Slip Ware and Red Ware – are in such small quantities that they are rarely mentioned in the literature. However, their presence provides evidence for connections between the inhabitants of Loteshwar and others who used the same kinds of pottery more frequently.

²⁴ A quantitative ceramics study was conducted for this dissertation but it is best dealt with as a separate project.

Loteshwar - Anarta Ware (Yadav 2005)

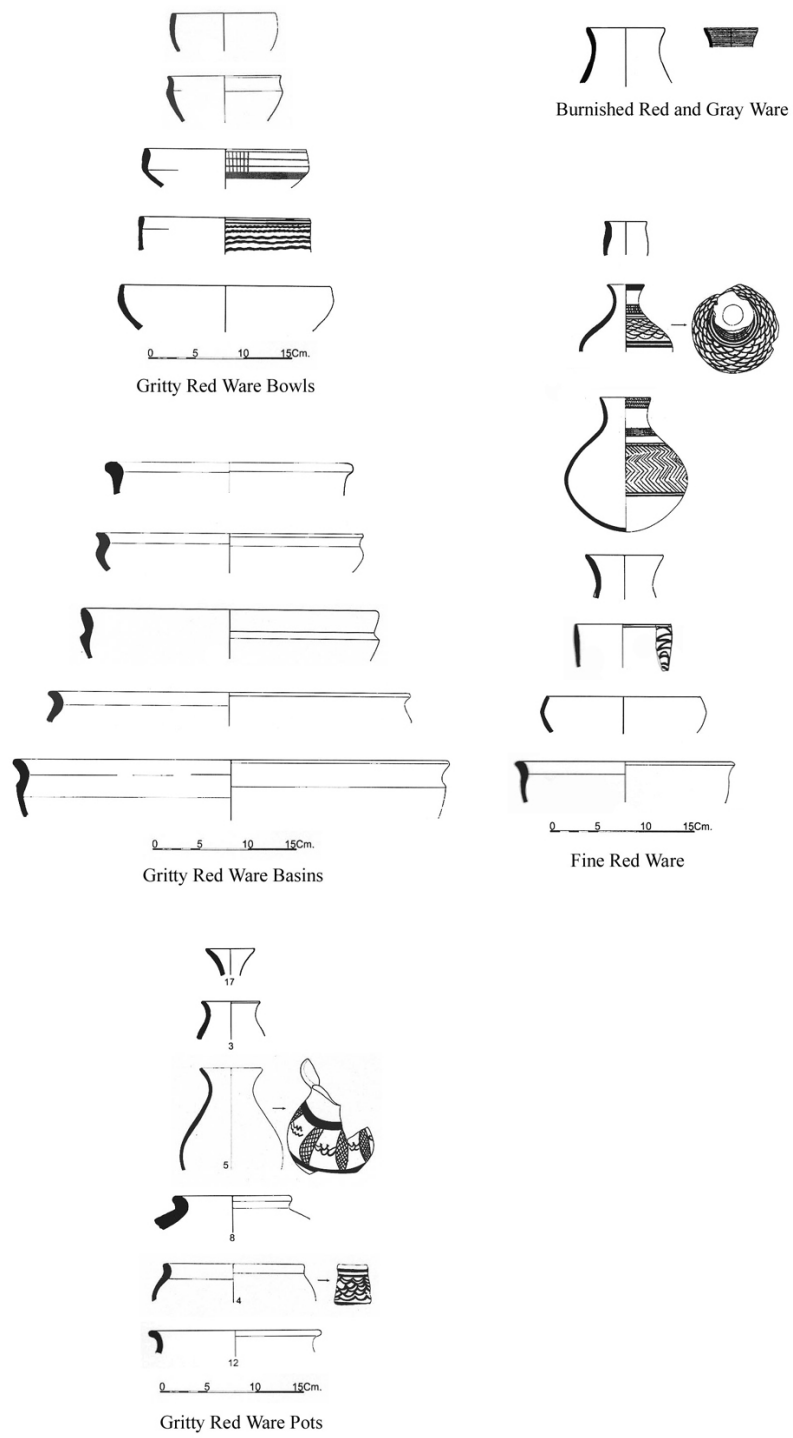
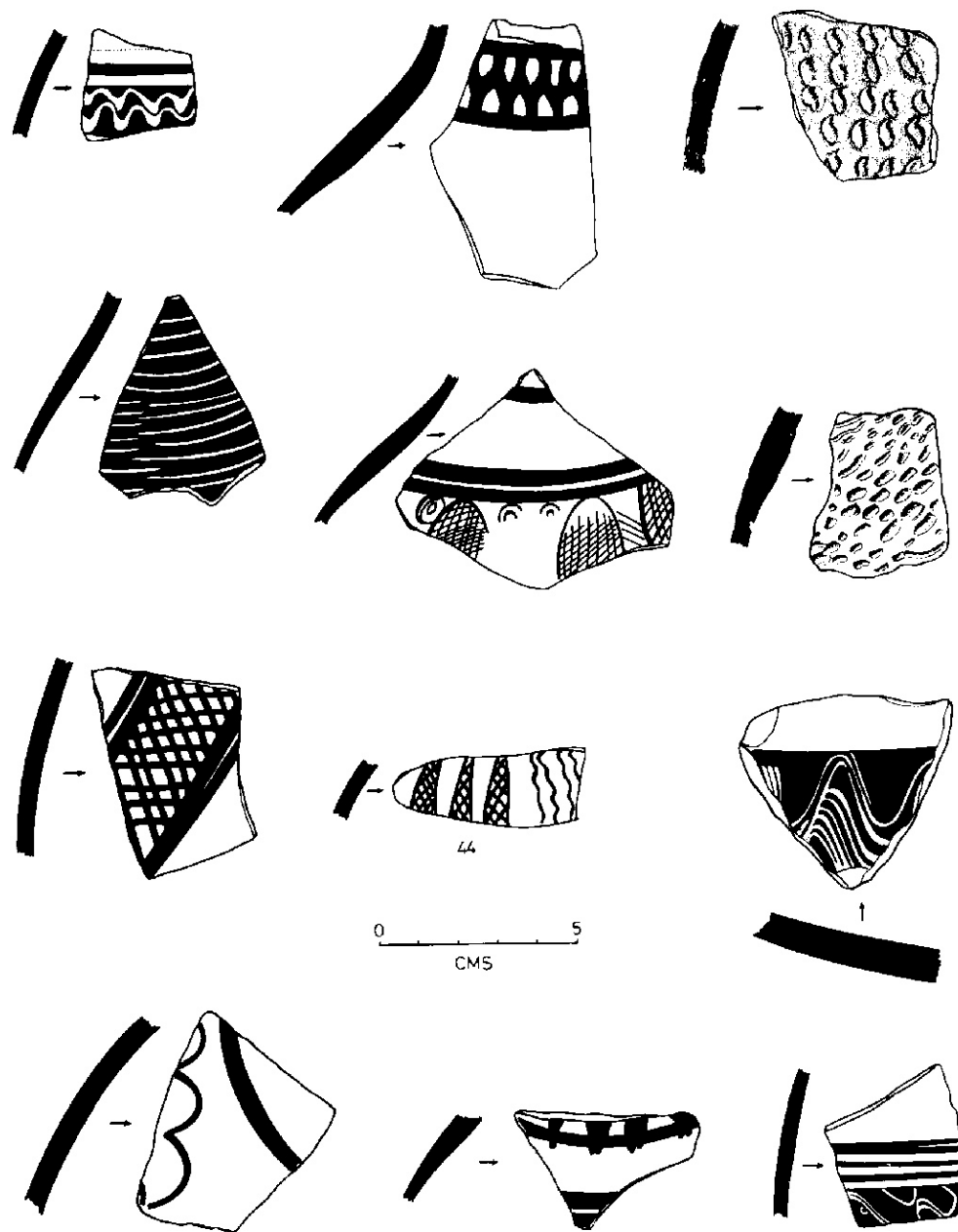


Figure 5.5 Loteshwar Vessel Shapes



Anarta Ware Motifs from Loteshwar
(after Bhan 1994)

Figure 5.6 Loteshwar Painted Motifs

Subsistence practices

Extensive work on the faunal remains conducted by Ajita Patel (Meadow and Patel 2003; Patel 2008, 2009) sheds light on Loteshwar and its position relative to the development of pastoral economies in South Asia. During the Microlithic period, only the remains of wild game were found, with blackbuck the most prominently exploited animal. Blackbuck continued to be heavily hunted during the Chalcolithic period, but domestic cattle formed a significant portion of the total collection²⁵. Interestingly, ratios of other species remained the same throughout both periods, which she interprets as possible evidence for the adoption of cattle pastoralism by a forager population (Patel 2009:178). However, Patel (2009:178) notes the possibility of mixture between Microlithic and Chalcolithic small game remains due to taphonomic processes. All this suggests a trend towards more specialized subsistence activities as part of the larger suite of technological and social changes associated with the Chalcolithic period. The chronological gap between the periods (as demonstrated by the AMS dates) makes reconstruction of a more detailed sequence difficult. Other forms of subsistence have not yet been studied, but renewed work (Madella et al. 2010) promises to enlighten archaeologists on this period of development.

²⁵ Only three sheep specimens were found, demonstrating a highly specialized form of pastoralism here (Patel 2009:183).

Indices of Mobility

1. Investment in features

Pits and burials are the sole features. The only architectural remains are from wattle and daub fragments recovered from pits, which do not imply prolonged tenure during a single occupation cycle. However, the size of the pits may correspond to a relatively large population that periodically visited this location. Unfortunately, any detailed pit analysis is complicated by extensive bioturbation (Ajithprasad, personal communication). With burials it is difficult to determine their effect on re-occupation, as there is no evidence for post-depositional alteration or what could be called ritual memory-work (Mills and Walker 2008).

2. Kinds of activities

Lithic production and pastoralism are the most prominent industrial activities here but cattle pastoralism, of primary importance. This kind of pastoralism requires access to good pasture land and fresh water. However, it is difficult to estimate the size of the catchment area for this camp, herd size or length of occupation. As noted in Chapter Four, the near absence of sheep / goat remains indicates these cattle may have been locally domesticated. One would assume that if domesticated cattle had been brought in from Cholistan, domesticated goats would also have been part of the pastoralist

“package.”²⁶ They are generally hardier animals that can subsist on wider varieties of flora than cattle, are usually kept in much larger herds and driven over wider swaths of the landscape.

Indices of material variation

1. Pottery

The pottery here is remarkably uniform, as the assemblage is dominated by Anarta Ware, with only scant representation of other types (BRW, Reserved Slip Ware and Mature Harappan Red Ware). This strongly indicates a low degree of variety in material culture.

2. Other forms of material culture

The two burials do not share any traits in common, but this is not a substantial sample size. Compared with burials at roughly contemporary and proximate sites (particularly Santhli, Moti Pipli and Nagwada), the absence of Early Harappan pottery creates a difference between these burials and the others (this could be due to any number of reasons; temporal, cultural, religious, etc.). Steatite and carnelian beads clearly demonstrate contact with Urban phase occupations but processes of this contact are

²⁶ The term “package” refers to the common co-occurrence of sheep / goat, cattle and pig as the earliest domesticated animals at Neolithic sites in the Near / Middle East and South Asia.

difficult to reconstruct with scant evidence. However, other forms of material culture (such as lithic production techniques and the pottery) show sustained independence from contemporary groups with other assemblages. Finally, absence of the crested-guiding ridge technique in blade production through both periods suggests a certain degree of technological isolation, unexpected in a region densely settled by microlith-producing peoples.

Taking all forms of material culture into consideration, the low degree of material variety at Loteshwar could be explained several ways. First, it is the earliest site in this study and the occupation may predate the beginnings of more intense regional interactions. It could also suggest that this place was used for a very specific purpose by a distinct social group that did not have consistent or extensive social connections with other communities. It could also imply that, throughout its history of occupations, resources were mostly restricted to what was locally available (as opposed to the greater range of goods seen in other sites from the Banaskantha district). A final potential explanation could be that this site was occupied to fulfill the very particular function of cattle herding, in which case a broad collection of objects would not have been necessary and may have hindered the mobility of its inhabitants (who would have considered some other location their primary residence).

Santhli

Santhli has roughly the same chronological sequence as Loteshwar – a Microlithic period followed by a Chalcolithic occupation, with no discernable stratigraphic break. As at Loteshwar, the faunal remains have been studied by Ajita Patel and Richard Meadow (2003; Patel and Meadow 1998:184). These studies yield similar information on the local domestication of animals. However, as will be shown, the patterns of material culture, particular within the burials, connect this site very closely to Moti Pipli (which is approximately 10 km away), Datrana and Nagwada.

Introduction

Santhli village in Radhanpur Taluka, Banaskantha district (23° 54' 00" N, 71° 29' 00" E) has six dunes associated with it, two of which were investigated for archaeological material. Figure 5.7 shows the position of these dunes. The first dune (Santhli I) had a total of four trenches excavated, only two of which (I and IV) yielded artifacts of note. Santhli II (locally called *Gachi no thumdo*) was excavated by the MS University of Baroda in the 1993–94 field season. Since Santhli II was studied more thoroughly, it will be the focus of this section.

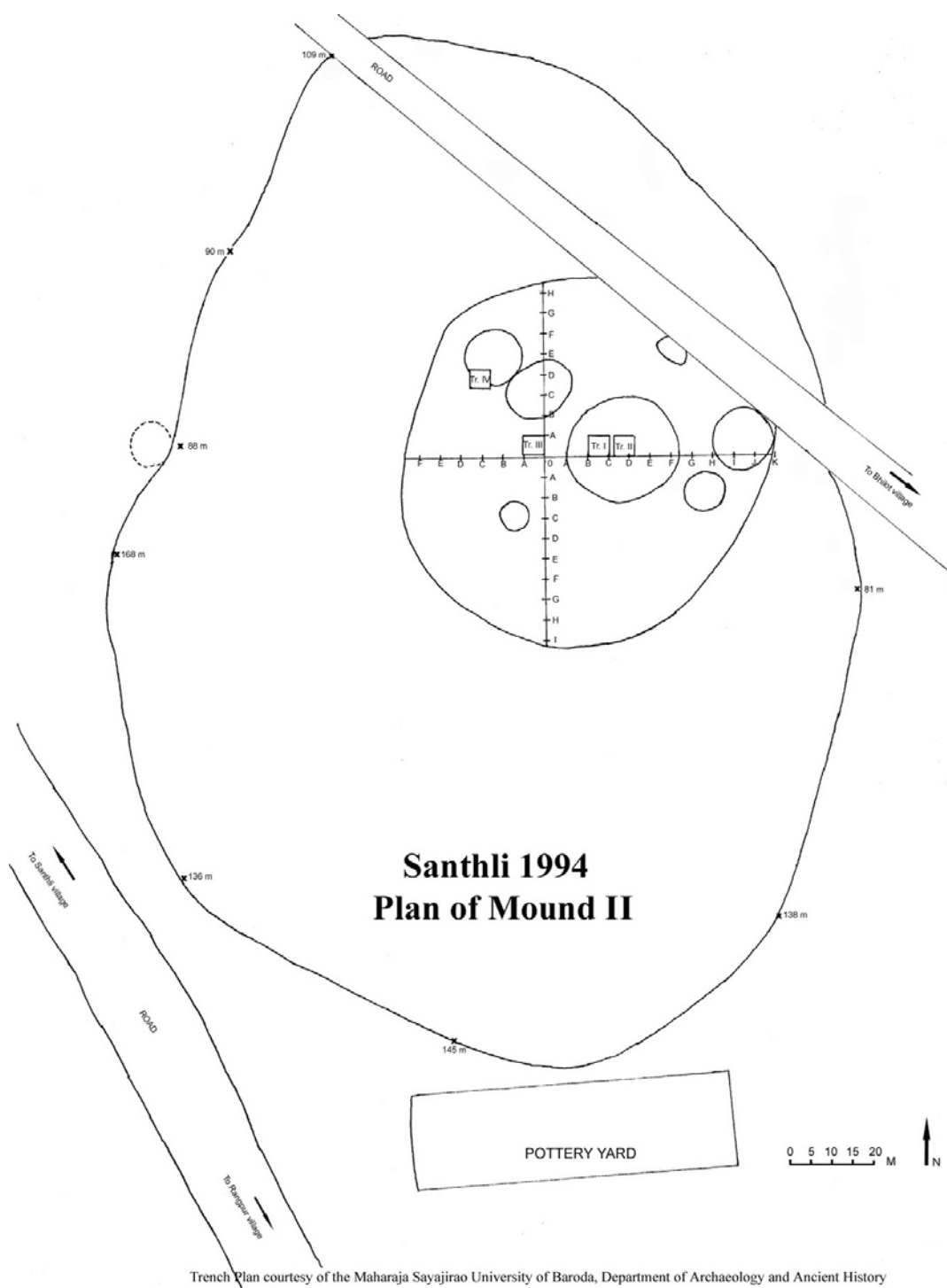
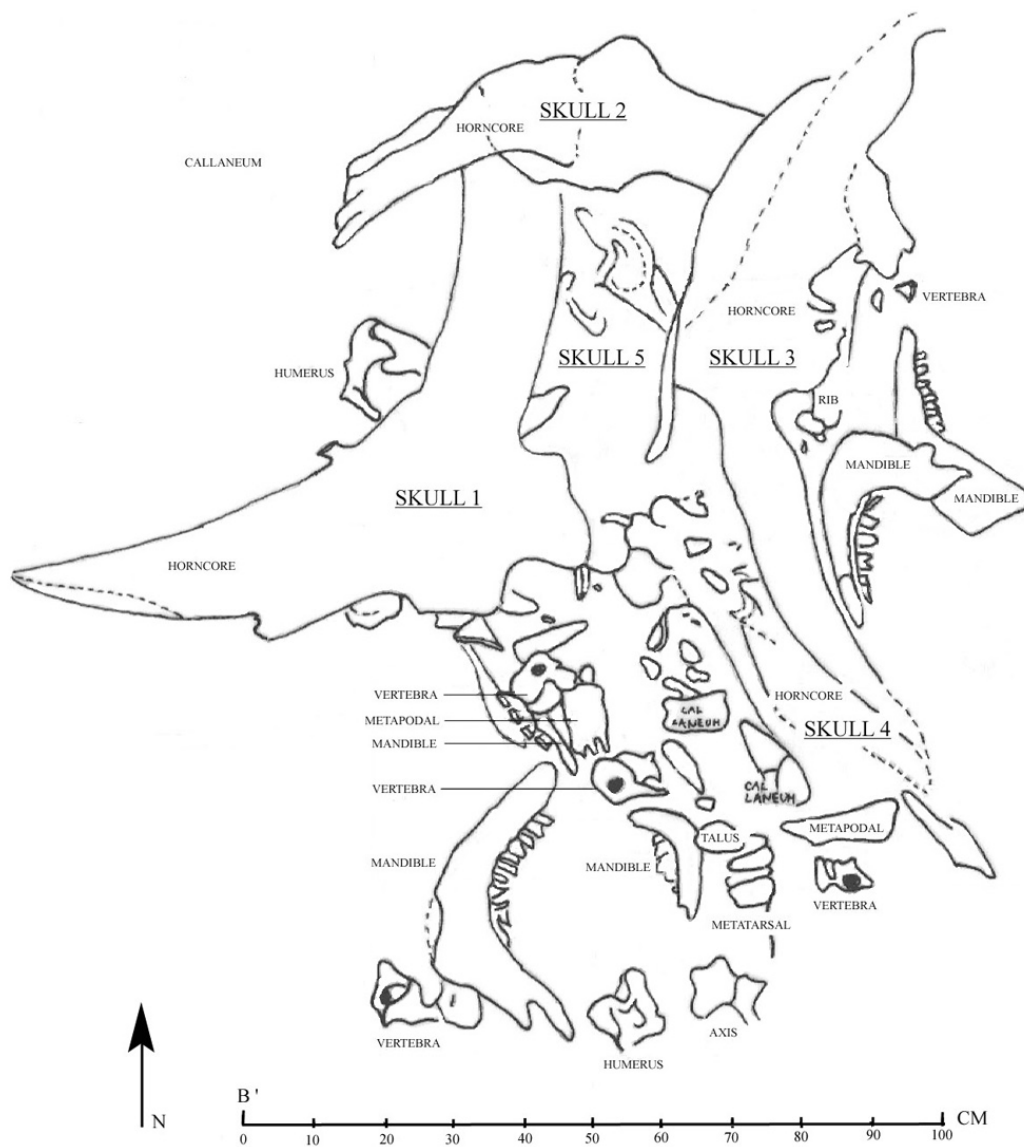


Figure 5.7 Site Plan of Santhli II

Period I (the Microlithic period) is distinguished by the large amount of faunal remains recovered, which were found in two discrete clusters in Trench IV (Patel and Meadow 1998:187; Sonawane 2005:210). One of these clusters included four water buffalo skulls with additional long bones (Figure 5.8). Microliths and sandstone “palettes” were found, and Sonawane (2005:210) remarks that the “poor representation of microlithic tools, despite a relatively dispersed habitation area, may suggest that the site was occupied only seasonally by the Mesolithic hunter-gatherers.” Majumdar (1999:165) also notes that there seems to be significantly less lithic material than what would be expected from a residential occupation.



SANTHLI 1993-94
 Mound II Trench IV
 buffalo skull dump
 37 cm below surface

Original drawing courtesy of the Maharaja Sayajirao University of Baroda, Department of Archaeology and Ancient History

Figure 5.8 Cluster of Water Buffalo Skulls

Period II (the Chalcolithic deposit) is patchy and thin compared to the Period I deposit, which it overlies without a distinct stratigraphic break save for the change in artifact profiles (Figure 5.9). While there are still microliths associated with this layer, diagnostic artifacts from this period include Early Harappan pottery and a very scant amount of beads and shell bangle fragments.

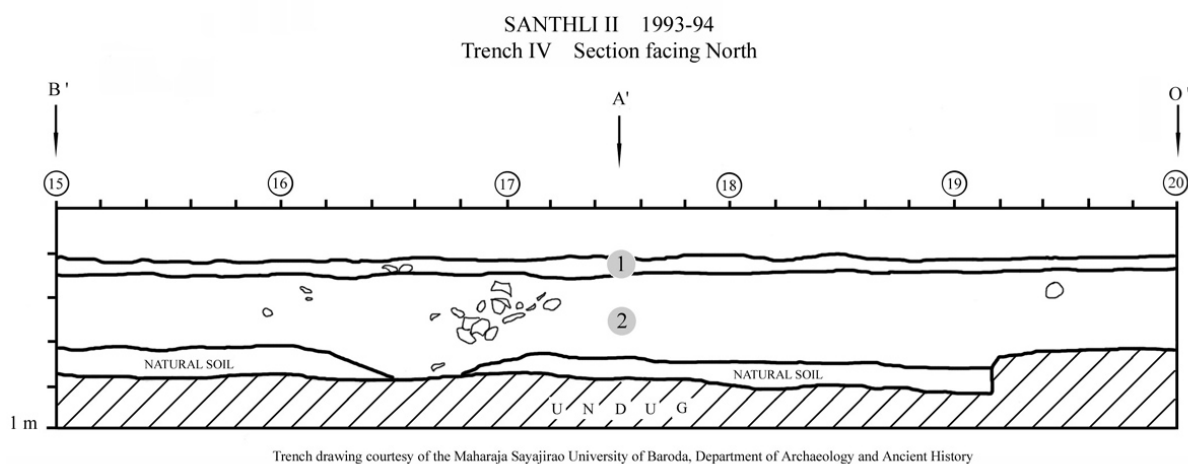
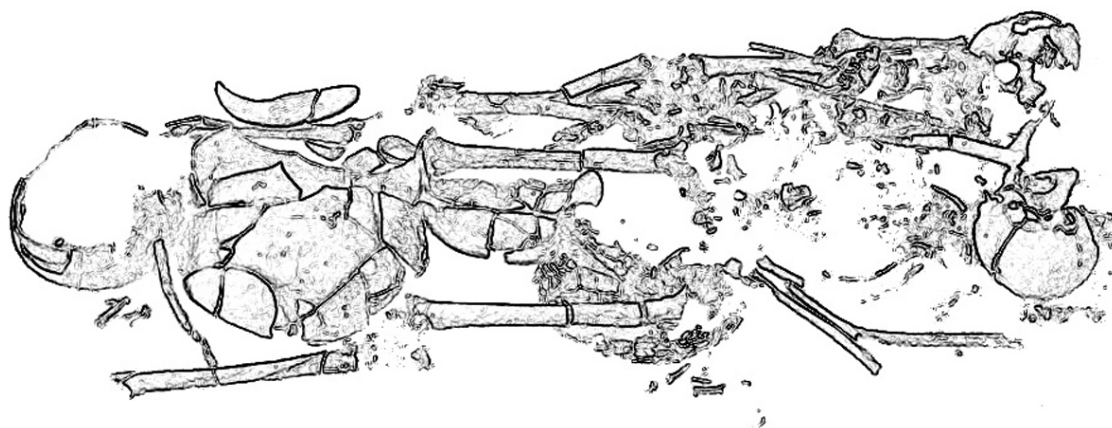


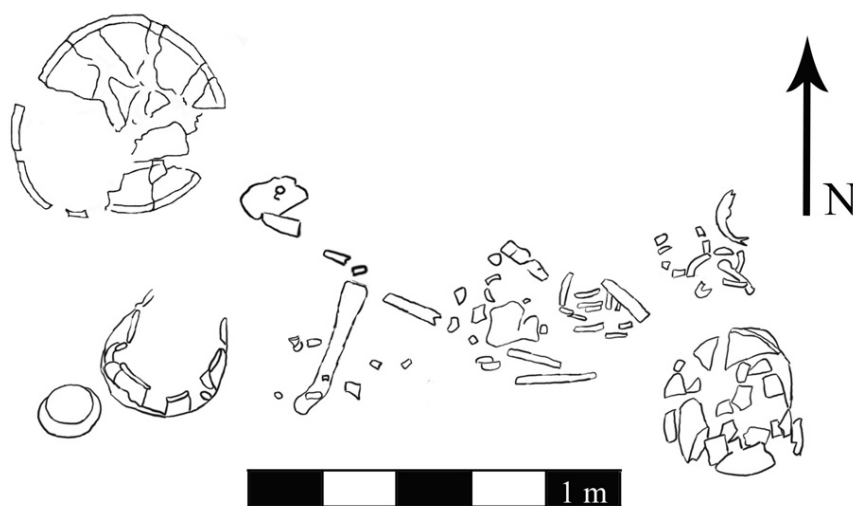
Figure 5.9 Santhli Trench Section

Features

Aside from the Microlithic buffalo dumps, the only other features present are two Chalcolithic burials and one small trash pit (primarily containing debitage). Both burials contained Early Harappan-style vessels similar to those recovered from Moti Pipli and Nagwada (Sonawane 2005:210). Ajithprasad and Sonawane suggest that these burials are the sole remains of the Chalcolithic period and that no habitation deposit exists, but there is quite a bit of lithic scatter (1993:26; Sonawane and Ajithprasad 1994:136). A number of materials, including groundstone tools, were found at the base of layer 2 in Trench II, indicating some kind of living floor during Phase II.



Burial 1
(IAR 1993-94)



original trench drawing courtesy of the Maharaja Sayajirao University of Baroda,
Department of Archaeology and Ancient History

Burial 2

Burials at Santhli II

Figure 5.10 Burials at Santhli II

Burial 1 (Figure 5.10.1) is a double burial of two adults. They were interred in extended positions with their heads facing east and towards each other (*IAR* 1993–94:27; Majumdar 1999:166). Five ceramic vessels are associated with this burial, all of which resemble the Nagwada specimens.

Burial 2 (Figure 5.10.2) is of a child, also found in an extended position with its head facing east in Trench II, 26cm below surface (*IAR* 1993–94:27). It is also associated with ceramics, including large beakers and a shallow bowl with a straight rim, similar to those from the double burial. Majumdar (1999:169) notes the vessels from the child burial were poorly fired, unusual for Early Harappan pottery.

Artifacts

Lithics: Both geometric and non-geometric lithics were found, including lunates, triangles, trapezes, points, backed blades, flakes and blade cores. They are mostly made from chalcedony or chert stone but some quartz was used. Sandstone “palette” stones were also found. Given the presence of debitage and finished tools in the Microlithic and Chalcolithic layers, it is clear that production occurred throughout both phases.

Beads: Compared to the overwhelming amount of microliths in the Santhli collection, there are not many beads here²⁷. However, considering that only slightly more than one hundred objects (including large bags of debitage) were reported, the 14 beads found here compose almost 10 percent of the total collection. Most are made of shell and

²⁷ The beads and bangles available for study are too fragmentary for an illustration to be useful.

found in layer 1. One carnelian bead was also found in this layer. The bead count includes *Dentallium* shells, which generally do not show evidence of modification.

Shell: Seven shell bangle fragments were found (two from layer 2, three from layer 1 and two surface finds). A shell ring piece was also found in layer 1. The bangles are undecorated and have rectangular cross sections. All the bangles appear to be evenly ground if not exceptionally symmetrical. No shell waste was found, indicating they were manufactured elsewhere.

Terracotta: No terracotta artifacts are reported from Santhli II, which is surprising for a Chalcolithic site. It is interesting to note that two terracotta ring fragments were recovered from Santhli I (along with two copper ring pieces in a total collection of 20 artifacts), suggesting that rings were a relatively popular item in this locale across different occupations. The lack of terracotta lends credence to the idea that this was not primarily a residential site.

