"Tracing History in Dia, in the Inland Niger Delta of Mali - Archaeology, Oral Traditions and Written Sources"

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Abstract

The three settlement mounds of Dia, located at the western edge of the Inland Niger Delta of Mali, are known from oral and written sources to represent one of the oldest urban sites in the region, older even than the much better known cities of Djenné and Timbuktu. Archaeological excavations at the earliest mound -- Dia-Shoma -- have confirmed that notion, as radiocarbon dates have established that its occupational history extends back to the 9th century BC. Meanwhile at the neighbouring mound of Dia-Mara, occupation does not begin until the sixth century AD, with the occupation of the Dia mound complex seemingly reaching its peak in the tenth century.

However, oral and written sources portray conflicting pasts, as Dia's multiethnic communities support multiple versions of its cultural history and the arrival of Islam. The latter issue is particularly complex, as Dia prides itself on its Islamic traditions, which some claim extend to the fourteenth century. Our archaeological excavations, however, have revealed evidence for relatively recent non-Islamic religious practices, diet, and ritual. As a result, I will argue for an alternative view of Dia, whose occupation until the eighteenth century seems to have been characterised by local religious customs.

I also focus on the issue of ethnicity as Dia's occupational history is characterised by the usurpation of local power by a series of 'incoming' groups, including the Soninke, the Malinke, and the Peulh. Although, recent ethnographic studies of contemporary potters of the Inland Niger Delta suggest that ceramics mirror the ethnic identity of the artisans, Dia's material culture record is surprisingly stable, particularly during the last 800 years. This might be explained in the light of conformity to a broader 'state-level' identity during this period. Alternatively, it could be rooted in the stability of female population as reflected in pottery production systems, with strict endogamous castes of female potters being the regional norm both today and historically.

It will be shown that the archaeological record constitutes an effective tool in elucidating alternative versions of the past, which would otherwise remain silent by the oral traditions and written sources.

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Chapter One
Setting the Framework

1.1 Introduction

The Inland Niger Delta (IND) of Mali, which had a central place in the history of the 'medieval' kingdoms and empires of West Africa, has so far enjoyed more archaeological coverage than any other region in the country. The pioneering efforts of collaborative research teams has put the Inland Niger Delta on the archaeological map of the African Continent, documenting its richness in cultural treasures and ancient towns (Bedaux et al. 1978; Bedaux et al. 2001; Dembele et al. 1993; Gallay, Huysecom et al. 1990; Haskell et al. 1988; R. McIntosh 1998; S. McIntosh 1995; McIntosh and McIntosh 1980, 1987; Raimbault and Sanogo 1991; Szumowski 1956). The same Delta is also home to Djenne, which has acquired international recognition for its world-famous mosque and its outstanding examples of "Sudanese-style architecture". In 1988 Djenne was ascribed World Heritage status by the United Nations Educational, Scientific, and Cultural Organisation (UNESCO).

The IND is located between the Sahara in the north and the savanna-forest in southern parts of the country (Fig.1.1). The desert's high temperatures and wind-blown sand, which constantly re-shape the landscape, and more densely vegetated savanna-forest environments, pose serious logistical obstacles to the field archaeologist, rendering sites less visible and accessible. The IND in contrast, unfolds as a textbook example of ground visibility and accessibility of its characteristic settlement mounds, exhibiting a high density of ancient sites. These communities have provided evidence for important crop domestication and some of the continent's earliest metallurgy (R. McIntosh 1998:23). The same communities prospered and became urban and commercial centres around the beginning of the first millennium AD, playing a major part in the trans-Saharan gold and salt trade. However, it should be stated that vast stretches have remained archaeologically uninvestigated.

Due to Mali's spectacular heritage, the international market for antiquities and art has successfully specialised in cultural treasures looted from archaeological sites, which in the case of the IND primarily consist of ancient terra-cotta statues (R. McIntosh 1996; Panella 2002). These illicit activities have left the IND as one of the worst affected regions on the continent (R. McIntosh, Togola and S. McIntosh 1995).

Recent studies have shown that the number of affected sites for the southern

Inland Delta has increased from 45% in 1991 to 65% in 1996 (Bedaux et al. 2001). This rate of destruction has highlighted the necessity for the archaeological community to actively respond to the acute problem of illicit excavations and the looting of Mali's cultural heritage by continuing scientific investigations before more evidence of a remarkable urban civilisation has been forever destroyed.

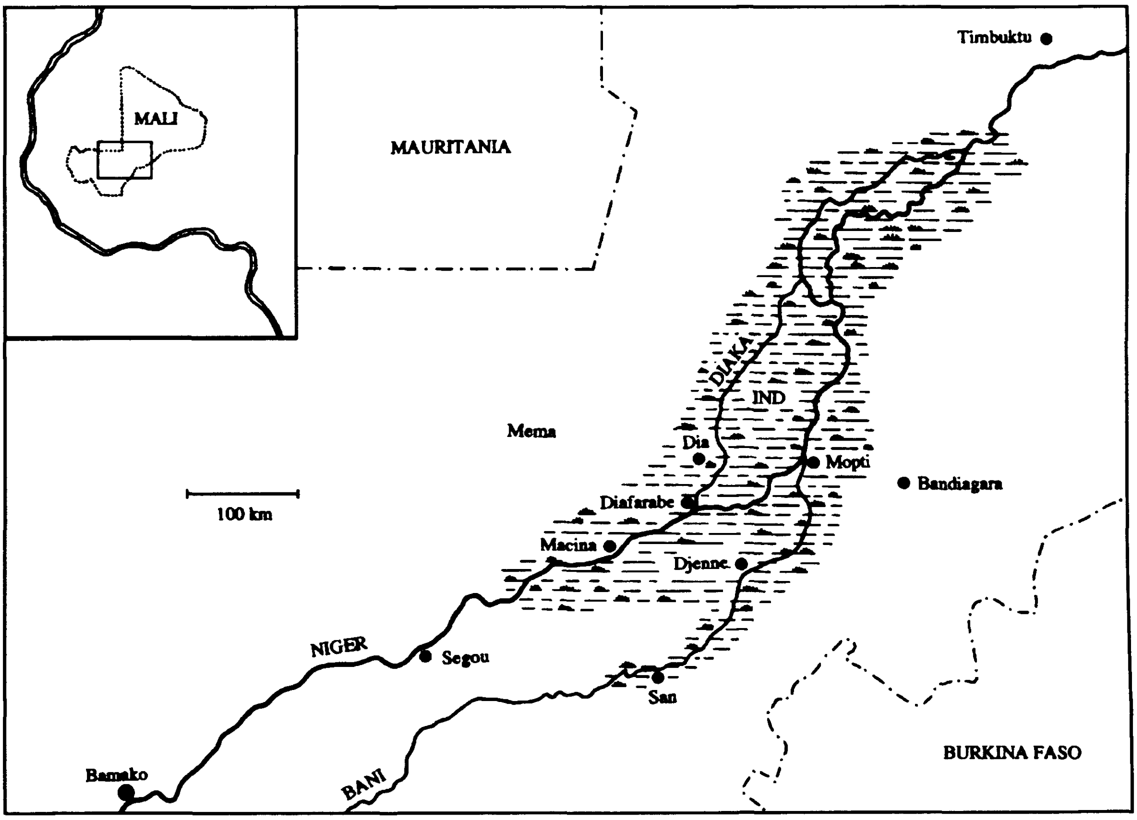


Figure 1.1 Map of the Inland Niger Delta of Mali, which includes the entire area marked with the swamp motif.

In light of these destructions, an international archaeological research project was launched in 1998 between the National Museum of Ethnology in Leiden and the Institute of Human Sciences in Bamako for a duration of six years. Participation of other institutions included the National Museum of Mali, the Ministry of Culture, and the University of Mali as well as University College London, the University of Paris/CNRS and Brussels University.

After an initial season of prospection, the settlement mounds of Dia (Fig.1.2), situated in the Macina (this term can be used loosely to refer to the entire northern delta southwest of Lake Débo) at the western frontier of the IND, were chosen as the focus of investigation (see Fig.1.1 for Dia's location). The tell sites of Dia form part of a high-density settlement cluster, which is a characteristic settlement pattern for the IND. These clusters commonly exhibit a large, central settlement mound of ca. 2 to 10 metres in height and 20 to 80 hectares in area, surrounded by intermediate and smaller mounds at distances of 200 metres or less from one another (S. McIntosh 1999:66). Investigations at some of these multiple clusters have attested their relevance to the evolution of agricultural systems and the development of urbanism.

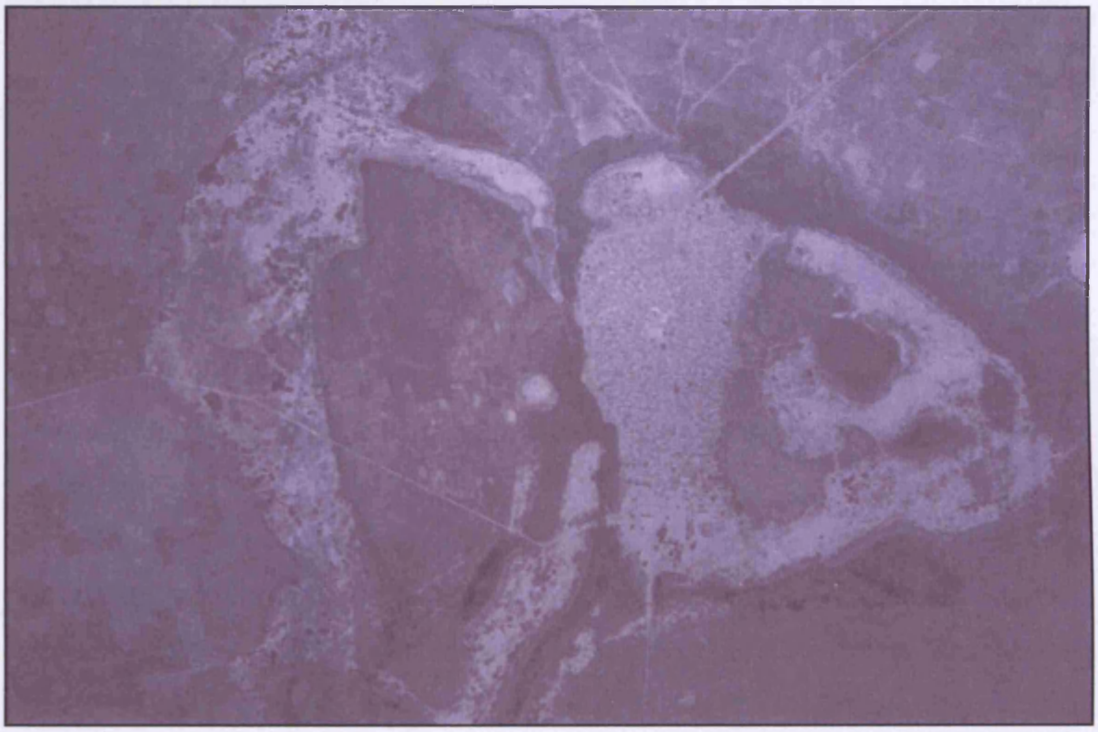


Figure 1.2 Aerial photograph of Dia mound complex. Modern Dia is located in the centre. Shoma to the left and Mara to the right.

The project's primary aim was to carry out large-scale excavations at two of the major settlement mounds within the Dia network, those of Shoma and Mara, which are located at the western and eastern edges of the modern town respectively. It was anticipated that Shoma and Mara would provide new contributions to the question of urban developments, which has gained much attention since evidence from Jenne-jeno has indicated that it was a local development dating as far back as the first half of the first millennium AD (S. McIntosh and R. McIntosh 1981, 1984, 1993). Due to the abundant presence of Ceramic Late Stone Age (Ceramic LSA) material culture, coupled with evidence for metalworking (iron slag), Dia also constituted an interesting case study for agricultural and metallurgical origins.

The co-operation of various international teams was set up to facilitate the sheer scope of this investigation. Further aspects included the opportunity for students to undertake practical fieldwork on a West African tell site as well as providing the possibility for postgraduate students to take on research aspects for Masters and Doctoral Theses, this volume being an example of the latter.

1.2 My Research Question

Dia is a prime example of a geographical junction where different cultural groups have been living in symbiosis since ancient times. Yet each group has its own valid claims to its past, which are manifested by Dia's oral traditions and written sources. The latter provide explicit references to 'ethnic labels' and complex developments, such as urbanism and the arrival of Islam. I have thus been drawn to formulate my research question as follows, "To **what** extent are Dia's different population groups and complex developments, attested by oral and written sources, reflected in the archaeological record"? I will attempt to find answers by piecing together diverse sources of data.

Firstly, I will critically analyse Dia's historic and ethnographic literature to evaluate its usefulness for analogical reasoning. Secondly, I will reconstruct Dia's archaeological sequence from data I have collected in the course of four field seasons (I will also include other team member's findings), which I will then compare to the oral and written sources. One of archaeology's strength has been its application of inter-disciplinary methods to reconstruct past life-ways. I will thus include depositional data, the spatial and temporal distributions of the sites' ceramic assemblages, their small finds, faunal and botanical evidence, and lastly, comparative material culture data from neighbouring regions.

In light of the recurring references to ethnicity in Dia's literature, as well as the fact that the Inland Niger Delta today is an extremely ethnically diverse landscape, I have seen it as a challenge to test whether these ethnic references can be picked up in the archaeological material sequences by considering discontinuities versus patterns of coherence and similarity. The resulting patterns of stability and/or discontinuity might thus correspond and/or conflict with the population movements known from the oral and written accounts. As a consequence, my investigation will corroborate and/or challenge extant accounts of Dia's history by emphasising and evaluating evidence from material culture and subsistence economy against narratives of "newcomers and conquest".

1.2.1 Historical Background to my Research Question

Dia, which at present is a town of more than 9000 inhabitants, is home to ethnic communities including Bozo and Somono fisherfolk, Marka (Soninke) rice farmers and Peulh herdsmen (Fig.1.3). Dia also has a reputation as an Islamic centre. Powerful marabouts supposedly took up residence in the area during the 15th century AD, and Al-Hadj Omar, a Muslim leader originating from the Futa Toro region on the Senegal River, conquered Dia in the 19th century (Sakai 1990:240). This mosaic of people mirrors Dia's history since each of these groups have valid claims to its past, presenting a rich collection of oral and historical sources.

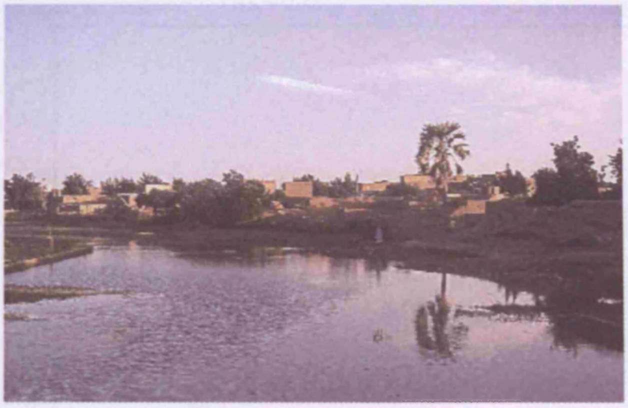


Figure 1.3 View of Dia (south-western edge of town). The photo was taken in October, showing the inundated plains of the IND.

Recollections of Dia's first inhabitants tell of the *Tomotas* and *Kwantas*, who are portrayed as autochthonous hunters and fishermen respectively (Sakai 1990). Upon their encounter, they formed an alliance, which united them as Bozo. At a later stage, Soninke warriors assimilated the Bozo fisherfolk underneath the leadership of a mythical personality known as *Ndinga* or *Dinga* (Fay 1997:166). It is remembered by these traditions that the Bozo possessed great wealth in terms of subsistence resources, but had no formal leadership. The Soninke warriors demanded tribute from the Bozo and were able to draw them into the first millennium consolidation of the Soninke Empire of Ghana (also known as Wagadu). Dia then served as a base for economic produce and warriors to Ghana (Fay 1997:167).

Later population incursions are mostly described as successive waves of warriors passing through the area in times termed 'imperial' (McIntosh 1998:240), when major states including Songhay of the Niger Bend peoples and Mali of the Malinke dominated the political landscape (Fig.1.4). As these empires expanded and contracted many smaller (semi-) autonomous polities emerged. Thus one sees a continual fluctuation of local autonomous power and exterior delegated power in the region (Fay 1997:167). The Peulh (or Fulani) pastoralists comprise the most important recent wave of population movement into Dia. They are believed to have arrived in the region by the middle or the end of the 14th century AD (Fay 1997:174), ultimately contributing to Al-Hadj Omar's conquest of Dia in 1864 (Sakai 1990:216), which resulted in the institutionalisation of Islam in this region.

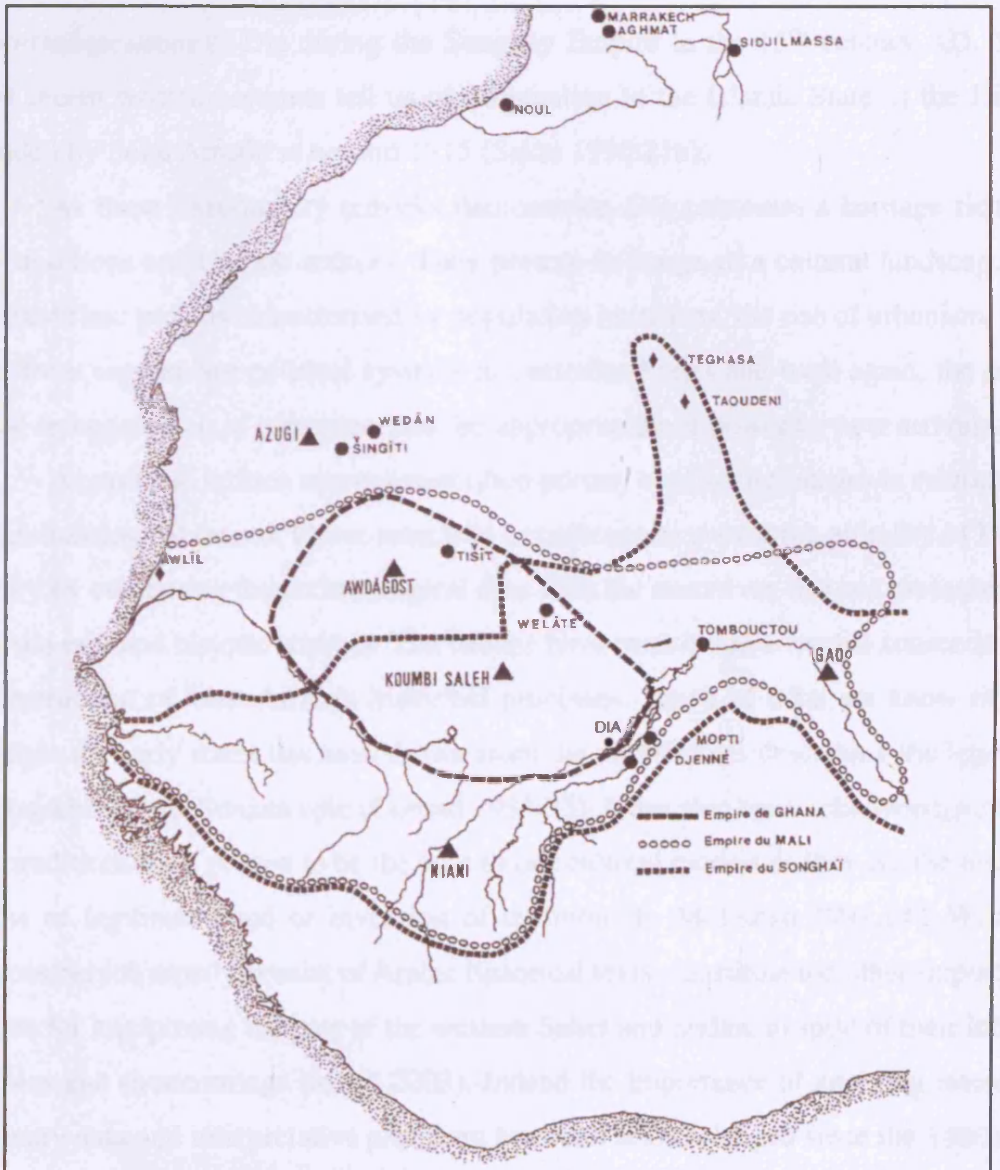


Figure 1.4 West African Empires of Ghana, Mali and Songhay (after Berthier 1997).

Complementing these oral traditions are written sources, which make mention of Dia as early as the 12th century AD (Sakai 1990:216). Such sources were written by North African merchants and explorers, who arrived south of the Sahara during the late first millennium AD. The more recent texts are known as *tarikhs*, local chronicles written in the 16th and 17th centuries AD, which mention Dia in relation to the Soninke Empire of Ghana (Monteil 1932:31). Dia is believed to have served as a stronghold or refuge when the Empire was hit by successive invasions from the beginning of the second millennium AD onwards (Gallais 1984:146), which resulted what has been called the Soninke Diaspora (Dieterlen and Sylla 1992:188), leading to the formation of important trading centres in southern and western regions of the western Sahel (Sakai 1990:215). The Ta'rikh al-Fattaash and the Ta'rik as-Sudan provide important mentions of Dia during the Songhay Empire in the 15th century AD. The most recent written accounts tell us of subjugation to the Islamic State of the Dina, founded by Seku Amadu at around 1815 (Sakai 1990:216).

As these introductory remarks demonstrate, Dia possesses a heritage rich in oral traditions and historic sources. They portray an image of a cultural landscape in constant flux: periods characterised by population intrusions, the rise of urbanism, the shift from segmentary political systems to centralised ones and back again, the continual re-negotiation of identities, and the appropriation of power by new arrivals.

As oral and written sources may often portray conflicting images in relation to the archaeological record, I have seen it as a challenge to pursue the plurality of Dia's history by comparing the archaeological data with the narratives that are presented to us from oral and historic sources. The former have constituted a crucial source in the reconstruction of West Africa's historical processes. Much of what we know of for example the early states has been drawn from the oral sources describing the legends of Wagadu and the Sunjata epic (Conrad 1984:35). It has also been acknowledged that oral traditions have proven to be the core of our cultural models as they are the instruments of legitimacy and of invention of tradition (R. McIntosh 1998:14). Written sources, which mostly consist of Arabic historical texts, constitute the other important source for interpreting the past of the western Sahel and Sudan, in spite of their inherent bias and shortcomings (Insoll 2003). Indeed the importance of applying interdisciplinary data and interpretative pluralism has been acknowledged since the 1980s at several meetings of the Mande Studies Association and the African Studies Association (R. McIntosh 1998:22).