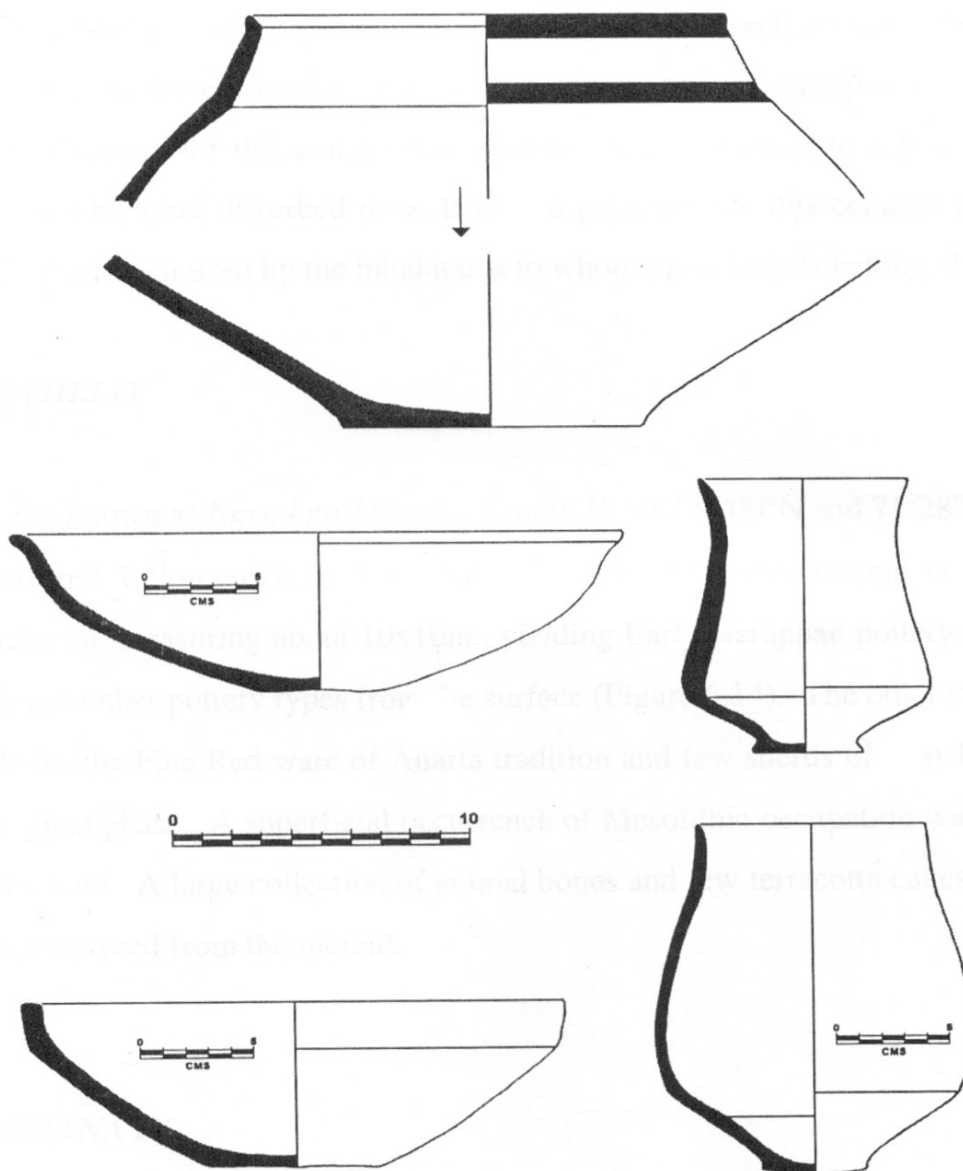
Pottery

Very little work has been done on the ceramic corpus from Santhli I, II or IV. The most substantial study was conducted by Majumdar (1999:167), who analyzed five vessels recovered from the burials at Santhli II and three sherds collected from the surface of Santhli IV. During excavation it was noticed that most of the pottery found

resembled the Early Harappan burial pottery²⁸, a finding that suggests there were more burials at Santhli that were not preserved (*IAR* 1993–94:27). It is also possible the Early Harappan ware was used by the inhabitants in their daily activities (Majumdar 1999:169). Small clusters of pottery were found during a surface survey within a 5 km radius of Santhli II, most of which also resembled the burial pottery (*IAR* 1993–94:27). It is unclear what the remaining pottery is composed of or what similarities the sherds might have to other wares.

All of the vessels examined by Majumdar (1999) are termed Red Ware (due to red slip) and are wheel-made with a fine sand temper. The vessels represented included one raised-neck jar with carinated shoulder (black band at neck), two dishes and two beakers (concave-convex body) (Figure 5.11). These vessels have clear parallels to pottery from Moti Pipli, Nagwada, and Amri Phase II.

²⁸ The small amount of pottery that is not Early Harappan has never been described. Anarta Fine Red Ware was found along with Early Harappan ware during a surface collection at Santhli IV (Majumdar 1999:169) and so it is likely some form of Anarta Ware appears at Santhli II as well.



Early Harappan Burial Pottery from Santhli II
(Majumdar 1999)

Figure 5.11 Early Harappan Pottery from Santhli II

Subsistence Practices

Much work has been done with the faunal material to chart the domestication of water buffalo in this region. All the Period I fauna are wild species, including the water buffalo. At least eight water buffalo skulls (originally reported as cattle) were found in the lower Microlithic layers (*IAR* 1993–94:27; Meadow and Patel 2003:75), four of which were found in a discrete cluster. All crania examined appear to be from relatively young specimens, including one infant (Patel and Meadow 1998:188). Fauna recovered from Period II include sheep/goat, gazelle, pig, an unknown equid, and fish.

Indices of Mobility

1. Investment in features

The relative paucity of finished tools from Period I leads Sonawane (2005:210) to remark that this mound was only seasonally occupied, at least during the earlier phase. Majumdar and Patel posit that this mound was used as a butchering site for buffalo (Majumdar 1999:166; Meadow and Patel 2003:75) during Period I. The scant amounts of artifacts recovered from Period II layers indicate that this site was also ephemerally occupied during the later phase (Majumdar 1999:166) and so there is no evidence for sustained residency during either period.

The two burials also provide a limited amount of information. As is the case with similar burials, it is hard to reconstruct patterns of visitation or ritual practice without visible post-depositional alteration. Some wattle and daub fragments were found here

(Ajithprasad and Sonawane 1993:31) though, as at Loteshwar, this material does not indicate long-term occupation.

2. Kinds of activities

The Period I buffalo skull dump may be a result of what Schiffer (1987:69) termed the “Schlepp Effect,” which occurs when people choose to leave heavy or unwieldy objects behind during acquisition of resources. Scholars have observed that cattle skulls are routinely dumped at kill sites. Combining this information with the noted lack of tools, Santhli II can be interpreted as a butchery site, as suggested by Majumdar (1999:166) and Meadow and Patel (2003:75). One more indication of the temporary nature of this camp is that it has only two occupational layers. This makes Santhli the most ephemeral camp reviewed in this chapter.

Indices of Material Variation

1. Pottery

The only reported pottery from Santhli II is the Early Harappan burial pottery, which can indicate limited economic interactions with other sites. The scant ornaments are almost entirely made of shell, which would have been locally available (though not produced on site).

2. Other forms of material culture

The two burials share similarities in terms of both grave goods and position. These show a low degree of internal variation, although, as at Loteshwar, two examples do not provide a large enough data set from which to draw generalizations. Most of the other artifacts (except lithics) were made from shell, with neither copper nor terracotta present.

With the two indices of mobility and material variation combined, the remains at Santhli II represent an activity area for a highly mobile population during both phases. This follows the pattern set by Loteshwar, where it is shown that the Period II inhabitants there were also highly mobile, characterized by a restricted artifact assemblage. As at Loteshwar, this is not a residential space but was briefly inhabited to perform economic tasks.

Datrana IV

Superficially, Datrana IV has some of the same qualities of Loteshwar and Santhli: a mobile population, Microlithic and Chalcolithic phases and both Anarta and Early Harappan pottery. However, the activity at this site is dramatically different, and the presence of Pre-Prabhas Ware at the site is unique to North Gujarat.

Introduction

The village of Datrana (23° 41' N, 71° 08' E; Santhalpur Taluka, Banaskantha district) lies next to a large interdunal depression. Clustered around this basin are ten relict sand dunes (Figure 5.12), three of which were excavated by the MS University of Baroda during the 1993–95 field seasons to determine the settlement sequence at what appeared to be a blade manufacturing center. Excavations on dunes II, IV and V revealed that they were settled in separate episodes, as the artifact assemblages differ, primarily in terms of the ceramic wares.

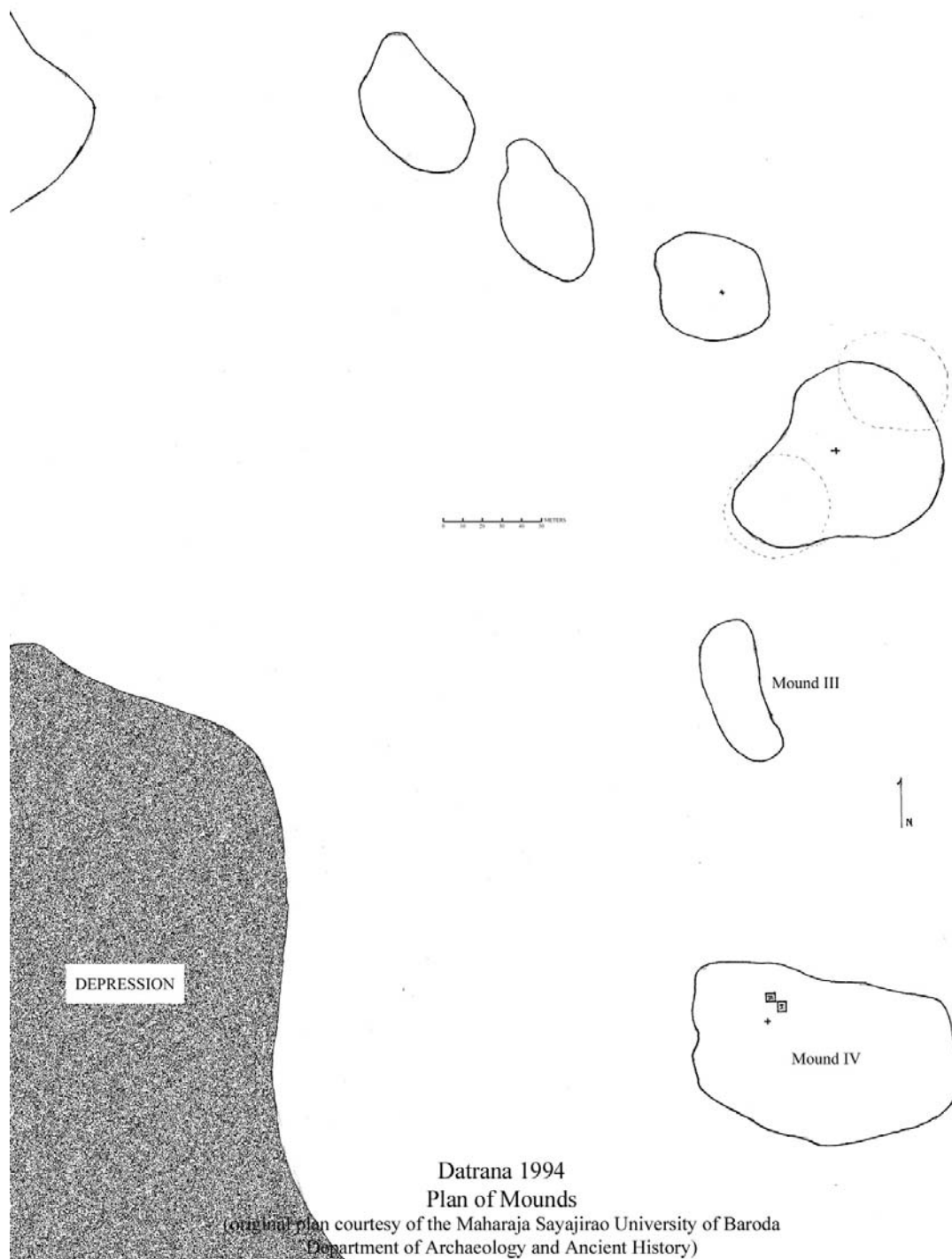


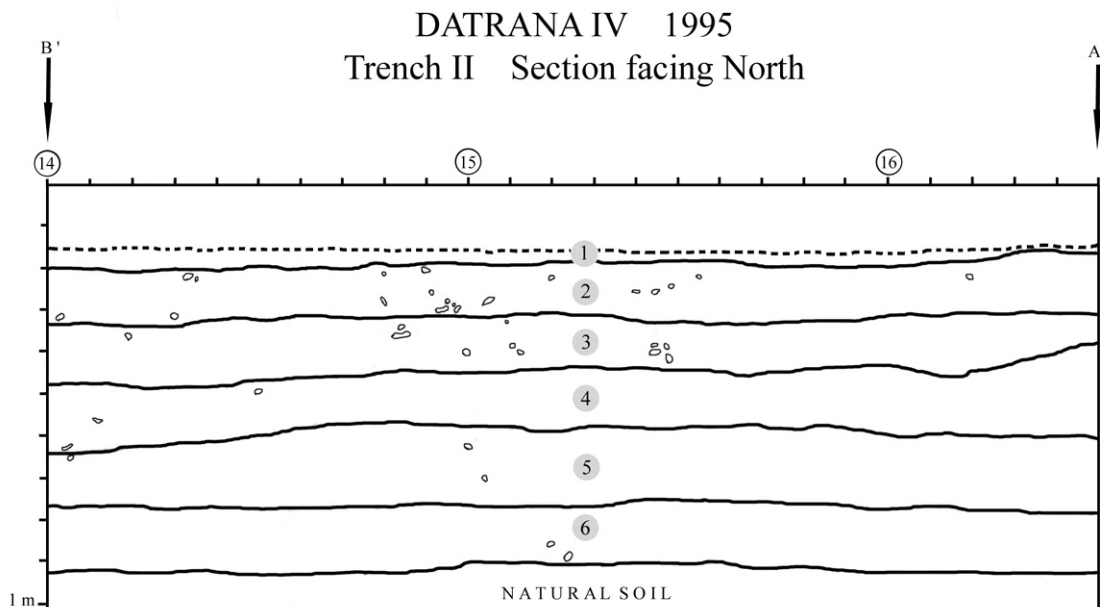
Figure 5.12 Plan of Mounds near Datrana Village

There were two main periods of occupation at Datrana IV: Microlithic and Chalcolithic. The faunal remains from the Microlithic layers are sparse and fragmentary, with the exception of large numbers of otoliths belonging to marine fish (*IAR* 1994–95:13)²⁹. As with other contemporary occupations, the primary artifacts found were Microlithic tools, cores and manufacturing debris.

The Chalcolithic deposit is characterized by the presence of pottery (preliminarily identified as belonging to Anarta, Pre-Prabhas and Early Harappan traditions). The most important activity that took place here was bead making, demonstrated by carnelian bead rough-outs, tanged chert drill bits and “sub-cylindrical drill-bits of banded agate like the ones found at Chanhu-daro, Shahr-i Sokhta, and Nagwada” (*IAR* 1993–94:31).

There are no distinct features at this site. The only spatial patterns relate to bone clusters from the upper layers (Figure 5.13). Apparently all the Chalcolithic artifacts were found associated with these animal bones and so the only discernable features here are dumps (*IAR* 1994–95:13; Sonawane 2005:213).

²⁹ Which, as discussed in Chapter Three, indicates a moister environment during the period of their deposition.



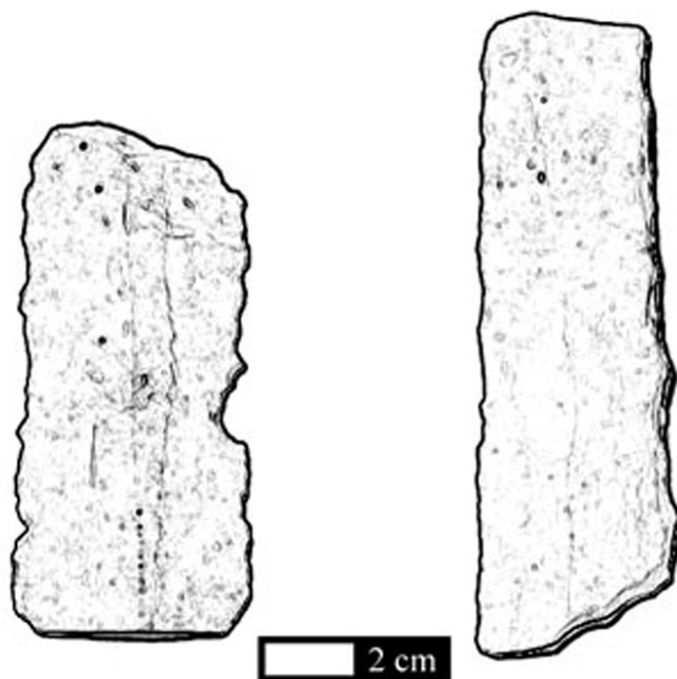
Trench drawing courtesy of the Maharaja Sayajirao University of Baroda, Department of Archaeology and Ancient History

Figure 5.13 Datrana Trench Section

Artifacts

When compared to other Chalcolithic habitations of North Gujarat, Datrana IV has a dearth of the kinds of artifacts that characterize contemporary occupations. Only four bangle fragments were found, all within the Chalcolithic period. No terracotta artifacts, even pottery scrapers, are reported from Datrana IV, as is also the case at Santhli II. This is an interesting contrast to Datrana II, which, although scarcely excavated, yielded a high proportion of terracotta objects. Two copper punch points were found in the upper layers in separate trenches. The only other artifacts are a scant number of groundstone tools.

Lithics: The Chalcolithic lithic industry is represented by long chalcedony blades produced through the crested ridge technique, present at all other sites in this study save for Loteshwar (*IAR* 1993–94:31). Other tools include prismatic blade-cores (*IAR* 1994–95:13). There are also ten parallel-sided blades made from Rohri chert, all of which have been heavily retouched (Figure 5.14 is an example of one). These were primarily found in layers 1 and 2 of Trench II and have interesting implications for the position of Datrana relative to long-distance trade networks.



Datrana IV No. 134 Retouched Chert Blades

Figure 5.14 Chert Blades from Datrana with Retouching

Beads: There was a surprisingly prolific lapidary industry here, as this site yielded a large number of unfinished beads. Tables 5.2 and 5.3 list finished and unfinished beads in all materials. There are 43 unfinished beads, rough-outs and bead blanks (discounting unaltered *Dentallium* shells) compared to a total of 16 finished beads at Datrana IV³⁰. The materials that all the beads were made of are comparable – the majority of unfinished and finished beads are carnelian, with a few examples of amazonite, shell and unaltered chalcedony/agate. Of particular note are twenty-four carnelian rough-outs and unfinished beads. A longer discussion on bead production is at the conclusion of this section.

<i>Material</i>	<i>No. of Specimens</i>	<i>Stratigraphy</i>
Carnelian	12	Layers 1, 2, 3
Amazonite	2	Layer 1
Shell	2	Layer 2

<i>Material</i>	<i>No. of Specimens</i>	<i>Stratigraphy</i>
Dentallium (unaltered)	58	Layers 1, 2, 3, 4
Carnelian	41	Layers 1,2, 3
Shell (misc.)	6	Layers 1, 2
Amazonite	2	Layer 1
Chalcedony	2	Layers 1, 2
Agate	1	Layer 2

³⁰ The only beads available for examination were eroded terracotta specimens; the best published image of Datrana beads is the photograph of bead blanks in IAR 1994-95: Plate V.

Pottery

Three types of pottery are represented at Datrana IV: Pre-Prabhas Ware, Anarta Ware and Early Harappan Ware. Pre-Prabhas Ware is most prominent, whereas Early Harappan Red Ware is very rare and the only reported shapes are bowls and beakers (Majumdar 1999:173). These wares are described in detail in Chapter Four, so what follows here is a list of the subtypes found and representative vessels. A discussion of how these wares were stratified and the implications of this pattern are discussed at the end of the section.

Pre-Prabhas Ware (Figure 5.15) (Ajithprasad 2002:135):

- 1) Fine Red Ware (broadly corrugated with red slip)
- 2) Coarse Grey/Red Ware (incised and burnished)
- 3) Fine Grey Ware (small, incised and carinated *handi* pots)
- 4) Black and Red Ware (bright red slip, often incised or corrugated and burnished)

Anarta Ware (Figure 5.16) (IAR 1993–94:31):

- 1) Gritty Red Ware
- 2) Fine Red Ware
- 3) Burnished Red Ware

Early Harappan Ware (Majumdar 1999; Sonawane 2005):

- 1) Red Ware

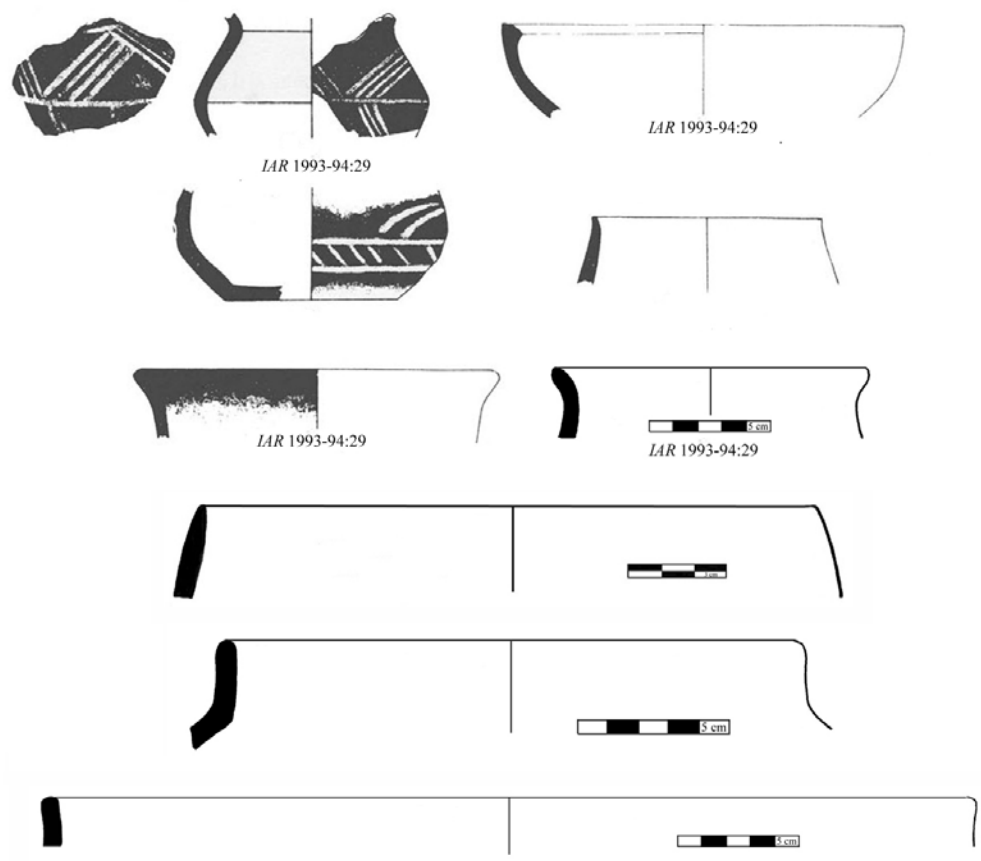
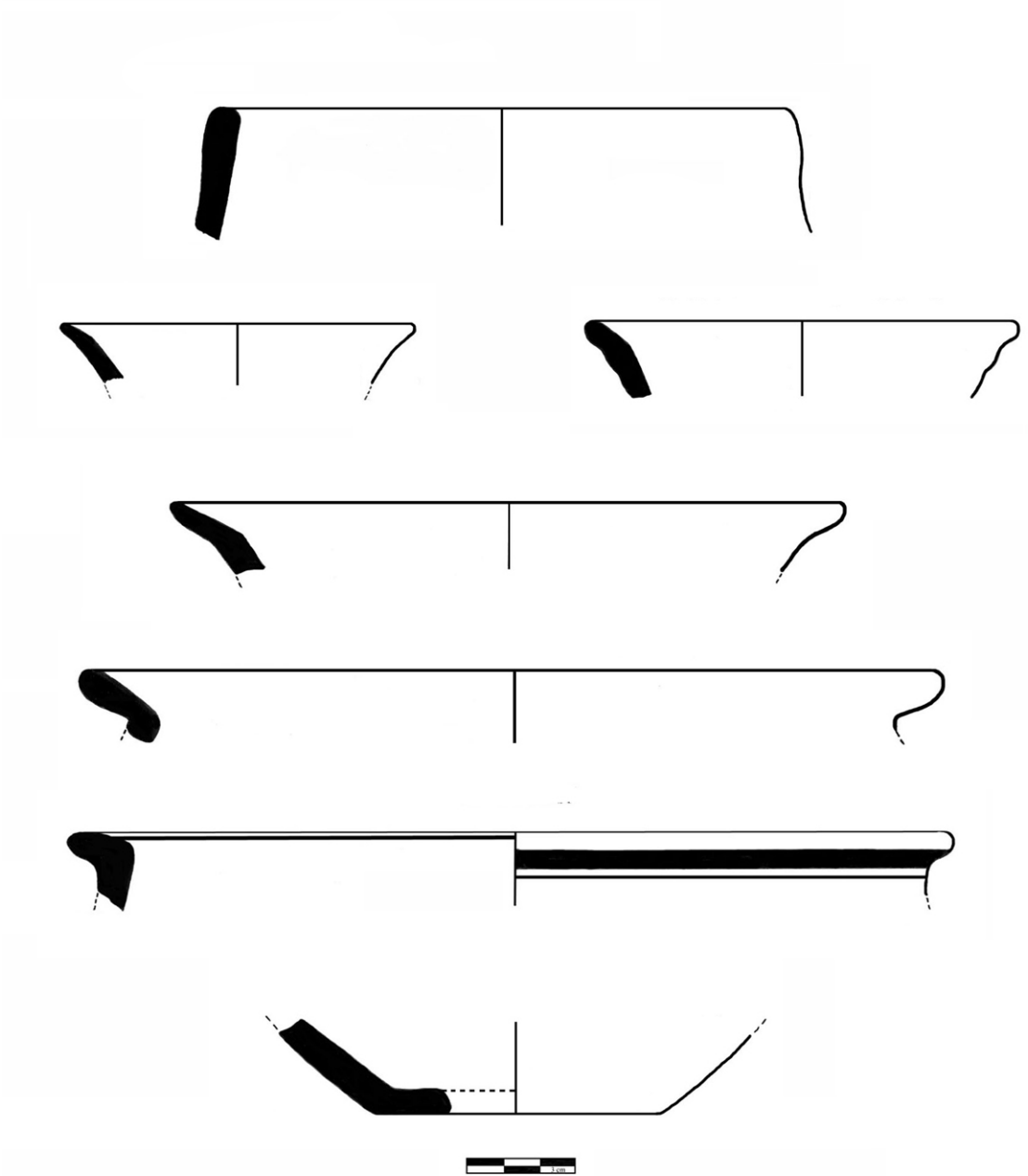


Figure 5.15 Pre-Prabhas Ware from Datrana IV



Datrana IV
Gritty Red Ware

Figure 5.16 Anarta Ware from Datrana IV

Subsistence practices

Cattle, sheep/goat, antelope, pig (possibly wild) and fish are the most significant faunal remains recovered from bone clusters in the upper layers (*IAR* 1993–94:31), and it can be inferred from the pattern seen in the Microlithic layers of Loteshwar and Santhli that Phase I probably only had wild game. It is not clear if the domesticated species were locally raised or if they were acquired from others. The mixed subsistence pattern and seemingly industrial function of this site indicate that this place was not occupied specifically for the purpose of pastoralism (such as at Loteshwar and Santhli).

Indices of Mobility

1. Investment in features

Except for the aforementioned Chalcolithic bone clusters (which could have been created very quickly and in one episode per cluster), there are no features at Datrana IV indicating planned cycles of reoccupation. However, five habitation layers with a total depth of 1.12 m were found in Trench II, suggesting that for some time Datrana IV was a known transit camp, though each phase was probably very brief.

2. Kinds of activities

The exceptional number of carnelian bead blanks and unfinished beads in such a small place is a clear indication that lapidary work was a major economic activity at the site. The copper punch point was probably used for this purpose. The partially prepared

blanks and unperforated beads provide good evidence for how lapidary technology at Datrana was based on techniques of Microlithic blade production (Ajithprasad, personal communication). The greatest portion of these carnelian bead blanks are from layer 2, within the Chalcolithic-period deposit.

Datrana IV is most often interpreted as a temporary settlement where bead production was an important activity (Ajithprasad, personal communication). This has similarities to a model proposed by Bhan and Gowda (2003:77) created to explain the distribution of shellwork across population centers. Bead production could have been performed by producers contracted to create objects for local consumption. These activities do not require sedentism. There are no fire pits, a finding that indicates this portion of carnelian production was done elsewhere, and further supports a model of Datrana craftspersons as subcontractors. An alternative model can be proposed, in which the occupants of Datrana were a mobile component of some other, possibly sedentary, population and used this location to initially prepare agate beads before transporting them for final production.

Indices of Material Variation

1. Pottery

Majumdar (1999:172) remarks that only Pre-Prabhas pottery is found in the lower layers of the Chalcolithic level (levels 2 and 3 in trench II) and appears along with the Early Harappan Ware and Anarta Ware are found in the upper layers (2 and 1), indicating

that the Chalcolithic period at Datrana predates other sites that produced only contain Early Harappan pottery and Anarta Ware (such as Moti Pipli and Nagwada). The Pre-Prabhas Ware is the most prevalent type, whereas the Anarta and Early Harappan Wares are restricted to the upper strata (Majumdar 1999:173). Additionally, these ceramics are associated with the Rohri chert blades, which were also present in the upper layers (Ajithprasad 2002:136).

The occurrence of three distinct groups of pottery from disparate sources suggests that the mobile community occupying Datrana IV followed a rather large circuit, where materials from different settlements could be acquired. However, it has not yet been determined where the Anarta or Early Harappan Wares found in North Gujarat were manufactured. The Pre-Prabhas Ware here is unique to the region and indicates a group that sustained some sort of relationship with coastal Saurashtrians throughout their occupational history in a manner that others did not.

2. Other forms of material culture

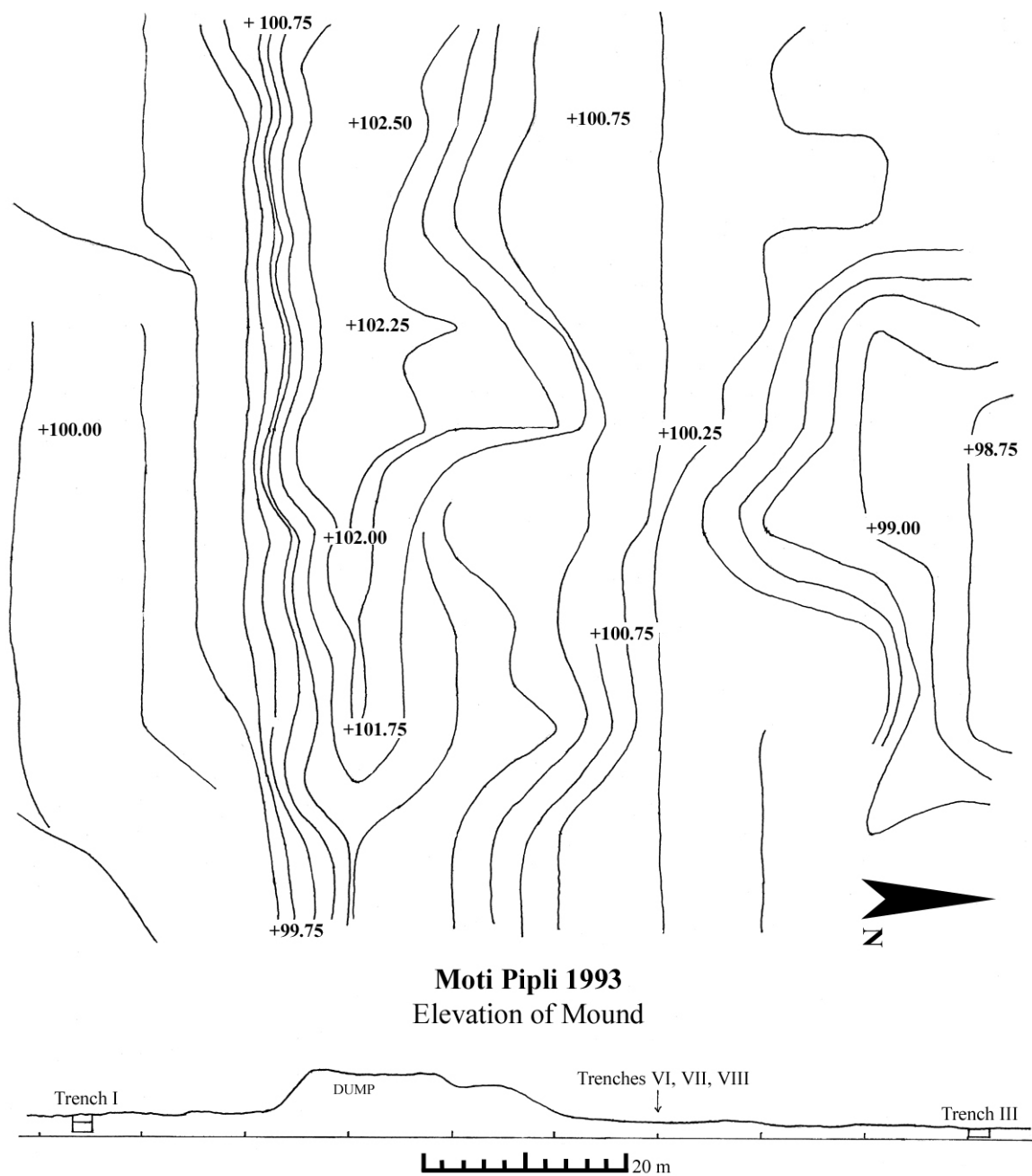
Specialized bead production is also unique to this site., further distinguishing the inhabitants here. Intense industrial activity of this sort is not apparent at similar dune camp settlements. All this evidence taken together indicates a place that was consistently occupied by people performing specific activities and linked to a greater interaction network.

Moti Pipli

As the Pre-Prabhas Ware seems to predate the Early Harappan Ware at Datrana, Moti Pipli should be considered chronologically later than that site, but probably not by much. Moti Pipli also has much in common with Loteshwar, Santhli and Datrana in terms of occupational phases, degree of mobility and material culture. What distinguishes Moti Pipli is its breadth of object types, particularly among ornaments. It also may have been periodically occupied for longer times than the other sites.

Introduction

The village of Moti Pipli is in Radhanpur Taluka of the Banaskantha district (23° 49' 25" N; 71° 31' 00" E). Northwest of the village is a large relict sand dune locally known as *Shaktari no Timbo* with an associated interdunal depression called *Shaktari Talav* (Figure 5.17). The site on top of this dune was initially excavated as part of a drought relief program, disturbing the stratigraphy significantly. The research excavation was conducted by the faculty and students of the MS University of Baroda during the 1992–93 field season in order to understand its occupational sequence (*IAR* 1992–93b:16). This excavation was limited to unexposed areas, revealing an occupational deposit up to 90 cm deep (*IAR* 1992–93b:16).



Moti Pipli 1993
Elevation of Mound

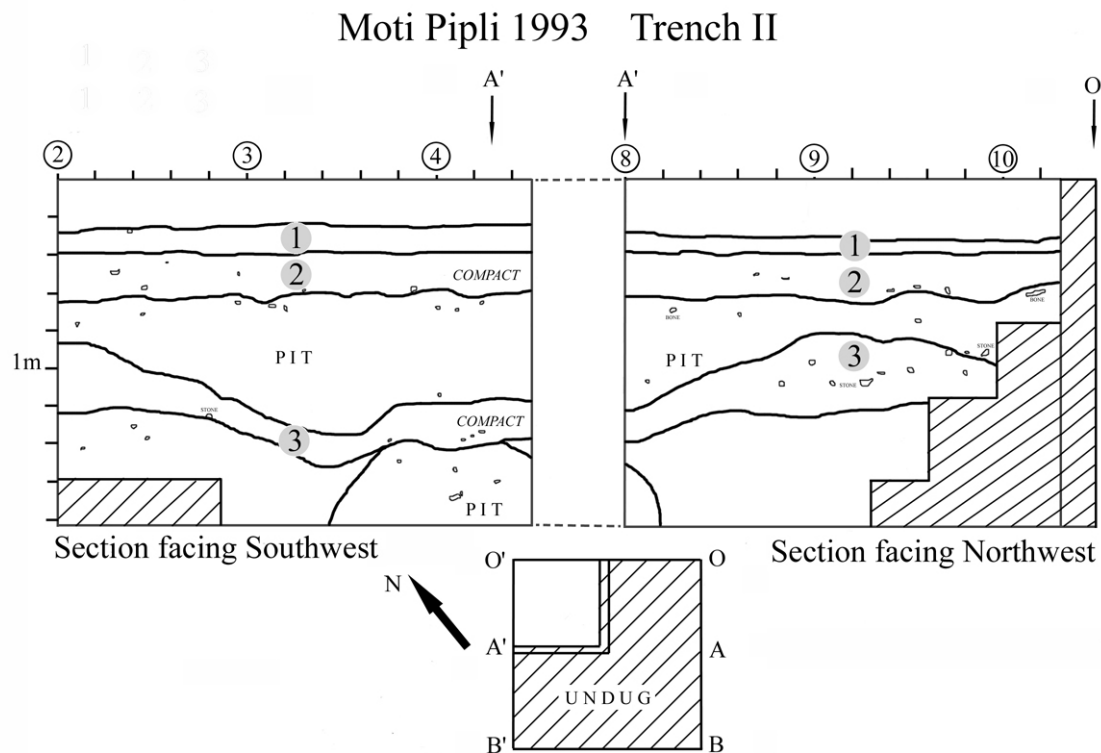
Contour Map courtesy of the Department of Archaeology and Ancient History
Maharaja Sayajirao University of Baroda

Figure 5.17 Contour Map of Moti Pipli

The Period I (Microlithic) layer is a shallow 20 cm thick deposit of microliths and heavily encrusted faunal remains lying directly over sterile soil (Sonawane 2005:211). The lithics primarily include blade and flake cores along with crescent-shaped microliths, backed blades and points. The Period II (Chalcolithic) deposit is approximately 50 cm deep (*IAR* 1992–93b:16). Most of the artifacts from this phase have equivalents at Early (3300–2600 BC) and Mature Harappan (2500–1900 BC) phase settlements in Gujarat and Pakistan. The pottery is the primary means through which this chronological correlation is made, with beads and Rohri chert blades providing further support. An Early Historic deposit overlies the Chalcolithic habitation in the northern part of the mound in heavily disturbed layers, and is determined by the presence of stamped Red Ware and areca-nut-shaped beads (common from 400–500 AD) (Sonawane 2005:212).

Features

The habitation area is punctuated by eight large, heavily disturbed pits that comprise a large portion of the Period II layers (Figure 5.18). Recovered materials include copper, pottery, bangle fragments and beads.



Trench drawing courtesy of the Maharaja Sayajirao University of Baroda, Department of Archaeology and Ancient History

Figure 5.18 Moti Pipli Trench Section

Artifacts

Lithics: The primary lithic tool types found at Moti Pipli are microliths (most often chalcedony) and groundstones. The crested ridge technique for blade manufacture has a strong presence here. There are also a number of small Rohri chert parallel-sided blades. The lithics are most often discussed as if they represent the Mesolithic period when it is certain that some of them were manufactured during the Chalcolithic phase. A stratigraphic comparison of production techniques could yield useful information on

chronological differences among microliths. However, this approach is inherently problematic due to soil disturbances and the ubiquity of microliths throughout long phases of South Asian prehistory.

Metal: A total of 12 copper objects were found in the upper strata (layers 1 and 2) primarily of trenches VI and VII. The majority of these artifacts are either fragmentary or too corroded to determine shape except for the following: two rings or curved wires, a flattened copper strip, a fishhook and a pin or nail. One piece of iron slag was also recovered.

Beads: A total of 28 beads in a variety of media were recovered including terracotta, chalcedony, steatite, lapis, shell, faience, yellow sandstone, and banded agate. They are illustrated in Figure 5.19. The frequencies of bead materials are shown in Table 5.5. The majority of beads found here are made of terracotta, and there are three distinct shapes that relate to chronological periods: perforated biconical beads, round beads and areca nut beads.

Moti Pipli 1993 Beads

Terracotta



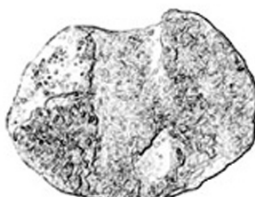
No. 65 (front and back)



No. 200



No. 242 (front and back)



No. 204



Stone

Steatite Microbead



No. 31

Amazonite



No. 181

Jasper



No. 133

Chalcedony (unfired)



No. 32

Lapis



No. 22



Figure 5.19 Moti Pipli Beads

1) *Perforated biconical beads*: The first terracotta bead type is the biconical bead decorated with incised lines and perforated dots. At least three were recovered from the earlier Chalcolithic layer. These beads strongly resemble those from Early Harappan levels at Kot Diji (Khan 1965:Plate XXIX, nos. 15–18) and Amri Period IB (Casal 1964:Fig. 122, nos. 1–3; refer to Figure 4.2 in this dissertation).

2) *Round/ovoid beads*: Four other terracotta beads are round/ovoid and very eroded. Number 242 provides an example of this shape. These beads are all broken and not well fired.

3) *Areca nut beads*: Four beads conform to the “areca nut” type encountered in Early Historic and Medieval contexts (approximately 400–500 AD, refer to figure 4.18 in this dissertation). Numbers 65 and 200 are typical examples of this shape.

In addition to the terracotta beads (which account for almost half of all the beads), many stone beads were found that are all unique in both shape and material to the site. One of these is a biconical chalcedony bead. It is very highly polished and the channel is evenly drilled. It looks precisely like a typical Mature Harappan biconical carnelian bead. Moti Pipli also yielded two steatite microbeads.

Table 5.4 Moti Pipli Beads		
<i>Bead Material Type</i>	<i>Number of Specimens</i>	<i>Stratigraphy</i>
Terracotta	13	Layer 2, Pits
Steatite	3	Layer 2
Shell	5 (includes 2 <i>Dentallium</i> and 2 cowrie shells)	Layer 1, Layer 2
Misc. stone	1 lapis 1 jasper 1 chalcedony 1 amazonite 1 sandstone 1 banded agate	Layer 1 Layer 1 Layer 2 Layer 2 unprovenienced unprovenienced
Faience	1	Layer 2

Shell: A relatively large number of bangles were found at Moti Pipli (Figure 5.20). The majority of these were found in Layer 2, with none appearing in Layer 3 and only one present in a pit. One exception to this is an incised piece of shell that has an unusual shape for a bangle fragment and is probably an ornament of some other kind.

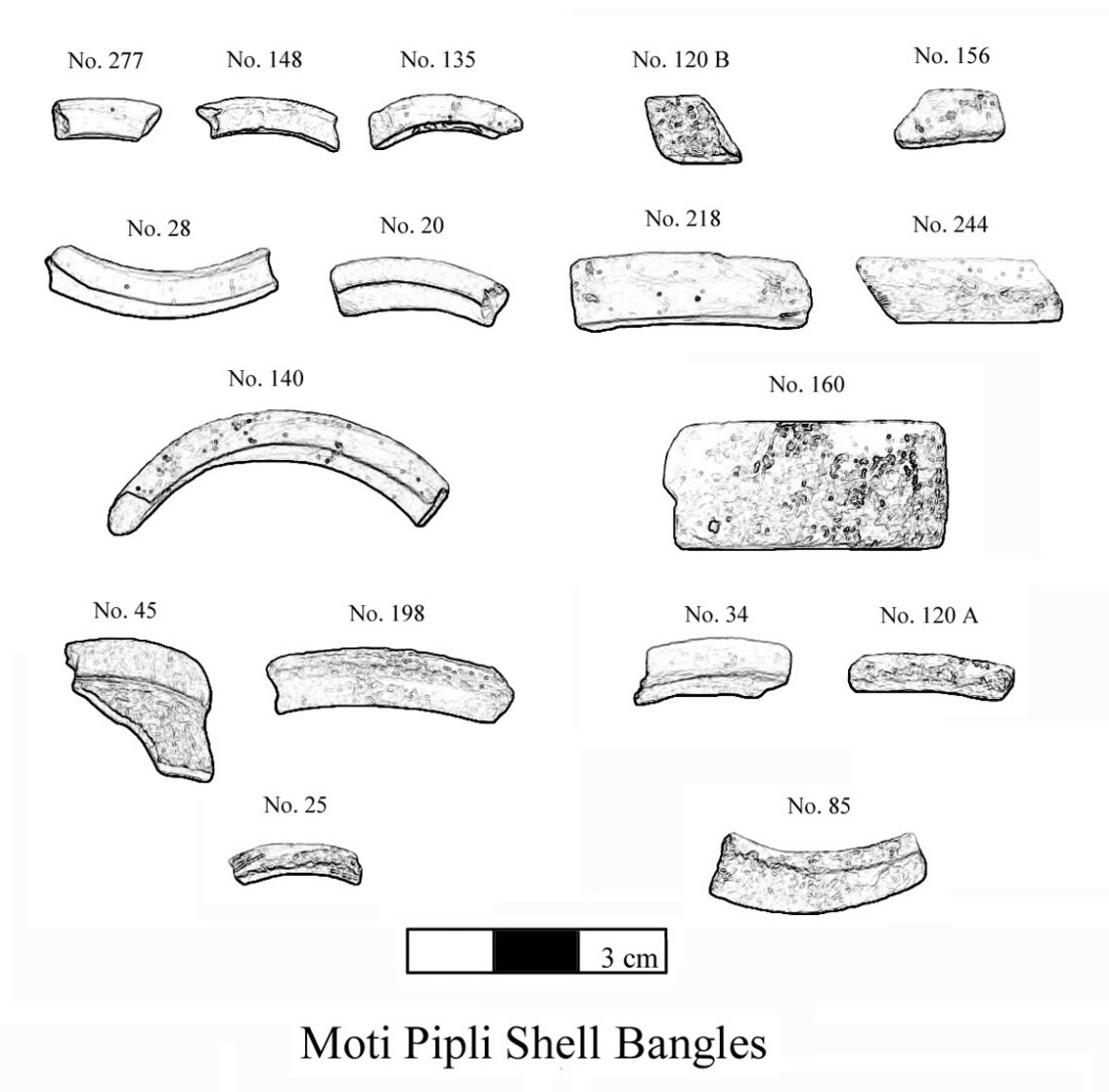


Figure 5.20 Moti Pipli Bangles

Terracotta: In contrast to Loteshwar, Santhli and Datrana, Moti Pipli has a wide variety of terracotta objects commonly found at more sedentary sites. A large portion of these objects (55 out of a total of 80 TC artifacts reported) are small pellets, almost exclusively found in layers 2 and 3 and concentrated in trenches III, VI and VIII. Two pellets are covered in red slip.

Spindle whorls (or more precisely, perforated ceramic discs fashioned out of broken potsherds) and scrapers (also made from recycled potsherds) occur in small but equal quantities. Objects similar to spindle whorls have also been described as titotums - pottery discs used as toys.

In addition to the above types of terracotta objects, which are very frequently encountered at Chalcolithic settlements in northwestern South Asia, this site has three other noteworthy objects (though unfortunately all were collected from the surface). The first is a broken bull figurine, not diagnostic of any particular Chalcolithic group or site. The other two items are terracotta cakes (neither quite triangular) that have similar thicknesses and shapes to those found at Mature Harappan sites. It has been proposed that these were used as trivets for cookware and should not be considered exclusive to or diagnostic of Mature Harappan material culture (Heather Miller, personal communication).

Pottery

In order of prevalence, Moti Pipli has the following ceramics:

- 1) Early Harappan Ware (Fine Red Ware and Buff Ware)
- 2) Anarta Ware (Gritty Red Ware and Fine Red Ware)
- 3) Mature Harappan Red
- 4) Reserved Slip Ware

Early Harappan Wares (Figure 5.21)

This is the most common pottery and is represented by Fine Red Ware and Buff Ware, similar to the burial pottery reported from Nagwada and Santhli (*IAR* 1992–93b:16; Sonawane 2005:211). The fabric is tempered with very fine sand (Majumdar 1998–99:18). Some of the Fine Red Ware pots are covered with cream or chocolate slip and painted with thick black bands at the rim and shoulder. Others have red pigment on a cream slip, recalling the polychrome ware from the Early Harappan levels at Kot Diji, Balakot and Amri (Sonawane 2005:211). Moti Pipli seems to have a wider variety of Pre-Harappan wares than at Nagwada and Santhli, including some shapes analogous to those from Kot Diji.

The most frequently seen vessel shapes are large pots with everted or flared rims, dishes, dishes-on-stands, beakers, narrow-mouthed jars and pots designed for lids (*IAR* 1992–93b:16; Majumdar 1999:163). Most of the pottery was made on a fast wheel, but some sherds were definitely shaped by hand. What is unique about the Moti Pipli ceramics is that they resemble burial pottery but are found at this site in the context of habitation deposits (Majumdar 1999:162). Abhijit Majumdar constructed a detailed typology for the Early Harappan wares at this site, which is presented below:

Typology of Early Harappan Ceramics from Moti Pipli (Majumdar 1999)

Wares

Red Ware

Fine Ware (polychrome, mostly dish-on-stands)

Red slip

Chocolate slip

Buff slip

Coarse Ware (mostly bowls)

Red slip

Buff slip

Buff Ware

Red slip

Buff slip

Grey Ware (mostly bowls and basins)

Slipped

Unslipped

Vessel Forms

Jar/Pot

Flaring rim

Carinated shoulder

Beaker

Bulbous, narrow-mouthed

Bowl

Basin (deeper than a bowl)

Dish

Pedestal vessel (a.k.a. dish-on-stand)

Decoration/Painting

Bichrome

Horizontal bands

Intersecting loops/festoons

Hatched triangles

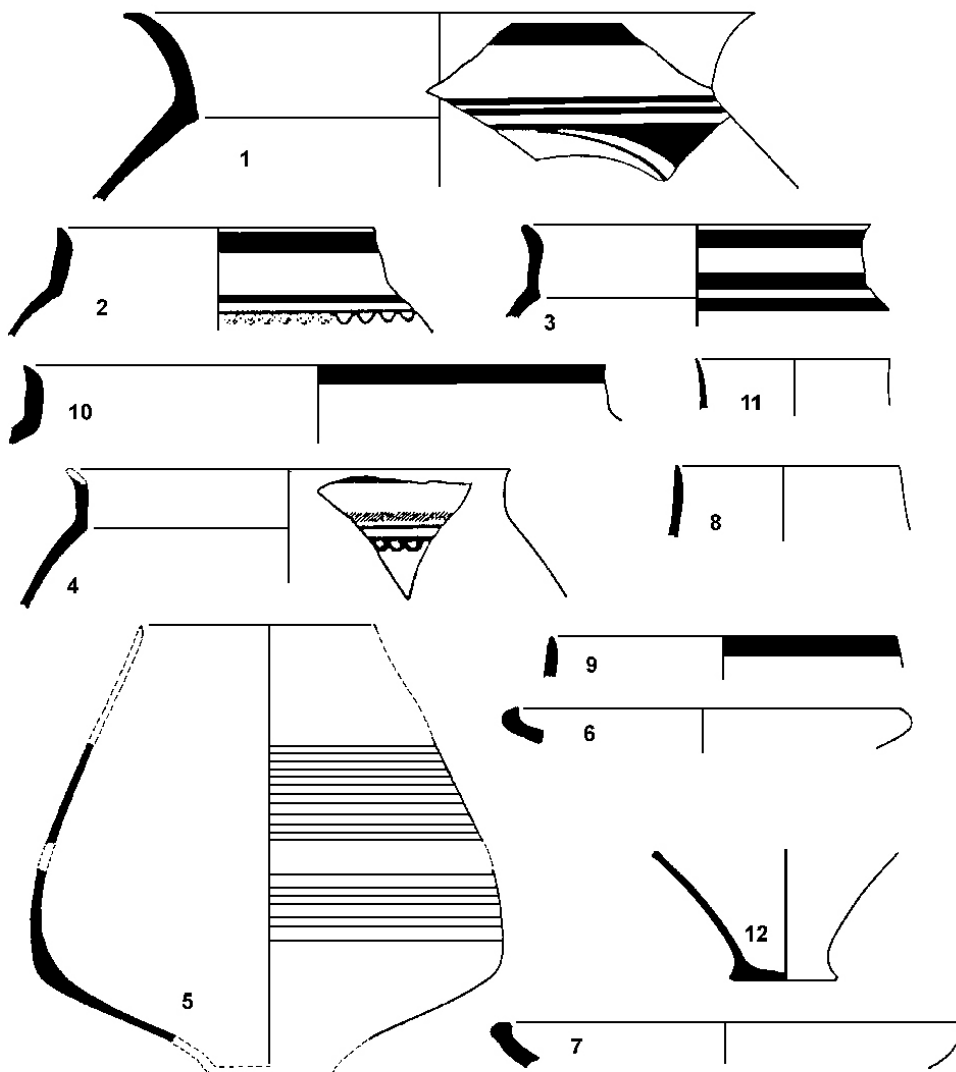
Intersecting festoons with vertical strokes

Semicircles with oblique strokes

Polychrome (dish-on-stands only)

Hatched triangles

Loops with oblique strokes



Early Harappan Pottery from Moti Pipli

After Majumdar 1994: Figure 6.4

1-5 fine red ware; 6-9 red ware; 10 buff ware

11 buff ware with chocolate slip

12 gritty red ware

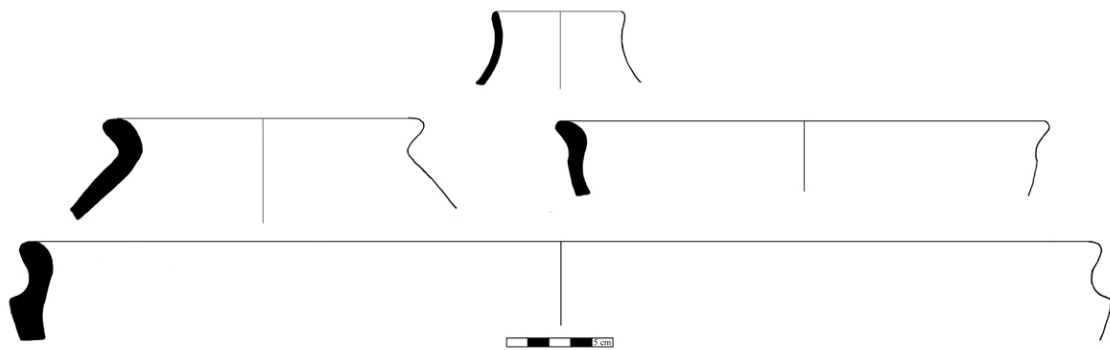
0 10
centimeters

(GLP: Moti-P-2)

Figure 5.21 Early Harappan Wares from Moti Pipli

Anarta Wares

This corpus is represented mainly by Gritty Red Ware and Fine Red Ware (Majumdar 1999:162), occurring in shapes such as large pots, small pots with constricted necks, bowls, basins, dishes and dishes-on-stands (Figure 5.22) (*IAR* 1992–93b:16). The standard decorations on these wares are thick bands of black or brown pigment at the rim, neck and shoulder, usually on a cream slip or wash and some are burnished.



Moti Pipli - Anarta Ware

Figure 5.22 Moti Pipli Anarta Ware

Mature Harappan Red Ware

This ware has not been studied at Moti Pipli.

Reserved Slip Ware:

A number of sherds are reported but they have not been studied (Majumdar 1999).

Subsistence practices

The Chalcolithic faunal remains include cattle, sheep/goat and deer (IAR 1992–93b:19). Calcium encrustation on earlier specimens makes species identification difficult but the above species demonstrate some kind of mixed pastoralist – hunting subsistence practice, similar to Datrana and contrasting with the more specific faunal profiles of Loteshwar and Santhli.

Indices of Mobility

1. Investment in features

One interesting artifact found is a piece of clay with reed impressions on it from layer 2. This is probably detritus from sod construction and indicates some kind of structure (though not necessarily a permanent one) was built here. Due to its lack of architecture, Moti Pipli is most often interpreted as a camp settlement. Majumdar (1998–99:23) proposes that Moti Pipli acted as a semi-permanent settlement for pastoral nomads

and held some sort of “strategic importance” given its proximity to other sites (though no specific evidence is cited for this interpretation).

2. *Kinds of activities*

There is ample evidence for stone tool production through the large amounts of debitage, nodules, cores and core preparation flakes. Relatively few nodules were recovered, suggesting that raw materials were processed rather efficiently. Given the importance of the lithic industry at Moti Pipli, it is surprising that most of the debitage is found in the habitation strata rather than the pits. This indicates a systematic distinction between the kinds of objects to be disposed of in the pits and those left *in situ*, and this pattern is most prevalent in Trench VIII. It suggests that lithic tool production peaked during the second phase of occupation. Spindle whorls (assuming that is what the perforated discs are used for) are associated with the creation of thread and may be linked to the presence of sheep or goat at this site.

Shell processing, though it did occur, does not seem to follow any particular spatial distribution, and the evidence for it is slight. There is some shell debitage, most of it from *Turbinella pyrum*, the preferred species used to create bangles. The evidence for shellwork is presented in Table 5.5.

<i>Shell species</i>	<i>Modification</i>	<i>Provenience</i>	<i>Artifact no.</i>
-Unknown	Cut marks on shell lip	Trench I, pit	8
<i>Turbinella pyrum</i>	Columella with cut marks	Trench III, layer 2	29
bivalve	Interior fragment of shell	Trench III, layer 3	Unnumbered
<i>T. pyrum</i>	Apex point	Trench VI, humus	61
<i>T. pyrum</i>	Columella pieces	Trench VI, layer 2	151
<i>T. pyrum</i>	Columella piece	Trench VI, layer 2	62
<i>T. pyrum</i>	fragment	Trench VIII, baulk	99

Unlike Datrana IV, which had a prolific lapidary industry, ornament production here might have been performed by itinerant craftspeople (models for this are described in Kenoyer 1983:346 and Bhan and Gowda 2003:76).

Indices of Material Variation

1. Pottery

The Early Harappan and Anarta Wares are contemporary, . Since the Early Harappan Ware has not been sourced (through chemical analysis or manufacturing technique), it is difficult to establish the breadth of this network. Although there is more Reserved Slip Ware here than reported at similarly sized sites, it is unclear how this affects interpretations of the breadth of economic networks connected to Moti Pipli. The

relatively low degree of diversity among the pottery types indicates a short occupational period by a group with a limited number of contacts.