In my analysis I will critically examine Dia's oral and written sources to assess their correspondence with historical and archaeological evidence, which might help to clarify which periods these data sets are most valuable for. Then, by focusing on the occupational reconstruction of Dia, I hope to further our understanding on the chronology of site continuity, disjuncture, occupation and abandonment, which may or may not corroborate elements of Dia's histories. It should be stated, however, that my main pursuit is to treat the archaeological data as a tool for documenting an alternative view, and not as chronological rectifying device for the quest of one historical narrative.

1.3 Nature of the Archaeological Data

Four excavation units, which I directed over the course of three field seasons (totalling eight months) at the settlement mounds of Shoma and Mara, each covering the full occupational sequence of each site, provide the main archaeological evidence for this investigation. I will also access data which stem from other units excavated at the sites. My goal is to establish a reliable artefactual and stratigraphic sequence and to reconstruct site occupation and abandonment.

In addition to the application of site formation data, my investigation concentrates on the sites' pottery assemblages, which will be taken as the principal material evidence for illustrating transformations in site occupation. Even though my initial goal is to devise a developmental sequence for the Dia pottery, I have chosen an approach, which will permit multiple levels of classification of pottery to be generated from the resulting data set. The assemblage will include descriptions of variables that are relevant to questions of style as well as function and technology, and these will be considered both in terms of variations in individual attributes and in the presence/absence of different attribute clusters over time. In this fashion, I will be testing whether any resultant patterns of heterogeneity and/or homogeneity key into historically asserted population incursions. However, if there should be continuity where oral traditions argue there should be population movement, I will have to consider alternative explanations, such as exaggerated or invented population change in the oral/written record, or no change in the segment of the population producing ceramics, or the rapid acculturation of incoming groups.

Indeed, several ethnoarchaeological studies, particularly by the Swiss mission in West Africa (MESAO) (Gallay 1991-92; Gallay, Huysecom, Mayor and de

Ceuninck 1996), have shown that there exist strong correlation between the IND's diverse ceramic traditions and the ethnic groups inhabiting this zone.

In addition to the pottery, my investigation will be complemented by 'small finds' and ancillary subsistence data. The latter will play a crucial role as they might demonstrate economic change where pottery indicates stability. A characteristic of the Inland Niger Delta of Mali is that its 'ethnic groups' specialise in their subsistence activities (Gallais 1967, 1984). The Bozo, for instance, have always been known as fisherfolk and river-navigators (Daget 1949:14). The Nono, a 'sub-group' of the Soninke Marka, have specialised in rice agriculture (Gallais 1984:30). The Peulh, who are the dominant group in the Macina today, are pastoralists exploiting the characteristic bourgou of the region as pasturage for their cattle (Gallais 1984:32). Hence, changes in botanical and faunal data might provide alternative evidence for population incursions and local socio-economic changes promulgated by the oral and written sources.

1.4 Theoretical Approach

As the focus of this investigation is a comparative analysis of inter-disciplinary sources, I have chosen to adopt what has been called a pluralistic approach, which has been described as,

> ... "one which recognizes process and event as complementary aspects of human history and tries to steer a course between the oversimplification which is inherent in so-called 'laws of human behaviour' and the limitations of extreme contextualism. In effect an attempt at understanding the past which accepts its own inherent limitations and foibles and notably does not try to explain everything from the same point of view, but makes a virtue of polyocularity." (McGlade and van der Leeuw 1997:2)

Even though epistemological and ideological fixations, which try to explain everything from the same point of view, have been deemed preferable, recent years have shown the possibility of trans-disciplinary or integrated frameworks as an effective contribution to debate. Indeed, the pluralistic nature of history has suffered immensely from the pursuit of reconstructing the most valid meta-narrative, whether it has been from a positivist, Marxist, structuralist or post-structuralist point of view.

Due to the inter-disciplinary nature of my investigation I have relied on the application of analogical reasoning. In Africa the fundamental importance of analogy to archaeological inquiry has received increasing recognition in recent years (Andah 1997; Stahl 2001). The application of relevant analogues from ethnographic, linguistic, ecological and historical, including oral, sources has proven of crucial relevance to the archaeologist (Gallais, Huysecom, et al. 1990; MacDonald 1998; R. McIntosh 1998; Stahl 2001). Hence, my choice of analogical reasoning in which most value is placed on the comparative application of historically related contexts.

Attention will also be given to approaches of cultural identity since Dia's historical narratives are characterised by terms designating specific cultural groups. Recent opinions hold that identities and cultures are prone to re-definition, adaptation, and acculturation in contrast to rigidly defined stereotypes (Amselle 1990; Chrétien and Prunier 1989). These findings have led to a positive response from the archaeological community (e.g. Jones 1997; Shennan 1994; Stark 1998), which needed to re-evaluate its approaches to past identities, archaeological cultures and their social boundaries. These notions, however useful they may be, have not been able to account for people's continuous insistence on ethnic self-identification. This situation is especially pertinent to the study area, where ethnicity seems to play a key role in day-to-day interactions and activities. Moreover, ethnoarchaeological studies have demonstrated how notions of social identity are reflected through material culture (Gallay 1991-92; Gallay et al. 1996; Gosselain 1999, 2001). As a consequence, I will be testing whether a notion of persistent and/or changing group identity is identifiable in the material culture sequence of Dia, despite current intellectual trends regarding ethnicity as a fickle and fluid phenomenon.

1.4.1 Analogical Reasoning

The focus of this investigation, which is to seek points of convergence and dissimilarities between the oral/historical, ethnographic and archaeological context of the Dia region, has resulted in the application of analogical reasoning, which is intricately linked to the direct historical approach. The latter has its roots in Boasian anthropology, which emphasised the idea that similarities in traits between past and present societies were often the result of historical connections (Stahl 1993:242). Proximity in physical time and space and evidence of continuity between living peoples and archaeological entities made it safer to employ ethnographic sources in the reconstruction of ancient life. Most often the similarities between 'prehistoric' and contemporary groups were stressed in contrast to only few examples where archaeologists identified significant differences between ethnographic cultures and their archaeological counterparts. Once such a connection of similarities was established, relatively recently occupied sites provided an archaeological baseline that could be used to identify the material culture associated with the historical culture.

The concept that a historical connection enhances the relevance of ethnographic sources for archaeological interpretation has persisted. However, in Africa historical connections could extend over long periods, in some cases reaching several millennia, which resulted in stereotypical views of African societies as conservative and unchanging (Lane 1998, 2005; Schmidt 1990; Stahl 1994, 2001). The post-processual literature put a renewed focus on historical connections as an important factor in identifying appropriate sources of ethnographic insight by enhancing the subject of context and historical contingency (Hodder 1986). To this effect a greater awareness followed for studies focusing on the effects of European contacts to non-western societies, which recorded the changes that took place as for example in systems of production, ecology, ethnic identity and gender (Sahlins 1985; Trigger 1985; Wallerstein 1974). Simultaneously, these studies have evidenced the difficulty of sorting out "traditional" from "non-traditional" practice in modern contexts.

As living societies, especially from Africa, have been regarded as living fossils of earlier stages of human evolution (Lane 2005), a critique ensued calling against the use of analogical reasoning and that archaeologists should rather rely on more general, universal propositions about human behaviour, especially those drawn from ecology (Gould 1980). However, it was shown that the latter notion also relied on analogical reasoning (Wylie 1985).

As a result, Wylie (1985:100-101) suggested that source-side criticism provided one possibility by which to improve the use of analogy. She stressed the importance of critically evaluating the sources that inform the analogical models. Historians already suggested that documents should be viewed from two perspectives: external criticism assesses the authenticity of a document and internal criticism evaluates the credibility of individual statements within a document (Stahl 1993:247). Vansina, the prominent Africanist historian who pioneered the use of oral sources in African historical studies, also stressed the need to apply rules of evidence to anthropological monographs, which concern historical studies (1989:344). He proposed to ground analogies in specific temporal contexts so far as possible, which has been referred to as seriation of sources (1989:346).

It has thus been suggested that it is necessary to construct archaeological analogues using diverse though temporally related sources from ethnography, oral history, and texts (Stahl 1993, 1994, 2001). Sources from successively earlier units of time should be used to construct, as fully as is possible, temporally specific analogues. Like Wylie (1985) and Gould (1980), Stahl also suggested a comparative approach by which the analogical model must be established through testing against archaeological evidence, which as she points out is especially relevant to the direct historical approach (1993, 1994). She proposes a procedure in which temporally specific analogical models are subsequently compared with archaeological sites associated with the unit of time from which the model is derived (Stahl 2001:30). The archaeological evidence can thus assess ambiguities in the ethnographic, oral-historical or archival sources.

For this investigation I have chosen to follow Stahl's approach in which she has advanced several aspects relating to source-side considerations and subject-side issues. The foremost issue concerns source-side criticism in which archaeologists have to assess the ethnographic and historical sources to establish the relevance of a particular analogical model. These include variables such as the position of the author, intended audience, method of data collection, as well as the time frame and location on which the description is based, if this is possible (Stahl 1993:253). Furthermore she stresses the biased aspects of ethnographic and historical sources and the incorporation of a temporal dimension into analogical reasoning. Considering subject-side issues Stahl emphasises the importance of using analogies as comparative models, rather than as illustrative devices. Archaeological data when compared with non-archaeological source materials from the same time period can as a result enhance our attempts to explore patterns of continuity and change.

Concerning Dia's oral-historic sources, they represent coherent analogues as (1) their timeframe covers the periods under investigation, and (2) Dia's archaeological sequence ends after these oral and written sources were first created. A detailed source-side analysis will follow in Chapter 3. As a consequence, these sources will manifest the hypotheses of the past against which the archaeological data will be compared.

In regard to the ethnographic material, which I will also make use of, it might be suggested that I am employing a direct historical approach. The latter has served in circumstances where there was perceived continuity between past and present, while change was assumed to be superficial and recent (Stahl 1993:242). Indeed, archaeologists tended to project representations of "traditional" societies into the prehistoric past, which contributed in sustaining a view of pre-colonial Africa as a landscape of continuities (Stahl 2001:24). However, by using diverse sources, such as artefacts, documents and oral traditions, comparatively, to understand change and continuity in Dia's ancestral habitation sites, I will attempt to recover subaltern histories, instead of a meta-narrative. The archaeological data might thus offer alternative insights to what has been illustrated in the oral, written and ethnographic sources, and can consequently highlight the 'tensions and incompatibilities between the sources, which should reveal the partialities, cracks and cleavages, both in our understanding of a lived past and in the production of history in the present' (Stahl 2001:33).

1.4.2 Reflections on Identity

> *On n'appartient jamais dans la vie à une ethnie, à une race ou une communauté par la naissance ou par le sang. On en devient membre par la culture et le respect de certaines traditions.*
>
> Ahmadou Kourouma, Yacouba hunter (Gallimard 1998)

A striking feature of the existing literature, which is treated in Mali's oral and historic sources, is the recurring use of ethnic labelling of the people who were to successively inhabit, rule, spread or abandon Dia. These texts refer to Dia's founders as Bozo and Nono, they talk of a Soninke Diaspora, a later influx of Malinke peoples. Hence, it has been inevitable to confront myself with the issue of ethnicity/identity, and the problems of using texts and material culture in the interpretation of past ethnic groups.

The definition of ethnicity, both in a generic sense and in the case of particular ethnic groups, has been loaded with difficulties (see for example Fardon 1987, 1996; Jones 1997). An important turning point was Barth's (1969) study of *Ethnic Groups and Boundaries*, in which he investigated the social dimensions of ethnic groups and in particular the maintenance of ethnic boundaries, which he distinguished from the traditional investigation of isolated cultural units. He argued that ethnic groups should be defined on the basis of the actor's own categorization of themselves and others, whilst 'ethnic categories take cultural differences into account, we can assume no one-to-one relationship between ethnic units and cultural similarities and differences' (Barth 1969:14). Over the last decade a considerable body of research has confirmed that group identity is not a passive and straightforward reflection of a distinct culture and language, that instead, it is a dynamic contested and multi-layered phenomenon (Amselle 1990). Thus, concepts of ethnicity, including Barth's, which consider ethnic groups as self-defining systems, placing primary emphasis on the cognitive categories of the people concerned, have been pervasive in academic research (Jones 1997).

A problematic aspect of this investigation is how to bridge the gap between ethnic labels known from oral and historic sources with the archaeological materials from excavations as the concept of ethnicity/identity stands in stark contrast to archaeological 'cultures'. The latter are summary descriptions of patterns of stylistic and spatial variation, useful for analytical purposes, but potentially misleading if taken as the sole basis of an approach to prehistory (Shennan 1994:5-7).

Historical documents have thus played an important role in the identification of distinct population groups and have long been regarded as the most accessible instrument to read about people's subjective, self-conscious identifications and illustrations (Jones 1999). However, it has also been recognised that the extraction of meaning from written texts is as ambiguous as the assignment of meaning to the archaeological record. Literary sources are no longer seen to represent absolute statements about the nature of past societies. Rather they present partial and fragmented perspectives of the past due to reasons such as differential survival of written sources and the opinions of a particular individual or sector of society they represent. Consequently it has been argued that both archaeological and historical sources provide subjective perspectives on the past. They are subjective both as a result of the processes involved in the production of literary and material remains, and in terms of their contemporary interpretation (Little 1992). It has been suggested that textual sources should be subjected to an in-depth analysis concerning their active involvement in the construction of past identities. Their social and political contexts at point of production should be considered, the positions and interests of the authors and the audiences, and the active role which texts may have played in the construction and negotiation of cultural identity (Dramani-Issifou 1989:40; Jones 1999:223).

Authorship by dominant groups is particularly evident in the African context. A large portion of Africa's written documents stem from periods of external imperial interaction, whether Arabic or European, where certain foreign individuals assumed the roles of explorers, administrators and ultimately ethnologists (Chrétien and Prunier 1989; Insoll 2003; Amselle 1990). These authors consciously or unconsciously furthered their political/economic aims by capturing categories of human difference under headings such as class, race, religion or region to create groups coherent and useful to them (Chretién and Prunier 1989; Fardon 1987). It has even been argued that,

> "Nothing like an ethnie existed in the pre-colonial period. Ethnies derive from the actions of the colonizer who in his desire to 'territorialize' the African continent, carved out the ethnic entities which were themselves taken over later by the people." (Amselle 1985:23).

Indeed, Amselle (1990) has argued that identity can be conceptualised in terms of originary syncretism, which is illustrated in his study of the Fulani, Bambara, Mandingo, and Senufo. These ethnic labels have been re-appropriated by the Africans themselves, which also occurred in other areas, such as the historical narrative of the great West African empires, expressed by some colonial administrators and perpetuated by colonial schoolbooks. Today it constitutes the very principle of Malian Nationalism (Amselle 1990:16).

However, the notion that the concept of ethnie was a colonial creation has received considerable critique as it attributes a seeming passivity to African people and denies the historicity of some elements of ethnic identity that have pre-colonial precursors (Fardon 1987:133). It has been argued that such approaches are difficult for Africans to accept and that by publishing conclusions of this sort expatriate researchers may feel they are undermining local tradition (ibid.). Instead, it has been suggested to track the uses of human differences and similarities, themselves changing and man-made, within changing historical contexts (ibid.). Hence, ethnicity is a historically changing category. In response to Amselle's contradictory notions, that ethnicities are colonial creations yet in others unchanged from their pre-colonial antecedents, it has been postulated that,

> "Pre-colonial systems in Africa were internally articulated on the bases of differences between the categories that composed them. Differences between clans were explained in terms of their different origins, a distinction that might be developed into one between indigenes or first-comers and later-comers, or between chiefs and chief appointers, or guardians of the earth and guardians of the ancestors and so forth." Fardon (1987:132)

Re-appropriated or not, it has been shown that the concept of social identification constitutes a present reality in the consciousness of people's minds (Frank 1998; Gallay 1991-1992). In Bambara, for instance, the most widely spoken language in Mali, the notion of "belonging" is expressed by the term siya, a term which captures some of the multiple layers of identity (Gallay 1991-92:26, Frank 1998:3). In response to the question, "What is your siya?" individuals may choose to identify their ethnicity, caste, clan or individual lineage (Frank 1998:3).

Several ethnographic studies have confirmed strong notions of self-identification, especially within West Africa's caste system, in which potters belong to the group of *nyamakalaw*, a term that describes occupationally defined groups that guard their professional secrets through endogamy and esoteric ritual procedures (Conrad and Frank 1995; Frank 1998; Tamari 1991). Hence, the premise of my study is that identity plays an important part in people's consciousness, which governs day-to-day life, specialised activities, taboos and the choice of marriage partners. These notions, which are also reflected in Dia's oral and written sources, will serve as a hypothesis of the past against which the archaeological data will be compared. However, I will also maintain the notion that identity is a dynamic contested and multi-layered phenomenon. In spite of Amselle's shortcomings I would like to pick up on his idea that far from constituting isolated identities, these groups comprise systems. The systems he proposes encompass elements oscillating between self-sustaining and market economies, segmentary societies and state structures (Amselle 1990).

1.5 Summary of Themes and Methods

Chapter 1 has aimed to set the background for my investigation by illustrating (1) the overall themes of the Dia project, (2) my participation and personal research question, and (3) the thesis' theoretical background.

Chapter 2 illustrates the physical setting of the study area, outlining the IND's climate, vegetation, geology and economy, which have constituted a favourable environment for human occupation since at least the Late Stone Age. I have also included a description of Dia's present inhabitants, of which some claim autochthonous origins in the region.

Chapter 3 is an attempt to critically evaluate Dia's historic and ethnographic literature. I will include external criticism to assess the authenticity of a document and internal criticism to evaluate the credibility of individual statements within a document, which will serve for a comparative analysis with the archaeological record in Chapter 9.

Chapter 4 takes a regional perspective, describing the results of previous archaeological campaigns affected in the IND and other neighbouring regions, showing affinities with Dia in material culture and/or settlement patterns.

In Chapter 5 I present the methodology and results of my archaeological fieldwork, which includes a description of all excavated levels and features, the radiocarbon dates taken at Shoma and Mara, followed by an interpretation of the sites' occupational histories.

Chapter 6, which focuses on Dia's pottery, includes a theoretical background on past and current notions of material style, a short description of ethnoarchaeological investigations of potters in West Africa and the IND, followed by my methodology and analysis.

Chapter 7 describes the small finds, which have been found in the course of our excavations, consisting of metal finds, terra cotta statues, glass and semi-precious stone beads, stone artefacts, and miscellaneous objects. These finds will mainly serve to indicate regional and long-distance trade between Dia and other regions.

Chapter 8 illustrates the faunal and archaeobotanical evidence, which will be used to reconstruct Dia's ancient economy, serving later, in Chapter 9, as an additional data set from which to compare the archaeological record with the historic sources.

Chapter 9 contains my comparative analysis between the archaeological record and Dia's oral and written sources. It will be shown that the former data set has brought a considerable amount of new insights into Dia's ancient life-ways.

Chapter 10 presents a synthesis of my findings, which have been discussed in the previous chapter, and their wider applicability and significance for the study of West Africa's past.

Chapter Two
Physical and Human Landscape

2.1 Introduction

> The guardian of the Empire of Ghana's capital, the sacred snake Bida, promised abundant rains and great quantities of gold, on the condition the Soninke worship him and sacrifice the most beautiful virgin of the country to him every year at the beginning of the rainy season. Ghana became powerful and prosperous as long as the Soninke paid this human tribute to the snake Bida. This prosperity was brusquely interrupted when, one year, a suitor of the virgin, chosen to be sacrificed, killed the black snake Bida, which caused a dreadful curse to be placed on Ghana. The country became desiccated. The flow of gold stopped. And the inhabitants of Ghana soon dispersed throughout western Sudan. (Oral Traditions on the Ghana Empire summarised by Togola 2000:185-6).

The study area is located in the Sahelian region known as the Macina (Fig.2.1), which constitutes the entire northern delta southwest of Lake Debo. For the last three decades the Sahel has attracted the attention of palaeoclimatologists due to the devastating droughts that hit the region in the 1970s and 1980s (R. McIntosh 2000:144; Togola 2000:181). Many investigations have been launched, which have mainly consisted of long-term, geological timescale research and the study of interannual and interdecadal precipitation records, to understand the origins of the Sahel droughts, as well as the internal and external forces behind climate change in the region (R. McIntosh 2000:146). This surge of palaeoclimatic studies has thus provided a baseline for climatic and hydrographic reconstructions, and the conditions they have furnished for human occupation.

Indeed, the significance of the environmental setting is further accentuated by the central place the Inland Niger Delta has occupied in the history and prehistory of West Africa due to its significant social and cultural developments. The Delta, which features various ecosystems such as lakes, floodplains, flooded grasslands and savannah, has been an essential economic resource for Malians, both historically and today. It has supported livelihoods in fishing, farming and pastoralism in an otherwise arid

Figure 2.1 Typical Sahel landscape in the Macina region between Diafarabe and Dia, with termite mounds.

country. The Delta's diverse landforms have also been home to a variety of population groups, who over many centuries have customized adaptive strategies for the exploitation of its resources.

In this chapter I focus on the environmental setting of the Inland Niger Delta (2.2), which includes an overview of the climatic fluctuations during the Holocene (2.3), and a tentative reconstruction of Dia's past hydrography (2.3.1). In the second half of this chapter (2.4) I turn my attention to the people of this deltaic environment, whose specialized economies might have partly contributed to the formation of distinct social groups.

2.2 The Inland Niger Delta

The Inland Niger Delta is located in central Mali in the Sahel, just south of the Sahara Desert. The huge dunes of the Erg Ouagadou funnel the waters of the inner delta north and east through Mali (Welcomme 1986). The delta consists of a diverse mix of channels, swamps, and lakes. During the rainy season, when floodwaters spill over the banks of the Niger and Bani Rivers, it expands to cover 20,000 km^2, and contracts to 3,900 km^2 during the dry season (ibid.). The delta is 424 km long with an average width of 87 km, tapering into a braided river near Timbuktu where the Niger River curves to the east.

Delta topography is a complex mix of submerged lower areas and higher, unflooded areas known as toguérés. The floodplain consists of a vast network of river channels with levées separated by low, clay-based floodplains. As waters flow through the delta, they pass over Pleistocene and recent alluvium overlying Palaeozoic sandstone (Hughes and Hughes 1992).

The floodwaters of the delta come primarily from the Niger River, its main tributary the Bani River, and smaller streams that flow down from the **Bandiagara** Plateau. The Niger River is the longest river in West Africa and the third longest in Africa. It originates in the Fouta Djalon highlands of Guinea and extends for 4,100km before flowing into the Atlantic Ocean on the Nigerian Coast (Hughes and Hughes 1992).