2. Other forms of material culture

In contrast to the pottery, the beads are the best indicator of variety in the material assemblage because they represent different time periods and resources. The steatite microbeads (which had been made as early as the Ravi phase at Harappa) may be associated with the Early Harappan Ware, and the perforated terracotta beads provide stronger evidence for connections between Moti Pipli and sites such as Amri and Kot Diji. The fired carnelian bead is more diagnostic of the Mature Harappan phase. Finally, the areca-nut-shaped beads must have been deposited during a much later but still temporary residency. The diversity of artifacts in general suggests that Moti Pipli may have hosted larger populations over longer time periods than other ephemeral settlements in North Gujarat. In this regard, ornaments are better indicators of variety than pottery at this site.

To summarize, Moti Pipli is a small camp settlement with multiple occupations over a long period of time. A preference for terracotta beads and shell bangles distinguishes its assemblage from others at similar sites. Artifact diversity here is greater than at Loteshwar, Santhli and Datrana, with clear connections to Early Harappan phase sites in Gujarat, Sindh and Baluchistan. The underlying economic motivations for why Moti Pipli had been occupied are not as clear as at the three previously described sites as

there is no good evidence for specialized subsistence or industrial activities. There is more shell processing activity here than at the other locations, but not quite enough to demonstrate this as a production source.

Nagwada

Introduction

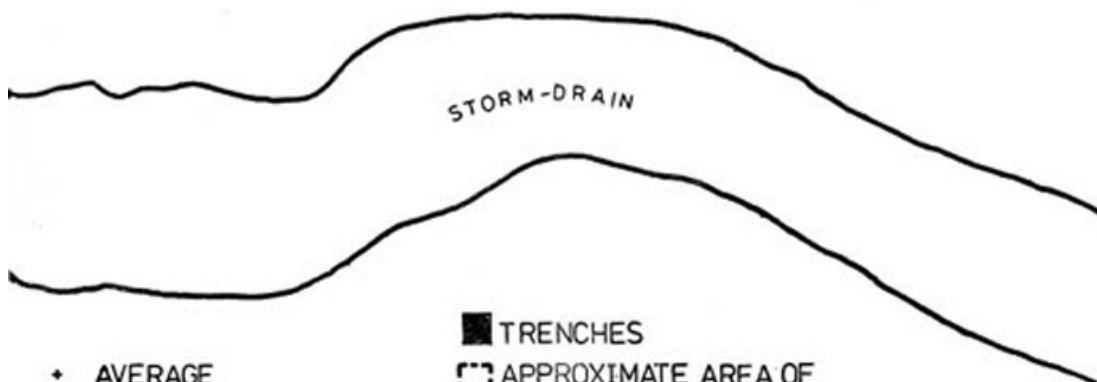
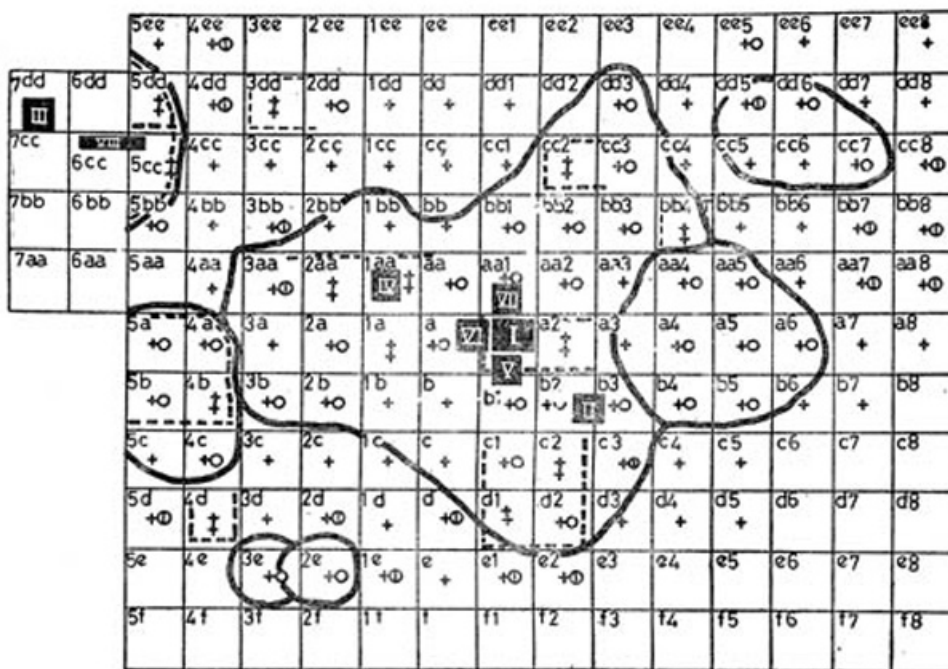
The village of Nagwada (23° 20' N, 71° 41' E; Dasada Taluka, Surendranagar district) is located within the Rupen Estuary, close to the Little Rann of Kutch. It is near four relict sand dunes with an associated depression, which is seasonally inundated with summer monsoon runoff (Figure 5.23). All four dunes contain Harappan archaeological materials found during an extensive survey project conducted by Hegde and Sonawane of the MS University of Baroda (*IAR* 1978–79b, 1982–83b; Hegde and Sonawane 1986), and the one called *Godh* (Nagwada I) was excavated for five seasons between 1985 and 1990 (Hegde et al. 1988:55; *IAR* 1985–86b; 1986–87; 1987–88; Majumdar 1999). It was selected for investigation to answer questions related to the chronology of Mature Harappan settlements in Gujarat, their relationship to local populations and the development of bead and shell bangle industries (*IAR* 1985–86:20; Hegde et al. 1988:57).

NAGWADA 1986 MOUND-I

RELATIVE PHOSPHATE ABUNDANCE

Hegde et al. 1988: 56

0 10 20 30 METRES



- + AVERAGE
- +o MORE THAN AVERAGE
- o LESS THAN AVERAGE
- ‡ MAXIMUM
- TRENCHES
- APPROXIMATE AREA OF MAXIMUM CONCENTRATION
- APPROXIMATE AREA OF MORE THAN AVERAGE CONCENTRATION

Figure 5.23 Nagwada Contour Map

This site has two phases (IA and IB), the latter of which dates to 2096 BC. This site has six strata with a total depth of up to 1 m (Figure 5.24). Only the lowest layer is assigned to Period IA; the rest belong to Period IB. This chronological division is based on marked differences between the kinds of features found and the ceramics associated with them. Otherwise the material culture does not seem to differ significantly between the two periods. All levels contained large amounts of beads; shells and waste; lithics and lithic debitage and terracotta objects. The most notable features from Period IA include two postholes and six burials that contained mostly Early Harappan vessels as grave goods. The burials are discussed later in this section. The Period IB deposit is from an occupation contemporary with Mature Harappan settlements. This is based on both the radiocarbon date as well as diagnostic artifact types such as stamp seals.

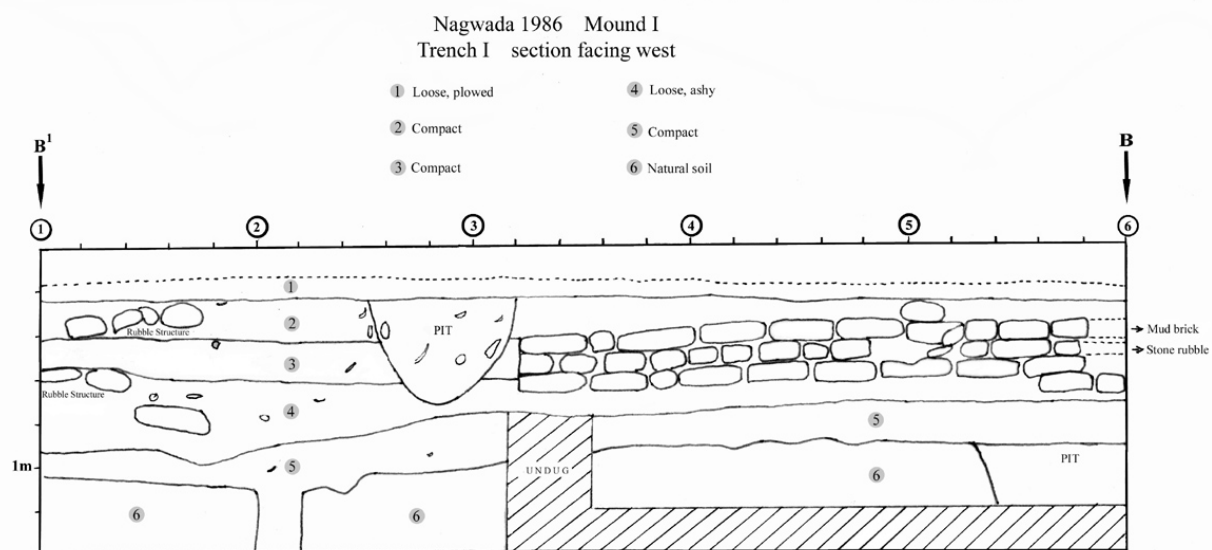
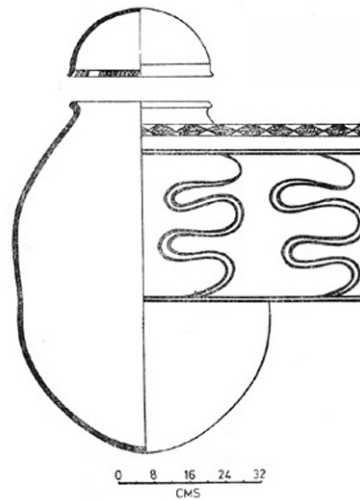


Figure 5.24 Nagwada Trench Section

Features

Burials, trash pits and two postholes are associated with Period IA. Two extended burials (one each in Trench V and XXVIII), three pot burials and one urn burial were found here (Majumdar 1999:144). In the pot burials, vessels were placed in oval pits. The pot burials themselves recall other burials at Surkotada, (Joshi 1990; Possehl 1997a), Nal (Hargreaves 1929; Possehl 1996) and Damb Bhuti (Stein 1931)³¹. The type of ceramic represented – Early Harappan Ware similar to that from Amri II and Kot Diji – is the primary type of pottery found in this phase. One Micaceous Red Ware bowl is reported from Pot Burial 3 (Majumdar 1999:157). The urn burial is rather different, as it is described as having a “regional shape and decoration showing affinities with the Painted Coarse Red Ware” (Bhan 1994:80). This urn is most likely Gritty Red Ware, although the shape – a covered urn approximately 40 cm high (Figure 5.25) – is rather unusual. After the Nagwada excavation, surveys in North Gujarat revealed six other sites with Early Harappan burial pottery: Mathutra, Jandada, Santhli, Koliwada, Moti Pipli and Panchasar (Ajithprasad and Sonawane 1993:25).

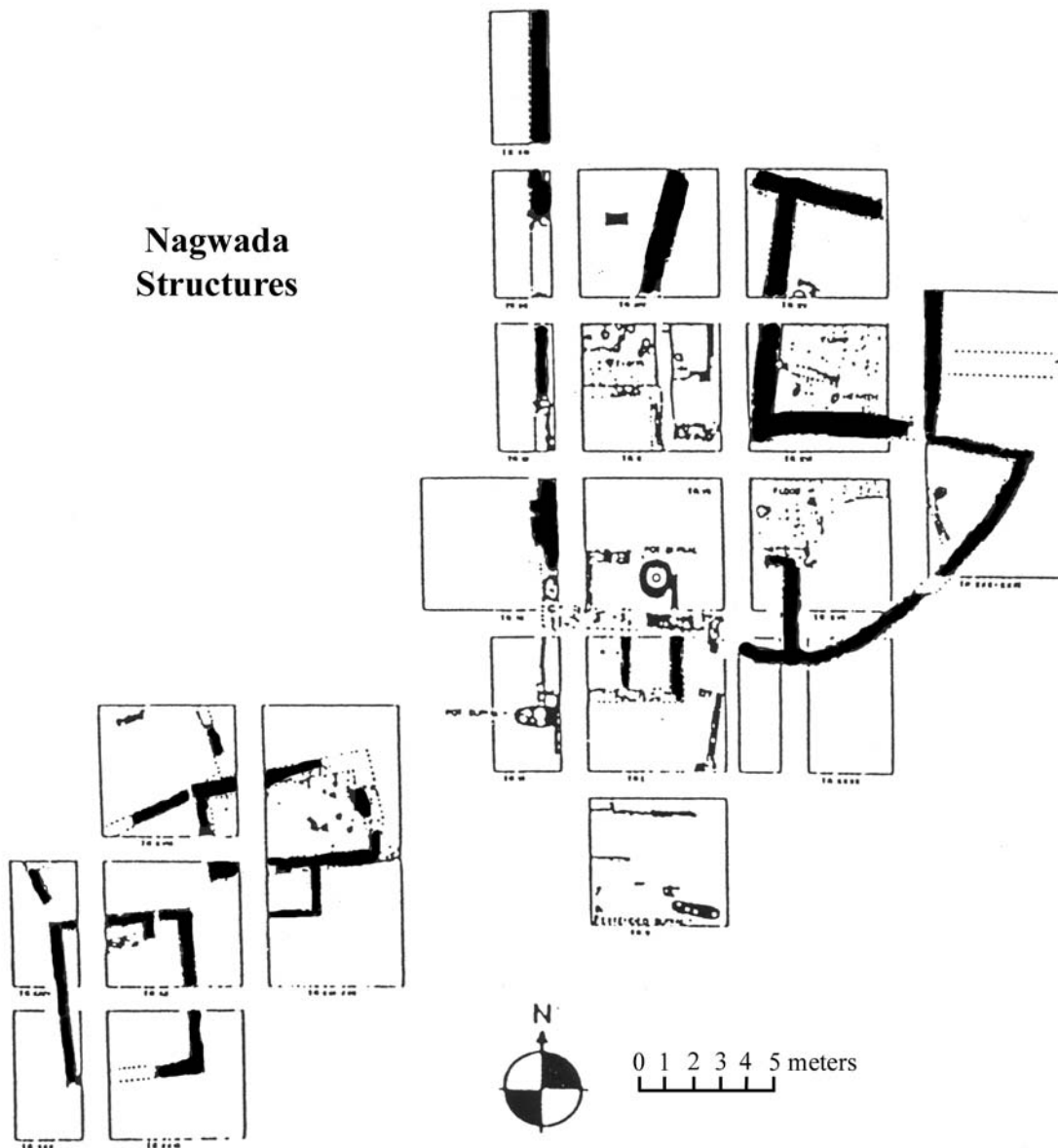
³¹ Early Harappan Phase burials are discussed more fully in the final chapter of this work.



Nagwada Burial Urn
(Hegde *et al* 1988)

Figure 5.25 Nagwada Burial Urn

In contrast, Period IB is characterized by four substantial building phases. At the top of the dune, fifteen trenches revealed evidence of some kind of rectilinear multi-roomed structure with at least four distinct sections (Figure 5.26; see Hegde et al. 1990:192 for details on the structural phases). Approximately 10 m southeast of this complex is a cluster of three rectangular structures. The structures were initially constructed of mud brick and rubble, but by the fourth and final phase the foundations were only made of rubble. The mud brick used during the first three phases reportedly has a Harappan 1:2:4 ratio (Bhan 1994:80; Sonawane 1994–95:4).



Adapted from the Department of Archaeology and Ancient History, M. S. University of Baroda

Figure 5.26 Nagwada Site Plan

Artifacts

Lithics: Long parallel-sided blades made of Rohri chert were found, one of which is confirmed to have come from the Rohri hills (Law 2008:280). There are also cryptocrystalline blades, cores and debitage. A few microblades demonstrate use of the crested guiding ridge technique, and there are some geometric microliths, but not many. Much of the lithic debitage seems to be from bead rather than microlith production, especially the amazonite. The cylindrical stone drills were almost certainly used for lapidary work (Bhan 1994:80). Blades and microblades are not retouched (Hegde et al. 1990:193), suggesting they were not used as tools but are waste from creating bead blanks. Many groundstone tools were found in all levels including the Period IA pits.

Metal: Four copper celts were found and three of them had been buried within the same floor, keeping them well preserved (Bhan 1994:80). Copper, gold and silver ornaments were also recovered, coiled rings being a particularly popular item. One entire set of gold ornaments was found in a pit from an early level of IB (Hegde et al. 1990:193).

Beads: There is good evidence for bead working at Nagwada in the form of tools, lapidary waste (particularly amazonite and chalcedony) and unfinished beads of carnelian, agate and shell. Sonawane (1994–95:5) provides a thorough catalogue of the evidence for bead working: “[a] variety of bead roughouts and blanks, stone hammers and polishers, disposed defective objects, broken beads. . . . a number of micro drill bits of chert and a few tubular drills of black jasper analogous to the phtanite drills reported

from Mohenjo-daro.” This industry is discussed in more detail at the end of this section. Finished beads were found in the following materials – carnelian, shell, agate, steatite and faience – and came in many shapes (Table 5.6). Interestingly, lapis lazuli beads were also found here, which is rare for Mature Harappan sites and completely unexpected at a relatively small settlement such as Nagwada. Two pots buried under house floors contained steatite microbeads, one of which had a cache of over 20,000 beads (Sonawane 1994–95:5).

Table 5.6 Nagwada Beads		
<i>Material</i>	<i>Number of Specimens</i>	<i>Shapes</i>
Agate	7	Barrel-shaped
Amazonite	21	Barrel, tubular, spherical
Carnelian	29	Tubular, biconical
Chalcedony	19	Roughouts, disc
Lapis lazuli	24	Tubular
Copper	2	Tubular, barrel
Gold	N/A	
Faience / Paste	202	Tubular, barrel, microbeads
Steatite	> 21,000	Microbeads, tubular, disc
Terracotta	7	Biconical, spherical, tubular
<i>Dentallium</i> shell	6	
<i>Lacrimona</i> shell	24	
Modified shell	19	Disc, barrel

Shell ornaments: A wide variety of shell objects were found here, including bangles inscribed with chevrons, ladles, beads, inlay pieces and rings (Sonawane 1994–95:5). The large amount of shell waste demonstrates an intensive shell working industry.

Terracotta objects: There are many characteristic Mature Harappan artifact types at this site, including animal figurines, two toy carts, wheels, a ladle, triangular terracotta

cakes, *mustikas* and miniature containers (Hegde et al. 1988:64). In addition, a unique small figurine was found (often called a Mother Goddess, see Hegde et al. 1990). It is crudely made and has inlaid steatite microbeads that indicate eyes, ears, breasts and a navel (Bhan 1994:80).

Miscellaneous: One Indus clay seal impression depicting a bull (*IAR* 1987–88:20) and one steatite stamp seal (inscribed with *serie recente* style circles) were found here (Figure 5.27). A study by Randall Law (2008:400) suggests the steatite is from a source similar to a seal found at Bagasra, which was probably acquired locally. Agate cube weights were also found, mostly in pits. These objects prove beyond a doubt that this population participated in a greater Mature Harappan economic and administrative network.



Impression and Stamp Seal from Nagwada

Figure 5.27 Nagwada Impression and Seal

Pottery

Excavations yielded a variety of wares, including the Early Harappan pottery from the IA burials, Anarta Wares (most particularly Gritty Red Ware), White-painted Black and Red Ware, and a scant amount of Mature Harappan Red Ware (Sonawane 1994–95:5). Anarta Wares are most prevalent here (Hegde et al. 1990:192). There do not appear to be any stratigraphic changes in pottery composition throughout the IB building phases; Anarta Ware and White-painted Black and Red Ware were found with the same frequency throughout all levels (Hegde et al. 1988).

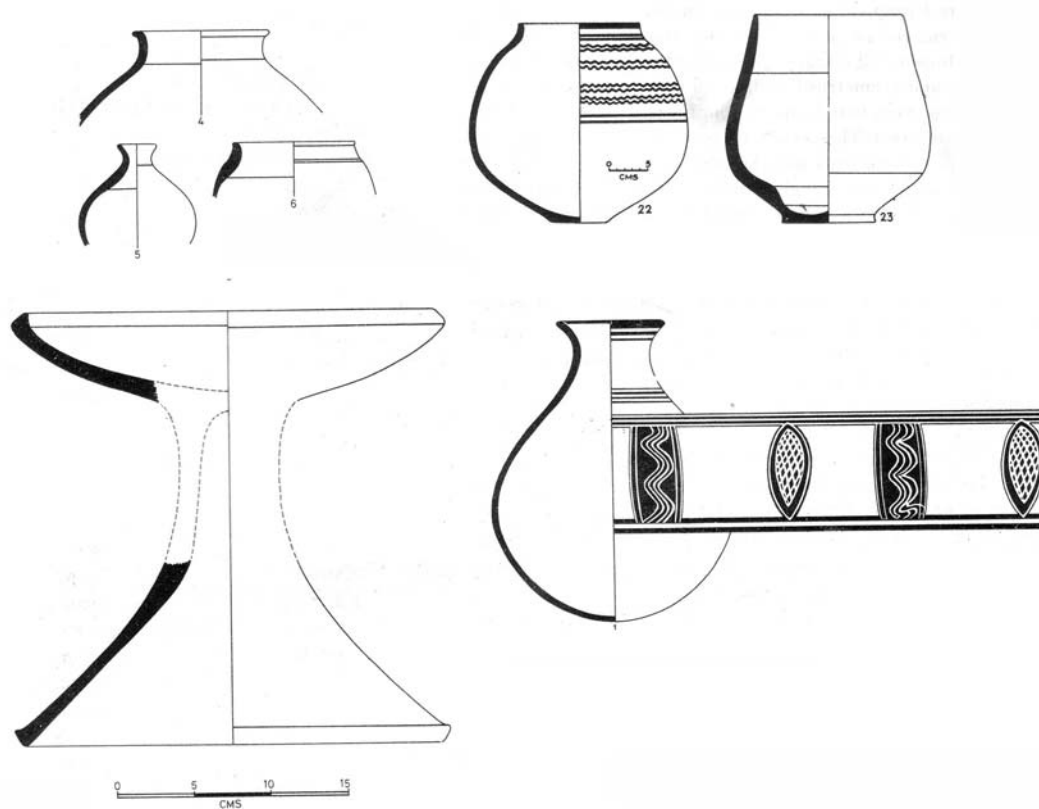
1) Early Harappan Ware

Three types of Early Harappan Ware are represented by the burial vessels:

- a) Red Ware
- b) Pinkish Buff Ware
- c) Grey Ware

All of these wares are made of a fine paste and are slipped and painted (although the surface treatment has eroded). Characteristic shapes of the burial pottery include large bulbous pots with short straight necks and flat rims, narrow-mouthed beakers, beakers with flared rims, dishes-on-stands, dishes with no carination and bowls (Figure 5.28) (Sonawane and Ajithprasad 1994:136). These shapes are similar to Early Harappan pottery from Kot Diji, Amri and Balakot. Most of the vessels are of the Red Ware variety in the form of beakers, bowls, and pedestal bowls. Three Buff Ware vessels (two pots and one beaker) were found, two of them within Pot Burial 6. Only one Grey Ware vessel (a

pedestal bowl) was reported; it is worth noting that it was found in Pot Burial 3, which had the greatest number of vessels and included the Micaceous Red Ware bowl (Majumdar 1999:157).



Early Harappan Pottery from Nagwada

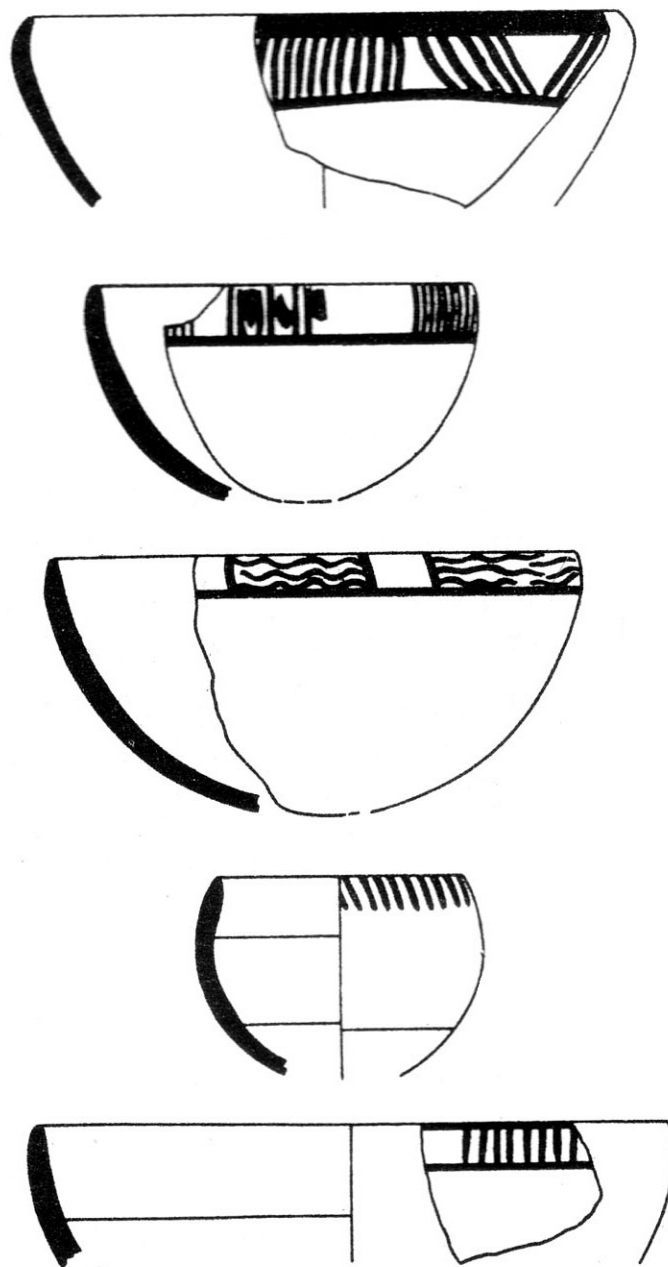
Figure 5.28 Nagwada Early Harappan Pottery

2) *Anarta Wares*

Subtypes of Anarta Ware found at Nagwada (Ajithprasad and Sonawane 1993) include the following:

- a) Gritty Red Ware
- b) Fine Red Ware
- c) Burnished Red Ware
- d) Burnished Grey/Black Ware

Stratigraphically, Anarta Wares appear in Nagwada after the Early Harappan burial wares. Some of the Gritty Red Ware vessels seem to be imitations of characteristic Mature Harappan Red Ware shapes such as the dish-on-stand and perforated jar (referred to in Chapter Four; see also Ajithprasad and Sonawane 1993:6; Sonawane and Ajithprasad 1994:134). Design patterns and pigments of the Gritty Red Ware appear to change throughout sequential construction phases (Sonawane 1994–95:5); Hegde et al. (1990:192) describe the motifs as becoming “less ornate” over time (Figure 5.29).



Anarta Ware from Nagwada
IAR 1985-86

Figure 5.29 Nagwada Anarta Ware

3) Ahar White-painted Black and Red Ware

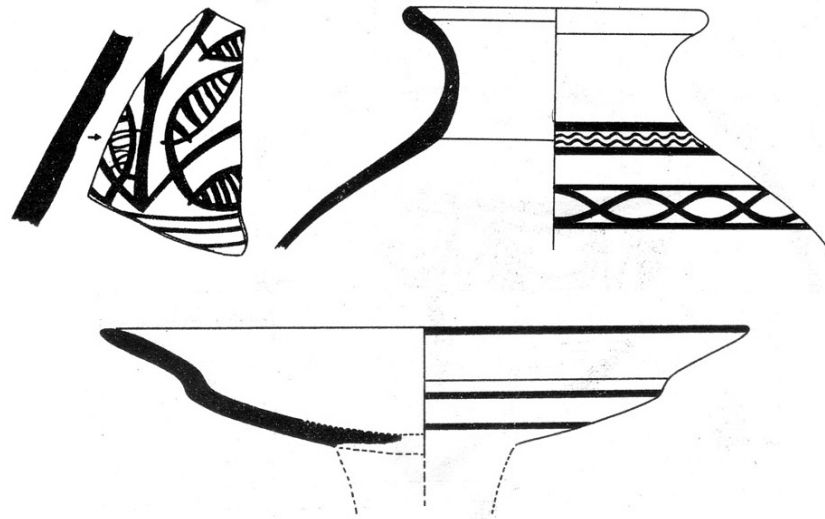
After Anarta Ware, the next most prevalent ceramic type is Ahar White-painted Black and Red Ware (described in Chapter Four, Figure 4.21) (Ajithprasad and Sonawane 1993:19; Hegde et al. 1988). The published images of these vessels seem to have very similar motifs as those referenced in vessels from Ahar (see Figure 4.22).

4) Mature Harappan Ware

Subtypes include:

- a) Red Ware
- b) Buff Ware
- c) Chocolate-slipped Ware

Most of Nagwada's material culture consists of Mature Harappan objects, yet despite this there is a paucity of Mature Harappan pottery here. Ajithprasad and Sonawane (1993:11) mention these sherds resemble pots from Sindh more than the Sorath varieties. However, Bhan (1994:79) claims that Mature Harappan Ware found here is of the Sorath variety with close parallels to that found at Surkotada IB-IC, Desalpur, Lothal A IV, Rangpur II A and Rojdi A (Figure 5.30).