Precipitation over the delta varies in duration and volume with latitude. In the south, the rainy season lasts from July through October, with mean annual precipitation of 750 mm. In the north, the rainy season extends from July to September, with a mean annual precipitation of 250 mm (ibid.). This local rainfall has a negligible impact, and the flood regime of the inner delta is dependent on rainfall in the Niger and Bani headwaters. Rains fall at the Niger's headwaters from May through September, creating a surge that reaches the inland delta in October. This surge dissipates as it continues through the delta, with nearly two-thirds of the Niger's water volume lost to seepage and evaporation.

The Inland Niger Delta has an exceptionally high number of plant and animal species and is thus an important site of biodiversity (Ramsar 2004). It is a refuge for many migratory birds, hosting more than 350 species. Mammals such as the hippopotamus and the manatee are still extant, although now threatened in the delta. There are 138 species and subspecies of fish, such as Alestes, Synodontis, Tilapia and Labeo, which contribute to an annual fishing harvest of 130,000 tons. The Inland Niger Delta also supplies the major part of the Malian production of rice, the main cereal in the country, greatly enhanced by the Markala dam, irrigating currently 67,000 ha (ibid.). However, in the past few years, yields have been decreasing due to overexploitation and reduction of flooded areas because of natural and human induced changes.

2.3 Palaeoclimate

With an increasingly precise palaeoclimatic record for the southern Sahara and Sahel, it has been possible for archaeologists to model ranges of human responses in relation to environmental processes (see Haskell et al. 1988; R. McIntosh and S. McIntosh 1988; S. McIntosh and R. McIntosh 1993; R. McIntosh 1998, 2000). The following events have been reconstructed, which represent a general synthesis of the climatic sequence for West Africa and the Inland Niger Delta in particular (Table 2.1).

Most of the existing geomorphological features of the Inland Niger Delta can be traced to the early Holocene, when a period of cool, humid conditions from around 12,500 to 5000 BP led to vigorous fluvial remodelling of the Pleistocene landscape (McIntosh and McIntosh 1988:142-146). The deep clays of the Macina were laid down during this period by a series of large rivers, which might possibly have been successive courses of the Niger, whose apparent southeastward migration is documented by a series of abandoned channels such as the Diaka. It has been suggested that this migration was the end result of a long hyper-arid spell in the late Pleistocene, during which the Niger ceased to flow east of Segu and massive dune fields were formed across much of what is now northern Mali (Urvoy 1942; Grove and Warren 1968). These dunes are thought to have blocked the river's previous courses to the south Saharan depressions of Hodh, Aklé and Azaouad. As a result it sought new channels in the south when it began to flow again in the early Holocene. The relict channels still remain, which are characterised by remnant tree-lined ponds and subterranean aquifers. They may have served as natural corridors for Stone Age peoples moving south of the Sahara when drier conditions again prevailed in the late Holocene (Haskell et al. 1988).

During the climatic optimum of the early Holocene (c. 10000-8000 BP), increased precipitation created an environment of lakes, frequent perennial streams and lush grass steppe. Petit-Maire suggested that the northern boundary of the Sahel travelled some 1000km to the north (McIntosh 1998). However, no evidence has been identified indicating human occupation in the southern Sahara and Sahel, and in any of the four live basins of the Middle Niger before about 7000 BP. However, recent discoveries at Ounjougou have identified a Palaeolithic sequence in Mali's Dogon country (Robert, Soriano, Rasse, Stokes & Huysecom 2003:151-169).

With improving conditions, the Niger had a much higher transport capacity than at present, carrying large amounts of silts and aeolian sands from the Pleistocene dunes and sand sheets in its upper reaches. These sediments formed a mosaic of low levees, meander scars, channel deposits and dune degradation. It has been assumed that during much of this period a massive lake, Palaeo-Debo, covered the entire southern Middle Niger as late as 4500 BP (Urvoy 1942), which, until Ounjougou's discovery, explained the lack of evidence for late Stone Age occupation in those basins. However, heavy rates of alluviation and stream migration could have had the same results.

6500 BP marks the beginning of the second Holocene Pluvial, which was accompanied by rising temperatures and seasonal and torrential precipitation (McIntosh 1998). The Niger and its many active streams returned to levels of activity near those of the first Pluvial. These oscillations intensified at 5000-4000 BP, in broad synchrony with changing tropical monsoonal circulation and precipitation changes around the globe, while the southern Sahara's oscillations started to resemble modern conditions (ibid.). The deteriorating conditions of the Sahara might have encouraged several waves of population movements north and south, especially along the many palaeochannels. Saharan lakes were periodically transgressing until 3000-2500 BP when even shallow lakes such as that near Tichitt had disappeared.

The following period, around 2500 BP, was one of major shift in climatic mechanism. Many parts of the Middle Niger might still have been swamp before the late first millennium BC. Human occupation has been attested by semi-sedentary fisherfolk living at the Delta's edge in the Méma (MacDonald and Van Neer 1994) and passing through the live deltas to the Gourma by 4000 BP (MacDonald 1994). Our research at Dia has confirmed that initial occupation at the western frontier of the IND started around 800 BC (Bedaux et al. 2001).

The period between 300 BC and AD 300 coincided with a significant dry period (known as the 'Big Dry'), which resulted in a flood of colonization, probably from the Méma and Azawad into the Macina, Upper Delta and Gourma (ibid.) (see section 4.3). Rainfall is estimated at –20% of the AD 1930-1960 average (McIntosh 1998). This period signals the foundation of the Middle Niger habitation mounds.

From AD 300-700 precipitation rises to +20% of the 1930-1960 average, which lasted at least until AD 1000 and perhaps as late as the mid 12th century. This period coincided with a population explosion in the Méma and in the live deltas alike. However, early in the present millennium climate turned capricious, and highly unpredictable, which was the norm until at least AD 1610.

After that date, oral traditions and historical records of droughts, floods and their legacy of human suffering become available. From the mid-16th century to the 18th century West Africa's dry conditions resulted in times of distress and famine as local productive strategies were still geared to the higher precipitation levels of almost half a century earlier. At the beginning of this period, settlers began to retreat from floodplain sites around Djenne and Timbuktu and to localize in large isolated settlements on higher ground, a movement accompanied by a drastic decline in population as a whole. This process was aggravated by the weakening of the empires of Mali and Songhay, the penetration of the region by Fulani and Bambara populations, and the Moroccan conquest of 1591 (Haskell et al. 1988).

As the climate further deteriorated to present semi-arid conditions, many tributaries have been covered by aeolian deposits or otherwise reduced in flow. Major distributaries and rivers, now carrying a much-reduced load, began to fix their positions by deep incision, thereby locally decreasing the depth and area of the annual flood in some parts of the floodplain. The salient characteristics of the Inland Niger Delta's climate and flood regime are thus high inter-annual variability and the difficulty of prediction from year to year, which has also characterised a millennia of Holocene climate changes in the Sahara and Sahel (R. McIntosh 1998).

Table 2.1

Middle Niger Climate Sequence (after R. McIntosh 2000)

Period	Conditions	Middle Niger Landforms
mid-late Quaternary	Alternating wet-dry	Laterite covering alluvium at MN periphery and Boulel ridge
40,000-20,000 BP	Pluvial (arid intervals)	Deeply bedded alluvium with in all basins
20,000-13,000 BP	Hyperarid (Ogolian)	Massive parallel dunes (Ouagadou, Bara, Aklé); many basins deflated
Holocene I. Early Holocene	**Oscillations**	**Highly Unstable**
13,000-10,000 BP	Severe oscillations	Dune reddening begins
Holocene II. First (Cool)	**Holocene Pluvial**	**Stable**
10,000-7500 BP	Pluvial	Paléo-Débo (?) covers southern basins; Niger and Bani meander; rivers deposit deep alluvium and high levees; river breaches Erg of Bara; (Fala de Molodo flows into Hodh?)
ca. 8,000 BP	Dry millennium	First white-yellow dunes
Holocene III. Second	**Pluvial**	**Moderately Stable (Warm)**
6500-5000 BP	Pluvial	Niger-Bani find present channels
Holocene IV. (Transition to Present Conditions)		**Quite Unstable**
4500-4100 BP	Dry	White-yellow dunes
4100-2500 BP	Rapid oscillations decline to progressive pulse	Dunes and levees reworked;many lakes and swamps disappear; disorganisation of stream networks; recharge of paleo-channels
Holocene V. Big Dry	**Stable**	
300 BC-AD 300	Dry	Irreversible desertification of Azawad
Holocene VI. Recent	**Stable**	**Optimum**
AD 300-700	Improving precipitation	Expansion of distributary system
AD 700-ca.1000	Optimal conditions	
Holocene VII.	**High Unpredictability**	**Stable**
AD 1000-1200	Rapid oscillations	
AD 1200-1550	Severe droughts	Further degraded distributary system
ca. AD 1550-1630	Wet (with dry interruptions)	
(1592, 1616, 1618-1639	high flooding)	
ca. AD 1630-1860	Generally dry	
(1640-1644	severe drought)	
(1670s and 1680s	severe drought)	
(1738-1756, 1770s, 1790s	severe droughts)	
(1820-1840	sustained dry)	
(1860? To early 1900	wet phase)	
(most of 1910s	drought comparable to Sahel drought)	
(1950-1958 wet phase)		
(1968-[1985]	Sahel drought)	

2.3.1 Past and Present Hydrography at Dia

No detailed geomorphological study of the Macina and the Dia area has yet been undertaken. The only attempt is the one by Haskell et al. (1988), which resulted from an explorative field-season consisting of test excavations at Shoma and Mara and a survey of Dia's hinterland (the results of this investigation will be reviewed in Chapter 4.2.1.). The following events have been hypothesised, which describe the past and present hydrography of the Dia area (Haskell et al. 1988).

Dia and its hinterland are situated near the juncture of the hard clays of the deep floodplain basin and the sandier, more easily worked middle elevation soils, which are extensively cultivated with rice during the annual Niger flood.

The study area is presently watered by the Diaka, which is one of the Niger River's major distributaries and the only permanent watercourse in the region, and by a network of three lesser distributaries, the two largest of which pass in immediate proximity to Dia. All three streams are now seasonal, flowing only during the months of the Niger and Diaka flood. The survey revealed dense clusters of abandoned tells along the marigots (seasonal streams) north and west of Dia.

It has been suggested that during the early Holocene pluvial all of these streambeds may have carried the main flow of what is now the Diaka and that they were reduced in status as that watercourse gradually shifted its channel southeastward toward the Niger.

In their present state, the three marigots decline in size and flow from west to east, in order of their distance from the Diaka, however, showing a greater density of sites along the two westernmost marigots (M2 and M3) (Fig.2.2). It has been suggested that the Diaka's present status as a major distributary of the Niger may postdate the period of greatest activity of the three marigots. Hence, all four channels might originally have functioned as part of a system of distributaries feeding off one another. Archaeological site distribution indicates that the now dominant M1 might have been a less desired locality for occupation (with the exception of Shoma) at the time the adjoining marigots were settled. Following the abandonment of the early settlements, M1 appears to have become the only watercourse capable of supporting the limited remaining floodplain occupation, which is evidenced by Shoma's and Mara's ongoing occupation until the 18th or 19th century. This shift of settlements may have resulted from a gradual shift of the main flow of the marigot system from M2 and M3 to M1. As waterflow increased from the Diaka under the humid conditions of the late first millennium AD, M2 and M3 were successively choked off by the deposit of riverine sediments at their divergence with M1, by which M1 became the region's primary watercourse. An alternative explanation is that early settlers avoided M1 because of high flooding resulting from its proximity to the Diaka, which is indicated by the extreme rarity of ancient sites along M1.

Since the Diaka has started to deeply incise its bed, available water has been further decreased both by diminution of flow entering the marigots and by seasonal reduction of the field of inundation, as smaller fractions of the annual flood spill over the high river banks to reach the floodplain.

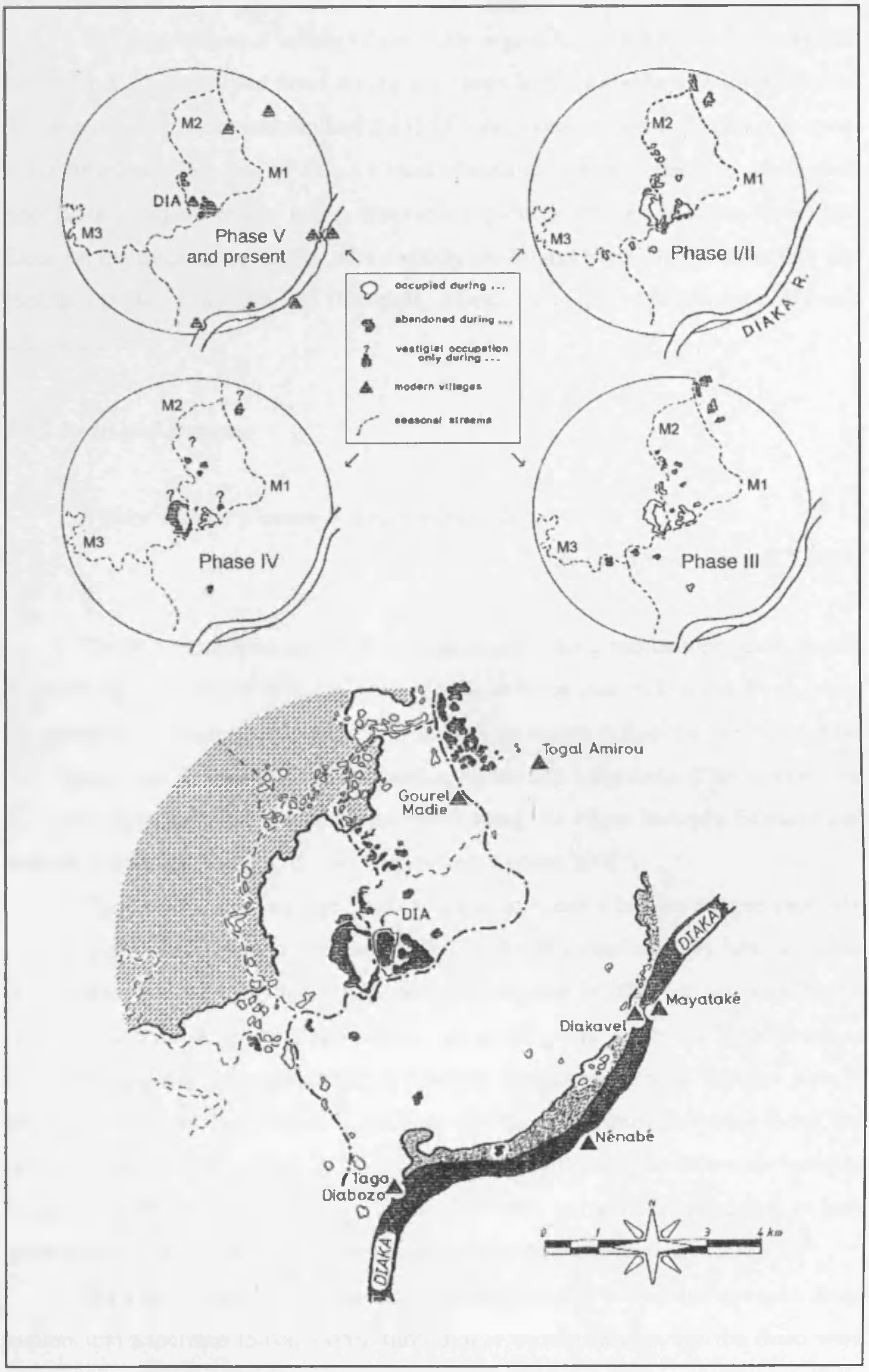


Figure 2.2 Dia survey map, showing location of sites and associated landforms (after R. McIntosh 1998).

2.4 The People

The environmental setting of the study region has illustrated that the Middle Niger's annual rainfall and flood regime have been highly irregular and unpredictable, which however has not undermined the IND's enormous economic potential. It eventually developed into one of Africa's most ethnically diverse regions, in which each population group developed highly adaptable exploitation habits. In this section I will focus on the inhabitants of Dia, who embody the Inland Niger Delta's diversity, and include the Bozo and Somono fisherfolk, Marka (Soninke) rice farmers and Peulh herdsmen.

2.4.1 Bozo and Somono

A Bozo without a canoe is a man without feet.

Bozo proverb (Conrad 2002:3)

The Bozo and Somono are Mande-speaking fishing populations of the Inland Niger Delta. They may live in the same places, as is the case in Dia, but Bozo country is basically considered to span the Middle Delta region defined by the Niger, Bani and Diaka rivers downriver from Sansanding to beyond Lake Debo. The Somono, on the other hand, have been generally located along the Niger between Bamako and Macina downriver, and also on the Bani River (Conrad 2002:1).

There is a Bozo language, but the Somono speak whatever tongue predominates in their stretch of the river. Bozo and Somono nevertheless, may have the same family names (or jamuw) (ibid.). However, a fundamental difference between them is said to be that the Bozo are identifiable as an ethnic group, while the Somono are an occupational group, often described as boatmen associated with the Bamana state of Segu (Gallais 1984:28). Indeed, it has been said that 'one must be born a Bozo, but anyone can become a Somono' (Daget 1949:13). Nevertheless, the difference between Somono and Bozo peoples does not seem as distinct as has been suggested, as both groups today claim Soninke ancestry from ancient Ghana (Perinbam 1997).

Dia's first inhabitants are portrayed by oral traditions as autochthonous Bozo hunters and fishermen (Sakai 1990). Indeed, it is widely thought that the Bozo were the earliest inhabitants of the Middle Niger valley between Segu and Lake Debo (Daget 1949; Gallais 1967). The most fundamental identity of the Bozo is that they have been river navigators and fisherfolk from ancient times, which is attested by the primacy of Bozo expertise in fishing, navigating and canoe construction (Daget 1949) (Fig.2.3 and 2.4).

Figure 2.3 Bozo fishermen at the end of the 19th centry (Photo by A.Rousseau, in Bedaux and Van der Waals 1994).

Figure 2.4 Modern Bozo from Dia fishing with net traps (Photo by Sjoerd Van der Linde).

The Somono, on the other hand, have apparently incorporated people from virtually any background, such as Bamana, Soninke, Songhay, Mossi and Peulh. They are not strictly endogamous, and mastery of religious ritual for the riverine spirits is largely left to the Bozo. Nevertheless, it is said that Bozo and Somono formed an alliance, known as *sénankuya*, which prohibits any reciprocal wrongdoing. Instead it obliges mutual help and allows a joking relationship between them (Daget 1949).

It is widely believed that the Somono actually came to be identified as a distinct occupational group with the Bamana state of Segu between the 17th to the mid-19th century (Roberts 1987:69). Apparently, the Bozo, who fell victim to the Bamana state could not supply enough boatmen and fishermen to meet the demand, which resulted in the recruitment of slaves and volunteers alike to create another occupational group of rivermen, the Somono. However, Somono status in Bamana Segu is more complicated as references to members of that group, range from distinguished Muslim elders and chiefs of residential districts down to slaves.

The Somono have also been portrayed as *namakalaw*, a term that describes occupationally defined artisans and bards who guard their professional secrets through endogamy and esoteric ritual procedures. The *namakalaw* status of the Somono has occasionally been mentioned by local informants (Conrad 1995) and European writers, describing them as 'gens de caste' among the Bamana (Gallais 1967). The permeability of Somono identity might have indeed permitted them to cross into *namakalaw* social boundaries.

An interesting ethno-historical case on the origins of the Somono and their status as *namakalaw* might have been found in the Middle Delta. Investigations on women craft specialists in Djenne have shown that potters, who in Mande culture are usually blacksmith's wives (*numusow*), identify themselves as Somono/*numu* (LaViolette 1995), hence *namakalaw*. A similar condition has been encountered at Dia, where potters also intermarry with *numu* (Gosselain et al. in press). Dia's potters speak Bozo. They reside in a particular quarter of Dia, and **identify** themselves as Somono and as an endogamous group of the *numu* (Fig.2.5). These findings are thus of great relevance to the crucial issue of both Somono history and the social dynamics of craft specialization vis-à-vis the rest of society that resulted in the emergence of *namakalaya*. Moreover, recent ethnoarchaeological studies of contemporary pottery and potters throughout West Africa, and the Inland Niger Delta in particular, have shown ethnic potting traditions as rigid and unchanging (Gallay 1991-92; Gallay et al.

Figure 2.5 Fama Djeguéné, one of Dia's Somono/*numu* potters.

1996; La Violette 1987). As a result, the following question arises: can the associated settlement mounds of Djenne and Dia and their pottery assemblages, which date as far back as the first millennium BC, throw some light on a Somono presence in times prior to the rise of Bamana Segu?

The ancestral sites of Djenne have so far provided inconclusive evidence. In spite of similar shapes and decorative motifs between the archaeological pottery and their modern counterparts, its principal investigator Susan McIntosh, has been reluctant to project the techniques used by today's ethnic groups into the past and to recognize these same groups at removes of a millennium or more (S. McIntosh, pers. comm. with Conrad 2002). Her reluctance mainly stems from the recognition that ethnic boundaries are permeable, and that ethnic potting traditions are flexible and changing.

Furthermore, the emergence of *namakalaw* and many other characteristics of current Mande society are usually linked to the 13th century Mali Empire, which constitutes a relatively recent age in comparison with the time depth of 'archaeological cultures'.

Indeed, archaeological investigations in the Méma, a fossil drainage situated to the northwest of the Macina, have provided material evidence of an early fishing population, archaeologically known as the Kobadi (named after the 'mother' site). They have been portrayed as robust "Mechtoid" fisher-hunter-gatherers, who first colonised the shrinking lacustrine region around 2000 BC (MacDonald 1994, 1996; MacDonald & Van Neer 1994). Their aquatic subsistence lifestyle comprised deep-water fishing, aquatic game hunting (waterbuck, sitatunga, hippopotamus) and the exploitation of freshwater bivalves. It has been suggested that their methods of fish procurement do not appear to have differed substantially from those used in the Middle Niger today: boats were apparently utilised, as were nets, hooks and harpoons (ibid.). However, due to the considerable time-depth of the Kobadi tradition, it has remained pure speculation to directly link them to the modern Bozo and Somono. Possible evidence for specialised fishing groups extends into the first millennium AD at the site of Akumbu Mound B (MacDonald and Van Neer 1994:249). However, this and later periods have yielded roughly homogeneous ceramic assemblages covering large regions of the IND, indicating a well-integrated community of groups (ibid.).

In light of these results, it seems reasonable to suggest that fishing people, possibly proto-Bozo, entered the Middle Niger region around 2000 BC, who had similar methods of fish procurement to today's Bozo and Somono. The 'arrival' of the Somono, on the other hand, remains a contested issue, especially regarding the malleable character of their identity. However, the presence of Somono/*numu* in Dia and Djenne might indicate that they developed as a recognizable occupational group sometime before the 17th century state of Segu.