Nagwada Mature Harappan Wares
(*IAR* 1985-86)

Figure 5.30 Nagwada Mature Harappan Ware

Subsistence Practices

More than 60 percent of the faunal remains come from domesticated species, including sheep/goat, cattle, buffalo, camel and pig³². There is also an array of wild fauna, mostly ungulates (particularly wild ass) and boars (Patel 1989). One ostrich shell was found. The variety of domesticated fauna suggests that the Nagwadans did not specialize in pastoralism, which is usually indicated by a faunal profile with one or two dominant species.

³² Pigs are difficult to herd and their presence often indicates sedentism (Lauren Ristvet, personal communication)

Indices of Mobility

1. Investment in features

The only evidence for structures in Period IA comes from the two postholes, which possibly formed part of a residence. There is quite a bit of regular habitation debris from contemporary pits, so while not much was built here, there was substantial residential and craft activity.

Beginning in Period IB, much time, energy and resources were devoted to preparing this site for consistent occupation. It seems likely that Nagwada housed a sedentary community that practiced agriculture, although substantial structures are not necessarily evidence of full-time residency. However, even if the degree of mobility in the population as a whole cannot be specifically determined, this place was meant to be occupied regularly over long periods of time, if not year-round.

One very interesting phenomenon here is the deliberate deposition of objects into house floors, the three copper celts being a good example of this behavior. Another example comes from the cache of beads and copper buried under another floor (Hegde et al. 1990:193; *IAR* 1985–86b:20). This suggests that individual space or property was valued, if one assumes that these objects held some kind of symbolic (or at least economic) meaning.

The burials, like others in this region, are difficult to interpret with regard to how they reflect the ritual use of space. It is not certain how a burial can be considered a form

of investment in a place without evidence for monumentality or post-depositional activity.

2. Kinds of activities

There was a significant lapidary industry here during both phases, particularly in the manufacture of amazonite and carnelian beads. In addition to stone beads, thousands of steatite microbeads were found, as well as an unaltered piece of soapstone, which Hegde et al. (1990:193) suggests is evidence that Nagwada was also a steatite manufacturing center. There does not, however, seem to be any clustering of lapidary waste, so it is difficult to determine if there was a place dedicated to this work.

Nagwada has a great variety of shell materials altered by multiple manufacturing stages. Hegde et al. note (1988:60) that gastropod apices, first removed during processing, are absent here. Their proposed is that primary processing was done elsewhere and that Nagwada craftspeople specialized in finishing the bangles³³. Many of the bangles have chevron motifs, the only form of decoration employed. Inlay pieces were also manufactured here. One interesting outcome of Nagwada shellwork studies is the revelation that shell waste associated with bangle manufacture at Nagwada was recycled to create rings (Bhan and Gowda 2003:61,78). They remark that there are consistent patterns among both manufacturing techniques and bangle styles. At Nagwada,

³³ For detailed descriptions of the production process of shell bangles, see Kenoyer 1983; Hegde et al. 1992; Bhan and Gowda 1993.

bangle widths varied from 2 to 23 mm, but most were approximately 5 mm wide, indicating some degree of standardization.

Indices of Material Variation

1. Pottery

There is a wide variety of pottery at Nagwada. The Early Harappan pottery is related to other sites with similar vessels, especially those with like burial contexts. In this respect, Nagwada is correlated with other sites in the region including Surkotada, Moti Pipli, Dholavira, Santhli, and Datrana. Ahar BRW is the other prevalent ware and it is also found at Surkotada, Zekhada, Ratanpura, Bagsasra and Dholavira. Both these types demonstrate economic (if not social) connections to remote locales. An even greater index of interaction is the production of “fusion” wares such as the Anarta imitations of Mature Harappan Ware and Ahar BRW stud-handled bowls. These ceramics have already been discussed in detail in Chapter Four, but it should be noted that of all the sites reviewed in this work, Nagwada yielded the greatest number of these vessels.

2. Other forms of material culture

The wide variety of materials – metals, semiprecious stones, steatite, shell – is closely related to industrial activities. The stamp seals and precious metal ornaments do not seem to have been locally produced and, along with the craft products made here,

demonstrate participation in a much broader and intensively maintained economic network than the previous sites. The diverse sources of food may have been locally raised but it is also possible animals and plants were part of the greater exchange networks the objects made at Nagwada were intended for.

It would be a mistake to infer automatically from the variety of artifacts that a variety of people lived in Nagwada. While two major industrial activities were practice here, it is difficult to determine the kinds of relationships that existed among the inhabitants or what sense of community was created. But the importance of these activities demonstrates how Nagwada had some specialized function in the greater regional (North Gujarat and Kutch) interaction sphere. Shell and lapidary work are evident throughout all the subphases of Period IB, indicating this function had historical depth. The broad assemblage reflects this participation, particularly through the “fusion wares,” probably made to cater to local tastes for what would have been exotic styles and the deposition of (probably precious) objects underneath house floors.

At first glance, it would seem that Nagwada is geographically and economically removed from other sites analyzed in this study. It is rather distant from the previous three sites, all of which were in the Banaskantha district and is at the opposite end of the Rupen Rivers system from Loteswar and Ratanpura. It also seems to belong to a highly specialized industrial community that had substantial architecture. But Nagwada forms an important landmark in the wider spectrum of occupations covered here. The burials, artifacts and pottery all demonstrate important stylistic convergences between varied regional forms of material culture traditions, some of which have been seen in the

previous sections and some of which will be become more prominent as this survey continues.

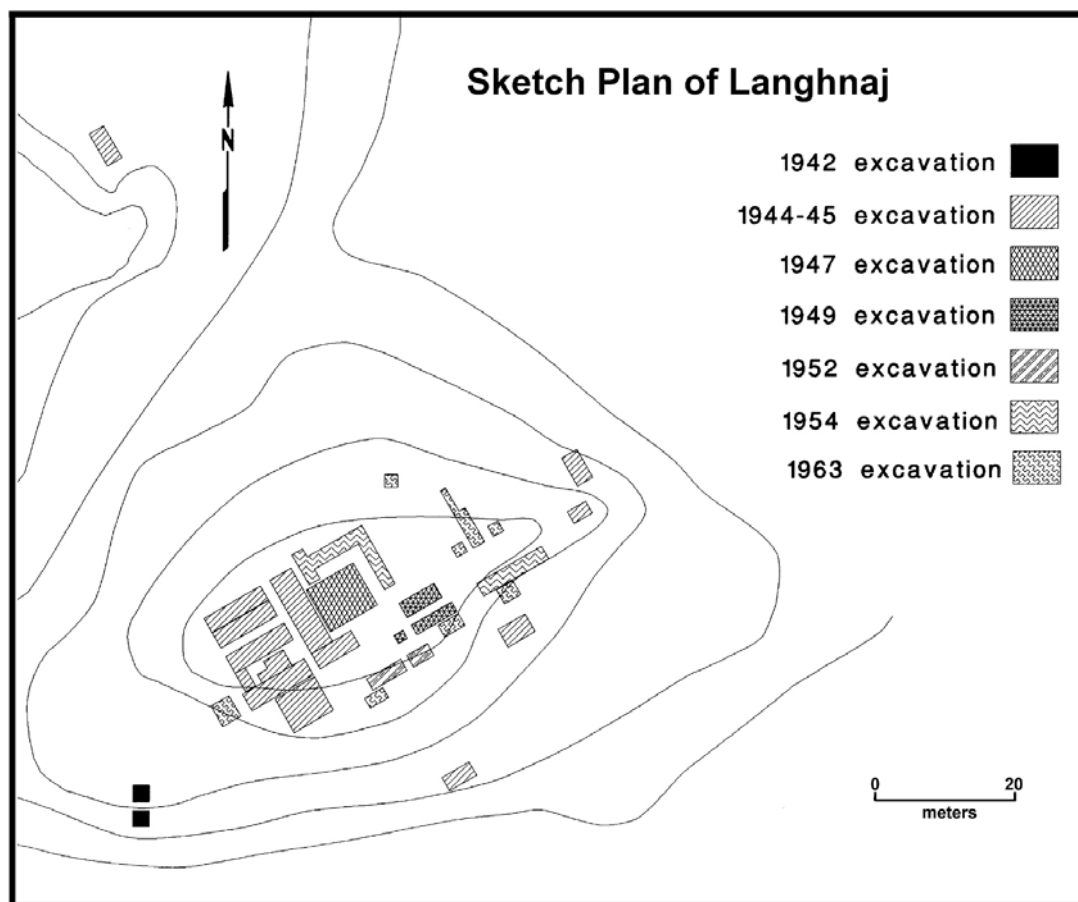
Langhnaj

Apart from early investigations of “Mesolithic” sites in Gujarat, what has interested most archaeologists about Langhnaj is that it represents a population with clear ties to its sedentary neighbors (such as those who lived at Lothal), yet the site’s lack of structures and domesticated fauna suggest a lifestyle related more to foraging than to agriculture or pastoralism. Even more intriguing is the finding that the skeletal and cranial morphology of the Langhnaj people is similar to modern hunter-gatherers (Kennedy et al. 1984; Lukacs 2002; Possehl 1976, 2002b; Possehl and Kennedy 1979), further supporting the interpretation of this site as being inhabited by foragers. Much like Nagwada, Langhnaj demonstrates an important link between smaller and larger communities. However, in contrast to the usual reliance on material culture, the link at Langhnaj is drawn through skeletal biology (discussed later in this section). Langhnaj is also roughly contemporary to Nagwada and Zekhada, although the pottery seems to be from a later phase than the radiocarbon date would indicate.

Introduction

The site of Langhnaj (also called *Andhario-timbo*; 72° 32’ N; 23° 27’ E; Ahmedabad district) is located on a sand dune within an alluvial strip created by drainage into the Gulf of Cambay (Figure 5.31) (Sankalia et al. 1965:9). Work started in 1941 under the direction of H. D. Sankalia as a part of the First Gujarat Prehistoric Expedition and continued sporadically until 1965 (*IAR* 1953–54a:8). Along with Hirpura, it was one

of the first microlith-bearing sites to be excavated specifically to gain insight into what was believed to be the Mesolithic period (Sankalia 1946:v).



Site plan courtesy of Gregory L. Possehl

Figure 5.31 Langhnaj Site Plan

The mound is a loessic dune formed by silt blown inland from the Gulf of Cambay after the Pleistocene. The nearby depressions that fill with water after the monsoon are “blowouts” formed by erosion (Kennedy 2000:209). According to Allchin, Goudie and Hegde (1978:250), the loose soil at the site facilitated turbation (by animal trampling, percolation, etc.), so there is no way to determine which artifacts belong to which period of occupation. The sandy soil at Langhnaj does not have any obvious stratigraphic breaks, prompting Zeuner (1950, 1952) to attempt a reconstruction of sequences based on wet and dry periods.

Sankalia (1946) originally identified three occupational phases at the site. In all phases, both microliths and pottery were recovered, so the earliest period at Langhnaj cannot be considered Mesolithic. The first two phases are marked by mostly microliths and a scant amount of pottery. The last phase contains medieval period artifacts along with microliths. Phase II is the focus here, as it is the occupation roughly contemporary to the other sites discussed. There is one radiocarbon date for this layer, dating to between 2479-2153 cal BC. This is contemporary with Lothal, an important point discussed at the end of this section.

Features

The most notable features here are 13 burials (Figure 5.32) found within undisturbed layers, although only five were complete enough to study in detail (Ehrhardt and Kennedy 1965:1). Two wolves were deposited among the human interments, though it is not certain how they articulate with the skeletons (Sankalia et al. 1965:20). Wolf remains have also been found at Surkotada IB and Lothal (Possehl 1999:213), but not in burial contexts. All the complete human skeletons were found in highly flexed positions, though the heads pointed in different directions. A wide variety of people of different ages were buried here, ranging from infants to the elderly, both male and female. Most of the skeletal material is highly fragmented, limiting the extent of possible analyses. No grave goods are reported. As will be discussed later in this section and in the conclusion to this work, Langhnaj is a hunting camp. The unusually high number of burials for a temporarily occupied site implies that unlike the other burials of North Gujarat, this place was consistently used for burial and can truly be considered a cemetery³⁴.

³⁴ A test would be extremely helpful to determine if there are significant patterns to the relative chronology of the burials.

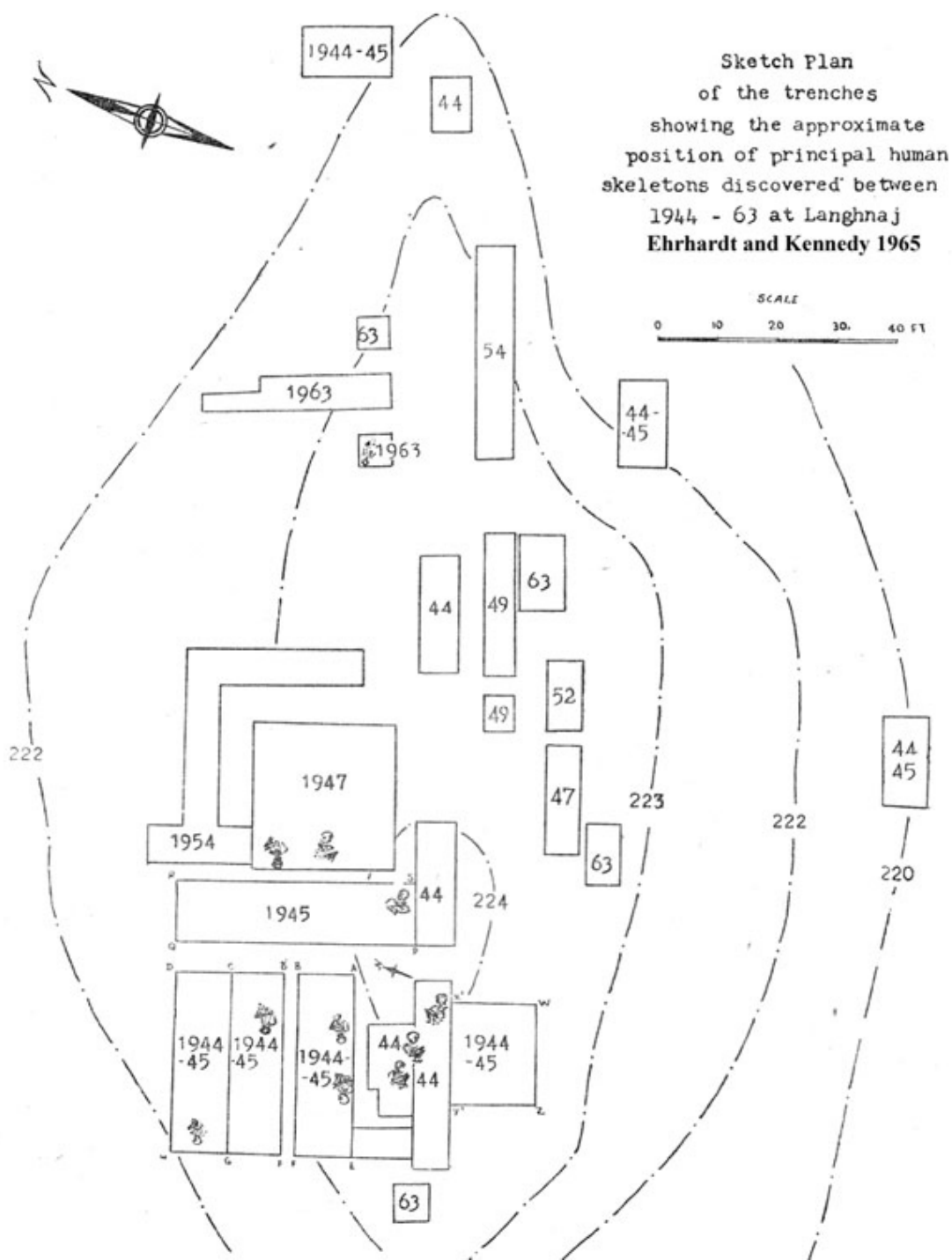


Figure 5.32 Langhnaj Burials

Artifacts

Lithics: The majority of artifacts found here are microliths. Only two groundstone tools were found (one ring-shaped macehead and one wedge-shaped quern) (Sankalia et al. 1965:39). The microliths are prevalent throughout all phases, but the groundstone tools only appear during Phase II (Possehl 2002:71). The tools – made of chert, quartz, agate and jasper – were not made of local stone and must have been imported from at least thirty miles away (Sankalia et al. 1965:7).

Beads: Very few beads were found. Most of them are altered *Dentallium* shells, two of which were found in association with one of the burials. Two steatite disc beads are also reported (Sankalia et al. 1965:41).

Terracotta: One damaged portion of a figurine is reported from Phase II. It is very small and has a few incisions (Sankalia 1946:261).

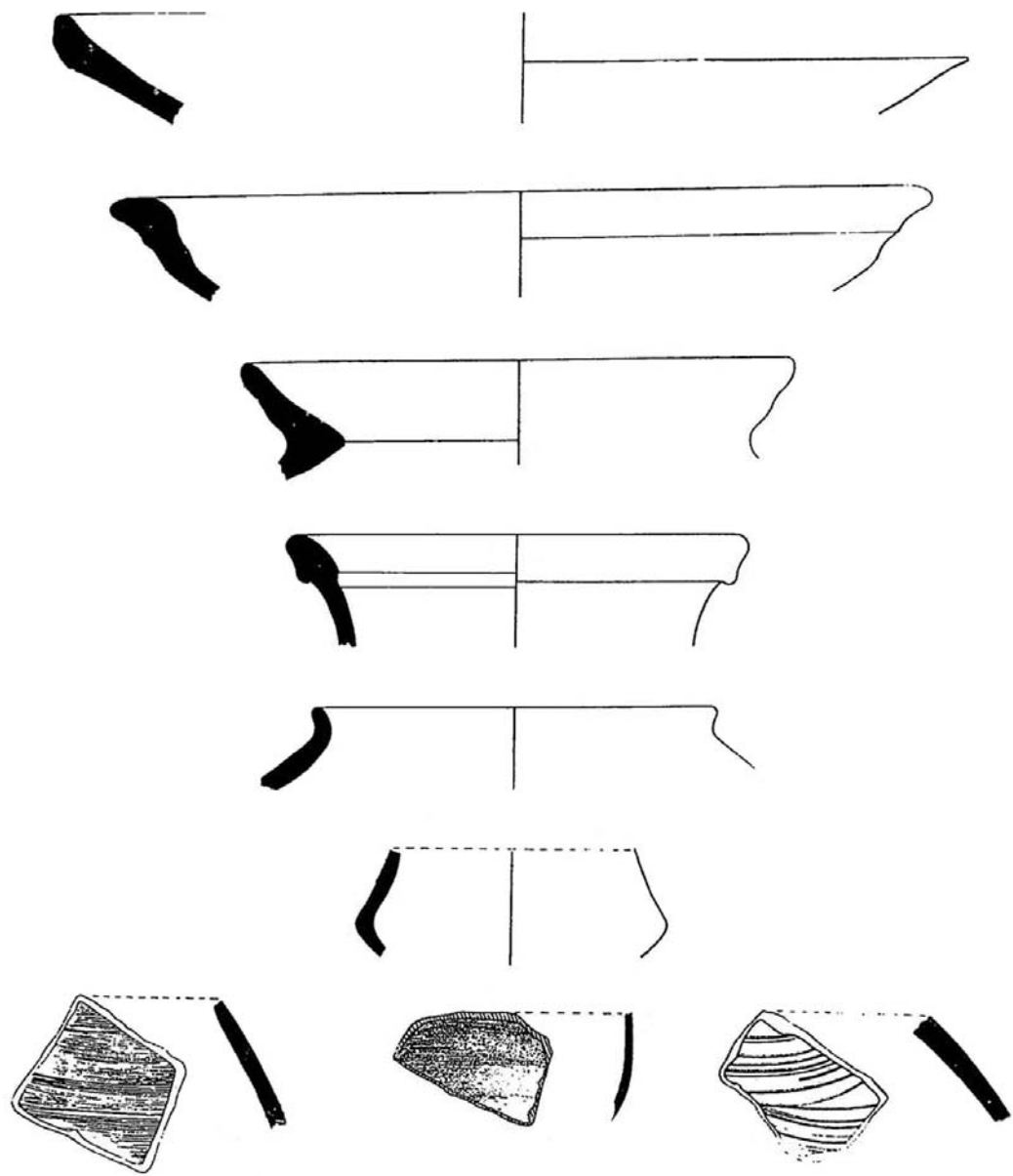
Pottery

Pottery is exceedingly rare at Langhnaj, and sherds are generally of very small size (which also makes them vulnerable to turbation). Sankalia et al. (1965:42) urge caution regarding the presence of pottery in the earliest level. The sherds are highly weathered and encrusted with mineral salts, making distinctions among wares rather difficult. This is especially true for those with specific surface treatments and decorations. Additionally, many of the sherds are of a low-fired ware that easily disintegrates. Only a

few sherds display a surface treatment of either burnishing or incising (Sankalia et al. 1965:44). The best preserved pottery is the burnished Black and Red Ware, recovered from the uppermost layer of the Chalcolithic phase (Figure 5.33). Based on the few identifiable sherds, Sankalia et al. (1965) composed the following typology:

- 1) Burnished BRW
- 2) Burnished light brown ware
- 3) “Nondescript” Ware (Sankalia et al. 1965:17). This probably describes the highly weathered Red Ware and Black Ware analyzed by G. G. Majumdar (1965:48) in the same report.
- 4) Incised Ware (unslipped, unburnished, light brown)

However, these classifications are difficult to correlate to other sites due to the problems associated with the terminology of Black and Red Ware (see Chapter Four).



Langhnaj Pottery
(Sankalia et al. 1965)

Figure 5.33 Langhnaj Pottery

Subsistence Practices

The wild species found at Langhnaj include rhinoceros, wild boar, three varieties of deer, nilgai, blackbuck, mongoose (one skeleton) and wolf (found interspersed with human burials) (Clutton-Brock 1965). Most of the bones and teeth are from bovines, which Clutton-Brock (1965:25) contends came from the undomesticated *Bos namadicus*. The total reliance on wild fauna leads to the interpretation of Langhnaj as a forager camp.

Indices of Mobility

1. Investment in features

The only features here are the thirteen burials and because there is no substantial evidence for structures, it seems to be an ephemeral camp. Sankalia et al. (1965:7) remark that no architectural remains were found but suggest that structures would have been composed of woven wind screens and wattle and daub. The burials clearly demonstrate some kind of symbolic investment in this space as well.

2. Kinds of activities

The preponderance of lithic debitage and finished tools (primarily microliths) demonstrates intensive tool-making here. The range of wild fauna recovered shows that hunting was probably a dominant form of subsistence. These two kinds of activities

further support the interpretation of Langhnaj as a camp for nomadic foragers³⁵. This is in marked contrast to the other sites considered in this work. All others contain evidence of the exploitation of domestic animals, which proves dependence on pastoralism to different degrees. That the people of Langhnaj (particularly those who formed the deposits of the second occupational layer) were contemporary with both pastoralists and sedentary agriculturalists is without question. Juxtaposing Langhnaj with other occupations has led to speculations about the role these foragers would have played in the greater social and economic context of Chalcolithic Gujarat.

Langhnaj and processes of interaction

Beginning with an article written by Gregory Possehl (1976), much has been said about the inhabitants of Langhnaj regarding their relationships with neighboring communities. The evidence for interaction comes in two forms: the presence of imported artifacts at Langhnaj and skeletal data (especially dentition). The variety of artifacts found here is rather restricted, limited mostly to the microliths and very little else. All other materials here were definitely imports. Additional artifacts include a 98-percent pure copper knife and Harappan-style steatite disc beads (Lukacs 2002:45).

While the circulation of objects provides good data on economic relationships, Possehl and Kenneth A. R. Kennedy (1979) propose that the specific relationship

³⁵ There is also the possibility it represents hunters from some other community. The notion that Langhnaj was a forager camp is further explored in the following discussion on cranial studies.

between the peoples of Langhnaj and Lothal merits closer attention. They compare cranial measurements to determine if interaction went beyond economics. Kennedy and his colleagues (1984) note that facial features among the Lothal skeletons have measurements somewhat different from those of other Mature Harappan internments. The Langhnaj skulls have similarities to modern hunter-gatherer populations by indices such as prognathism and tooth size. This study is bolstered by a comparison of the prevalence of dental disease among both populations (Lukacs 1990, 2002; Lukacs and Pal 1993). Dental disease is a very good index of the consumption of processed grains, as dental caries are associated with refined starches such as wheat and thus are a far greater problem for agriculturalists than for foragers. Dental caries among the Langhnaj skeletons demonstrate that they did consume processed starches, probably made from domesticated plants, which they must have acquired from agrarian neighbors (Lukacs 2002:49). The groundstone tools are also considered indicators for the consumption of cultigens.

The above observations have led to productive interpretations of how the populations interacted. Possehl's approach (1976:126; 2002) is based on the observation that communities with different subsistence practices create mutually beneficial relationships. This is borne out by both ethnographic and comparative archaeological analogies. The primary theoretical influence here is Richard Fox's (1969) notion of "professional primitives": foragers who use their mobility and access to particular

resources as a means of economic specialization³⁶. Taking this interpretation a step further, Lukacs (2002:42) uses the term “oscillating biculturalism” to describe the mechanism whereby nomadic foragers fluctuate between periods of intense contact and interdependence with settled agrarians and periods of isolation. Given the available data, this approach works well to elucidate nuances among processes of interdependence. A critique of this interpretation comes from Sankalia (1987:77), who notes that none of the materials from Langhnaj appear to have been imported from Lothal – neither the beads nor the pottery. He also contends that the burials are proof that this site must have been occupied year-round (Sankalia 1987:77); still, the faunal evidence and lack of features clearly demonstrate mobility. To conclude, the inhabitants of the Chalcolithic period in Langhnaj were most likely foragers that acquired materials through some form of exchange, reflected by a very low degree of material diversity. Details about the kinds of social or economic arrangements that led to the introduction of these materials are difficult to reconstruct without better evidence for trade³⁷.

³⁶ Authors on this subject often use the term “forest products” (Morrison 2002) to describe commodities furnished by hunter-gatherers, such as honey and medicinal plants.

³⁷ A paleobotanical study would provide an excellent method to test this proposed interaction model.

Zekhada

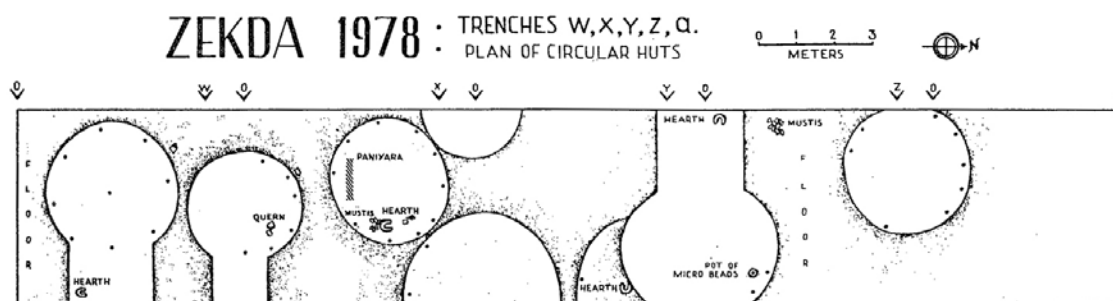
The next three sites to be discussed – Zekhada, Ratanpura and Kanewal – have much more in common with one another than with the other sites reviewed so far. What makes them part of this survey is not merely the fact that they are located in North Gujarat but because they provide evidence for the continued development of mobile pastoralism during the later Mature Harappan and post-Urban phases of Gujarat. They also document elaborations in settlement patterns, residential activities and the circulation of material culture.

Introduction

Zekhada (23° 40' N, 71° 20' E; Santhalpur Taluka, Banaskantha district) was found as part of survey work conducted by R. T. Parikh (1977) for his dissertation research. The survey was concentrated in the western portion of the Banaskantha district, as it had been suggested that this region would have formed an important land route connecting Saurashtra with the Indus Valley (Parikh 1977:5). The site is located on a sand dune locally called *Amasri no Tekro*, which is flanked by a seasonal pond and a nullah.

Features

Zekhada is one of the few camp settlements with clear evidence for how residential space was organized, and it contributes greatly to an understanding of how mobile communities lived during this time. Twelve hut floors are distributed across five occupational layers (Figure 5.34). The only discernable stratigraphic change is a gradual diminution in the frequency of Anarta Ware (discussed later in this section). Huts are of two types: circular and circular with a porch. The floors are made of rammed earth plastered with dung and were approximately 3 m in diameter (Momin 1980–81:121). Smaller features are found within these dwellings. Postholes are located along the perimeter and the largest hut has a central pole for support. All huts have a hearth in either the center or in the porch. One hut contains the remains of a raised pot-rest (*chulha*). Another circular hut incorporates a “paniyara,” or water storage feature (Mehta 1982:171).



Site plan from Mehta 1982

Figure 5.34 Zekhada Site Plan

Artifacts

Copper is found in the form of strips, wires, one projectile point and what might be a pendant (Momin 1980–81:124). Large Rohri chert blades and microliths, though present, are relatively scarce, despite the presence of cores, indicating local production (IAR 1977–78:21). It is not known if these blades are as large as those at urban centers or were heavily modified as those at camps such as Datrana IV. Beads come in a variety of shapes and are made of “carnelian, jasper, lapis lazuli and faience” (IAR 1977–78:21); most, though, are made of terracotta, one of which is shaped like an areca nut. A small amount of shell bangles and waste were found. Two rather significant caches of beads were reported - two gold beads were buried under the floor of one of the huts and two small pots contained approximately 34,000 steatite microbeads were found (Hegde et al. 1993:240-1; Sonawane 2006:10). Three triangular terracotta cakes have been reported. Other terracotta artifacts include perforated discs, pellets and ambiguously shaped terracotta figurines. The spatial patterns of some artifacts clearly demonstrate household consumption. Pottery, sandstone tools (querns, mullers) and the triangular cakes were found within the hut debris. Two clusters of *mushtikas* were found – one near an interior hearth and one on an exterior prepared floor (Mehta 1982:171).