2.4.2 Marka

The Marka are also known under the names of Sarakole and Soninke (Gallais 1984). They typically live further west, between the Senegal River and the region of Nioro in Mali. Hence, the Marka of the Inland Niger Delta inhabit the easternmost limit of their occupation zone. Today, they mostly live in urban centres such as Djenne, Mopti and San. In the Macina the only considerable Marka population can be found at Dia.

It has been suggested that the Marka do not in fact represent an ethnic group. Instead they are viewed as a cultural and historical creation derived principally from earlier Soninke ethnic formations. It has been said, 'le Marka, c'est l'homme du Mali' (Gallais 1984:29). Since the end of the Mali empire the term Marka has preserved a cultural and religious significance: one is Marka if one is Muslim.

Gallais (1984) divided the Marka into three groups, whereby each group corresponds to a population layer converted to Islam at a certain time period. The most ancient are the "Marka pi", the black Marka, who have been associated with the Nono ethnic group. The latter are said to be the initial rice cultivators of the inundated delta basins. Later, they were reinforced by the "Marka dié", who are 'white' Marka of Sahelien origin, associated to the Soninke traders of ancient Ghana. The most recent group consists of the Bambara, Bwa and Dogon, who have only been converting to Islam since the Toucoulor period in the 19th century. They are known as "Marka dialan" or 'brown' Marka. These diverse origins illustrate the fact that Marka identity has been highly permeable, enhanced by their main criterion for membership – to be Muslim.

Gallais suggested that Marka origins might be traced to the Nono, who mainly inhabited the Djenne and Dia areas (1984). The *jamuw* (family name) Tanapo is thought to be the most ancient amongst them, while other versions mention Tomota as the first Marka (Sakai 1990). However, Gallais' concept of the Nono has not been confirmed by more recent studies in the Inland Niger Delta. No one has been met who would call themselves a Nono, or who could identify such a living group (MacDonald 1998, in pers. comm. with Huysecom and Mayor). Thus, it seems as if Nono no longer exists as an ethnic label.

Regardless, the Marka cultivate rice in the inundated plains and have landowner rights over vast regions (Fig.2.6). They exercise important ritual functions and are known as powerful marabouts. The Timbo, Traoré and Kampo are supposedly more recent in age and belong to the Marka dié, who characterize the commercial, urban and Islamic branch of Marka identity. They also acquired political authority in the region.

Figure2.6 Marka rice farmers in the Djenne region (Photo by Jansen, in Bedaux and Van der Waals 1994)

The Marka of modern Dia have been described as being of formal and respectable appearance, normally going about dressed in elegant robes (Gallais 1984). The notables walk with a staff in their hand, and usually accompany the village chief, Almamy Koreichi. They are often marabouts, having followed the Tidjianist branch of Islam, while the rest of the Macina embraced Quadria. They teach in Islamic schools, and possess a considerable number of tarikhs, which are local historic manuscripts. Dia's Marka are renowned for their manufacture of powerful Islamic talismans, which are known as 'gris gris'.

The Peulh, who are the major population group of the Macina, now dominate the entire region, except for Dia, which is governed by the Marka. The Marka have accentuated Dia's originality by abolishing all sorts of profane activities including a weekly market. Nevertheless, they are actively involved in trade and commerce throughout the IND's other regional markets, where they also hold stores. Indeed, even the French, who created an administrative post at Dia, were quickly suppressed, which was hailed as a religious victory by the Marka (Gallais 1984:162).

The foundation myth of Dia and its numerous variants affirm the joint claim of the Marka (Nono) Tomota and Bozo Kwanta jamuws to founding status (Dieterlen 1959; Sakai 1990). When Bozo and Marka joined together leaving their subterranean dwellings, Dia was founded, and the Bozo/Marka alliance sealed. However, Bozo and Marka lived without formal leadership, until Soninke warriors from ancient Ghana supposedly assimilated them underneath the leadership of a mythical personality known as Ndinga or Dinga (Fay 1997:166). Hence, there seem to be two versions of Marka origins, one, which refers to an autochthonous population of the Inland Niger Delta, practising the cultivation of rice, while a second group is described as Soninke warriors from ancient Ghana. The latter are believed to have established the urban status of Dia, from where they dispersed throughout the Western Sudan founding other Inland Niger Delta towns such as Sansanding and Djenne (Haskell et al. 1988). They also spread south to Bobo-Dioulasso, Kong, Bonduku and the Akan gold fields, where they are known as the 'malinkized' Dyula or Juula, and westwards establishing Diaka-sur-Bafing and towns of the Diafunu, where they also became 'malinkized' and known as Jahaanke (Curtin 1975).

2.4.3 Peulh

The Peulh (also known as Fulani) as a people, and their history, have been subject to quite a few imaginative theories, mainly due to their relatively light skin. Many theories pinpointed them as a people related to the North African Berber. However, their language, Fulfulde, is part of the Niger-Congo family, not Afro Asian, such as is Berber. More concisely, Fulfulde belongs to the Atlantic, Senegambian group of Niger-Congo languages, which indicates that their origins might be traced to what is modern Senegal.

However, a possible link has been suggested between the Saharan rock art pictographs of the Tassili and the Adrar des Iforas corpus, and the modern Peulh pastoralists (MacDonald 1998:47). Various attributes of these 'pastoralists' rock art groups have been used to argue this connection: physical similarities between the depictions and the Peulh, depictions of rituals still practised in the 1990s by the Peulh, the rendering of geometric motifs on the side of cattle on pictographs as well as depictions of camp organisation as practised by the modern Peulh (Fig.2.7). In spite of the linguistic evidence, which suggests a Senegalo-Guinean homeland for Fulfulde, genetic evidence may revive an Afroasiatic connection for modern Fulfulde speakers. It has thus been proposed that one possible model to reconcile these linguistic, genetic and

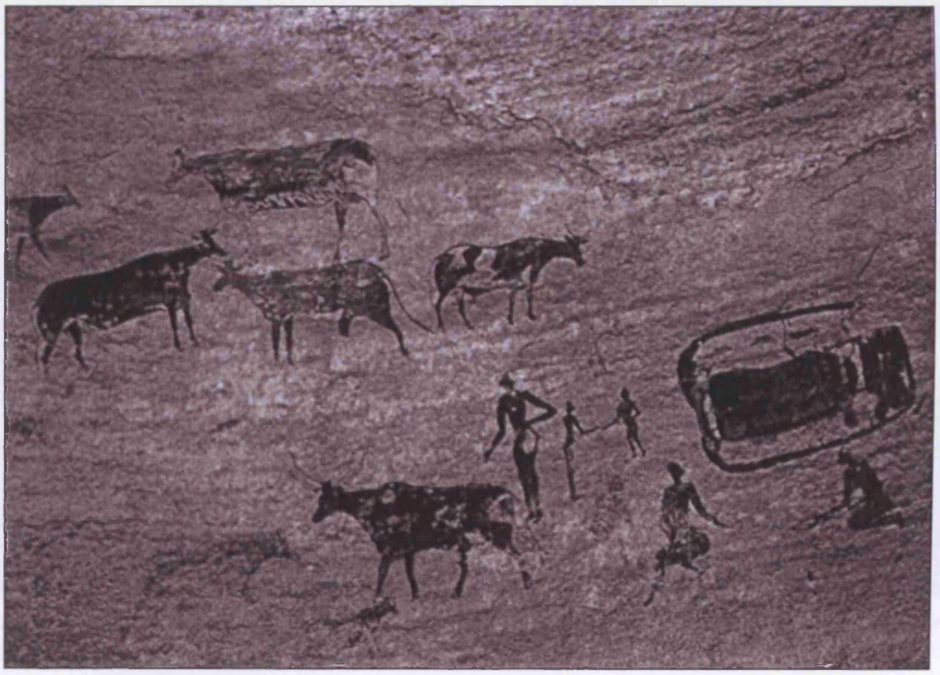


Figure 2.7 Rock painting of a pastoral scene, Tassili (in Phillipson 1993).

archaeological differences would be to postulate the existence of a coherent pastoral substrate in the Sahel prior to the eastward Fulfulde language expansion of the past 1000 years, of which the 'core' Fulani could have been a cut-off element of this substrate which had reached the Atlantic coast before the recent Holocene (MacDonald 1994:47). The nomadic pastoralist substrate of the Saharan rock art corpus would have been absorbed by this Peulh expansion, retaining portions of its ancient ritual and organizational characters.

Nowadays, the biggest concentrations of Fulfulde speakers are in Cameroon, Nigeria and the Futa Jallon (Guinea), but also in the modern states of Mauritania, Senegal, Guinea Bissau, Mali, Burkina Faso, Benin, Niger, Chad and Sudan.

Their primary occupation is transhumant stock rearing (Fig.2.8), which is characterized by a system associated with rainfed and décrue agriculture. A transhumant life-style is usually dictated by movements back and forwards between pastoral territories seeking resources on land other than their own, which are made according to fixed axes and for a given period of time (Gallais 1984).

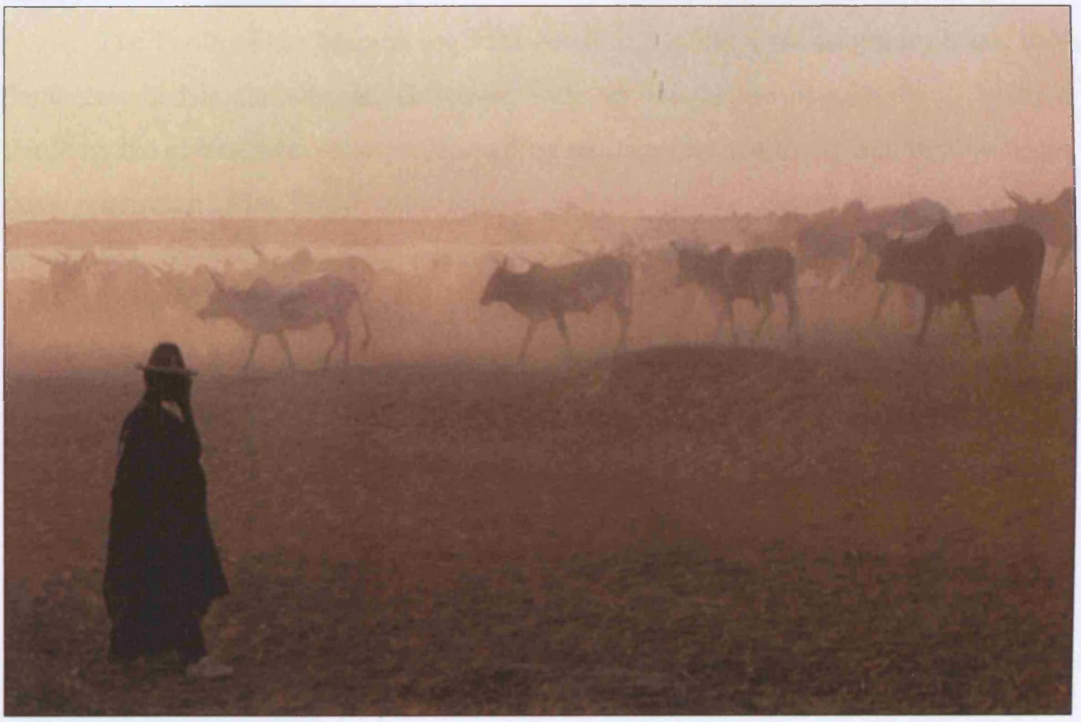


Figure 2.8 Peulh with his troop of cattle during the dry season (Photo by Makaske, in Bedaux and Van der Waals 1994).

The pastoral economy of the Peulh is based on the bourgou, a combination of the delta's diverse herbs dominated by Echinochloa stagina (amongst the Marka it is known as pondo and amongst the Bozo as fuôno). This excellent pasture is found all along the inundated basins of the Inland Niger Delta, which has made it to one of the favourite grazing **grounds** of their cattle. The possession of this vast pasture was the initial reason for the Peulh's penetration of the Inland Niger Delta, which is believed to have occurred between the 13th and 15th centuries (Gallais 1984).

During the dry season, which lasts about four months, the young men usually move herds of cattle, which also include sheep and goats, to the flood plains in search of better grazing land. They camp in portable shelters made of poles or branches covered with straw, leaves, or mats. While the young men are migrating with the herds, their wives, and the younger children stay at the homestead with the family elders, tending to the gardens. They raise a variety of vegetables, but their staple crops are rice and millet. In the wet season, the herds and the families remain in the villages.

The herds are a very important asset to the Peulh. Milk from the cattle and goats provides the main portion of their diet. Butter is made and also sold at the regional markets. Meat is only eaten at important festivals or ceremonies. The Peulh raise both the long-horned, humpless cattle and the short-horned, humped cattle.

The Peulh of the Macina are 95% Muslim. Children are taught religious fundamentals in Islamic schools. However, they are taught the importance of being a Peulh by the elders, who thrive on spreading their stories and traditional culture to the next generation. The Peulh also feature various artisan groups such as weavers (*maboubé*), cobblers (*sakébé*), woodworkers (*laoubé*) and blacksmiths (*waïloubé*) (Gallay et al. 1996).

For the last two centuries the Peulh have nearly all been sedentarised, which has resulted in the rise of agricultural activities, carried out by a group known as Rïmaibe, which have been described as the Peulh's servile agricultural attendants (R. McIntosh 1998:107). There are two sub-groups of the Rïmaibe, the ones, who are housebound, helping in various domestic tasks (*kadimé*) and the ones destined for agricultural work (*dimadio*) (Gallais 1984).

At the beginning of the 19th century the Macina became the centre stage of a theocratic state known as the Dina, which was established by Sekou Amadou, a Peulh cleric-dynast (Gallais 1984; Gallay et al. 1996; R. McIntosh 1998). According to the code of the Dina, the Delta was sub-divided into grazing areas or leyde. A leydi consisted of villages of sedentarised Peulh and their pastures, of villages of Rimaïbe farmers and their croplands and a network of corridors for stock movement (Gallais 1984). The co-existence of stock raising and agriculture necessitated a separation of grazing and arable land, and rules for pasture use. The definition of different classes of land responded to the needs of the people and the livestock in a sedentary context.

The land was thus organized: into pastures (bourgoutières) after the flood receded, with control of the order of access of livestock to the bourgou on their return from transhumance, and a payment of a grazing fee for the livestock of strangers; into resting and collecting areas (bille), which consisted of communal land where cultivation was forbidden; and into harrima, a village's protected pasture and a network of tracks giving access without danger for the crops. The main reason for the organization of the population and the grazing land was that it avoided overexploitation of the land and its resources.

The flooding of the Delta during the rains meant that the livestock could not stay there at that season, thus the herds were also divided into (FAO 2003): garti - large herds, which undertook transhumance under a chief herder, benti - milking cattle and young calves, which remained close to the villages but made a small transhumance, and dumti - small dairy herds to assure the food supply of those who remained in the village (women, children and the aged).

After independence, however, the administration declared the Dina's grazing land to be open to all and abolished the collection of grazing fees. It nevertheless continued to recognize the rights of bourti (singular of bourtol), bille and harrima and the order of entry to the bourgou (ibid.).

2.5 Conclusion

The aim of this chapter has been to illustrate the environmental and human setting of the study area. It was shown that the IND distinguishes itself by highly irregular and unpredictable patterns of annual rainfall and flood regime, which can be extrapolated back into prehistoric times. Those characteristics have thus rendered this region as a highly volatile place to live since the inception of human occupation. However, climate change has not only resulted in the collapse of cultural systems but has also lead to opportunities, which is attested by the IND's cultural richness and ancient towns.

These unpredictable climate patterns have served to describe the region's archaeological settlement clustering that may have lead to the emergence and maintenance of occupational specialization within an increasingly segmented regional landscape (R. McIntosh 1993:198). This phenomenon is known as the 'Pulse Model' (ibid.), which argues that clustered communities maintained relations of complementary reciprocity in response to ecological unpredictability, which encouraged occupational specialization, eventually leading to the evolution of ever larger clusters that took on the function of true towns (ibid.). The physical boundaries of clusters allowed the successful accommodation of increasing numbers of specialists. Belonging to the corporation was reinforced by a right of common possession or access to corporate property such as myths, shrines, ritual objects or land, which apparently led to the construction of corporate identity.

The applicability of the pulse model, however, remains uncertain. In spite of the widespread phenomenon of settlement clustering throughout the Middle Niger and Niger Bend areas, archaeological evidence for occupational specialization has only been identified on a handful of sites, which will be discussed in more detail in the following chapter. Moreover, the IND and neighbouring regions are characterized by considerably stable material assemblages, which as a result have made interpretations in regard to corporate identity, as is seen in modern-day populations, problematic. Also, if climate change has indeed contributed to the evolution of urbanism and corporate groups, it seems reasonable to consider whether climate change has also affected the malleability of social identities.

It has been shown that the IND's population groups have mainly been identified by their specialized economies such as the Peulh pastoralists, Bozo and Somono fisherfolk, and Marka rice cultivators and traders. However, it has been widely acknowledged that identities are highly amorphous, which is attested by the Somono and the Marka. It might thus be postulated that climatic change, especially humid/short cycles, might have allowed the crossover to a different economic strategy. Cultivators, for instance, might have taken up fishing or trading, which might have led to changing group compositions, resulting into dynamic corporate groups, which have had to accommodate successful responses to climatic change.

Thus, an ecological premise for the emergence of urbanism and group identity may mask other factors, which might have contributed to the Inland Niger Delta's social and cultural developments. These I believe can be better understood by consult-ing additional sources, which brings me to the following chapter, an analysis of the oral and written records.

It should also be stated that it seems inappropriate to transfer 'ethnic' labels such as Bozo, Marka and Peulh into prehistoric times, as it remains highly speculative to use these labels in an archaeological context to define economically specialised groups. As I have already mentioned in Chapter 1, archaeologists have run into dangerous ground by the use of analogical resasoning, whereby modern groups have often been too readily projected into the past. Living societies, especially from Africa, have thus been transformed into living fossils of earlier stages of human evolution (Lane 2005). The same precautions must be taken for the IND population groups. Indeed, in the course of my investigation I will be showing that the archaeological data indicates that prehistoric groups have been living in symbiosis, rather than in isolated communities, and that a straightforward equation between subsistence economy and group identity would be inadequate and too simplistic, especially in light of the malleability of social identity.

Chapter Three
Oral Traditions and Written Sources

3.1 Introduction

In sub-Saharan West Africa written texts and oral sources, describing towns and commercial centres, have provided the principal focus for archaeological investigations (McIntosh and McIntosh 1984:76). Historical connections have thus served as a vehicle for various archaeological research projects, which included locating and understanding the capitals of the Songhay (Flight 1975, 1979; Insoll 1996) and Mali Empires (Filipowiak 1979) or the famous trading town of Jenne-jeno (McIntosh and McIntosh 1984). Despite the fact that these investigations uncovered important findings and contributed immensely to our knowledge of the African past, only a few scholars critically assessed the historical and archaeological value of associated written and oral sources (Insoll 2003; S. McIntosh 1981; McIntosh and McIntosh 1984). Mostly, research has focused on equating archaeological data with the evidence found in the written and oral sources, which has been termed by Barnes, in the context of Japanese archaeology, as the 'matching game' (1984).

More recently, however, new trends have emerged in combining archaeological research with historical records (Funari, Jones and Hall 1999; Little 1992). Focusing on the formation processes of the historical record has contributed to a more balanced evaluation and understanding of written texts (Stahl 1993). Recent decades, which have seen the development of studies of oral traditions into a more theoretically and methodologically secure discipline, have emphasised their significance as historical records, especially for minority and indigenous groups, such as in Africa, the Americas and Oceania (Funari, Jones and Hall 1999). It has thus been acknowledged that the critical use of written and oral sources and archaeology in conjunction with one another can substantially increase our understanding of the history of a particular region, where reliance on one of these sources would be detrimental (ibid.).

In my attempt to critically analyse Dia's oral and written sources and to assess their historical and archaeological value, I have adopted Pitt's categorisation of documents, which lists categories by their source (Little 1992). It will be shown that a focus on source provides indices for its influence on a document's intention tone and coverage, which is essential for correlating different data sets such as written and oral sources with the archaeological record. In the course of this investigation it will be demonstrated that Dia's historical records have been subject to a continual process of redefinition with the goal being to justify present institutions, power structures and religious authorities. Public versus private versions manifest these complex developments. It will also be illustrated that Dia's oral and written sources are most valuable for interpretations of more recent periods of history. For the earliest periods, in contrast, it is the archaeological record, which constitutes the most reliable source of information.

3.2 African Historiographies

3.2.1 Oral Traditions

At the end of the 1950s, the international academic community finally acknowledged oral traditions as legitimate historical records (Moniot 1986). Not surprisingly this coincided with the dawn of African independence, and the simultaneous development of a school of African history on the continent itself. Since then the study of oral traditions has gone through a considerable process of change, re-orientation, and maturation.

The importance of oral traditions lies in the fact that they represent an indigenous source of history. Until oral sources were recognized as historical accounts in their own right, Africa's past was reduced to its colonial history, or to a western perception of historiography. Africa was purely perceived from an outsider's point of view since the historical sources, which in this context refer only to written texts, were either taken from Arabic chronicles and European travellers and colonial administrators. Consequently, their spheres of interest dictated the limits of historical research. The fact that the "official versions" of African historiography were mostly written by outsiders, who portrayed a history of external contact and conquest, resulted in the negation of Africa's own sense of historical dimension (Chrétien 1986). However, current trends have emphasised the importance of enhancing the texture of the historical analysis and narratives that are written, especially on other cultures, by incorporating the richness and diversity of local histories (Schmidt and Patterson 1995:3). This notion has recently been advanced at a seminar held at the School of American Research in Santa Fe, New Mexico (ibid.). Hence, the incorporation of oral sources has become a necessity. Nevertheless, the fact remains that they are still being labelled as 'alternative histories', which gives some indication of oral tradition's secondary position in historical discourse.

Vansina, who has studied Central African oral traditions for many years (Vansina 1964, 1965, 1989), defined oral traditions "as a testimony transmitted orally from one generation to another. (...) a testimony might therefore be: all statements made by one person about a single sequence of past events, provided that the person had not acquired new information between the various statements. In that case, the transmission would be contaminated and we should be faced with a new tradition" (1980:143). However, studies on the transmission of testimonies (and the conditions within which such traditions are learned) have concluded that the transmission of an "exact copy" of a tradition is not sought after in oral societies – it is considered irrelevant to the meaning of a tradition (Goody 1977). Instead oral traditions are subject to a continual process of redefinition, particularly in the case of narratives, which do not have special language rules (Vansina 1985:13). In the course of generations the message of a tradition is continuously being decoded as each new transmission follows from the decoding of a previous one. Hence, the tradition is continually being provided with a meaning for the present society, which Moniot termed as the 'social surface' (Vansina 1989:148). Without it the tradition would no longer be transmitted and, having no function, would lose its reason for existence and be abandoned by the institution underpinning it. As a result, historians no longer try to reconstruct any original or the most faithful forms of testimonies, to do this one would have to assume that there was but one original. Furthermore it has been recognised that oral societies have been altered and remodelled by their juxtaposition with literate cultures, which in the western Sahel was marked by the presence of North African Muslims and Europeans (Moniot 1986:55).

The challenge consequently has been to assess how much of the original event is represented and whether the interpretation of the event has deviated to such an extent that it is no longer possible to identify. In this case one must have access to a variety of versions and inquire about their differences (Bazin 1986:73). Recent studies have also emphasised the importance of identifying the different ways the transmission is rendered, as a narrative is primarily a document of the situation in which it is told. The meaning of narrative elements included relates to the historical processes, which originally inspired the narrative to the conditions, which were present at its selection and at its memorisation. It has been advanced that "studied as narrative products, and not simply as sources, these recitations serve as doubly instructive, appearing as layered history themselves as well as narrating history, containing history as well as talking about it" (Moniot 1986:58).

However, as with any other historical discipline there remains the need to critically interrogate oral sources. There is wide-spread agreement that the verification of a tradition's accuracy can only be checked against that given in other independent traditions or from other sources (Vansina 1989:161). Comparison with written or archaeological data has so far exemplified the two most independent sources for confirmation, as oral traditions are often misleading with regard to chronology and quantitative data. (But in practice these traditions have proven to be a historical record in its own right for at least the last few centuries.) Thus, oral traditions should be recognised for their potential to provide a basis for the reciprocal interrogation of documentary and archaeological sources (Wylie 1995:266).

3.2.2 Written Sources

There has indeed been a "cult of authority" surrounding the written record (Little 1992), which might have resulted from the demonstrative force of a document. A written record is an object: a manuscript, a tile or a tablet (Vansina 1980). Due to the relative material resistance of written records, and their ability "to speak", they have not only been privileged over the oral sources but also over the material remains studied by archaeologists.

The dominance of the written over the material and the spoken has indeed "scarred" African historiography for many decades. African societies were mostly perceived as those left aside by "history" because African civilisations south of the Sahara were to a great extent civilisations of the spoken word. Trevor-Roper exemplifies this perception, in stating that there was no history in Africa but "only the history of Europeans in Africa. The rest is darkness and darkness is not the subject of history" (Trevor Roper 1963, cited in Chrétien 1986:77). Indeed, African historiography was mostly shaped by a view from the outside, flawed by racial concepts which have dominated theoretical paradigms until social and political circumstances, such as the advent of African independence, brought about conceptual changes, which also included the recognition of oral traditions as historical sources. This led to the development of a school of thought within Africa, in which scholars used oral traditions to write "genuine histories" of the continent. As a result, it should be acknowledged that it was due to changes in social and political circumstances, rather than from progress in interpretation, that alternative histories have started to emerge.

Archaeology has played a significant role in discrediting colonial myths about Africa's past, having struggled with the privilege of 'the written' over 'the material'. It has been argued that material evidence should be subject to the same textual analysis as written documents (Little 1992). An emphasis on material culture as text would thus overcome the distinction between written and material sources, and the tendency to try to prioritise one over another (Funari, Hall and Jones 1999:10). Yet, this assumption may prevent archaeologists from understanding material culture in its own terms. Hence, it has been suggested that, "archaeologists need to think not only about interpreting material culture as text, but also about interpreting text and other discourse as material culture. We need a way to turn around the primacy of text and also to see material culture as a principal informant" (Little 1992:217). The privilege of the documentary over the material can thus be rectified into a more equitable alliance by adopting the notion that text is ambiguous and subject to endless interpretations.

Texts have been categorised by historians according to source as primary or secondary (Little 1992:2). Pitt has developed a useful categorisation of documents, listing categories by their source (ibid.). Source-side criticism has been of particular importance to ethnographic and historical investigations since early in the 20th century. Pitt's categorisation puts particular emphasis on the question of source and thus, its influence on a document's intention, tone and coverage (ibid.). Consequently this should affect the way they are used to aid archaeological interpretation. Pitt has listed 10 main categories of historical sources. They include public and official archives, mission and church sources, business and company sources, scholarly literature, letters, diaries and private papers, transient documents, literature, local sources and opinions, along with pictorial and sound archives.

The importance of this analysis lies in the fact that it can shed some light on the making of sources and archives, and thus on the knowledge/power, which enters into historical production by the inclusion and exclusion of 'silences' and 'mentions' (Stahl 2001:36-7). Hence, the categorical and conceptual framing of archives and their authors will help us in the reconstruction of the socio-historical processes by which we arrived at knowledge claims.

I have adopted (with modifications) Pitt's categorisation, which is listed in Table 3.1, along with the specific sources used in this investigation. Authors are often listed more than once, as some have been using more than one type of source. Table 3.1 shows the range of resources available. They are restricted to public and official archives, scholarly literature, local sources and opinions, and pictorial and sound archives. The public and official archives are mostly composed of officially sponsored explorers' and travellers' accounts and government-sponsored research, which include texts from Arabic chronicles written during the 14th and the 17th centuries, and French colonial administrators. The scholarly institutions contain mostly ethnographic studies, effected by European scholars in the second half of the twentieth century. The local sources and opinions include oral traditions collected in the Dia region, again mostly by foreign researchers, including myself with the assistance of Daouda Keita. Pictorial archives contain photographs of 'sacred' objects and places, which feature in the collective memory of Dia's inhabitants. A more detailed analysis of these sources follows in section 3.3.

Table 3.1

Categories Of Historical Sources Used In This Study

Category	Editor/Author/Recorder	Specific Sources
Public and official archives (edited)	Levtzion and Hopkins	Arabic chronicles
	Cuoq	Arabic chronicles
	Levtzion	Arabic chronicles
	Sakai	Arabic chronicles
	Meillassoux	Arabic chronicles
	Marty	Commissioned ethnography
	Delafosse	Commissioned history
	Monteil	Commissioned ethnography
Scholarly literature (authored)	Gallais	Ethnographic interpretation
	Dieterlen	Ethnographic interpretation
	Meillassoux	Historical interpretation
	Ba and Daget	Historical interpretation
	Sakai	Historical interpretation
	Fay	Historical interpretation
Local sources and opinions (recorders)	Sakai	Oral History
	Dieterlen	Oral History
	Meillassoux	Oral History
	Gallais	Oral History
	Ba and Daget	Oral History
	Arazi and Keita	Oral History
Pictorial archives (recorders)	Dieterlen	Photos

3.3 An Outline of Dia's Historical Sources

The aim of this study is to carry out a source-side analysis of Dia's historical records, which are illustrated in Table 3.1 (Section 3.2.2). They comprise oral traditions, written texts, and pictorial archives. A critical assessment of Dia's historical records will contribute to a more balanced evaluation and understanding of these sources. And the particular emphasis on the question of source and thus, its influence on a document's intention, tone and coverage will also affect the way they can be applied in relation to the archaeological record. I shall discuss each of the four source categories in turn.

3.3.1 Source Categories

Public and Official Archives

These records are mostly based on manuscripts, which were written by Arab chroniclers, who started to record the history of the 'Bilad al-Sudan' from the 9th century AD onwards. Their English (Levtzion and Hopkins 1981) and French (Cuoq 1985) translations have been instrumental for the diffusion of these records as they provide the earliest insights into the political history and the dynamics of state building in West Africa. Despite the difficulties in the reading and identification of place-names and titles, these records have been regarded as the most authoritative sources on sub-Saharan Africa's history, especially from the end of the first Millennium AD onwards. The fact that many scholars have largely based their interpretations on these chronicles has lead to an Orientalist discourse on sub-Saharan Africa, which considered the Islamic influence as the driving force for important developments, such as urbanism and long-distance trade (Delafosse 1912; Bovill 1958; Levtzion 1973).

However, most of these authors, who were Muslim Arabs from North Africa, Spain, or the Near East, never visited sub-Saharan Africa (Levtzion and Hopkins 1981). Instead they based their accounts on eyewitness reports from merchants and explorers, who travelled to and traded with the commercial centres of the Sudanic kingdoms. Secondly, these authors had little in common with the peoples and customs they were writing about, and were as a result not sympathetic observers of the life of non-Muslim societies (Insoll 2003:231). It has thus been acknowledged that these sources should be viewed with a certain amount of scepticism.

Dia only received limited attention by the chroniclers, which might have resulted from its position at the periphery of the Great Sudanese Empires. Some scholars have identified the place names of *Zaghawa*, *Zagha*, *Zaagharii*, or *Zaagha* with Dia (Delafosse 1912; Levtzion 1973; Marty 1920; Sakai 1990 as mentioned in the chronicles of Al-Umari, Ibn Battuta, Al-Sa'di and Ibn al-Mukhtar). Amongst these authors, it was only Ibn Battuta, who actually visited sub-Saharan Africa, as is attested in a chronicle on his travels through the western Sudan to the capital of the kingdom of Mali in the 14th century (Levtzion and Hopkins 1981:279).

Ibn Battuta was born in Tangier (Morocco) and undertook extensive travels not only across the Sahara, but also to East Africa, India, Ceylon, Sumatra and perhaps also to China. His travels lasted 24 years. On his return from the western Sahel, he remained in the court of the sultan from Takadda, who ordered his scribe, Ibn Juzayy to write down Ibn Battuta's account. Hence the Rihla (by which Ibn Battuta's work is commonly referred to) is in fact a co-production by the traveller and his editor (ibid.). Nevertheless, it is believed that the Rihla is one of the most reliable records since it exemplifies an eyewitness account of sub-Saharan Africa during the 14th century, and on his return to Morocco it took less than two years to write his chronicle.

Ibn Battuta mentions the place-names of *Zaghari* and *Zagha*. *Zaghari* is described as a "big village inhabited by traders of the Sudan called Wanjarata with whom live a company of white men who are Kharijites of the Ibadi sect called Saghanaghu" (Levtzion and Hopkins 1981:287). Battuta goes on to describe *Zagha* as having "a sultan, who owes obedience to the king of Mali and that its people are old in Islam" (ibid.).

Some historians of West Africa (Delafosse 1912; Levtzion 1973; Marty 1920; Cuoq 1984) have identified *Zaghari* with the region of Dia and *Zagha* with Dia itself. Hence, if one were to agree to identify *Zaghari* and *Zagha* with Dia, Ibn Battuta's chronicle provides testimony for the presence of a Moorish ("white") trading community as well as for Islam's ancient history in the region. As a consequence, it would appear that Islam dates back to at least the beginnings of the second millennium AD. According to Ibn Battuta, *Zaghari* was producing 'anli' or millet, destined for Iwalatan (Meillassoux 1972:390), which has been supported by Murray's identification of millet in Dia's archaeobotanical record (Murray pers. comm.).

However, it should be stated that different readings of Ibn Battuta's travel itinerary exist. In contrast to the above interpretations, Meillassoux (1972:389-95) and Hunwick (1973:195-206) propose a more westerly direction. They argue that passing through Dia would have prolonged the journey by at least 200km (Meillassoux

1972:389). Furthermore there appear to be discrepancies with the description of the landscape he traversed between Walata (located in southeastern Mauritania) and *Zaghari*, which supposedly had abundant vegetation (ibid.). Climatic records, however, indicate severe droughts for the period between AD 1200-1550 (R. McIntosh 2000:152), especially for regions bordering the northwestern Inland Niger Delta. It seems thus unlikely to identify *Zaghari* with Dia. As a consequence Meillassoux proposes that instead of having passed through Dia to reach Mali's capital, Ibn Battuta travelled through the Méma in order to arrive at the region of Baxunu, which lies between Nioro and Gumbu (1972:391).

Ibn Battuta's mention of Wanjarata traders from the Sudan have been identified with the Diakhanké (Jakhanke), and the Dyula (Dioula, Jula, Wangara), who may have originated as a sect or division of Diakhanké (Curtin 1971, 1975; Levtzion 1973; Perinbam 1980; Willis 1979). The role of the Diakhanké is debated. Sanneh (1989) has claimed a mainly clerical vocation, while Curtin (1971) has emphasized their function as long-distance traders. Indeed, it seems possible that the Diakhanké existed in both capacities, though the scholars may have garnered greater esteem and historical mention (Sanneh 1989). The Dyula were, more clearly, specialist traders credited with founding Djenne, and eventually dispersing south and southeast towards the forests and gold fields of the Black Volta (Curtin 1971; Fage 1995; Levtzion 1973). The commerce of both the Diakhanké, as described by Curtin (1971), and the Dyula focused on cotton textiles, gold, and kola (Brooks 1993). Their diaspora from Dia reputedly led to the founding of Soninké colonies in Tichitt, Walata, Sandsanding, and Djenne, sometime in the 13th century (Curtin 1971; Perinbam 1980).

Al-Umari, from Damascus (Syria), was a contemporary of Ibn Battuta. His chronicle is known as the Masalik al-absar fi mamalik al-amsar, which is translated as 'Pathways of Vision in the Realms of the Metropolises' (Levtzion and Hopkins 1981:252). Despite the fact that he never visited the western Sahel, his work has been rated as a major source for the history of Mali in the 14th century. He collected his information from people who had been resident in Mali for many years and from Egyptian officials who had met Mansa Musa (Mali's emperor) during his visit to Cairo in 1324 (ibid.). In his account Al-Umari mentions the place name of *Zaaghaa*, which he considers to be one of Mali's provinces. Again, many historians have identified *Zaaghaa* with Dia (Cuoq 1985:263, Levtzion and Hopkins 1981:261). Unfortunately, Al-Umari does not provide a detailed description, thus limiting any more detailed interpretations of *Zaaghaa* and its location.

Finally, *Zaagha* can be found in the Timbuktu chronicles (Sakai 1990:216), which are known as the Ta'rikh al'Sudan and the Ta'rikh al-fattash, which were written in the 17th century by as-Sa'di and Ibn al-Mukhtar respectively. They contain the complete history of the Songhay Empire, which expanded over a territory of over 1,400,000 km^2 during the 15th and 16th centuries (Hunwick 1985:347). The importance of the Ta'rikh al'Sudan and the Ta'rikh al-fattash lies in the fact that their authors were no strangers to sub-Saharan Africa, such as Ibn Battuta and al-Umari. Instead they were local historians of Timbuktu, who composed two synthetic historical narratives with the aim of consolidating the Songhay Empire and the Arma regime, the latter resulting from the Moroccan invasion of 1591 AD (Farias 2003).

The authors belonged to the Timbuktu patriciate, who did not consider themselves natural subjects of the Songhay state, but as people entitled to autonomy in the government of their city (ibid.). Even after the Moroccan invasion and the installation of the Arma, the Timbuktu patricians fulfilled prestigious administrative and mediating functions in addition to the role of historical informants. As-Sa'di, for instance, was a notary public and imam in Djenne, acting as mediator between Arma officials and the Ard'o (Peulh leader) of the Macina (AD 1634). In AD 1646 he was called back to Timbuktu to be appointed katib (chief secretary) of the Arma administration. Hence, as-Sa'di is thought to have been an 'insider' to government circles (Farias 2003). Nevertheless, it is postulated that the Timbuktu chronicles are essentially a retransmission and updating of much older written records, supplemented by royal oral traditions.

According to these chronicles, al-Hajj Askya Muhammad took *Zaagha* in 1494 or 1495, which again has been identified with Dia, and returned with 500 masons to Gao, who were responsible for the building of the city's mosque (Sakai 1990:216). Umar, Askya Muhammad's brother, was given the title of Komdiakha in remembrance of *Zaagha's* siege, which signifies "the one who captured Dia" (Hunwick 1985:25). As-Sadi's chronicle also mentions *Zaagha*/Dia in regard to its ancient history of Islam, in which he states that Djenne's founders originated from *Zaagha*/Dia, and included 4200 ulama (Islamic scholars) (Cuoq 1984:100). In spite of recognising the exaggeration of 4200 ulama, historians have taken as-Sadi's textual record as evidence for Islam's ancient history in *Zaagha*/Dia (ibid.). The Ta'rikh al-fattash has also been taken to attest to similar testimony. According to Cuoq (1984:102), Dia was dominated by the fuqaha, who were growing more independent of Mali's authority. Dia's population organised a theocratic regime of their own during the 15th century, in which the kadi occupied the supreme magistrate as in Timbuktu during the 17th century. Mali's sultan supposedly never dared to enter the town, and anyone who arrived in Dia was no longer regarded as a subject of Mali, which prompted complete security, even the murderer of the sultan's son could be assured complete refuge. It was known as the town of God (*balad Allah*).

Despite the influence of the Arabic texts, their authors as well as the modern day historians, have been no strangers in applying local histories, which in this case refer to oral traditions. Oral traditions have been included in the Ta'rikhs of Timbuktu (Cuoq 1985, Levtzion and Hopkins 1981) as well as in the historical reconstructions written during the colonial period such as by Delafosse (1912), Marty (1924), and Monteil (1932) and finally in the historical narratives of the latter half of the century (Levtzion 1973; Meillassoux 1972; Sakai 1990). Despite the fact that these authors have mostly been elusive about their oral sources, they incorporated them either to strengthen their assumptions drawn from the written texts, or to present an alternative version of historiography, particularly in regard to foundation stories, which have often served to indicate an ancient, pre-Islamic past.

Scholarly Literature

These sources constitute scholarly works by historians, anthropologists and geographers, who have written synthetic narratives on Sahelian West Africa. They include disparate sources such as written texts, oral traditions, linguistic data and ethnographic observations. In contrast, to the public and official archives, which have focused on the Arabic manuscripts, the authors of this category have been embracing the possibility of writing alternative versions of history, which were not driven by political agendas alone but by exposing the pluralistic nature of the historical discipline.

Jean Gallais, a geographer, is the author of *Le Delta Interieur Du Niger, Etude de Geographie Regionale* (1967). Gallais' work has contributed a great deal to our knowledge of the Inland Niger Delta of Mali as it includes sections on geography, geomorphology, the history of the region, its peoples and traditions, as well as his own ethnographic observations on the IND's different economies. Hence, *Le Delta*

Interieur Du Niger gives testimony to a multitude of forces, which have shaped the lives of its population.

Gallais mainly reconstructs the pre-Islamic period by the application of oral traditions, which include the foundation stories of the IND's various ethnic groups such as the Bozo, the Marka and the Peulh. Gallais also includes historical reconstructions by other scholars such as Delafosse (1912), Dieterlen (1959) and Monteil (1932), which shows the author's pursuit of a multifaceted rendering of the IND's past. However, in many instances he failed to mention his specific ethnographic informants, which has been a widespread tendency in the presentation of historical syntheses that has only started to improve recently. It seems as if Gallais himself did not collect any oral traditions as he makes many references to Ba and Daget (1955), Dieterlen (1953) and Delafosse (1912). Hence, his descriptions include the common notion of Dia, which emphasises its importance as a commercial as well as a religious centre.

In the second volume of his book, Gallais illustrates Dia's commercial and urban life (1968:553-5), in which he describes the various sections of the town, its spatial organisation, and its architecture. However, Gallais seems sceptical of Dia's reputation as a commercial centre. He mentions the presence of around fifty marabouts, who have prohibited any profane activities in Dia, which seem to include intensive commerce as well as administrative matters. The latter is exemplified by an anecdote, which took place during the French administration, during which the French tried to establish Dia as an administrative centre. However, the local population suppressed this activity, which was hailed as a religious victory. As a result, Gallais expresses certain doubts whether Dia has ever constituted a commercial centre as such.

Germaine Dieterlen, who was a principal figure in French anthropology (and the pupil of Marcel Griaule, with whom she studied the Dogon for several decades), is the author of *Mythe et organisation sociale en Afrique occidentale* (1959:119-138). In it she advances the idea that Dia forms part of a spiritual North-South–East-West axis, linking it to Mande creation myths. She gives reference to communal fishing ceremonies, which are preceded by offerings to Faro, a guardian spirit for offspring and subsistence. Dieterlen's study also includes the description and photographs of Dia's pre-Islamic material culture, such as decorated wooden doors, and sacred places such as the pond located at Mara and a sacred stone, visible at Mara's cemetery. Dieterlen's descriptions of these objects and ceremonies should be viewed as meaningful testimonies to Dia's pre-Islamic traditions, which might have persisted much longer than official accounts like to claim (cf. the Ta'rikhs and the account of Ibn Battuta).

Claude Meillassoux, who is the author of *L'Itinéraire d'Ibn Battuta de Walata a Malli* (1972:389-95), provides an alternative reading of Battuta's travel itinerary to Mali's capital. In contrast to Delafosse (1912), who believed that Battuta passed through *Zaghari*/Dia on his way to Mali's capital, Meillassoux identifies *Zaghari* with Diara (Kingi). In addition, he places Mali's capital between the southern part of Bambuk and the upper Gambia rather than at the site of Niani.

Meillassoux mainly consulted the Arabic chronicles, but he also applied data from historians, geographers, explorers and ethnographers, never failing to provide detailed references to each of his sources. As a consequence Meillassoux's investigation seems rather convincing. The only unreferenced sources used are the oral traditions. At least we know that the author collected them in the year of 1966, but he does not mention who his informants were, what their origin was and what positions they held. As a result, I have mainly considered Meillassoux's references to the Arabic chronicles.

Ba and Daget's, *L'Empire Peul du Macina* (1962), exemplifies a unique piece of research as their historical reconstruction on the theocratic state of the Dina is entirely based on oral traditions. Amadou Hampâte Ba (1901-1991) was born in Bandiagara, Mali, which makes him and the Timbuktu chroniclers the only native Malian scholars to include Dia in their historical narratives, in contrast to the long list of non-Africans. Ba's knowledge of Mali's oral traditions was to shape his entire life. Ba worked at the Institut Français d'Afrique Noire (IFAN) in Dakar, where he carried out historical and ethnographic investigations. In his later years he became the Malian Ambassador to the Ivory Coast and a member of the Executive Council of UNESCO. Jacques Daget, the book's second author, was Professor at the National Museum of Natural History and Director of the IFAN's Hydrobiological Laboratory in Diafarabe, which is located less than 30 km away from Dia.

Ba and Daget's work constitutes one of the most authoritative investigations on the history of the Macina, which focuses on the invasion of the Peulh and their installation of a theocratic state, known as the Dina at the beginning of the 19th century. The Dina's aim was to respect the moral precepts and institutions of Islam. The authors synthesised their vast collection of oral sources into one narrative, which comprised fifteen years of research and 1000 informants. Hence, *L'Empire Peul du Macina* provides an 'insiders' view on the historiography of the region.