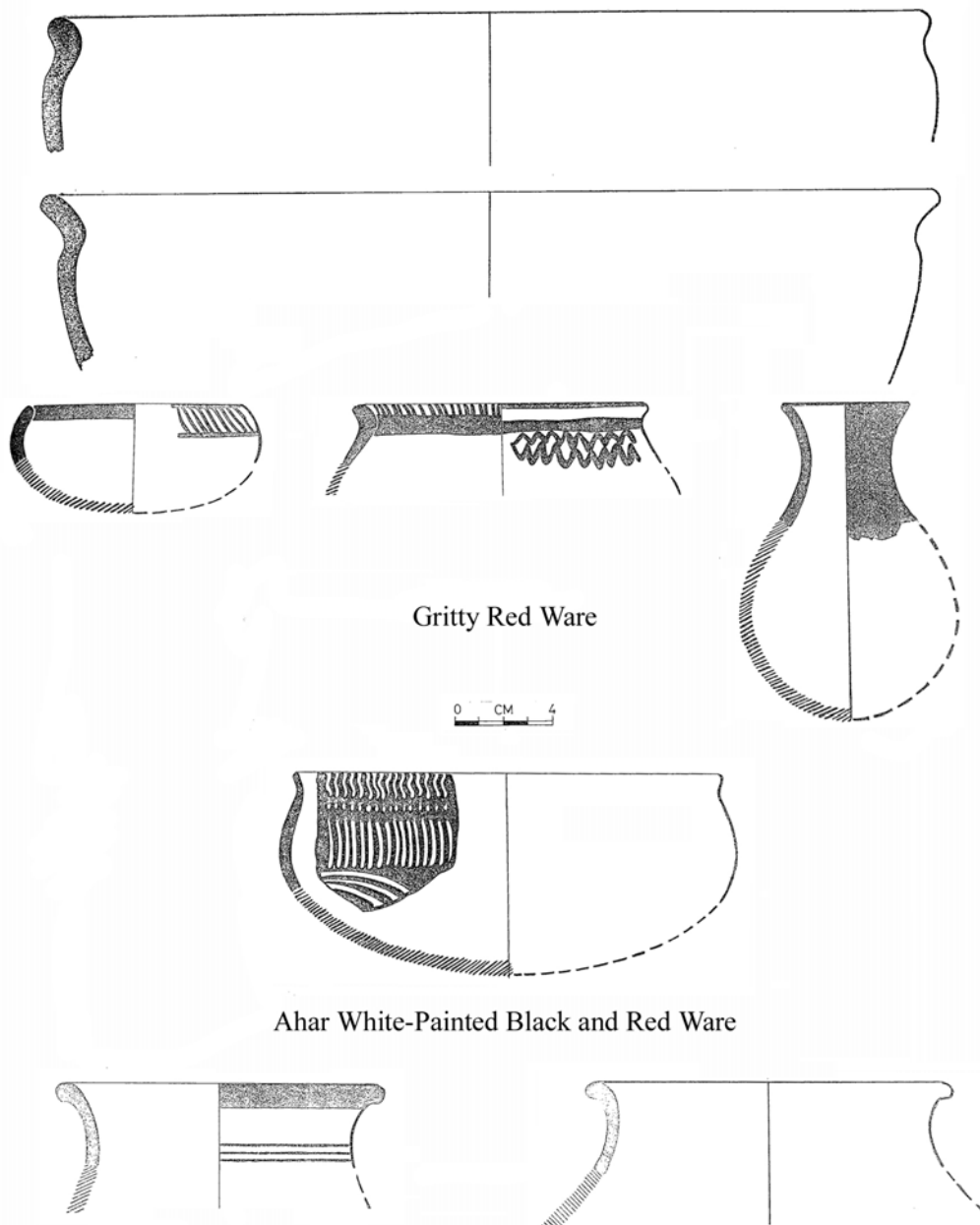
Pottery

Two rather different typologies for Zekhada have been constructed. The first, by Parikh (1976:48–9) emphasizes the variety of post-Urban wares but focuses on Red Ware and Gritty Red Ware. At the time Parikh conducted his study, the concept of Anarta Ware had not yet been developed, so he had no point of reference for the Anarta Ware found here. Momin (1980–81:124) was later able to correlate these “regional wares” to Surkotada IC and Lothal B. The second typology was created by Deblina Chatterjee (1995) for her master’s thesis. This typology is preferable because it takes into account relative frequencies and stratigraphic relationships. The types (in order of frequency across all trenches) are:

- A. Gritty Red Ware
- B. Regional Red Ware
- C. “Associated Wares”
 - 1. Incised Coarse Red Ware
 - 2. Incised Coarse Grey Ware
- D. Late Harappan Wares
 - 1. Ahar White-Painted Black and Red Ware
 - 2. Lustrous Red Ware
 - 3. Buff Ware

Figure 5.35 illustrates examples of these wares. Given what is known about Anarta Wares as found at other sites (particularly Loteshwar and Nagwada), the first three types of ware fall into this suite. Though Black and Red Ware and Lustrous Red

Ware occur often enough, particularly in later levels, to be considered significant components of the total assemblage, there is a clear preference for local types. The popularity of Anarta Wares decreases in the upper layers, with Ahar White-Painted Black and Red Ware and Lustrous Red Ware appearing more frequently by layers 2 and 3. Pottery left out of this greater typology includes Mature Harappan Red Ware and Reserved Slip Ware, which do not occur in significant quantities and have not been studied (Chatterjee 1995:59).



Gritty Red Ware

0 CM 4

Ahar White-Painted Black and Red Ware

Lustrous Red Ware

Zekhada Pottery
Chatterjee 1995

Figure 5.35 Zekhada Pottery

Subsistence practices

An unpublished M. A. thesis on faunal remains exists (Bhattacharya 1981), but it is currently unavailable to this researcher.

Indices of Mobility

1. Investment in features

Zekhada provides the (presumably) earliest evidence for a special architectural form called a *kubas*. These are round wattle and daub huts that are still used by some mobile populations in Gujarat. The huts at this site are rather substantial, with rammed floors (very similar to those from Ratanpura and Kanewal) demonstrating more investment in preparing the living space than at more temporary campsites. The *kubas* are consistently made in the same manner with the same materials, shapes and furnishings. This indicates some kind of economic specialization, expressed by routine forms of camp construction throughout the five building phases.

2. Kinds of activities

Aside from domestic arrangements (and what they imply about pastoralism), there is no evidence for specialized craft activity. Based on ethnographic analogies to settlement features and material cultures of modern nomadic pastoralists, it is very likely that pastoralism was intensively practiced.

Indices of Material Variation

1. Pottery

Chatterjee's study demonstrates stratigraphic changes in the relative frequencies of wares. The broad conclusion is that Anarta wares began as, and continued to be, the most prevalent pottery, with post-Urban BRW and LRW becoming more popular in later occupations. Their presence (albeit in small quantities) indicates that Zekhada was connected to at least a regional interaction network, probably a result of specialization in mobile pastoralism.. Momin (1980–81:124) describes the site as “the meeting place of cultures.”

In contrast to this evidence of wider social contacts, the preference for local wares speaks of a particular conservatism regarding pottery consumption. Perhaps it was because that was what was most readily available and easiest to acquire in North Gujarat, or perhaps there were more complicated cultural and social factors involved with the use of vessels.

2. Other forms of material culture

There is a great variety of objects recovered related to widely dispersed time periods. The presence of Rohri chert ribbon blades shows that at least one of the occupational phases was contemporary with and somehow connected to Mature

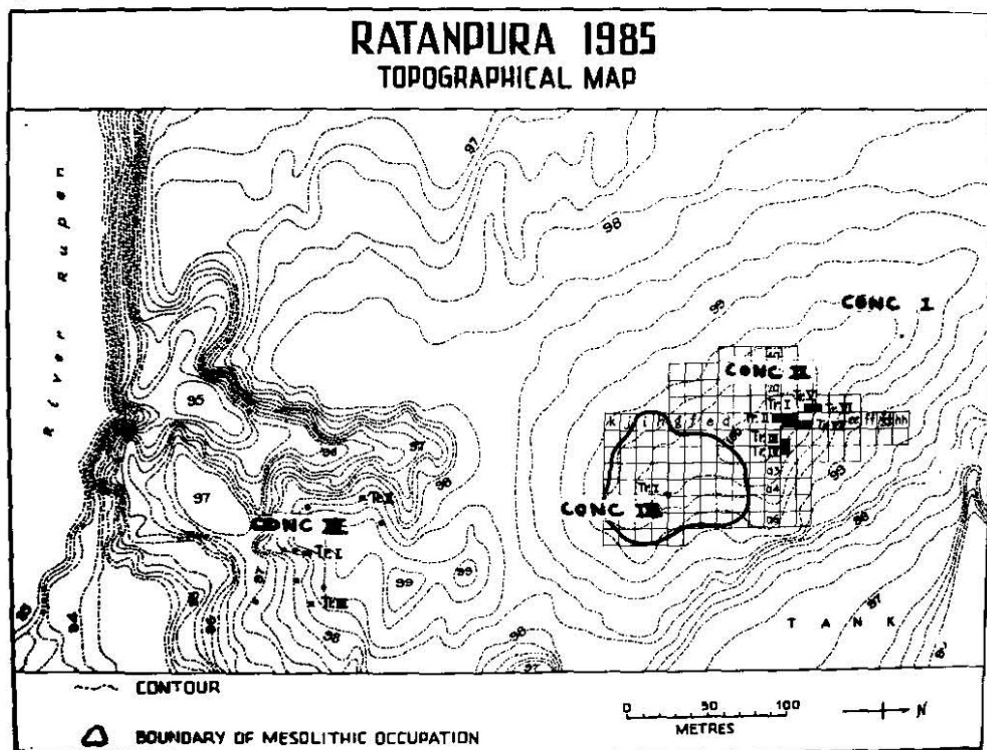
Harappan settlements. Other forms of material culture – terracotta cakes, shell bangles and copper strips – are not so easily assigned to a particular time period or locale.

The features of this settlement differ significantly from the extraordinarily ephemeral camps viewed thus far, yet the material culture remains similar, with a relatively broad assemblage. The presence of areca-nut-shaped beads and Reserved Slip Ware may connect Zekhada tenuously to Moti Pipli. Round huts are a new development in architecture which, ethnographically, is closely associated with nomadic pastoralism. Identical huts are found at Ratanpura and Kanewal, which were roughly contemporary to Zekhada. What remains to be investigated how similar these sites are to each other in other respects.

Ratanpura

Introduction

Ratanpura (23° 28' N, 71° 41' E; Sami Taluka; Mehsana district) was initially found as part of a survey undertaken to locate Late Harappan sites along the Rupen River in 1983 (*IAR* 1982–83a:28; Bhan 1989:228). Surface survey revealed four clusters of artifacts and features (labeled Concentrations I, II, III and IV), demonstrating a range of activities (Figure 5.36). All were excavated by K. T. M. Hegde and members of the MS University of Baroda's Department of Archaeology and Ancient History. The purpose of the excavation was to investigate a Late Harappan settlement in Gujarat to find evidence for cultural transformations during this period and to establish how this community interacted with indigenous hunter-gatherer groups (diagnosed through the absence of pottery at contemporary sites) (*IAR* 1984–85:17). Since the site has not been radiocarbon dated, it is not clear how the concentrations are chronologically related. For example, Concentration III has been referred to as a Mesolithic occupation. However, they could represent distinct activity areas that were used simultaneously. The most effective way to discuss this site is to examine each concentration individually, as each demonstrates different aspects of life here.



Map from Bhan 1989

Figure 5.36 Ratanpura Contour Map

Features

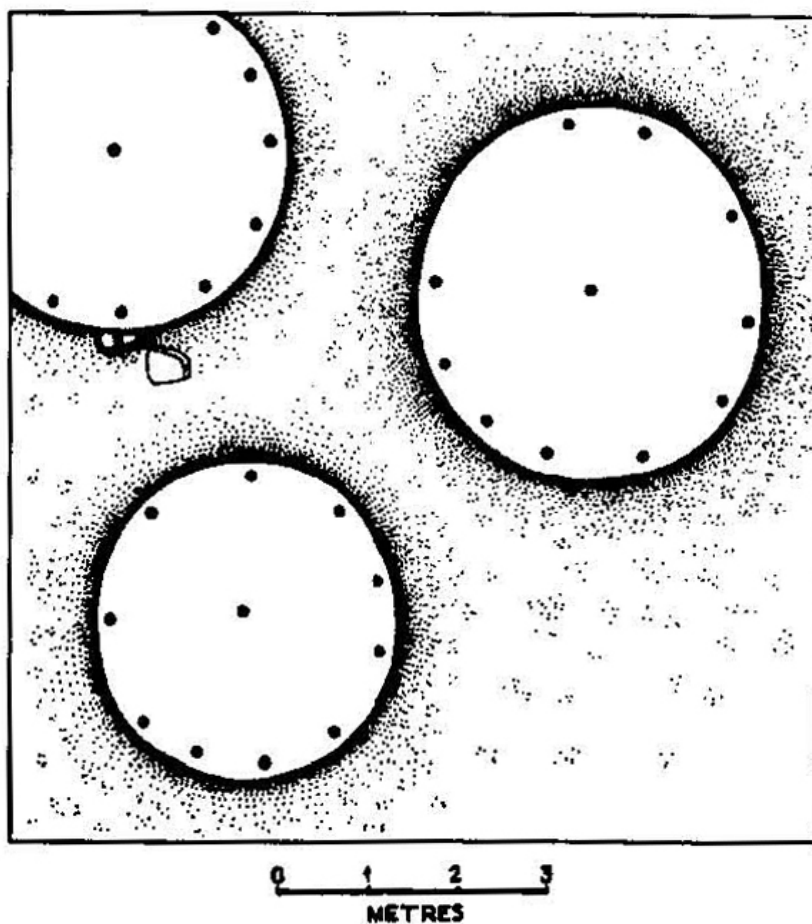
Concentration II is the largest and most intensely excavated part of the site. This was clearly the residential area, and it yields a great deal of information in terms of habitations and material culture. The most informative features are circular huts with rammed-earth floors and interior mud *chulhas*, just like those at Zekhada (Figure 5.37). A wide variety of materials are found within them. Concentration I contains objects similar

to II. However, because only one trial trench was excavated, Concentration I is omitted from analyses.

RATANPURA - 1985 CONC II

SQUARE CI TRENCH I

RAMMED EARTH FLOORS OF *kuba* HOMES



Huts from Concentration II
Bhan 1989

Figure 5.37 Ratanpura Hut Floors

Lying laterally between Concentrations II and IV is a very shallow layer (Concentration III) containing a large assemblage of microblades, lunates and points made of crypto silicates closely associated with faunal remains (Sonawane 1994–95:8). This part of the site has been referred to as a Mesolithic occupation, even though microliths were still being used at contemporary Chalcolithic sites (debitage is also present in Concentration II but to a lesser degree). This is most likely a contemporary activity area rather than an earlier occupation.

Concentration IV (located on a separate dune south of the other clusters) contains three enigmatic pits, each of which has a posthole and lamp at its base and had been filled in with ash, bone fragments, chert flakes, terracotta sealings, post-Urban pottery (Lustrous Red Ware and Ahar Black and Red Ware) and a prolific amount of *mustikas* (Bhan 1994:82). Each pit was filled in one discrete event. The excavators suggest they were created as a form of ritual activity (*IAR* 1984–85:18).

Artifacts

Most materials were excavated from Concentration II in association with the huts. Reported artifacts include groundstone tools (mortars, pestles and saddle querns), lithicdebitage, terracotta pellets and beads (carnelian, steatite, “paste,” shell and terracotta). More specific information on these artifacts has not yet been published. In contrast to residential debris, artifacts from Concentration IV are only of a few specific types, but these have not been described in detail, making more detailed interpretation difficult.

Pottery

Quite a few types of pottery found here indicate contact with widely distributed settlements, ranging from Marwar (Ahar sites) to Saurashtra (*IAR* 1984–85:17; Bhan 1994:83).

1) Harappan Red Ware

2) Lustrous Red Ware

3) Ahar Wares

White-painted Black and Red Ware

Chocolate-slipped Ware

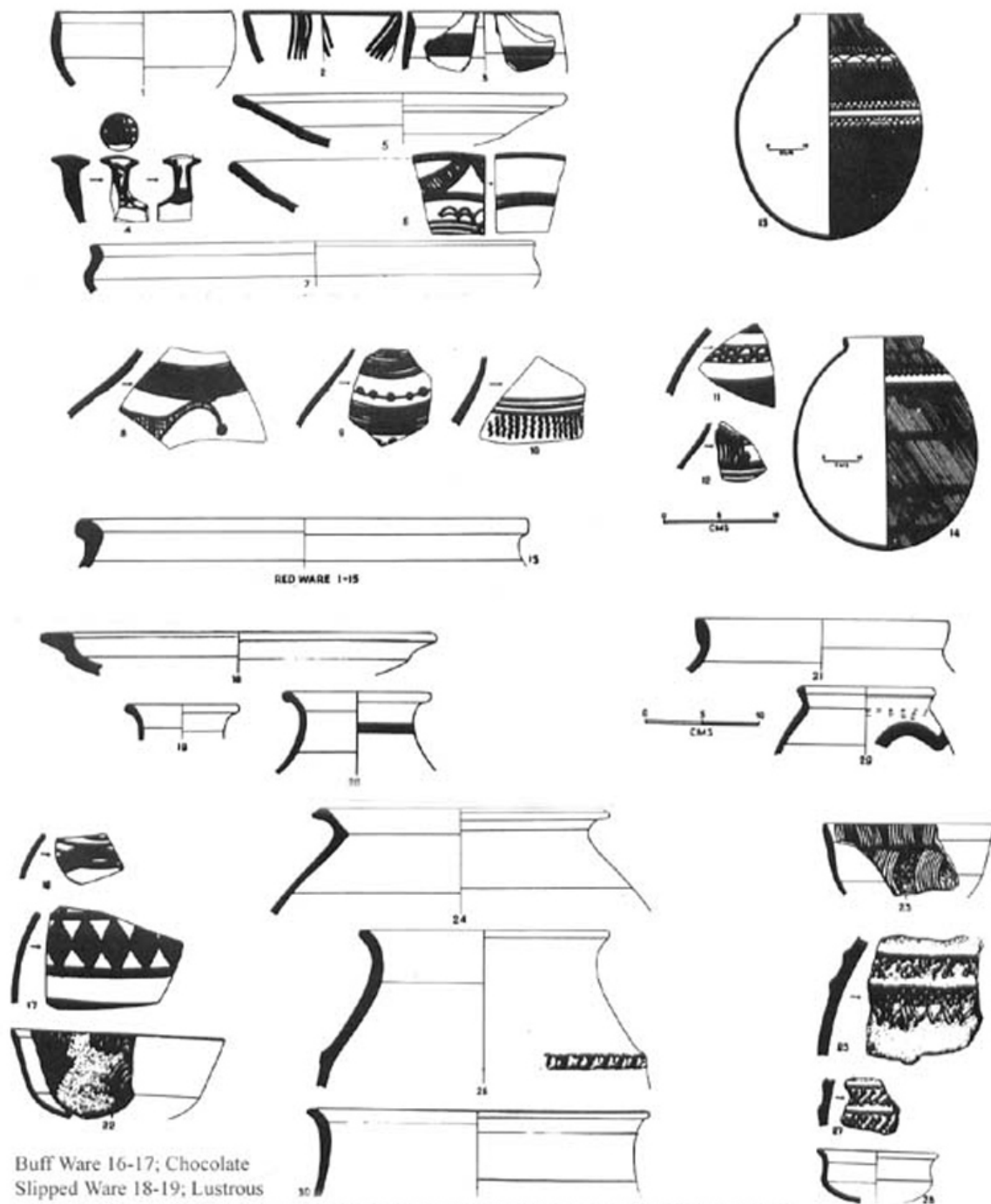
4) Black and Red Ware

5) Coarse Grey and Coarse Red Wares (Possibly Anarta Ware)

6) Polychrome Ware

7) Rusticated Ware

The most common ceramics found with these huts are LRW, fine BRW, Red Ware and Buff Ware (Figure 5.38). A small amount of Chocolate-colored Tan-slipped Ware and Coarse Red Ware was found, suggesting contact with Ahar IC period settlements, a suggestion further supported by a small amount of LRW found at Ahar (Bhan 1989:231; Bhan 1994:83). Buff Ware was also found at Gilund, lending more evidence to the supposition that there were sustained connections between the post-Urban phase occupations of North Gujarat and those of Chalcolithic southeastern Rajasthan.



Buff Ware 16-17; Chocolate Slipped Ware 18-19; Lustrous Red Ware 20-21; Fine white painted Black and Red Ware 22-23; Coarse Black and Red Ware 24-25; Coarse Red Ware 26-27; Coarse Grey Ware 28-30

Ceramics from Ratanpura.

(Courtesy Department of Archaeology, M.S. University, Baroda.)

Bhan 1989: 230

Figure 5.38 Ratanpura Pottery

Subsistence Practices

The faunal remains found from Concentration III are 60 percent domesticated species, mostly sheep/goat, followed by cattle and buffalo. The most common wild animal is the chital, followed by the sambar, blackbuck, chinkar, nilgai and wild boar (Bhan 1994:74; Bhan and Shah 1990:19). This profile, when compared to other sites where faunal remains have been studied (Loteswar and Santhli), suggests a greater reliance on hunting than other sites that display mixed foraging and pastoralist subsistence. Much culinary equipment found (groundstone tools and *chulhas*), indicating the processing of domesticated plant foods.

Index of mobility

1. Investment in Features

The circular huts here are similar to those found at Zekhada and Kanewal. They were not designed to be permanent residences, and this alone is a good indication that Ratanpura was settled by a mobile, or at least semi-nomadic, population.

Though it is clear that Ratanpura would have been seasonally occupied, the care with which hut floors had been prepared and the possible performance of rituals demonstrate a greater amount of social investment in this location than in earlier sites. Assuming pottery can be used as an indication of the longevity of this site, Ratanpura was a consistently reoccupied space, thus meriting investment through time and labor. This

does not mean that its residents were not mobile but rather that it was an established place on a route or in a territory rather than a mere waypoint.

2. Kinds of activities

Concentration III contains prolific microliths and animal bones (*IAR* 1984–85:17), strongly indicating some kind of food processing activity, although it is unclear what occupational phase it belongs to. Concentrations II and IV seem to be contemporary and, if so, demonstrate a distinction between residential and activity areas. The function of the pits remains unclear though, and the suggestion that they were used ritually is probably inferred from modern practices where fire is used as a medium of sacrifice. This area makes Ratanpura unique among the other sites reviewed, because this displays highly unusual behavior. The similarities between Ratanpura, Zekhada and Kanewal are undeniable, but the other sites do not have these unusual pits. However, further speculation on ritual usage is not well founded and thus not very productive.

Index of Material Variation

1. Pottery

The wide variety of pottery indicates that the people who occasionally lived here belonged to a wide trade network and/or followed a large travel circuit that traversed a

few areas where distinctive artifact styles were produced. There are many wares from different periods, demonstrating multiple occupational phases.

2. Other forms of material culture

It has been suggested that Concentration III belongs to the Mesolithic period due to the absence of ceramics (Sonawane 1994–95:8), but it clearly dates to a later era given the presence of domesticated species. It is most likely that this was a contemporary butchering area used by the pastoralist residents. Without descriptions of other forms of material culture, it is not feasible to make further comparisons among different areas of the site.

In sum, Ratanpura exhibits many of the same features, materials and degree of mobility as Zekhada and should be considered roughly contemporary, as well as representative of a mobile pastoralist group. The two significant differences between the sites are the wares used and the ritual space (which includes the Indus seals, absent everywhere else except Nagwada).

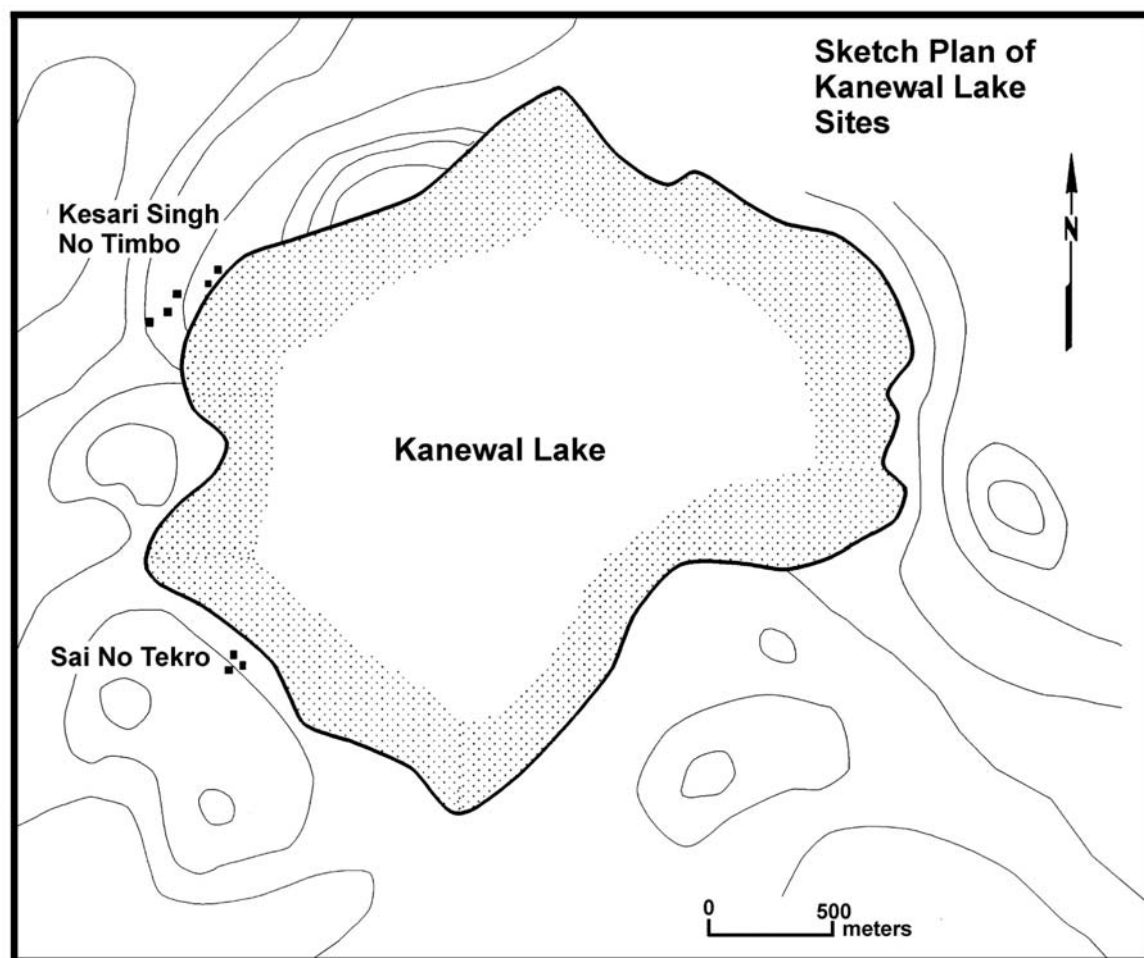
Kanewal

A review of Kanewal completes the discussion of later developments at pastoralist sites in North Gujarat. It is located in the Kheda district and so, like Nagwada, is rather far from Banaskantha and Mehsana districts. But its structures and material culture are too similar to Zekhada and Ratanpura to omit this site based on geography alone. Though no radiocarbon dates are available, this site seems to be fully contemporary with Ratanpura in terms of its features and artifacts.

Introduction

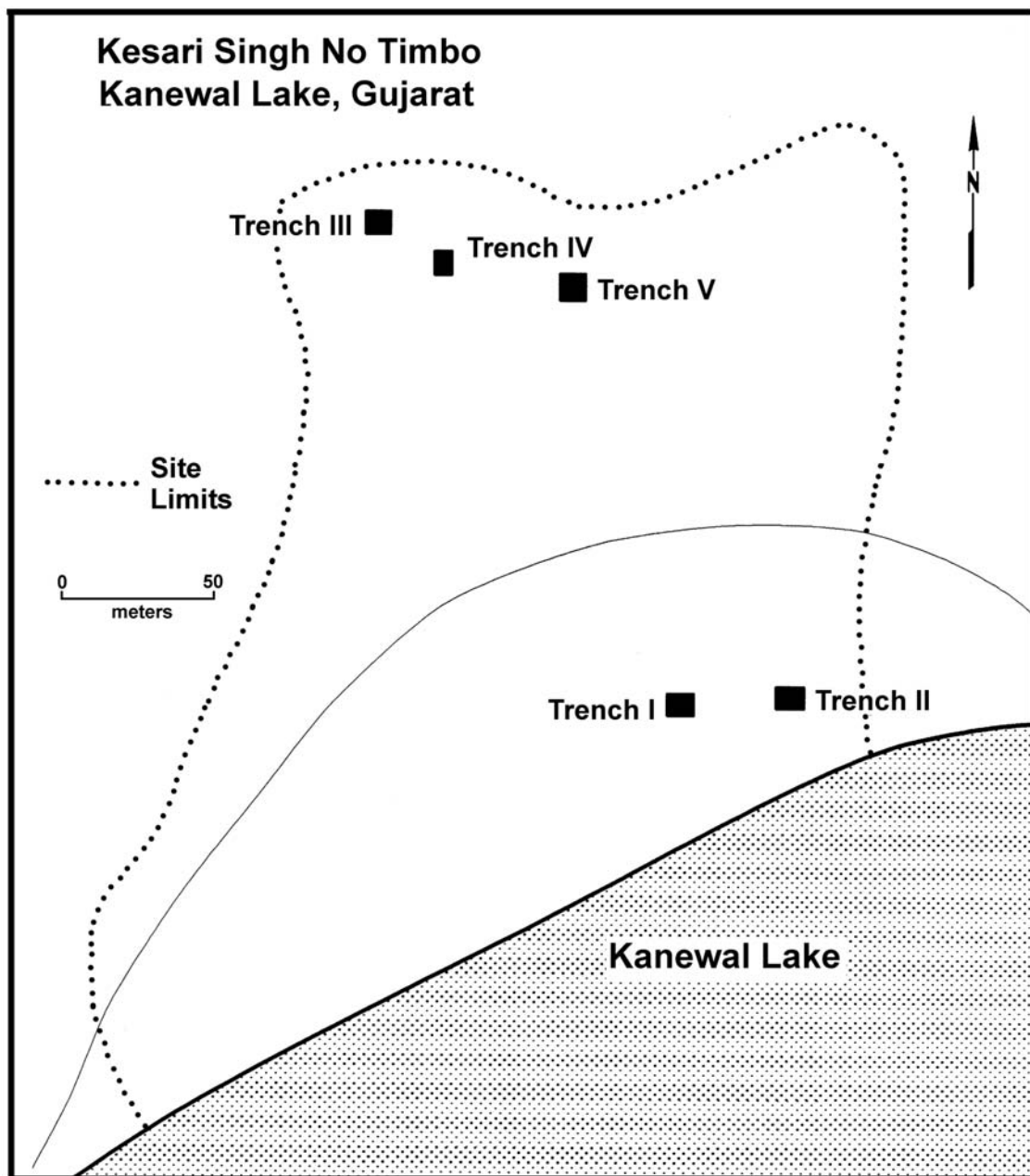
The village of Kanewal (22° 28' N, 72 ° 45' E; Kheda district, Khambhat taluka) is located next to a lake on a flat plain that gets watered by shallow perennial streams and monsoon-fed lakes, locally known as *boda* (Figure 5.39). Many of these *boda* have been modified by people into more durable tanks, which often attract wildlife. The site is surrounded by a series of dunes (approximately six), two of which were excavated (Figure 5.44). These were found as part of a survey of Harappan sites in the Kheda district undertaken to see if any sites east of the Sabarmati existed (Momin 1982:142). Initial excavations were conducted by R. N. Mehta and K. N. Momin (of the MS University of Baroda) in 1977 to investigate the chronology of settlement in the Kheda district prior to the sixth century AD site of Nagara (*IAR* 1977–78:21; Mehta et al. 1980:1). The two excavated dunes are Kesarsingh's Khetar (a.k.a. *Kesrisimhano Tekro*; five trenches) and *Sai no Tekaro* (three trenches, later joined into a single unit).

Kesarsingh's Khetar was selected for investigation because Chalcolithic materials had been there found during survey. *Sai no Tekaro* was selected based on the wide distribution of microliths on the surface (Mehta et al. 1980:4).



Contour Map courtesy of Gregory L. Possehl

Figure 5.39 Kanewal Lake



Site Plan courtesy of Gregory L. Possehl

Figure 5.40 Kanewal Site Plan

Features

Kesarsingh's Khetar (KK): This dune has a maximum elevation of 14 m, and the habitation deposits are no deeper than 1.5 m. Up to five occupation layers have been identified (the most elaborate strata being located in Trench III). All layers contain the same material culture, with only a slight change in ceramic composition. There were two building phases labeled IA and IB (Figure 5.41) (Momin 1982:143).

KK Hut 1/Building Phase IA: This hut was found at a depth of 90 cm in Trench V. The floor was composed of kankar, silt and clay that had been rammed into the soil. There were traces of wattle and daub and five postholes. In addition to the pottery (Red Ware and LRW), two sherds with Harappan graffiti were found.

KK Hut 2/Building Phase IB: The floor was found at a depth of 35 cm and was composed of kankar and silt that had been rammed. There were traces of wattle and daub and six postholes. Five pots, a saddle quern, a pestle stone and a heap of twenty-one terracotta balls were found (Mehta et al. 1980:15).

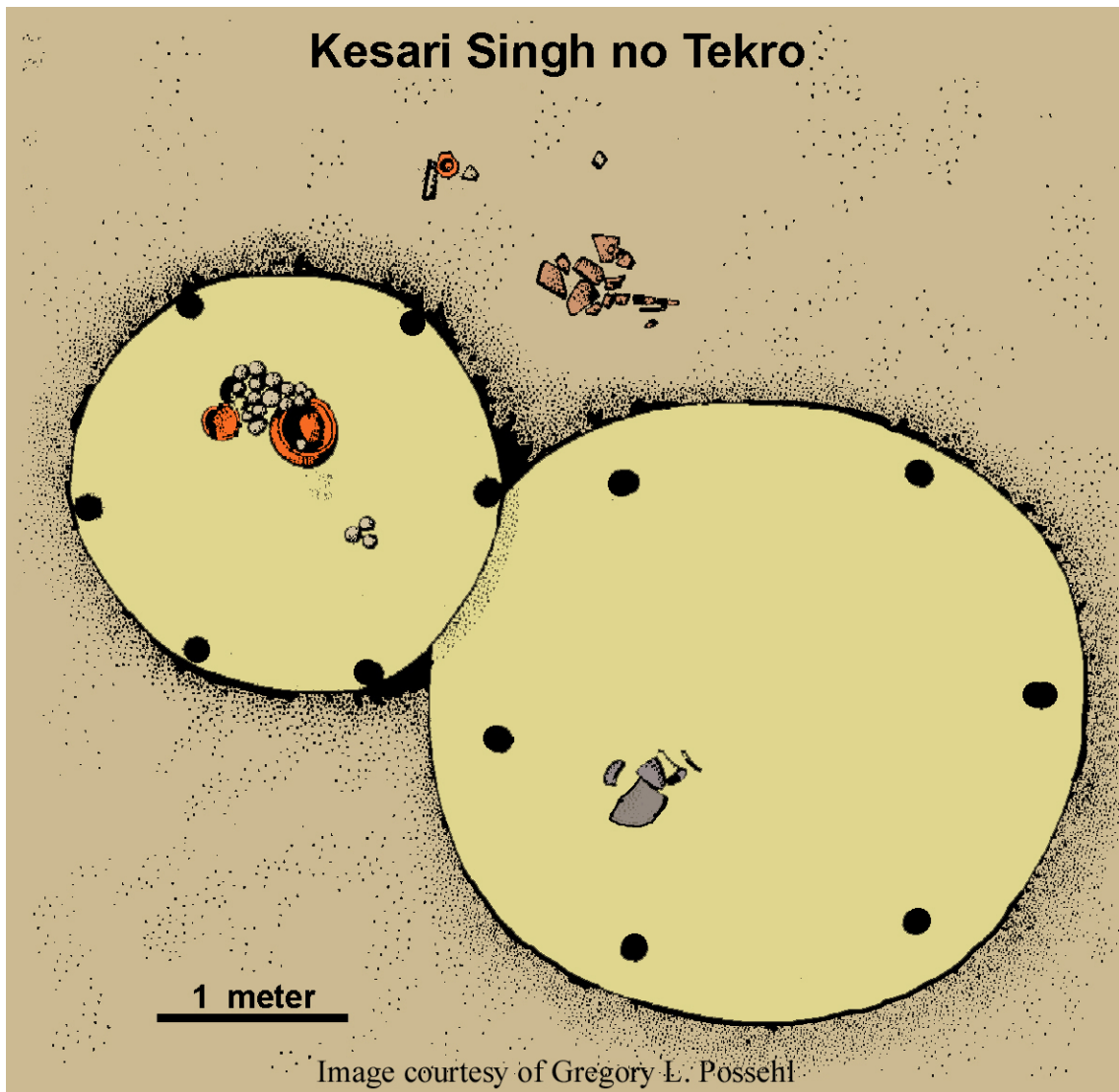


Figure 5.41 Kesarsingh's Khetar

Sai no Tekaro (SNT): *Sai no Tekaro* has a maximum elevation of 12 m. The habitation layers reach a depth up to 1.2 m, and, as at Kesarsingh's Khetar, two circular hut floors were found (Figure 5.42). This mound has three layers – aceramic microlithic, Chalcolithic and an overlying aceramic microlithic stratum. The lithics beneath these huts are sparse but appear more frequently during the later occupational phases (Mehta et al. 1980:14). Pottery was only found on the living floor of the huts at a depth of 30 cm in trenches S-II and S-III. The layers with huts were essentially sandwiched between aceramic microlithic occupations. Thus we see evidence for a highly mobile microlith-using population using this space both before and after the departure of the people who constructed the huts (Momin 1982:145).

SNT Hut 1: A floor was found at a depth of 35 cm in Trench S-II and was made of kankar and rammed clay (15 cm thick). There were six postholes and five broken vessels were recovered from this floor.

SNT Hut 2: The living floor was found at a depth of 45 cm in Trench S-III and was made of the same material as SNT Hut 1. This floor had ten postholes and three vessels.

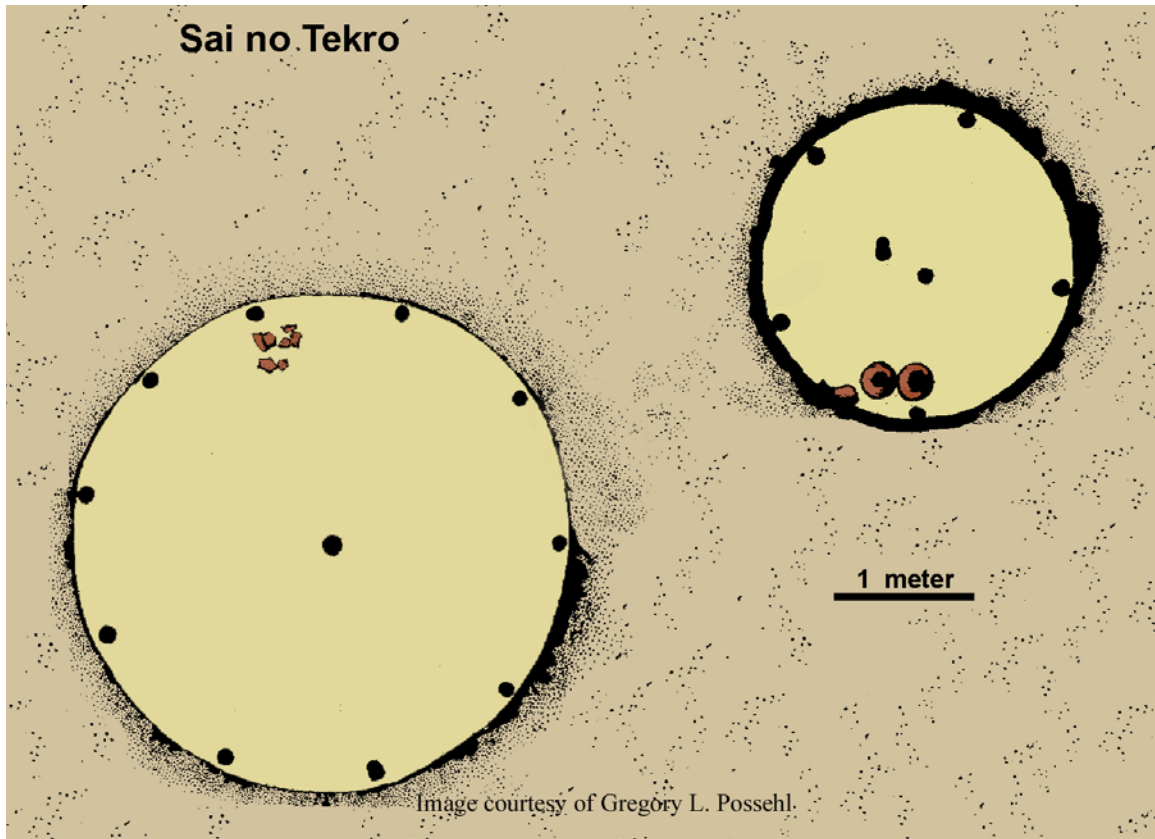


Figure 5.42 *Sai no Tekro*

Artifacts

Lithics: There is much evidence for a rich lithic industry at *Sai no Tekaro*, primarily in the form of flake debitage. Many nodules and cores were found, particularly in the uppermost layers. Most of the cores are siliceous stone (chalcedony/agate/chert), though there are a few examples of quartz cores. The tools are almost exclusively geometric microliths. There are also a small number of scrapers made from flakes, most

of which display retouching (Mehta et al. 1980:59). A total of 16 groundstone tools were found – two querns, two mullers and twelve rubber-stones (found at both mounds).

Metals: The excavators mention the presence of copper but do not describe it in detail.

Beads: Forty-nine beads were found at Kanewal but only six were from stratified contexts. They are in a wide variety of materials, including carnelian, chert, agate, shell, terracotta and faience. Steatite beads are notably absent, a surprise given the breadth of other bead media. The faience beads are described as similar to those from Lothal, Rangpur and Zekhda (Mehta et al. 1980:67).

Terracotta: A large number of terracotta objects were found; the majority of these are sling balls. Other objects include perforated terracotta discs, one toy wheel, six lamps and two fragmentary triangular cakes found during surface collection. One of the lamps from Kesarsingh's Khetar resembles rectangular lamps from Navdatoli (Momin 1982:144).

Pottery

- 1) “Red Ware” (equivalent to Sorath Harappan Red Ware)
- 2) Coarse Incised Ware
- 3) Lustrous Red Ware (similar to Rangpur IIC/III, Navdatoli and Bahal)
- 4) Buff Ware (equivalent to Sorath Harappan Buff Ware)
- 5) Coarse Red Ware
- 6) Black and Red Ware

This typology is constructed from the ceramics at *Kesarsingh’s Khetar*. In contrast, the vessels from *Sai no Tekro* are all made of Red Ware. However, Coarse Red Ware and BRW are not described consistently in the site report (Mehta et al. 1980:44). For example, both kinds of ware are supposedly incised but Coarse Ware was not analyzed. It seems that BRW is considered a variety of Coarse Ware here and is described as crude.

Figure 5.43 illustrates some of the differences between wares. Sorath Harappan vessels include bowls (both convex- and concave-sided, four of them stud-handled), basins, dishes, dish-on-stands, pots and storage jars (Momin 1982:144). There were relatively few Coarse Red Ware sherds recovered, and all represent storage jars (average diameter about 20 cm). Buff Ware is thin, well levigated and well fired. LRW is represented by bowls (mostly with concave, carinated sides), dishes, dish-on-stands and storage pots. The Coarse Incised Ware seems to be restricted to storage pots and jars.

There is a distinct spatial pattern to the distribution of ceramics among the huts. Both the huts at *Sai no Tekro* and Hut 1 at Kesarsingh's Khetar yielded Harappan Red Ware and Lustrous Red Ware dishes, pots and bowls (Momin et al. 1980:52). In contrast, most pots from KK Hut 2 are Coarse Incised Red Ware, which probably demonstrates the two areas had been occupied at different times. Stratigraphically, Red Ware, Incised Ware and LRW are present in all periods. Incised Ware becomes more frequent than Red Ware by the uppermost layer in trenches II and V. These wares are all indicative of the post-Urban phase of Chalcolithic Gujarat (Bhan 1992:175). However, four sherds with traces of Harappan graffiti were found, all from layers 3-4 in Trench V, Kesarsingh's Khetar (Mehta et al. 1980:62).

Indices of Mobility

1. Investment in features

As at Zekhada and Ratanpura, the round wattle and daub huts indicate a mobile population. The workers at Kanewal, who were familiar with these kinds of structures, immediately recognized their familiarity and noted how easily they burn (Mehta et al. 1980:71). It was also noted that water in the modern “lake” evaporates by summertime, so even modern pastoralists must move elsewhere, supporting the use of ethnographic analogy to describe the inhabitants of this site.

2. Kinds of activities

The kinds of stone needed to make the tools found at Kanewal were not available in the Kheda district and therefore would have been brought in from places like Rajpipla. Mobility would have been necessary given how limited water resources probably were during the dry season. Due to the domestic architecture and faunal profile here, which is very similar to those at Zekhada and Ratanpura, the occupations are the remains of nomadic pastoralists..

Indices of Material Variation

1. Pottery

The wide variety of pottery indicates participation in rather broad economic networks, repeating the pattern seen at Zekhada and Ratanpura.

2. Other forms of material culture

As a layer bearing only microliths was found overlying the post-Harappan phase at *Sai no Tekro* (exemplified by Lustrous Red Ware), Possehl (2002:70) describes the varied occupational phases of Kanewal as evidence for the “interdigitation” of hunter-gatherer groups. These distinct occupational phases show that *Sai no Tekro* was used for at least two kinds of specialized economic functions: hunting and pastoralism.

Though there are differences among Zekhada, Ratanpura and Kanewal expressed through artifacts, the overwhelming similarities indicate that the construction of residential space among nomadic pastoralists has, to a certain extent, become standardized. Their architectural and subsistence similarities should be emphasized more than the differences among their ceramics. What is clear for all three sites is that pastoralism was probably the most important economic activity, and by the post-Urban phase, pastoralism had become a distinct economic specialization that is expressed through its characteristic architectural forms.

Concluding Remarks

This chapter presents, in thorough detail, nine excavations that provide the most robust evidence for the history of occupations in North Gujarat between the fourth and second millennia BC. As will be shown in the following chapter, settlement features, material culture and activity patterns can be compared to analyze how these occupations represent disparate economic strategies and access to material culture. What follows in the next chapter is the application of the two heuristics – mobility and variation – to the data reviewed in this chapter in order to create new interpretations about the economic (and potentially cultural) processes expressed at these sites.

CHAPTER SIX: DISCUSSION AND CONCLUSION

In Chapter Five, a diverse range of sites were presented, from Langhnaj (a forager camp) to Nagwada (a craft specialist settlement). Comparisons of artifacts and features across all sites illustrate the spectrum of mobility strategies and material culture traditions. They also indicate degrees of economic interaction and possible social affiliations. In this chapter interpretations on the relationships among these sites are based on the following:

- 1) Patterns of material culture, focusing on ceramics, beads, supplemented by other artifact classes
- 2) Patterns of features, particularly burials, which are described in detail and those from sites not explicitly studied are included for comparison
- 3) Analysis of activities
- 4) Range of mobility patterns
- 5) Range of material variation within each site
- 6) Changes over time and relative chronology

Site	Ceramic Wares									
	Anarta Ware	Pre-Prabhas Ware	Early Harappan Ware	Micaceous Red Ware	Mature Harappan (Sindhi)	Mature Harappan (Sorath)	Black and Red Ware	White-Painted Black and Red Ware	Lustrous Red Ware	"Fusion" Ware
Loteshwar	✓	—	—	—	?	?	✓	—	—	—
Santhli	?	—	✓	—	—	—	—	—	—	—
Datrana	✓	✓	✓	—	—	—	—	—	—	—
Moti Pipli	✓	—	✓	—	?	?	—	—	—	✓
Nagwada	✓	—	✓	✓	✓	✓	—	✓	—	✓
Langhnaj	—	—	—	—	—	—	✓	—	—	—
Zekhada	✓	—	—	—	?	?	✓	✓	✓	?
Ratanpura	?	—	—	—	?	?	✓	✓	✓	?
Kanewal	?	—	—	—	—	—	✓	—	✓	—

Table 6.1 Presence / Absence of Ceramics

Patterns in Material Culture

Ceramic variability

Upon examination of the ceramics table (Table 6.1: Presence / Absence of Ceramics), a few patterns become clear. First, Anarta Wares have very long time depths, visible at Loteshwar within the earliest Chalcolithic occupation levels (ca. 3703 BC) through Zekhada, which may date as late as 1900 BC. Though it seems to be geographically restricted to North Gujarat and Kutch, it is also found at Bagasra and so was in slightly greater circulation than this table would indicate. They are the most ubiquitous pottery types among the sites studied.

It is still unknown where Anarta Ware was manufactured. Because it is so local to the regions of North Gujarat and Kutch, it is most likely it was locally produced, specifically for local consumption. The samples of Gritty Red Ware studied by this author from Moti Pipli and Loteshwar exhibit a degree of homogeneity because the sherds seem to be made with the same tempers, are made on slow wheels, and are generally well fired. Vessel shapes and decorative motifs (particularly among convex-sided bowls) also demonstrate shared technology and it is possible Anarta Wares were centrally produced. However, .

Mature Harappan Red Wares (be they Sindhi or Sorath varieties) also enjoy a wide distribution though most often they are relatively rare compared to the amounts of Anarta Wares at earlier sites and Black and Red Wares at later sites. Their rarity indicates that the populations considered in this study preferred regional ceramic styles (especially

Anarta Wares), though other aspects of material culture indicate some form of contact with larger Urban Phase settlements. However, as the question marks on the table indicate, it is not known precisely how common Mature Harappan wares were among these sites as they are ambiguously described in reports.

Ahar White-Painted Black and Red Ware and Lustrous Red Ware are often used as indices for the post-Urban phase but their co-existence with Anarta Wares and possibly Mature Harappan Red Ware at Zekhada demonstrates some overlap. Though Ahar BRW is most closely associated with sites of the Ahar-Banas complex in Mewar, its significant presence in Gujarat is noteworthy, particularly in the form of stud-handled bowls, which, as with the Anarta Wares, has a highly local distribution. They too seem to exhibit some heterogeneity among vessel shapes and decorations and are also probably locally produced.

Site	Beads									
	Steatite	Agate / Chalcedony	Carnelian	Amazonite	Terracotta	Shell (altered)	Dentalium	Faience	Lapis Lazuli	
Loteshwar	✓	—	✓	✓	—	✓	✓	✓	—	
Santhli	—	—	✓	—	—	✓	—	—	—	
Datrana	—	✓	✓	✓	—	✓	—	—	—	
Moti Pipli	✓	✓	—	—	✓	✓	✓	✓	—	
Nagwada	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Langhnaj	✓	—	—	—	—	✓	—	—	—	
Zekhada	✓	—	—	—	—	—	—	✓	—	
Ratanpura	✓	—	✓	—	✓	✓	✓	✓	—	
Kanewal	—	✓	✓	—	✓	✓	—	—	—	

Table 6.2 Presence / Absence of Beads

Beads

Though beads are not often regarded as diagnostic of a particular time period or region, it is interesting to note that the greater the diversity of pottery at a site, the greater the diversity of beads. Table 6.2 shows how the presence of beads types indicates that bead materials are more diverse than pottery at these sites. For example, Santhli has only one form of pottery reported (Early Harappan ware). Yet three kinds of beads - carnelian, altered shell and *Dentallium* - were recovered. Compared to the beads at other sites this selection is very narrow. Nagwada, which exhibits the widest diversity of ceramic wares, also has the greatest variety of beads including those made of lapis lazuli. Ratanpura, which had the second greatest degree of ceramic diversity, also had the second largest degree of variety among beads. The most prevalent bead across all sites was unaltered *Dentallium* shell, followed by altered shell (often disc beads) and steatite microbeads.

As *Dentallium* is so widely distributed in North Gujarat it merits some more attention. It is a marine gastropod found along the Saurashtra coast and the Rann of Kutch. The classification of these shells as “beads” is somewhat ambiguous, as there is little concrete evidence for or against them being used as beads. They are tube-shaped and do not require alteration to be strung on a necklace or bracelet. Furthermore, most specimens do not exhibit cut marks. Currently they are sold in Bet Dwarka as novelties (Ajithprasad, personal communication). In Gujarat, the presence of *Dentallium* at archaeological sites predates Harappan occupations, demonstrated at the Microlithic occupations at Lekhalia and Tarsang (Deshpande-Mukherjee 1998:64). While it seems this shell is used for ornamentation in Gujarat and other places in which it is found (such

as Natufian burials; refer to Garrod and Bate 1937), it can also used as currency (Claassen 1998:209).

Site	Materials									
	Microliths	Crested Ridge Technique	Rohri Chert	Copper	Shell Bangles	Shell Objects	Terracotta Objects	Seal Impressions	Craft Industry Waste	
Loteshwar	✓	—	—	✓	✓	—	✓	—	—	—
Santhli	✓	✓	—	—	✓	✓	—	—	—	—
Datrana	✓	✓	✓	✓	—	—	—	—	✓	—
Moti Pipli	✓	✓	✓	✓	—	—	✓	—	✓	—
Nagwada	✓	✓	✓	✓	✓	✓	✓	✓	✓	—
Langhnaj	✓	?	—	✓	?	?	✓	—	—	—
Zekhada	✓	?	✓	✓	✓	—	✓	—	—	—
Ratanpura	✓	?	—	—	✓	✓	✓	✓	—	—
Kanewal	✓	?	—	✓	?	?	✓	—	—	—

Table 6.3 Presence / Absence of Miscellaneous Artifacts

Miscellaneous Artifacts

Diversity among other kinds of artifacts (Table 6.3 Presence / Absence of Miscellaneous Artifacts) does not necessarily correlate to the patterns seen among ceramics and bead media. Zekhada has a relatively small ceramic selection and a meager bead selection, yet it also has a rather wide assortment of objects including microliths, Rohri chert blades, copper objects, bangles and terracotta objects. However, even within completely different artifact categories Nagwada remains the site with the greatest variety of materials and Santhli as the site with the least.

Two trends should be noted with regard to the lithics. First, the crested guiding ridge technique is nearly ubiquitous at sites where microliths and debitage have been examined. The exception is Loteshwar, even within Phase II, which is curious given its similarities to Santhli. The other trend is widespread consumption of Rohri chert. Rohri chert is usually found in the form of ribbon blades at larger settlements and urban centers (Kenoyer 1984a). In North Gujarat it is found in the form of short blades that have been heavily retouched. It is still unclear what mechanisms would have led to the presence of this particular resource among the small populations of the camps.

Shell bangles (generally made of *Turbinella pyrum*) are nearly as common as microliths, probably due to proximity to manufacturing centers like Nagwada, Bagasra (Bhan et al. 2005; Sonawane et al. 2003) and the more remote Nageshwar (Hegde et al. 1990). Much like *Dentallium* shells they demonstrate some value placed on marine-derived ornamentation. These shells are available in Kutch and the Gulf of Khambhat

(Wright 2010: 198). There is a wealth of research on the exploitation of *T. pyrum* during the Urban Phase in Gujarat (Kenoyer 1983, 1984b, 1991; Bhan and Kenoyer 1984; Deshpande-Mukherjee 1989; Bhan and Gowda 2003; Sonawane et al. 2003:41), especially regarding bangle manufacturing. Some of the sites in this study exhibit minor evidence for local bangle manufacture on a nearly individual scale, but it is not significant enough to discuss in detail.

Most of the terracotta objects are sling balls and spindle whorls. The animal figurines reported are too degraded to determine stylistic affiliation. Terracotta objects are almost always found at Chalcolithic sites of all sizes and their total absence at Santhli and Datrana is noteworthy but difficult to interpret.

The rarest objects are Indus seals and impressions, which are only reported from Nagwada and Ratanpura³⁸. This indicates that both occupations had contacts with those of the Indus Civilization but their relationship to each other cannot be established through the impressions. The stamp seal from Nagwada may not have been used for administrative reasons but could have been valued as an ornament (Holly Pittman, personal communication).

So far, there has been no evidence to suggest that goods such as ceramics, terracotta objects and metal tools and ornaments were manufactured at Loteshwar, Santhli, Datrana, Moti Pipli, Langhnaj, Zekhada, Ratanpura or Kanewal. There are no features such as kilns or even simple firing pits, nor signs of metallurgy such as slag

³⁸ The single steatite seal from this region was found at Nagwada. Ratanpura only has seal impressions from unknown objects.

(except for one piece of iron at Moti Pipli, which clearly postdates the time period of interest). Of the sites reviewed, the likeliest candidate for a local production center of some sort is Nagwada but as the sites in Kutch and Jamnagar district tend to be large and demonstrate sustained industrial activity, most of the materials circulating in North Gujarat were probably made in the other regions that surround the Little Rann of Kutch. . Comparisons to similar artifacts from production centers may elucidate their proveniences. Imports demonstrate at least economic if not social interaction although the intensity or regularity of these processes is unknown.

Patterns among Features

Burials

A burial is not merely a means of disposing of a corpse. It is a method of commemoration that includes investment in a particular parcel of land. A burial can be a way for a social group to symbolically mark its territory and add to its conceptual landscape. There are many burials found in Chalcolithic occupations in North Gujarat but few have similarities among each other³⁹. Langhnaj and Loteshwar contain interments with no grave goods and do not appear to be related. In contrast, there is a very important pattern among other burials - the presence of Early Harappan pottery at Santhli, Datrana, Moti Pipli and Nagwada (as well as Mathutra and Panchasar, which have not been

³⁹ Burial terminology here is as follows: a pot burial is a vessel intentionally deposited with no associated human remains. An urn burial is a vessel containing human remains. Interments include human skeletal remains.

excavated). This has led to the concept of a North Gujarat Early Harappan burial complex (Majumdar 1999). However, a burial tradition is best determined through more than one parameter. Thus a closer comparison with other burials in western South Asia associated with similar pottery is needed to explore the concept of a widespread burial tradition.