Unfortunately, there is not much mention of Dia in their account. The only reference is the one also mentioned by Gallais, according to which Dia remained under the authority of a non-Islamic warrior dynasty, known as Diawara, until its eventual submission to the Dina (Ba and Daget 1962). Sekou Amadou was responsible for the transferal of authority from the Diawara to the Koreïssi, who were a family of Marabouts of Moorish origin. As a result, Dia became a truly islamized city. This process carries as much a political as a historical message. Sekou Amadou was known to have ignored any non-reformed Islamic traditions, which were previously extant in the region. He would order the destruction of local mosques, which he considered impure, only to build new ones that were seen as appropriate to his ideas of Islam. Thus, despite Dia's non-Islamic leadership before the Dina, there might have already been a presence of marabouts, who must have had a considerable influence over at least a portion of Dia's population. This hypothesis will be discussed in more detail in the following section of local sources.

Shinzo Sakai, a Japanese historian, has so far undertaken the most comprehensive synthesis on Dia's written and oral sources (1990:210-257). During two field trips in 1989 (two weeks) and 1990 (three weeks) he was able to interview personalities from a multitude of backgrounds, which results in an appreciation of the fragmented traditions of Dia's pre-Islamic and Islamic period. A more detailed discussion of Sakai's collection on Dia's oral traditions will be carried out in the following section on local sources and opinions.

Sakai, who in his analysis also applies historical texts, consulted the major sources such as Delafosse, Monteil, Gallais, Niane, al-Umari, Ibn Battuta, the Timbuktu chronicles, Ba and Daget and Marty. Sakai seems to agree with Delafosse's and Monteil's hypothesis that Dia was a centre of population movements, which contributed to the formation of ancient Ghana and Wagadu (1990:215). Sakai is the only historian who also includes archaeological evidence in his investigation, mentioning the McIntoshs' work at Jenne-jeno, which attested that human occupation started at around 300 BC (McIntosh and McIntosh 1980). It is widely believed that migrants from Dia founded Jenne-jeno, which as a consequence pushes Dia's antiquity even further back in time. Hence, by mentioning this evidence, Sakai illustrates the discordance between the written texts and the archaeological data, which mostly concerns chronological matters. Nevertheless, Sakai failed to include the Haskell's et al. (1988) work at Dia, which had already indicated an antiquity of 200 BC or more for settlement in the region.

Claude Fay's *Les derniers seront les premiers: peuplement et pouvoir mandingues et peuls au Maasina* (1997:165-191), is a historical narrative on the occupational history of the Macina, which was characterised by various population movements. Fay proposes a hierarchical pyramid, by which the newcomers repeatedly place themselves atop the older power structures. Fay is the only scholar who describes the region's first population intrusions as a series of unnamed heterogeneous groups, including hunters, gatherers, fishermen, and warriors, which are described as Gaaninkoobe. Instead of defining these groups by their ethnic affiliation, he describes them in relation to their occupation. He places this process into a prehistoric past, which pre-dates the formation of the Ghana Empire, thus indicating an occupation that goes as far back as the first millennium BC. Fay correlates the second population movement into the Dia region with the collapse of the Ghana Empire and with the arrival of the Malinke. Fay proposes that the definition of group identities, such as Bozo, Nono and Dogon only manifested itself during this period. Successive waves of populations, which are described as warriors, characterise the following period of the Mali Empire. At times of the empire's weakness they were responsible for the creation of independent chiefdoms or kingdoms, establishing ritual versus political power by distributing productive and ritual privileges for the terrain and waterways.

The Peulh intrusion into the Macina marks a new era of specialised production (herding/grasslands/milk), introducing different activities to already present groups. After having subjugated the Macina, they entered into competition between themselves for grassland as well as for the organisation of the other groups and their activities. Fay concludes a pyramid of authority, by which each new power covers the previous one (by simple domination, vassalification, or diverse alliances such as intermarriage). Fay places at the top of the pyramid the authority of the Arbe (Peulh), which is followed by the Mossi, the Malinke and Bozo after that, and lastly their vassals. Fay's hypothesis challenges previous ones, as he is the first historian to introduce the various mechanisms, which brought about the region's complex ethnic make-up. His concept of newcomers, who are taking over older power structures, might be a stereotypical explanation for social processes, but Fay succeeds in finding a convincing argument for explaining the complex relationships of old and new authorities by illustrating the dynamic mechanisms of group identities.

Local Sources and Opinions

Local sources and opinions, which in this case refer to oral traditions, have been used by a number of scholars as most data on Dia's history comes from this source. Dia's oral traditions fall into the category of narratives, which are essentially free in form and not learnt by heart and which everyone transmits in his/her own way. As a consequence it has become difficult to reconstruct an 'archetype narrative', nevertheless there are common themes running through various versions, especially on Dia's first inhabitants.

Shinzo Sakai (1990:211-58) has so far recorded the richest collection of Dia's oral traditions despite a limited field season (5 weeks in total). An interpreter translated all interviews from Bambara (Mali's most widely spoken language) or Diakha, a subgroup of Bozo (the most widely spoken language in Dia), into French. His transcription starts on Dia's first inhabitants, of which one version was recorded with Oumar Tomota, which goes as follows (1990:220) (I am only rendering a partial translation/summary of Tomota's French version):

> Where the modern town is situated was once a palm forest, where the Tomotas lived in holes and hunted for wild game. The Kwantas lived next to a pond and fished for a living. Both groups did not know of the other's existence. At this time the people went undressed, and ate sundried meat and fish. One day one of Tomota's ancestors found a piece of dried fish and ate it. He did this several times until Kwanta realized that his fish was being stolen. The next morning Kwanta was able to follow the traces until he arrived at a hole, in which Tomota lived. Kwanta exclaimed, "A tomota!", which in their language meant, "I found the cause". And Tomota replied, "Kwanta!", which meant "again", as he wished for more fish. And thus originated the two clans' names. After some conversation every one of them returned to their lifestyle.

However, from that encounter onwards an alliance was made, which allowed them to tease each other, and to assure that both groups would never hurt each other and that inter-marriage between them was forbidden.

A different version from the one above emphasises a pact between the autochthones from the holes with the arrival of newcomers. The latter are a representation of diverse specialists such as blacksmiths, warriors and marabouts (West African healers and diviners, who are instructed personalities of the Islamic faith with powerful capabilities). Once these newcomers arrived their alliance with the autochthones resulted in the formation of a large village, which grew into a town. Sakai was unable to receive chronological indications for the foundation of the village and town communities. However, he thinks that the coming of the Diawara clan was an event, which marked a decisive stage in the evolution of Dia as a town. Their coming is equated with the oldest formation of a political entity in the region. Sakai then divides the traditions into two groups, the ones concerning the newcomer's arrival before the Diawara and the ones concerning the arrival of the Diawara (1990:226).

> According to Tomota, once Diawara arrived, Dia was founded. People gathered around this formation and soon augmented in number. Hence, the notables had to organize a reunion to discuss matters of leadership. The first one to be nominated was Kwanta as he was the first inhabitant. He refused, however, preferring to remain a notable, as did Tomota. Famanta's excuse was his status as a hunter and fisherman. Thus, Diawara became the leader, riding his horse, carrying a spear and wearing a warrior's bonnet. A blood alliance was made between Tomota, Kwanta and Diawara with the purpose of preventing Diawara's abuse of power.
>
> Traore's version, in contrast, tells us that Diawara's chief assured the protection of the town by vowing that no other power could penetrate Dia except theirs. He made the blood alliance with Kwanta and Tomota and took the title of Ja-Maghan, 'the king of Dia'.
>
> Famanta's version stresses the intervention of Samaa Mori Maama, who assigned the function of notable to Kwanta and Tomota and the one of dugu-tigi (village chief) to Jawara. After that he implored God's blessing for this new community.

Germaine Dieterlen already collected oral traditions in the Dia region during the 1950s, which she published in *Mythe et organisation sociale en Afrique occidentale* (1959). Considering these pioneering years, Dieterlen was already very meticulous in her methodology as she provided references to all of her sources. The version presented here, was recorded in Diafarabe in 1959.

> According to Dramane Kwanta, Dia was founded by the Marka (Tomota family) and the Bozo from Walata (Kwanta family). Dia's initial location was to the east of the pond and to the south of the actual Mara quarter. This process dates back to the end of the Ghana Empire. Other Bozo, such as the Famenta and Dyanta families, came to occupy the same space. Once the region was conquered by the troops of the Mali Empire, the Traore, or Diawara, became the leaders of the region and of Dia. During this period Dia moved to its current location to a quarter known as Malou. Two initial residences were constructed, which enclose three out of four sculpted wooden doors. Kwanta, a Bozo, who had the authority over the waterways, founded the Kwantala quarter, which is the location of the fourth wooden door. At the end of Mali Empire, and after internal fighting, the Dia district was taken by Seku Amadou and given to the Traore, who refused to convert to Islam, hence it was confided to the Karsa, or Koreissi, of whom the chief, Amadou Koreissi became imam.

In contrast to Sakai, Dieterlen's (1959) version does not indicate an autochthonous population as her informant stated that migrants from Walata (the Kwanta and Tomota) founded Dia at the end of the Ghana Empire. Walata is located in south-eastern Mauritania and formed part of the Late Stone age Tichitt-Walata tradition (Munson 1980:459), indicating population movement from the south-western Sahara into the IND. This hypothesis will be discussed in more detail in Chapter 4, as archaeological data seems to corroborate this view. The arrival of the Diawara is correlated with the expansion of the Mali Empire. According to this version it was during this period that Dia moved to its current location. Hence, one would have to carry out archaeological excavations to test this hypothesis. Unfortunately, we were not able to excavate within present-day Dia as it was explained to us that objects with high spiritual significance had been buried and their discovery would have devastating consequences for Dia's inhabitants. Considering the fact that Dia is located on top of a considerable tell site it would not be surprising to find that the oldest layers actually predate the 14th century, during which Mali expanded to a vast empire. An interesting detail of this version is the mention of sculpted wooden doors, which have been linked to the foundation of modern Dia. These doors are decorated with zoomorphic and abstract representations. They are testimonies of family myths, which speak of territorial expansion, fishing and cultivation and the safekeeping of spiritual foundations (Dieterlen 1959:128).

In *L'Itineraire d'Ibn Battuta de Walata a Malli*, Meillassoux also includes oral traditions, which he collected in 1966 (1972:390). However, he does not name his informant, or where he collected the information. According to his sources, Dia was not particularly famous for commerce or as an Islamic centre. In spite of some commercial activities, Dia's merchants would mostly travel to neighbouring markets. He goes on to state that Dia was ruled by a warrior dynasty, known as Diawara, who adopted the name of Traore, which designates the chiefly clan. The Traore did not practice Islam and exercised a 'bloody and tyrannic' rule over Dia's population. The Koreissi family were one of the last families to install themselves at Dia, which might have occurred during the 18th or 19th century. According to the Koreissi, the town was not completely islamized at their arrival, which occurred only during the reign of Sekou Amadou over the Macina, who took away the power from the Traore and handed it over to the Koreissi.

Meillassoux's information does not stress any Islamic component as in many other versions. He also mentions the Diawara/Traore as the first rulers over Dia, which can be confirmed by Sakai's and Dieterlen's collections of oral traditions. In contrast to Sakai, however, Meillassoux's version depicts Diawara as a ruthless tyrant. There also seems to be correspondence with the arrival of the Koreissi, which all versions place to the 18th or 19th century.

In his application of oral sources, Gallais, mostly makes references to Daget's (1953) and Dieterlen's (1955) work. Hence, Gallais does not seem to have recorded traditions himself. He contrasts Daget's version of an autochtonous Bozo population with Dieterlen's version, which indicates north-western origins. According to her the

Bozo arrived from Walata and settled in the delta region. In any event, Gallais believes that the Bozo were the original inhabitants of the Inland Niger Delta. The Nono were the second group to inhabit the Dia region. Gallais describes them as rice cultivators, who originated from the north. They later attached themselves to the Marka ethnic group, who are believed to have emerged with the formation of the Mali Empire. The author places these initial developments prior to the Ghana Empire, hence sometime before the end of the first millennium AD.

Gallais attributes the foundation of Dia to merchants, who migrated after Ghana's decline. Following the establishment of Dia, they were responsible for the foundation of other commercial centres such as Djenne. Gallais' suggestion indicates that Dia must have been involved in commercial transactions, which might have been considerable in scale as it could 'afford' the process of establishing other commercial towns. Gallais does not especially mention Dia during the Mali Empire. Instead, he describes it as a period during which many groups consolidated to form particular identities.

Dia is mentioned again with the arrival of the Peulh, who spread into the delta in a general north-west and south-east direction. The first region inhabited was Dia(ka), as it was furthest away from the political centre of Djenne. When Seikou Amadou established the theocratic state of the Dina in 1818, the Marka merchants resisted, especially in the secular centre of Dia. The sovereign disposed of the ruling Diawara, a Marka family conserving the animistic rituals of the Bozo, and confided the power to the Koreissi, a maraboutic family from the north.

Ba and Daget, in *L'Empire Peul du Macina*, provide an interesting account of how Dia's reign was handed over from the Diawara to the Koreissi family (1962:182-4).

> When the ruler fell sick, Amadou Koreissi visited him on the seventh day. Diawara ordered a magic potion, which should restore his health. However, by accident Koreissi destroyed the jar in which the medicine was kept. At the very moment the jar was broken into pieces, a reptile appeared from the broken vessel, and bit Koreissi in his foot. When Koreissi returned to his home, his leg was already paralysed. He immediately started to pray against the venom in his body and against Diawara, who had promised to kill

him. Diawara did not survive this incident, and died the same night without having chosen a successor. Furthermore, the magic liquid, which had run out from the broken jar, contained bad spirits, which sought refuge in the mosque. In the meanwhile Koreissi's health improved, except for his leg, which stayed paralysed. He became imam. However, no balance was restored in Dia due to the spirits, which escaped from Diawara's jar, and which did not cease to trouble the community, especially in the mosque. A reunion was held in Hamdallay (the capital of the Dina), where it had been decided that Hammadoun Abdoulay Nouhoun, famous occultist and imam from Wandiéré, was to be in charge for the elimination of the spirits, which refused to leave Dia's mosque. Under instructions of Seikou Amadou, he chose a location for the extraction of earth to build a new mosque and a forested area for wooden beams. He announced the destruction of the old mosque, which became a refuge for malign spirits. He ordered the construction of a new inviolable mosque and the installation of an orthodox imam, who was pure and devoid of any fetish influences. While Hammadoun Abdoulay Nouhoun recited Koranic verses, he gave out the first blows for destroying the mosque. Suddenly there were lots of cries, which came out of every corner of the building. These were the cries of the spirits, which were chased by the letters of fire of Nouhoun's recitations. The mosque was erased and a new much larger one was constructed in its place. At its inauguration with all the notables assembled, Nouhoun announced the new Dina authority of Dia, who was to be Amadou Koreissi.

To conclude, I would like to mention the oral sources I have collected during our third field season (January-February 2001), with the assistance of Daouda Keita from the University of Bamako. Our informant was Mohammed (Mama) Taita, who calls himself 'instruit', an instructed person on Dia's history and ancient customs. Taita's version resembles the one recorded by Sakai, which mentions the Kwanta (Bozo) and Tomota (Marka) as the oldest groups present. However, an interesting point he made was in relation to Dia's power structures.

According to Mama Taita, the Bozo has a submissive character. They are not interested in status, power or economic wealth. They only care about fish, and to maintain their mastery over the waters. The Marka, who arrived after the Bozo, have taken political authority over Dia. As a consequence, the Marka are the first to give blessings during communal festivities and rituals, and the Bozo second. Also, the Marka were the first to discover 'the other's', the Bozo's, footsteps, which explains their rights of being the first at prayers and blessings.

The importance of Taita's account is that it provides reference to the complex relationships of old and new authorities. According to this version, the newcomers place themselves atop the older power structures, which has already been proposed by Fay (see previous section on scholarly literature). Indeed, Fay's hypothesis of newcomers mirrors Taita's version, which has been convincingly symbolized in form of a hierarchical pyramid, in which the newcomers have taken over previous power structures.

Taita also told us that Dia's ancestors, who lived at Mara, were animists. They only converted to Islam once they moved to Dia's present location. Unfortunately he did not provide any dates, when this reallocation occurred. Taita furnished us with the following story on animist Mara.

> Djeoussara Mori Mama and Konioma, who practiced sorcery, assisted Mara's people in their disputes and in moments of spiritual difficulty. All of them were animists. Whenever favours were needed, people would seek Djeoussara Mori Mama and Konioma. They were real men! But no one except me knows these personalities, and they are not mentioned in any of Dia's tarikhs.

Taita describes Djeoussara Mori Mama and Konioma as mediators in times of disputes and hardship. They might have had a similar status as marabouts today as the latter also take up the roles of mediators. Maybe these two personalities represent ancestral figureheads, who evolved into marabouts with the arrival of Islam. The fact is that marabouts, in spite of being well-instructed Muslims, often use 'traditional' rituals for healing, fortune telling or conflict resolution. Taita also mentions Dia's tarikhs, which so far, have remained undisclosed to any foreigners. He emphasizes that Djeoussara and Konioma are not mentioned in the tarikhs, which indicates that Dia's chronicles may not provide any reference to pre-Islamic times. In fact, during the four field seasons, Mama Taita has been the only person I encountered who acknowledged Dia's pre-Islamic past.

Pictorial archive

The reason I have chosen to include this category is the photographic evidence of mnemonic devices, which serve to testify to non-Islamic rituals. Dieterlen was able to gain access to important objects, which are still preserved in the hands of some of Dia's families (1959). These objects can be directly related to 'traditional' belief systems, which might have characterised Dia's pre-Islamic period.

They consist of the four wooden doors (Fig.3.1), which have already been mentioned in the previous section. Dieterlen also describes 'la pierre sacrée de Dia', which is known as *massa fara*. It is located in Mara's cemetery, and is still visible to this day. According to the author, this megalithic artefact can be associated to the Faro myth, which is known in the entire Mande region. Faro was the creator of rivers and seas. Dia's sacred stone represents "the fish's, mannogo ble, egg", and marks the end of one of Faro's twin spirits. It receives lots of veneration and offerings. However, each year it becomes less visible, which raises concerns, as it is believed that once the stone vanishes completely, so will the town. I have taken a photograph of Dia's monolith during our field season in 2000/01, at which point it was lying horizontally on the ground, one section of it buried in the soil (Fig.3.2).

Figure 3.1 Two examples of Dia's wooden doors (Photos by Z. Ligers, Dieterlen 1959:132).

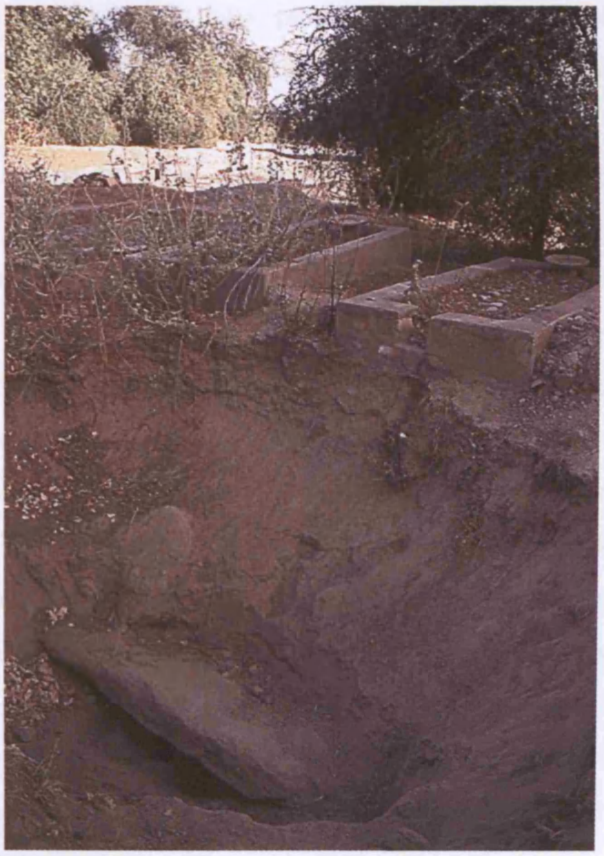


Figure 3.2 La pierre sacrée de Dia.

3.3.2 Discussion

Having illustrated the contextual variations of Dia's oral and written records, the following observations can be made. Firstly, all historical manuscripts, which predate the 20th century, were written in Arabic, which has had various repercussions on their significance and interpretation. Up to the 20th century, Dia's historiography was shaped by an Islamic worldview as the manuscripts were entirely written by Muslim chroniclers from North Africa, the Middle East and sub-Saharan Africa. Hence, it has been their spheres of interest, which dictated historical production. The authors' Islamic affiliation as well as the Arabs' involvement in the trans-Saharan trade has truly marked the content and rendering of these texts, which divided people and traditions into pagan or Muslim. As a consequence many places have exclusively been mentioned due to their strong adherence to Islam, as in the case of Dia. Could the Arabic manuscripts have served for long-term political goals, which envisioned a large-scale adoption of Islam that finally materialised by the 19th century? This inquiry highlights Trouillot's observation that power enters into historical production at multiple points – the making of sources, the creation of archives, the retrieval of facts, and the endowing of significance (Stahl 2001:36). It might thus be postulated that the Arabic chronicles might have played an important part in the adoption of Islam as their bias helped in the appropriation of Islamic power structures in the western Sahel.

The Islamic bias of these chronicles brings me to my second observation, which is that the 'Arab stimulus model' has shaped West African historiography during most parts of the 20th century, as late as the 1980s (Cuoq 1984). Many historians still believe that a great number of social and political developments were stimulated by the presence of Arab merchants in sub-Saharan Africa. It became widely acknowledged that the Arab presence was a catalyst for cultural progress such as the establishment of long distance trade, the development of urban centres, and the diffusion of reading and writing by the adoption of Islam. Until the consultation of alternative records, such as archaeological data, this notion continued to be perpetuated.

The 'Arab stimulus model' in African historiography has been particularly popular during the colonial administration, which actively sought to silence Africa's achievements by not considering them possible in the first place. Diffusionist explanations were thus the standard model to justify developments of complex cultural processes in sub-Saharan Africa. These ideas were initially developed by the scholars and explorers, who were engaged in the service of the colonial governments. Nevertheless, after independence historians, especially western scholars merely recycled these ideas. They might have developed more rigorous methodological and contextual analyses, but they were still digesting the legacy of colonialism and its influence on African historiography. Most currently, it has been argued that these notions should not simply be dismissed as 'fictions' stripped away to reveal 'facts' (Stahl 2001:37). Instead, the various notions, which have shaped colonial thinking, should be recognised in that they opened and limited particular paths of future developments, as for example the acceptance of oral traditions as historical sources.