Non-Harappan Burials

Loteshwar and Langhnaj have independent burial traditions (described in Chapter Five) which are different from each other and the others from North Gujarat. The only trait their burials have in common is a lack of confirmed grave goods aside from the pottery. All other aspects of these two sites indicate they were inhabited by wholly different populations and their interments should be viewed as two separate burial traditions.

Early Harappan Burials

In contrast to the non-Harappan affiliated burials mentioned above, the following burials all have one important aspect in common: the presence of Early Harappan (particularly Amri II / Kot Dijian) pottery. Proposed explanations for its presence in Gujarat are reviewed in Chapter Four. Within Gujarat these ceramics are prevalent in North Gujarat and Kutch (Figure 6.1). Multiple sites in Sindh also contained the same kinds of Early Harappan vessels in burials, indicating some degree of economic

interaction or perhaps cultural affiliation. This has prompted various interpretations from scholars. If one starts with the assumption that the burial pottery in North Gujarat belonged to migrant groups from Sindh, these burials could be interpreted as “way-burials,” the dead buried within the camp as there were no provisions to conduct funerary rites elsewhere. In contrast, if the Early Harappan pottery was locally made for regional consumption (and this may prove the more accurate assessment), the existence of a homogenous Early Harappan burial complex extending from Baluchistan through North Gujarat becomes less likely.

Regardless of which population they belonged to, the burials can at least be interpreted as symbolic markers that define the territory of some group that used Early Harappan pottery, if not actual migrants. However, the presence of similar types of pottery should not be the sole determinant of some kind of homogenous burial complex. Other kinds of data must be used to test this notion. Therefore, burials containing Early Harappan pottery from Gujarat, Haryana, Sindh and Baluchistan are compared by method of burial rather than similarities among vessels (Table 6.4). It is difficult to calibrate relative chronology and so they are listed in order of proximity to Banaskantha District⁴⁰. Table 6.4 presents a comparison of burial features at the sites.

⁴⁰ With better chronological controls, the differences among burials described here may result from change over time rather than heterogeneity among funerary practices.

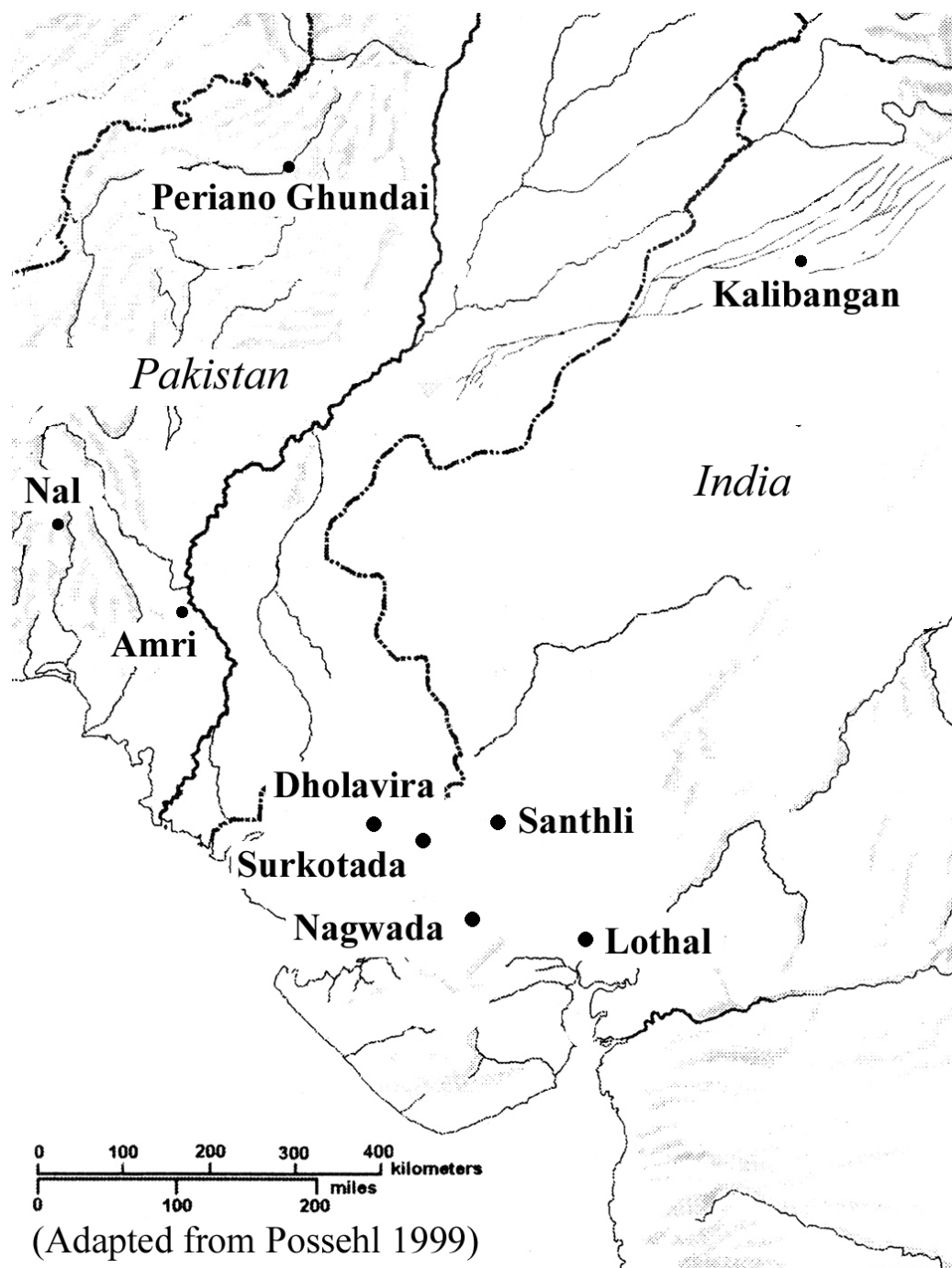


Figure 6.1 Map of Burials with Early Harappan Pottery

Santhli: There were two extended interments, one of which was a double burial including five Early Harappan vessels.

Nagwada: Three oval shaped pot burials, one urn burial and two extended burials were found within the lowest habitation level (Hedge et al. 1988:58, Ajithprasad and Sonawane 1994:136). Sonawane notes that the extended burials at Nagwada and Santhli had the heads resting towards the east (Sonawane 1998-99:2). The pottery recovered from the pot burials most resembles Early Harappan pottery from Kot Diji, Nal and Balakot. One exception is a small pot that most closely resembles Sothi-Siswal Ware (Hedge et al. 1990:Plate I). A second exception is the Anarta ware vessel that composes the urn burial (Sonawane 1998-99:16).

Surkotada: Two pot burials and two urn burials are reported (Joshi 1990:365), all of which included stone slabs or rubble as markers. Burial 3, an urn burial, also contains charred bone fragments, possibly cremation remains, which had also been found in Early Harappan phase urn burials at Periano Ghundai (Stein 1929:37; Possehl 1999:662). Gregory Possehl (1997a) discusses the date of this cemetery and details correlations between individual vessels within the Surkotada burials and their parallels at Amri and Kot Diji (Possehl 1999:608). Given its removal from the habitation area and the absence of pottery from later periods, the cemetery may predate Surkotada IA (Possehl 1999:608). The vessels are composed of Red Ware, some with a cream slip. They are similar to other varieties of Early Harappan wares, particularly the Bhoot Ware cylindrical vases (Joshi 1990:366).

Dholavira: A number of small features of varying shapes (ranging from circular to square) had been both found within the fortification walls and far to the southwest of the city⁴¹ (Bisht 1989:403). They are described as stone cairns, an unusual pattern that is very similar to burials from Surkotada but not those in North Gujarat. It is unclear from the reported findings how these cairns articulate with later habitation deposits but some of them may predate the urban phase as at Surkotada. A short examination of some of the burial pottery yielded ceramics similar to those from Amri II (Possehl 2007).

Lothal: The burials from Lothal do not contain Early Harappan vessels but due to the proximity of this site to those of North Gujarat they should be mentioned. Twenty one skeletons have been found at Lothal from periods A and B, eight of which were studied (Chatterjee and Kumar 1963, Sarkar 1972). There are three types of burials: individual burials, joint burials and urn burials. Complete bodies were buried in extended positions. Grave No. 7 contains two adults within a mud-brick lined pit (Rao 1979:141) in a fashion similar to Kalibangan, Mehrgarh and Nal. In addition, there are some secondary internments (Kennedy 2000:301). Fifteen adult males are identified, suggesting that this may have been a male only cemetery. Globular pots and stud-handled bowls are found in burials in both periods in Micaceous Red Ware (Period A only) and Red Ware (A and B) (Rao 1985:Plate CLXXXIII).

Kalibangan: Although Early Harappan pottery exists here, it is of the Sothi-Siswal variety and has less in common with the North Gujarat burials than the Lothal burials.

⁴¹ No information is currently available on human remains from Dholavira.

The cemetery has two kinds of burials: pot burials and interments in pits. Mud bricks were used to construct pits in which the dead were placed (Sharma 1982, 1999), similar to burials at Lothal, Mehrgarh (Jarrige and Hassan 1989; Jarrige et al. 1995; de Saizieu 1990) and Nal, where burial pits were deliberately constructed spaces as opposed to the simple pits of North Gujarat.

Nal: Three burial types were observed: collective fractional burials, complete burials in defined graves and complete burials without defined graves (Hargreaves 1929:21-9). The most common type was the collective fractional burial. They are composed of fragments from multiple individuals, assorted vessels, beads and some animal bones though the spatial associations are not entirely clear (Hargreaves 1929:21-2; Possehl 1999:589). Complete individual burials were found in brick lined pits, similar to those from Kalibangan, Lothal and Mehrgarh. Three were excavated, two of which were infants. One infant was buried with sixteen beads (Hargreaves 1929:26) but the other two graves did not contain any funerary goods. Finally, there are only two examples of burials without defined graves and both interments were infants. One skull was closely associated with a necklace of steatite disc beads (Hargreaves 1929:27). There is no evidence for cremation in any of the Nal burials (Sewell and Guha 1929:60). Though the burial pottery from North Gujarat has similarities to the plain Nal pottery, it does not at all resemble the highly decorated Nal ware that formed the corpus of burial pottery at Nal (though there are some relatively plain vessels at Nal, see Hargreaves 1929: Plate XIX). Aside from the loose correlation of plain Nal ceramics, the burials at Nal and in North Gujarat are significantly different.

Periano Ghundai: Sir Aurel Stein reported evidence for cremation from this Kot Dijian site (1927; Possehl 1999:662) and the vessels were confirmed as Kot Dijian ware by Fairservis (1959:330-3) and Mughal (1972). One Bhoot Ware vessel was recovered (Possehl 1999:662).

Comparison of Early Harappan Burials

Site	Interments (not in pits)		Vessels		Stone Cairns	Brick-lined Pits	Charred Remains
	Single	Joint	Pot Burial	Urn Burial			
Santhli	✓	✓					
Nagwada	✓		✓	✓			
Surkotada			✓	✓	✓		✓
Dholavira	?				✓		
Lothal	✓	✓		✓		✓	
Kalibangan						✓	
Nal	✓					✓	
Periano Ghundai	?		✓				✓

Table 6.4 Comparison of Early Harappan Burials

If a single Early Harappan burial tradition can be determined here, it has multiple sub-types based on 1) the presence of human remains; 2) their manner of organization (individual or joint interments); 3) the use of vessels and 4) the use of structural materials (brick or stone). However, there are no consistent patterns to which burial methods are used at these sites. The connections between the burial types are diffuse. For example, the pot burials link Nagwada and Surkotada, but Surkotada also has urn burials. The remains from one of the Surkotada urn burials exhibits charring, a trait shared with Periano Ghundai. The use of stone cairns is shared by Dholavira and Surkotada. Finally, brick-lined burial pits are common to Lothal, Kalibangan, Mehrgarh and Nal. The comparison of these burials shows that although these sites shared similar materials, a wide variety of burial methods are represented. No patterns appear among the burial types, suggesting that no single standardized Early Harappan burial tradition existed, even within North Gujarat. Thus funerary practices, not just the artifacts associated with them, should be used as the strongest indicators of a burial complex. However, it is difficult to determine the nature of affiliation between sites that do have shared features. The stone cairns at Dholavira and Surkotada indicate a related population. These sites are also very close to each other and are defined as Sindhi Harappan settlements, strengthening this interpretation. In contrast, it is harder to model the reasons why brick-lined pits would be found in such widely separated locations. They could indicate one widely dispersed population (partially identified through this burial practice). They could also represent disseminated burial technology rather than shared cultural or religious beliefs.

Structures and Pits

Most sites in this study did not yield any traces of structures that are indicative of mobile camps. The only discernable pattern among habitations is the late development of the use of circular rammed earth huts at Zekhada, Ratanpura and Kanewal. These types of residences are often linked to pastoralist groups. Other kinds of features associated with residences, particularly hearths, are rare except for those found within huts at Zekhada, Ratanpura and Kanewal. This is most likely due to the ephemeral nature of temporary constructions in the archaeological record. The only features all sites share are pits. However, due to taphonomic processes it is very difficult to interpret the function of a pit or its reuse (see Moeller 1992 for experimental analysis). Some could have been initially used for storage and later as dumps.

Activities

Subsistence Practices

From the faunal analyses that have been conducted at some of the sites (Loteshwar, Santhli, Nagwada, Ratanpura, Kanewal) and observations at others (Datrana IV, Moti Pipli) there is a clear transition from a sole focus on hunting alone during the earlier Microlithic phases to specialized pastoralism with supplemental hunting in the later phases. The most prevalent domesticated animals are cattle, followed by sheep and/or goats. Only Langhnaj has an assemblage entirely composed of wild animals, strongly indicating that this was a campsite of hunter-gatherers rather than specialized

pastoralists. However, even at pastoralist sites hunting remained an important subsistence practice. For example, pellets (used mostly for hunting small game) are the most prevalent terracotta objects at Loteshwar and Moti Pipli.

The presence of groundstone tools (specifically querns) indicates some form of grain food processing and, given the greater historical and cultural contexts of these sites, it is likely the inhabitants consumed domesticated plants. Yet agriculture requires a degree of sedentism and as most of the sites are temporary camps, any grains or other foodstuffs would have been brought from elsewhere⁴².

Craft Activities

Only two of the sites reviewed (Datrana and Nagwada) exhibited evidence for significant craft industries. As mentioned, the refuse from Datrana may indicate the presence of itinerant artisans. In contrast, discussions of the role Nagwada played in a regional context most often focus on its lapidary and shell working industries. Sonawane suggests that Nagwada became an industrial center to satisfy the Mature Harappan demand for stone beads and shell ornaments (Sonawane 1994-95:9). He postulates that neighboring Mature Harappan settlements (Shikarpur, Kuntasi) were primarily engaged in industrial production and that North Gujarat was originally settled by migrants from Sindh to exploit its natural mineral and faunal resources. This interpretation works well for Nagwada because its earliest layer contains Early Harappan pottery. Early Harappan

⁴² This contention could be tested through paleobotanical analyses.

pottery at Santhli, Datrana and Moti Pipli also demonstrate connections to Sindh and Baluchistan. However, early dates for Loteshwar and the exclusive presence of pre-Prabhas pottery in the first Chalcolithic layer at Datrana prove the existence of pottery-using indigenous populations in North Gujarat.

Degrees of mobility

Most mobile: *Santhli, Datrana, Moti Pipli, Loteshwar, Langhnaj*

According to the indices articulated in the introduction to this work, it seems that these five sites had the most fleeting occupations. Santhli has only two habitation layers, both of which are associated with animal butchering. Despite the burials, there is little evidence to indicate any form of long-term residency or consistent cycles of reoccupation. Datrana has more habitation strata than Santhli but each phase seems to be relatively short lived. Loteshwar has only three strata but the large pit sizes indicate a slightly longer period of occupancy, perhaps for an entire season in each episode. They may also represent a greater population size though cattle herders tend to stay in small groups at temporary camps. Much like at Santhli, the burials at Loteshwar do not appear to correlate with sustained occupations. Moti Pipli has large pits and was probably reoccupied but perhaps not for long. The mixed subsistence here (as the inhabitants do not seem to have specialized in the pastoralism of a single species) may indicate a somewhat larger population than Loteshwar and Santhli. Finally, despite the burials, Langhnaj only yields evidence for foraging, a subsistence practice that requires mobility.

Intermediately mobile: Zekhada, Ratanpura, Kanewal

Three phenomena - dune locations, domesticated animals, and fugacious structures - all show these late sites belong to pastoralist groups. Care was taken to prepare residential space and multiple distinct occupation phases were identified at Zekhada and Kanewal (the internal chronology of Ratanpura being ambiguous). Thus it seems the episodes in which these places were inhabited lasted for longer intervals than at smaller camps and these locations were consistently reoccupied.

Most sedentary: Nagwada

Nagwada represents the most sedentary of the occupations under review, the evidence for this being the substantial investment in space (the main structure was rebuilt three times) and great amount of craft activity. The building may not have been used as a permanent facility but it does indicate intentional reuse of space. The craft activities in particular show a certain regularity of residence as the finished goods (beads and bangles) were probably not produced exclusively for local consumption. As manufacturers and consumers in what appears to be a rather large trade network, this population would have benefitted from having at least one static, defined location.

Degrees of material diversity within each site

Least diverse assemblages: *Loteshwar, Santhli, Langhnaj*

These three sites have the narrowest ranges of material culture with low degrees of diversity among pottery and types of artifacts. These camps are also the remains of the most mobile populations and the restricted assemblage profiles may be related to the transience and small size of occupations. However, as will be discussed below with Datrana, high mobility is not necessarily directly related to a small artifact assemblage.

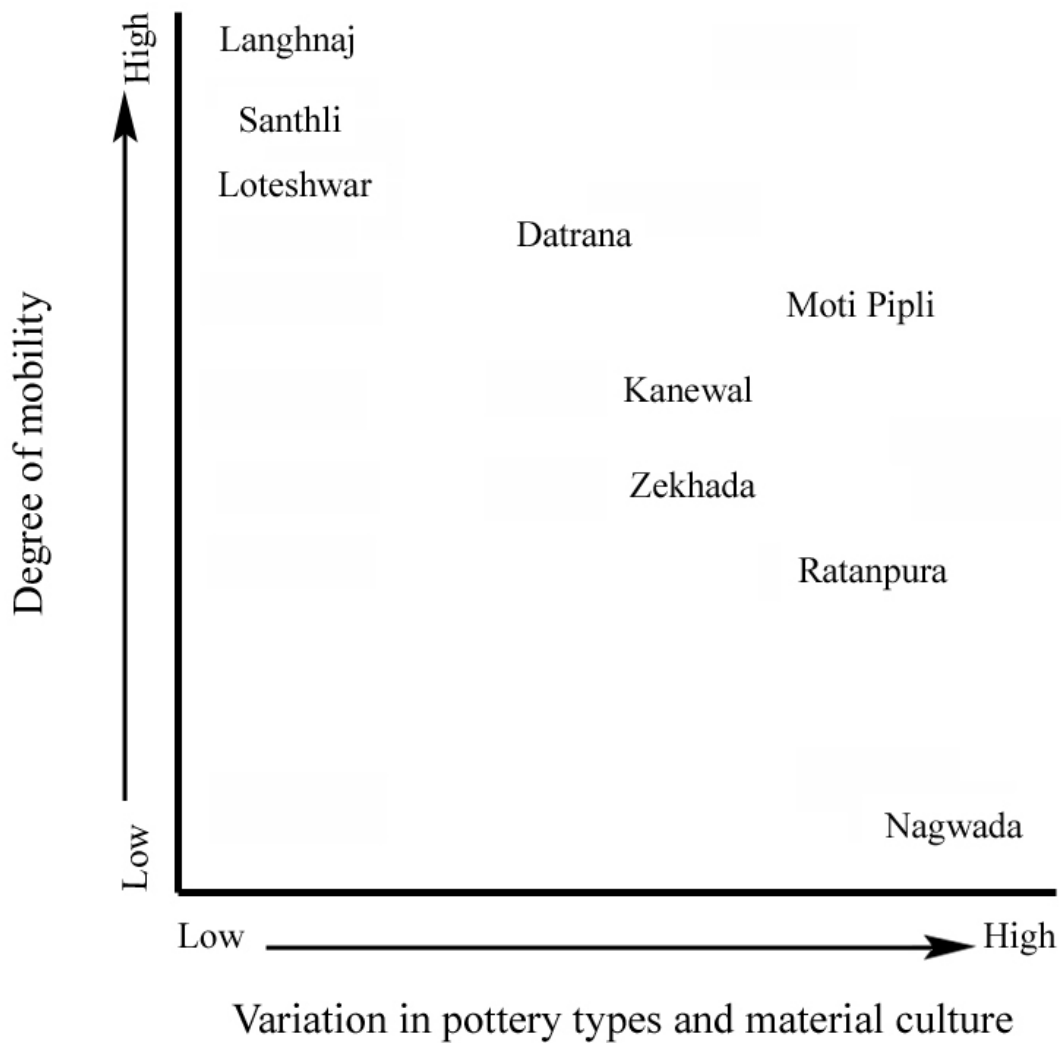
Intermediately diverse assemblages: *Datrana, Zekhada, Kanewal*

Datrana was just as ephemerally occupied as sites with lesser material variation so mobility cannot be considered proportionate to diversity in all contexts. The key components that enhance diversity here are the presence of Pre-Prabhas Ware and large amounts of lapidary waste. The intensity of craft production may be a contributing factor in the greater range of objects seen here than at other sites of equivalent size and occupational duration, as it indicates specialized participation in a wider economic network. Although they are similar to Ratanpura in other respects, Zekhada and Kanewal had slightly smaller inventories based on the absence of Ahar White – Painted Black and Red Ware and certain kinds of beads. This interpretation is complicated due to missing information and it is possible that Zekhada and Kanewal had many more similarities to Ratanpura.

Most diverse assemblages: Nagwada, Ratanpura, Moti Pipli

These three sites display the widest range of goods, with Nagwada having the most varied assemblage. Variety at this site may be related to both the sedentary nature of the occupation and the relatively intense craft industry, linking them to interaction networks beyond Kutch and North Gujarat. Ratanpura also has a wide range of materials (including relatively scarce Indus seal impressions) and at least four distinct ceramic types are evident here. However, given its close similarities to Zekhada and Kanewal, the absence of both copper and Rohri chert blades is curious. Moti Pipli presents an interesting case for the relationship between mobility and material diversity because it has an unusually wide variety of terracotta and metal objects. As already seen at Datrana, the two concepts are not always proportionate. It is difficult to propose an explanation for the diversity at Moti Pipli as there does not seem to be a specialized activity practiced except perhaps for mixed pastoralism.

As seen in the schematic diagram (Figure 6.2 Relative Variation and Mobility), there seems to be a negative correlation between mobility and material variation. This might seem counterintuitive as a mobile population would have had access to a wide trade network, but the relatively small populations and limitation on economic activities contribute to the highly local character of their assemblages.



Relationship of Mobility to Breadth of Material Assemblage

Figure 6.2 Relative Variation and Mobility

Changes over Time

Relative chronology of pottery

The distribution of Anarta ware across all sites shows that it has a very long time depth in North Gujarat, extending from the earliest Chalcolithic levels at Loteshwar to the middle occupational phases at Zekhada (and possibly those of Ratanpura and Kanewal). It is associated with Early Harappan, Padri and Pre-Prabhas wares, making it among the earliest wares found in Gujarat, but it remains in use for 2000 years. This makes it impossible to use Anarta Wares as temporal indicator. The stratigraphic study from Zekhada provides useful information on the waning popularity of this pottery within the site. A broader study of morphological and decorative changes over time across the region would help to estimate the time span over which this ware was used and internal changes within this ware type.

Also problematic is the presence of Mature Harappan Red Ware at many of the sites. It is often found in small quantities and it tends to be omitted from analyses because of its perceived insignificance. This makes it difficult to distinguish between Sindhi and Sorath varieties, which would contribute more information on economic linkages and help to establish distributive “boundaries.” This is also true for Black and Red Ware which, as discussed in Chapter Four, is not a well defined type. It is reported from Langhnaj, Loteshwar and Kanewal but it is not known where the similarities between these samples lie.

Ahar White-Painted Black and Red Ware and Lustrous Red Ware are far more useful as chronological tools as they are very distinct wares from sites with confirmed radiocarbon dates. Ahar BRW overlaps with both Anarta Ware and Mature Harappan Red Ware at Nagwada and Surkotada but is generally found at later sites, such as Ahar, Gilund and Ratanpura. It should be noted that the Early Harappan ware was found at Nagwada only in the earliest layer and thus Ahar BRW was not contemporary with that pottery. Lustrous Red Ware is present only at Zekhada, Ratanpura and Kanewal and demonstrates that these three sites are the youngest in the study.

Relative chronology of other materials

Upon examining the artifacts encountered at many of the sites - lithic tools, copper, terracotta and shell objects - there do not seem to be any distinct patterns to their temporal distribution. Microliths, copper items and shell bangles are ubiquitous. Rohri chert blades and other kinds of shell objects (inlay pieces, rings, ladles) are more rare and Rohri chert seems to be restricted to sites with Anarta, Early Harappan and Mature Harappan wares. It is absent at Ratanpura and Kanewal which may indicate diminished circulation of this commodity by approximately 1900 – 1700 BC.

Beads are well represented at all sites, providing an opportunity to determine relatively chronology by comparing frequencies. Amazonite was found at Loteshwar, Datrana and Nagwada and may be a material preferred among earlier occupations. Lapis lazuli was only reported from Nagwada and Zekhada and probably dates to the Urban

Phase. Terracotta beads seem to be from relatively later occupations (Moti Pipli through Kanewal), though Moti Pipli did have four terracotta beads very similar to those from Amri II. Steatite, carnelian, shell, dentallium and faience have the widest temporal distributions.

Elaboration of residential architecture

Following Nagwada, the structures at Zekhada, Ratanpura and Kanewal demonstrate an amount of preparation and investment not apparent at the earlier camps. These sites can be considered early variations of the kind of pastoralist occupations that become increasingly common during the Post-Urban phase (see Bhan 1992 for a gazetteer of these sites). Similar round huts have been found at Jokha, Nesadi and Vagad (Mehta 1980, Mehta 1984:227-30, Sonawane and Mehta 1985:28-44, Bhan 1994:81). Brick-less “circular residential structures” were constructed during the final occupation of Dholavira (Bisht 1991:77; Sonawane 1998-99:7). This occupation is associated with Jhukar period ceramics and terracotta seals, demonstrating continued close affinity of this site to Mohenjo-daro and other sites of Sindh (Herman 1997:99). However, there are other contemporary pastoralist sites that lack round hut architecture such as Oriyo Timbo (Rissman and Chitalwala 1990) and Dhatava (Mehta et al. 1975). The architecture is of particular note as these kinds of structures are still being created by mobile pastoralists of

Western South Asia. Round huts have been interpreted as belonging to pastoral camps or seasonally occupied hamlets where agriculture and pastoralism were practiced⁴³.

Conclusion

This dissertation analyzed multiple sites in North Gujarat that have been elsewhere described as camps of nomadic pastoralists. While mobility and pastoralism were economic strategies common to most of these sites, it has been shown that these practices existed on a spectrum. The range of sites, described in terms of their activities and production / consumption of artifacts, have also been demonstrated. This was a landscape in which multiple economic strategies were employed and the occupations within it cannot be considered as belonging a single social unit or cultural tradition characterized by a single aspect of their economies or material assemblages. Instead, there is a wide variety of overlapping material culture traditions. Many of them had connections to remote locations in Baluchistan and the Eastern Aravallis, demonstrating broad social and/ or economic networks. The factors that make North Gujarat worthy of consideration as a physically distinct region contributed to a geography marked by diverse economic strategies and dynamic processes fueled by mobility.

At cursory glance the sites reviewed in this work appear similar because they have some common characteristics. These included small size, temporary occupation,

⁴³ The most popular explanations for why round structures are associated with seasonality are written by Flannery (1972) and Binford (1990) (Sonawane 1998-99:8).

location on a dune, (mostly) domesticated animals and shared forms of material culture (particularly microliths and pottery). However, this study has shown that it is important to examine the aspects that distinguish these communities. Information from small sites can help fill in details about the kinds of ways people lived within and used their greater cultural landscapes (such as a territory usually associated with the Indus Civilization) rather than relying on interpretations based solely upon large population centers. This approach provides an alternative perspective on the interpretation of how these places and populations were related through close examination of artifacts, features and behavioral patterns.

From the very long history of research in this region it is clear that the small sites of North Gujarat were intimately connected with their more urban and industrially productive neighbors, be they members of the Indus Civilization or more local populations. The interpretation of these people as economic specialists to varying degrees is rather compelling. However, it is important to recognize how these sites differ from one another in terms of their connections with various networks and their places within those networks. To describe all of them as having the same essential function or population is too broad a generalization. Instead of viewing these settlements at the frontiers of Early or Mature Harappan societies, Harappan material culture should instead be considered just one, and not always a significant, component of daily life. Greater emphasis should be placed on activities and settlement patterns when reconstructing populations. Imported artifacts and wares are useful to establish relative chronology and

economic connections. But these materials are not, nor necessarily the best means through which to understand the past.

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