However, I believe that the 'Arab stimulus model' has to a certain extent been re-appropriated in sub-Saharan Africa. In the case of Dia, this notion is illustrated by the oral versions, which claim that Dia's ancestral town was founded only with the arrival of Islam. Until then people lived in an untamed habitat, ravaged by evil spirits. During the course of numerous informal conversations in Dia, as well as in the Niger Bend region, important personalities have often been described as descendents from the Middle East, which indicates that an Arab descent is connoted with nobility, and carries more weight and prestige than autochthonous origins.

Arabic chronicles or Ta'rikhs are also said to exist in Dia. However, so far they have remained undisclosed to outsiders since the population remembers a time when some were destroyed or taken by the French administration (Sakai 1990; Taita pers. comm. 2001). The study of these manuscripts would make an important contribution to the reconstruction of Dia's history as they might provide essential information on the adoption of Islam and other pertinent issues.

Dia's oral traditions, which have been illustrated in section 2.3.1, lack a unified coherent tradition, which might be understandable in the light of its multiethnic communities. Stahl has found a similar situation in the Banda area of west central Ghana, which she describes as follows (2001:41):

> The men who deposed the Banda paramount chief in November 1996 had history on their side, as did those who opposed his installation. History, in the sense of knowledge about the past, is ever present and invoked in support of present actions in Banda. Competing factions in the chieftaincy dispute marshal different historical visions, struggling over the primacy of a rotational principle and the role of different families in a distant past. Thus history is

intensely negotiated, with significant consequences in the present.

Stahl's description of Banda historical visions echoes the conditions which prevail at Dia. Dia's oral traditions give testimony to a series of parallel narratives regarding its past. They might be divided into four themes, which include the autochthonous tradition of Dia's first inhabitants, the foundation of Dia, the arrival of Islam, and the transferral of power during the Dina. Every theme provides a number of variations depending on the informant's identity.

Moreover, Dia exemplifies Kopytoff's (1987) internal frontier. It is situated on the western margins of the Inland Niger Delta, linguistically and ethnically it comprises a mosaic of people representing the Mande, the Voltaic and the Nilo-Saharan language families. Many people who reside in the area trace their origins elsewhere. Dia's oral traditions are characterised with stories of movement, involving both emigration and immigration of groups and individuals. These suggest a complex ethnic history and malleability of ethnic identity, which is common to frontier areas (Kopytoff 1987). Hence, as in the Banda area, specific conditions have shaped multiple sites where history is produced, the role of power in the production of historical narratives, and the 'invented' quality of history and tradition (Stahl 2001:42).

However, a recurring theme in Dia's oral traditions is the arrival of newcomers and how they have tended to take over the power structures from older population groups. One of Fay's informants has indeed provided reference to this phenomenon, "les derniers arrivés ont pris la tête, et ceux qui étaient en tête sont devenus les derniers" (Fay 1997:189), as did our interview with Mama Taita, whose accounts echoes the classic expression of lineage hierarchies, which takes the form of an opposition between the lineages of the first settlers and the dynasties of conquerors, the holders of political power. In this way a division of tasks has been maintained, which was consolidated by a pact of senankuya (a "joking relationship") that prohibits physical contact, sexual and matrimonial relations (Amselle 1990:36). It has been argued that this division of first settlers and conquerors should be viewed as local or regional political thought (ibid.).

The considerable amount of population movements, which seem to have added increasing claims over land, power, religion and rituals, might provide us with a clue to the extent identities constantly have had to renegotiate their positions. As a result, I will not attempt to reconstruct what 'really happened' as Dia provides a stage for multiple voices and historical actors, who have been operating within varying spheres of power. Instead I will use the archaeological record to produce a baseline past, against which some of the oral and written sources can be tested.

For instance, according to the oral traditions, Dia's first location was supposedly at the site of Mara, which is located to the southeast of town, and where I placed three excavation units. Mara's surface is littered with ceramic remains and eroded structures made of mudbrick. At an unknown period Mara's inhabitants moved to the contemporary town of Dia. From its beginnings Dia assimilated newcomers of which the most prominent seem to have been the marabouts. Hence, Dia acquired its fame as a religious centre. Shoma, on the other hand, which is located only one kilometre to the west, is not remembered by anyone. Every person we talked to was unable to provide any references to Shoma. As it pre-dates the site of Mara, it can be suggested that Shoma might have been its ancestral site.

Islam's fervent position at Dia, has lead me to believe that the lack of any memories pertaining to Shoma is maybe due to its pre-Islamic character. The most conclusive evidence for a pre-Islamic past has indeed been furnished at Shoma, where a considerable number of skeletal remains have been identified, showing non-Islamic burial practices until at least the 18th century (a more detailed description will follow in Chapter 5). In spite of Dia's numerous population movements, which have resulted in a variety of claims to its past, it seems that Islam might have had the most profound effect on Dia's history since any pre-Islamic traditions have been obliterated. Furthermore, I argued earlier that the 'Arab stimulus model', which has become out-of-date amongst contemporary scholars, has been re-appropriated in sub-Saharan Africa, to explain cultural developments as well as the descent of important lineages.

As a result, we find ourselves in a situation, which is not only characterised by a series of multiple narratives but whereby certain aspects of Dia's past have so far remained 'silent', such as Shoma's occupational history and Dia's pre-Islamic past. Hence, more detailed studies on Dia's oral traditions are needed, which should be collected in every segment of its diverse population in order to gain more insights into why certain aspects of its history have been silenced. Maybe it would be more advantageous for Malian scholars to carry out these investigations as they might acquire the trust of Dia's inhabitants more easily than foreign scholars.

In the meanwhile we have to rely on our archaeological investigations. They have generated a rich array of data, which can inform us on the silences of Dia's oral and written archives. The residues of daily life, which comprise house floors, charred seeds, animal bones, broken pots, beads, and metal tools attest to the materiality of history. Hence, I believe that the archaeological record will contribute a great deal to our current understanding of Dia's distant and immediate past, which so far has largely been shaped by its oral and written archives. A detailed comparison between Dia's archaeological record and its historical sources will follow in Chapter 9.

Chapter Four
Previous Archaeological Research

4.1 Introduction

The Inland Niger Delta of Mali, and Dia in particular, has already been the subject of various archaeological investigations in the past. In this chapter I will give an overview of previous work in the region, which will be used as comparative data for the reconstruction of Dia's occupational history.

To begin with, I will present the findings of the first archaeological campaign at Dia (section 4.2.1.1), carried out in 1986, which consisted of a survey of its hinterland and test excavations at Shoma and Mara (Haskell et al. 1988; R. McIntosh and S. McIntosh 1987). This investigation formed part of a long-term archaeological research project, focusing on the developments of urbanism along the Middle Niger, which included the Djenne region in the Inland Niger Delta and its principal site, Jenne-jeno (section 4.2.1.2), as well as the Niger Bend, including the region of Timbuktu (section 4.2.3.1) (R. McIntosh 1998; S. McIntosh and R. McIntosh 1980, 1986, 1993; S. McIntosh 1995). I will also mention the IND sites known as Toguérés Doupwil and Galia (section 4.2.1.3) (Bedaux et al. 1978), the Lakes region (section 4.2.2), situated between the Inland Niger Delta and Niger Bend (Raimbault and Sanogo 1991), and the Gao region to the south of the Niger Bend (sections 4.2.3.2 and 4.2.3.3) (Arazi 1999; Insoll 1996) as all these investigations have shown that the Niger River constituted a major axis for the transmission of styles, trends and political influence (S. McIntosh 1995:370).

Lastly, I will turn my attention to the Méma region (section 4.3), situated to the north-west of the Macina (at the border with Mauritania). Archaeological survey and excavations have revealed that the Méma constituted one of the cultural corridors through which populations and ideas entered the Inland Niger Delta, contributing to the foundation of early urban centres (MacDonald 1994, 1996; Togola 1994, 1998, Takezawa 2004). Figure 4.1 represents a regional map, showing all sites and regions mentioned in this chapter.

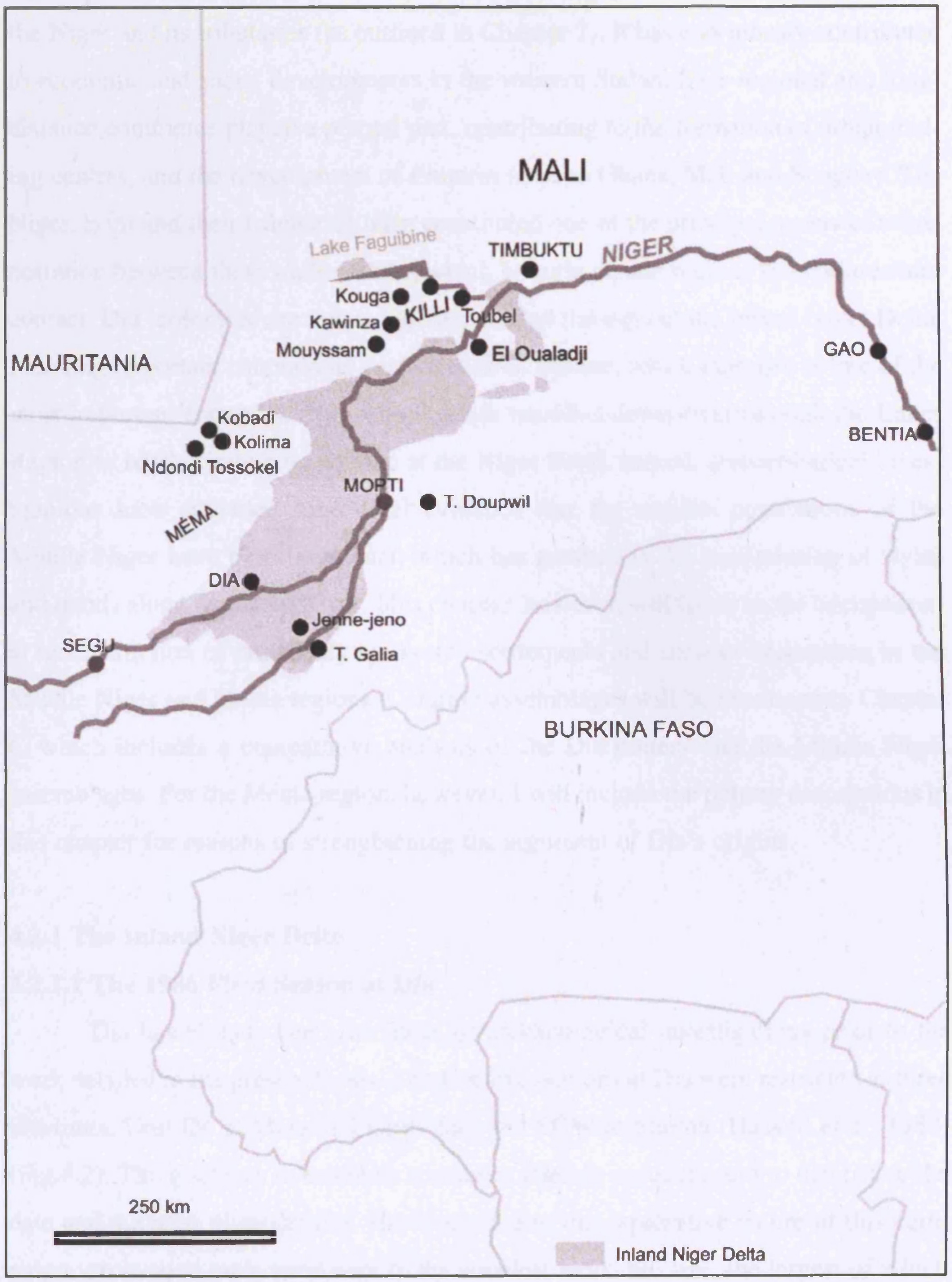


Figure 4.1 Map of sites and regions mentioned in the text.

4.2 The Middle Niger

The Middle Niger region is a remarkably fertile area where large crops of rice, millet and sorghum are produced and a staggering abundance and variety of fish from the Niger and its tributaries (as outlined in Chapter 2). It has enormously contributed to economic and social developments in the western Sudan. Inter-regional and long-distance commerce played a pivotal part, contributing to the formation of urban trading centres, and the development of Empires such as Ghana, Mali and Songhay. The Niger, Bani and their tributaries have constituted one of the principal means of transportation between these trade centres, which brought distant regions and cultures into contact. Dia 'colonists' are reputed to have settled throughout the Inland Niger Delta, founding important commercial centres such as Djenne, which emerged as one of the most important entrepôts, from which goods travelled down-river through the Lakes Region to reach Timbuktu and Gao at the Niger Bend. Indeed, archaeological investigations have provided substantial evidence that the various populations of the Middle Niger have been in contact, which has resulted in the transmission of styles and trends along the Niger River. This chapter, however, will focus on the occupational reconstruction of previously excavated settlements and surveys undertaken in the Middle Niger and Méma regions. Ceramic assemblages will be discussed in Chapter 6, which includes a comparative analysis of the Dia pottery and the Middle Niger assemblages. For the Méma region, however, I will include the pottery descriptions in this chapter for reasons of strenghtening the argument of Dia's origins.

4.2.1 The Inland Niger Delta

4.2.1.1 The 1986 Field Season at Dia

Dia has already been the focus of archaeological investigations prior to the work detailed in the present thesis. The first excavations at Dia were restricted to three test units, Unit D6 at Mara and Units Sh7 and SCW at Shoma (Haskell et al. 1988) (Fig.4.2). The goal was to establish a reliable artefact sequence and to determine the date and duration of settlement. However, due to the explorative nature of this campaign, excavation units were kept to the smallest workable size, the largest of which measured 2 by 2m (D6). In this light, the ensuing results need to be viewed as preliminary in nature.

Unit D6 was placed near Mara's modern cemetery. It reached a depth of 4.05 m. The stratigraphic sequence of D6 showed two major occupational periods separated by a break. The upper 1.54 m was made up of successive layers of clay, deposited primarily by mud wall collapse and wallmelt, which were interrupted by a large disposal pit and a trench. A radiocarbon sample taken from charcoal at the bottom of the trench yielded a date of 410±90 BP (Beta–20711), which has been calibrated at the recommended limit of two standard errors to AD 1310–1650 using the high precision calibration curve of Stuiver and Pearson (Haskell et al. 1988:23). It has been proposed that these layers reflect active occupation of the D6 area. The remaining 2.51 m was characterised by sterile sand with pockets of pottery resembling that from Phase I/II at Jenne-jeno, which has been dated to 250 BC to AD 400 (features of Jenne-jeno's different pottery phases will be outlined in Chapter 6). However, it remains unclear whether the presence of pottery alone should indicate permanent occupation, especially as no other material or features were identified. I shall return to this point in the discussion of my excavations at Mara (see Chapter 5). It has thus been suggested that the "Phase I/II" lenses at D6 represent only early seasonal occupation of the western Mara area.

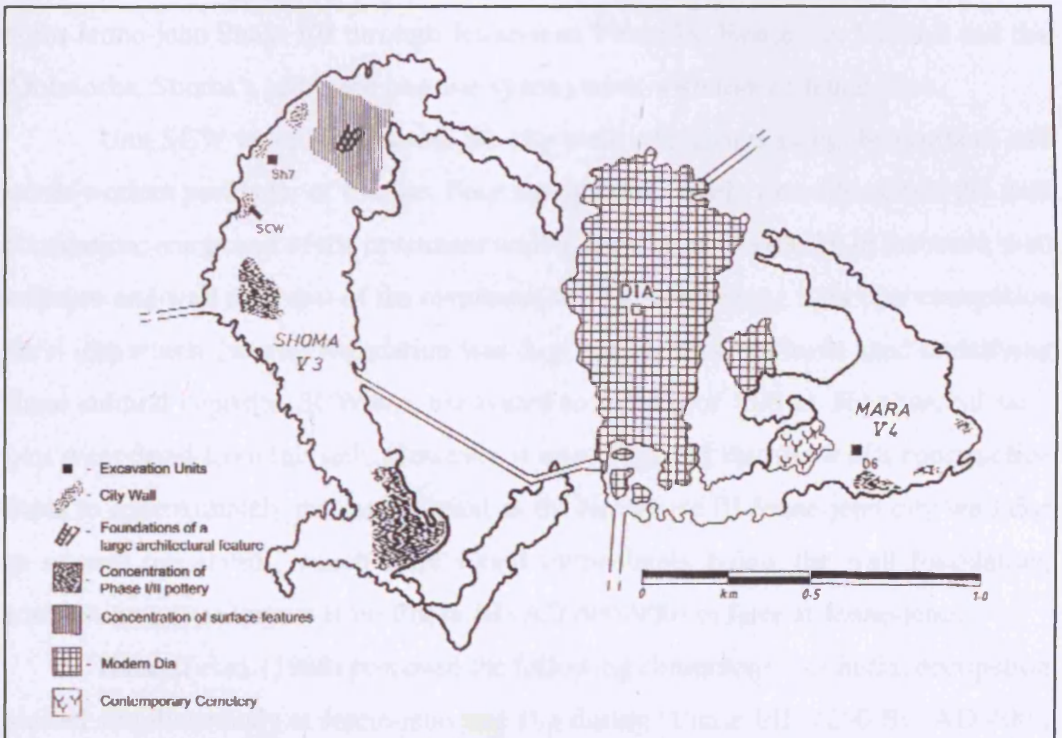


Figure 4.2 Site map showing excavation units of the first archaeological investigations carried out at Dia (Haskell et al. 1988).

At Shoma two units were excavated: Sh7, measuring 2 by 1.5 m and SCW, measuring 2.5 by 0.75 m in size. Sh7 was located at the north-western portion of the site, reaching a depth of 4.5 m. Occupational deposits were divided into four major periods, separated by three clay levels, which have been interpreted as intervals of reduced cultural activity. The first 80 cm consisted of hard clay wall collapse and wall melt, and a transitional level of light clay. Underneath, heterogeneous loam was identified, containing ash, large pottery sherds, sand and charcoal in which three lenses of baked earth "floors" were found. A charcoal sample beneath these floors provided a radiocarbon date of 980±80 BP (Beta–20712), which has been calibrated, using Stuiver and Pearson's calibration curves at two standard errors, to AD 880–1240 (Haskell et al. 1988:31). Underneath, 60cm of homogeneous light clay followed, and then 68cm of a heterogeneous light loam, yielding abundant bone and thin-walled pottery ("China" or "Delta" ware), which has been assigned to Jenne-jeno's Phase I/II (250 BC–AD 400). The layer below this was characterised by a light clay with large amounts of pottery in its upper layers, which was followed by a sandy loam layer with scattered ash deposits and more Phase I/II pottery until sterile soil was reached.

It has been suggested that the pottery of Unit Sh7 showed a complete sequence from Jenne-jeno Phase I/II through Jenne-jeno Phase IV. Hence, for Haskell and the McIntoshs, Shoma's sequence became synonymous with that of Jenne-jeno.

Unit SCW was placed across the city wall, which runs along the northern and north-western perimeter of the site. Four stratigraphic layers were identified: the wall foundation, composed of the revetment wall in the east and brick fill in the west; wall collapse and wall melt east of the revetment wall; an underlying light clay occupation level into which the wall foundation was dug; and an apparent levee sand underlying these cultural deposits. SCW was excavated to a depth of 1.98 m. No charcoal samples were dated from this unit. However, it was suggested that the wall's construction dates to approximately the same period as the late Phase III Jenne-jeno city wall due to several rim sherds, which were found immediately below the wall foundation, resembling a type known from Phase III (AD 400-900) or later at Jenne-jeno.

Haskell et al. (1988) proposed the following chronology: (1) Initial occupation started simultaneously at Jenne-jeno and Dia during "Phase I/II" (250 BC-AD 400). While this occupation might have been temporary at Mara, it might have been continuous at Shoma. (2) "Phase III" (AD 400-900) was only represented at Shoma, while Mara seems to have been completely abandoned during this period. The foundation of a city wall at Shoma is used to indicate the urban character of the site, similar to Jenne-jeno's development during this period. (3) During Phase IV (AD 900-1400), settlement at Dia might have once again extended to Mara. Its deposits, which consisted primarily of brick wall collapse and wall melt, provide the only domestic architectural remains encountered in the initial Dia excavations. (4) While Shoma seems to have been abandoned at the end of "Phase IV", Mara attests to continuous occupation through "Phase V", which extends to the late second millennium.

An archaeological survey, which was conducted within a 4 km radius around Dia, visited a total number of 21 sites. Six site clusters were identified (Fig.4.3), whose interrelationship was examined from the perspective of chronology, site function, and geophysical status, which consisted of the following (Haskell et al. 1988:125-6):

(1) The Dia complex (Cluster V), which is the dominant group of the survey region, including Shoma, Mara, and three smaller mounds lying at the juncture of marigots 1 and 2;

(2) Cluster IV, a group of ten small mounds lining the east bank of Marigot 2, just north of the Dia complex;

(3) Isolated sites near Dia, including three floodplain mounds (sites 10i, 22i, and 23i);

(4) Clusters VIII (seven mounds) and X (two mounds), lying near the mouth of Marigot 3, the western margin of settlement in the Dia region and the only one of the three marigots to pass largely through the deep clay floodplain;

(5) Cluster LI, an elongated, densely packed group of 15 sites located on a possible levee at the convergence of Marigots 1 and 2 in the northeast of the survey region;

(6) Isolated sites more than 2 km south of Dia, where a much sparser pattern of ancient settlement consisted of generally widely separated isolated sites. The sample included one site (19i) on the Diaka levee and one floodplain site (18i) located 4 km south of Dia on a vestigial marigot leading from the Diaka to Marigot 1.

It was found that the Dia hinterland showed a striking resemblance to the Djenne area, in terms of settlement patterns, surface artefacts, and surface features. At Dia, however, clusters tended to be in long lines of densely packed sites, with no evident dominant mounds (save Dia itself), while in Djenne clusters usually consisted of one or more large sites surrounded by a constellation of smaller sites.

As at Djenne, no evidence of Late Stone Age occupation was identified. The pottery of the Dia survey was said to be analogous to that found around Djenne. 76% of the sites provided "Phase I/II" pottery. "Phase III" material was represented at 86%, while "Phase IV" pottery was present at 38%. "Phase V" occupation was found on only a handful of large widely separated sites (for a more detailed description of the pottery see Chapter 6).

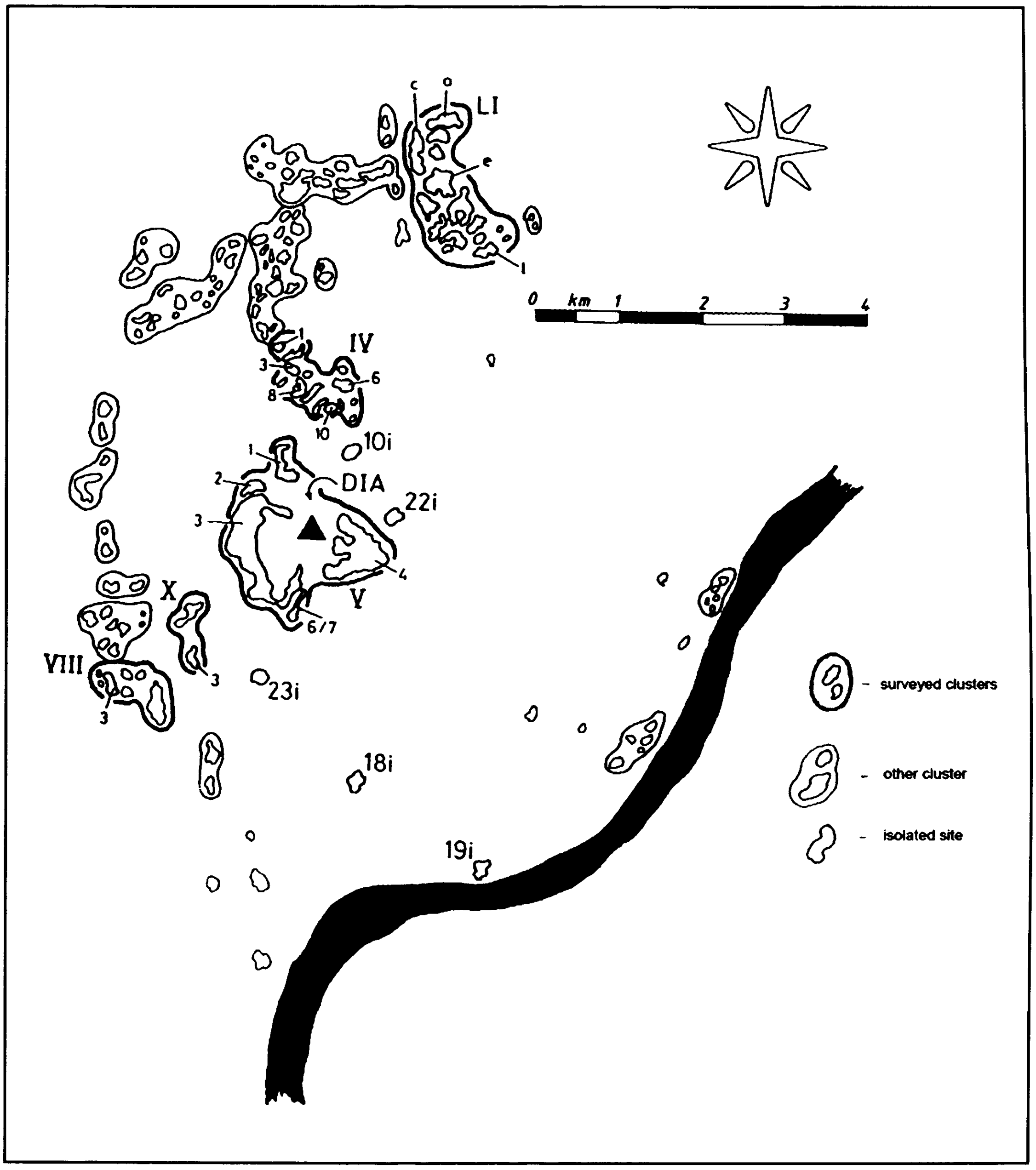


Figure 4.3 Dia survey map showing identified site clusters (Haskell et al. 1988).

4.2.1.2 Jenne-jeno

Jenne-jeno has become one of the best known archaeological sites of West Africa, due to its urban character predating the arrival of Islam. Roderick and Susan McIntosh have been investigating Jenne-jeno and its surrounding area since 1977, the results of which have been published in numerous articles and books (S. McIntosh and R. McIntosh 1980, 1981, 1984, 1993; R. McIntosh 1991, 1993, 1998, 1999, 2000; S. McIntosh 1981, 1995, 1999). Jenne-jeno is intricately linked to Dia's history as according to oral traditions, it was founded by migrants from Dia (Monteil 1932).

The settlement mound of Jenne-jeno, which is located 100 km to the south of Dia, measures 33 ha in size (Fig.4.4). A four-phase ceramic and cultural sequence for "Iron Age" occupation was established, extending from 250 BC to AD 1400 (S. McIntosh 1995). As has already been mentioned in section 4.2.1.1, Haskell and the McIntoshs' results from Dia in the 1986 campaign were adapted to Jenne-jeno's four-phase sequence.

Phase I/II, Jenne-jeno's most ancient occupation, has been dated between 250 BC and AD 350. It provided evidence for "mat-and pole" (and daub) huts, which might have occupied an area of around 12 ha until AD 100, growing to 25 ha until AD 400 (McIntosh and McIntosh 1993:630). The subsistence economy consisted of domestic rice, wild Brachiaria millet, domestic millet and sorghum, the hunting of wild antelope and waterfowl, herding of domestic cattle and sheep/goats. Trade and exchange was limited to iron, which was imported from distances of up to 50 km, and rare glass beads from the Mediterranean sphere. Burials are single inhumations in a flexed position, containing no grave goods.

During Phase III, dated from AD 350-850, Jenne-jeno grew to a maximum of 33 ha. Its architecture was characterised by 'tauf' dwellings with internal diameters of no more than 3m (McIntosh and McIntosh 1993:631). While the hunting of antelope declined during this period, dwarf ovicaprids increased in number, as did both large and small breeds of Bos. A significant discovery was the identification of domestic chicken (Gallus gallus), which so far constitutes the oldest evidence of chicken in sub-Saharan Africa (MacDonald 1995:308). All other elements of the subsistence economy remained constant. Around AD 500 copper came into use, of which the nearest source is 300 km away. Gold objects, dating to AD 900, were also identified, of which the nearest source is 600 km away. Large funerary urns and simple inhumations in shallow pit graves characterised the mode of inhumations. Urn burials contained pri-

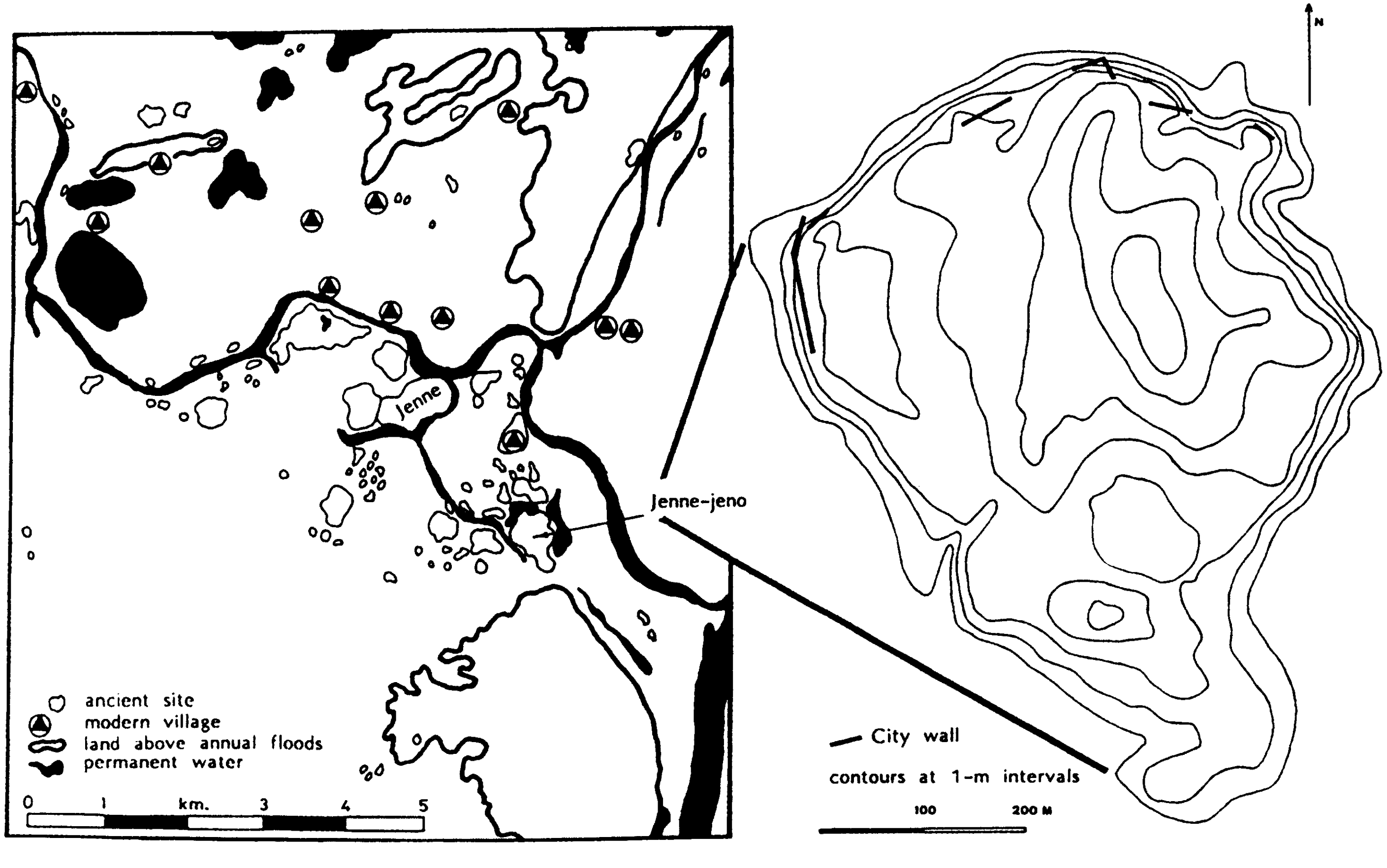


Figure 4.4 Topographic map of Jenne-jeno and identified site clusters in Jenne-jeno's hinterland (S. McIntosh and R. McIntosh 1980).

mary or secondary interments. The latter consisted of fragmentary and disarticulated remains, which appeared to have been placed in urns, sometimes subsequent to one or more earlier burials in the same urn (S. McIntosh 1995:45). No grave goods were identified.

During Phase IV, dated from AD 850-1400, Jenne-jeno witnessed a gradual contraction after AD 1100 until the site was completely abandoned by AD 1400. The subsistence economy showed no significant changes. Cylindrical, sun-dried mudbrick technology appeared at the Phase III/IV transition, consisting of curvilinear houses with internal diameters of 3m (Fig.4.5). Jenne-jeno's city wall also dates to this period. Rectilinear mud brick houses appeared by late Phase IV (Fig.4.6). Exchange and

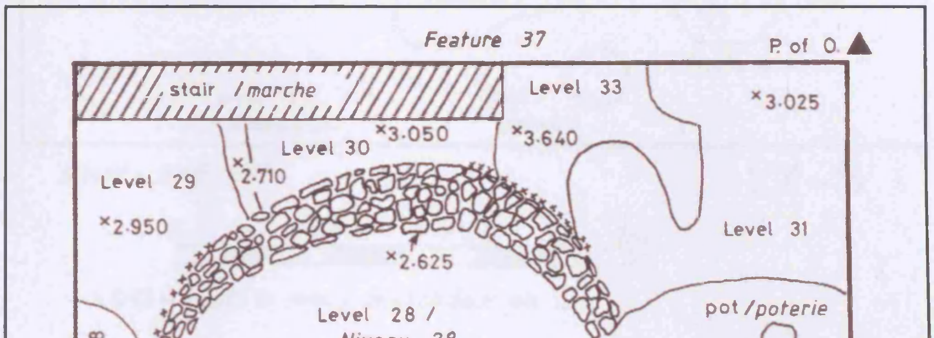


Figure 4.5 Round brick house identified in lower Phase IV layers (Unit LX-N) at Jenne-jeno (S. McIntosh 1995).

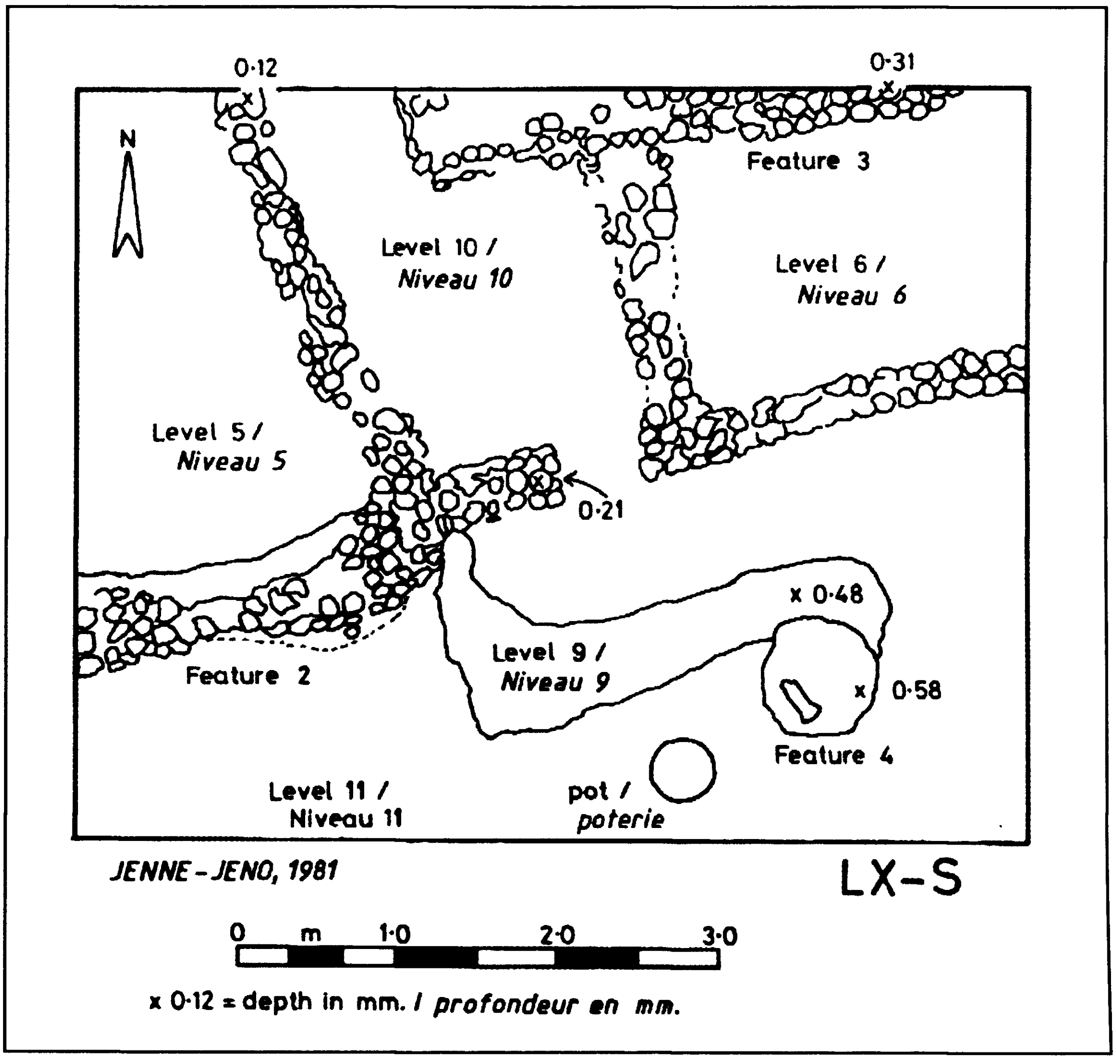


Figure 4.6 Rectilinear building constructed of cylindrical mudbrick in upper Phase IV layers (Unit LX-N) at Jenne-jeno (S. McIntosh 1995).

trade goods consisted of North African brass, glass and spindle whorls. Funerary urns persisted and were even found in association with residences. No grave goods were identified. Three incomplete terracotta statuettes were identified within the wall foundation of houses, which have been consistently dated between the eleventh and thirteenth century AD (R. McIntosh and S. McIntosh 1979; S. McIntosh 1995). It has been suggested that they were deposited in the course of a ritual directed towards ancestor worship (R. McIntosh and S. McIntosh 1979:52). All other Jenne-jeno terracottas were identified in secondary depositional contexts, in rubbish tips peripheral to the shrinking settlement. They include various figurine heads and the well-known statuette torso (Fig.4.7), which have been dated to the superior layers of Phase IV or AD 1300-1400 (McIntosh 1995:221).

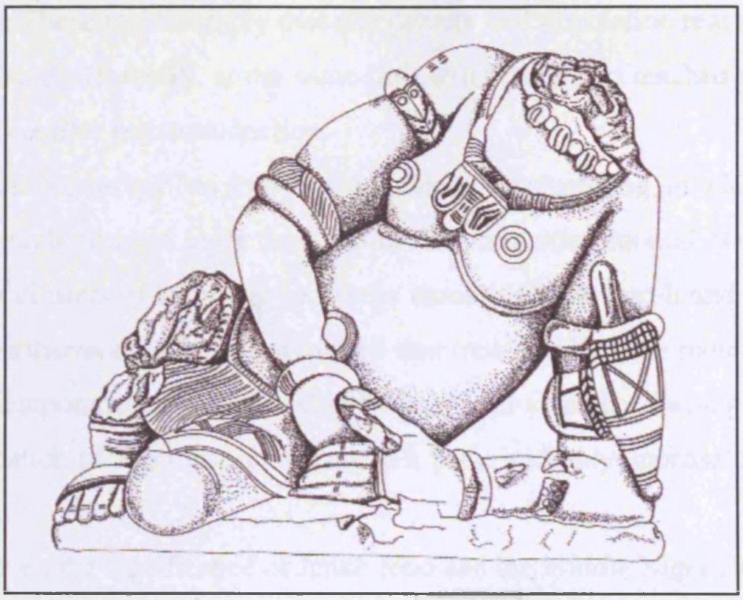


Figure 4.7 Jenne-jeno's statuette torso (reduced to 72%, S. McIntosh 1995).

The decline and ultimate abandonment of Jenne-jeno has been linked to the foundation of a new Islamic Djenne on a new site 'unpolluted' by pagan practices shortly after the king's and elite's conversion to Islam (R. McIntosh 1998:631). According to historical records, commercial control was consigned to native Muslim merchants. Hence, the new Islamic Djenne replaced pagan Jenne-jeno as the centre of economic activity, which resulted in Jenne-jeno's abandonment by at least the mid-fifteenth century. However, recent coring in the town of Djenne itself has provided evidence for unambiguous occupation prior to Phase IV. It has thus been suggested that Djenne was founded sometime during the end of the first millennium AD (R. McIntosh 2000a).

The McIntoshs also conducted a survey within a study area covering 1100 square kilometres to the north and west of Jenne-jeno (S. McIntosh 1995). Focusing on areas above flood level, including tell sites, levées and dunes, where permanent settlement could be supported, 404 sites were discovered. Of these, sixty-five were clustered within 4 km of Djenne (see Fig.4.4). Nearly all these sites were located on intermediate-depth floodplain soils favoured for rice cultivation. Surface remains on several of the largest sites in the Djenne vicinity, which have been dated on the basis of Jenne-jeno's ceramic typology, indicate maximum occupation during Phase III/early Phase IV, and a reduction in the area of more recent deposits before final abandonment. These results imply that site density and population reached a peak in late Phase III/early Phase IV, at the same time that Jenne-jeno reached its maximum extent, and thereafter began to decline.

The Djenne survey has shown a high degree of clustering, in which only 23% are single mounds situated more than 500 m from any other mound, while the other 77% occur in clusters of from two to fifteen mounds (S. McIntosh and R. McIntosh 1993:637). Furthermore, it has been argued that most or all of the mounds in a cluster were contemporaneously occupied and functioned as parts of a single urban unit by the distribution of site ranks and sizes in a pattern closely approaching the rank-size rule (ibid.).

However, the significance of Jenne-jeno and the Middle Niger clustered cities is that in spite of having constituted urban centres, they thus far appear to lack the usual traits of urban societies such as elite residences and monumental architecture. Due to the seeming absence of political and social hierarchies, it has been proposed that the Middle Niger cities were not a dense agglomeration of population focused on a single locale, but rather a network of specialised parts integrated by autonomous but linked spheres of authority (R. McIntosh 2000:23). This pattern has also been documented in Shang China (R. McIntosh 1991), at Harappa and to a lesser extent, in the late Uruk period in Mesopotamia (R. McIntosh 1999). It has been proposed that the reason for the development of multiple, tightly clustered settlements rather than nucleation within a single site was due to the desire of heterogeneous groups of people to be near the centre without being subsumed within it (R. McIntosh 2000a). On the basis of data collected from surface investigations during survey it has been suggested that occupational specialisation was taken up by different groups. It has been argued that it would be possible to "detect corporate, ethnic and class differences amongst those who left behind evidence of varied subsistence tasks (net weights, cattle bones, sub-Saharan earliest *Oryza glabberima*, amongst other finds), of their artisan prowess (iron smelting furnaces, spindle whorls, fine-ware ceramics), and of differences of identity (burial customs, architectural styles, forms and themes of the sadly abused Middle Niger terracottas)" (R. McIntosh 2000a:23). However, this hypothesis on the specialisation of individual settlements has been difficult to substantiate thoroughly as a new generation of scholars have shown the difficluty of controlling the full range of materials and the activities they represent within deeply stratified component sites of every urban cluster (La Violette and Fleisher 2005).

4.2.1.3 Toguéré Doupwil and Toguéré Galia

The only other investigation in the Inland Niger Delta, which provided complete stratigraphic and ceramic sequences, was carried out by a Dutch team of researchers along the Bani between Mopti and Djenne (Bedaux et al. 1978) (Fig.4.8). Two settlement mounds were chosen for excavation, from a total number of 28 surveyed sites, which included Toguéré Doupwil and Toguéré Galia. The former is located near Sevaré at the confluence of the Bani-Niger, measuring 8 ha in size. The latter is located at the right-hand side of the Bani, some 12 km down-river from Djenne. Flooding has submerged large portions of the site, which resulted in a transversal cut exhibiting the total length of the site (70 m).

Both sites were initially occupied at ca. 900 BP (or the 11th century AD), which dates nearly one and a half millennia later than Jenne-jeno's most ancient habitation (Bedaux et al. 1978). Structural remains were only identified in layers dating between 550 and 600 BP (14th to 15th centuries) at Toguéré Doupwil, while at Toguéré Galia habitation structures have only been identified in layers, which have been dated to around 300 BP (17th century). Surface structures mainly exhibited rectangular buildings, made out of cylindrical mudbricks as at Jenne-jeno. Toguéré Doupwil might have been abandoned sometime before AD 1600, while Toguéré Galia might have been occupied until at least the 17th century.

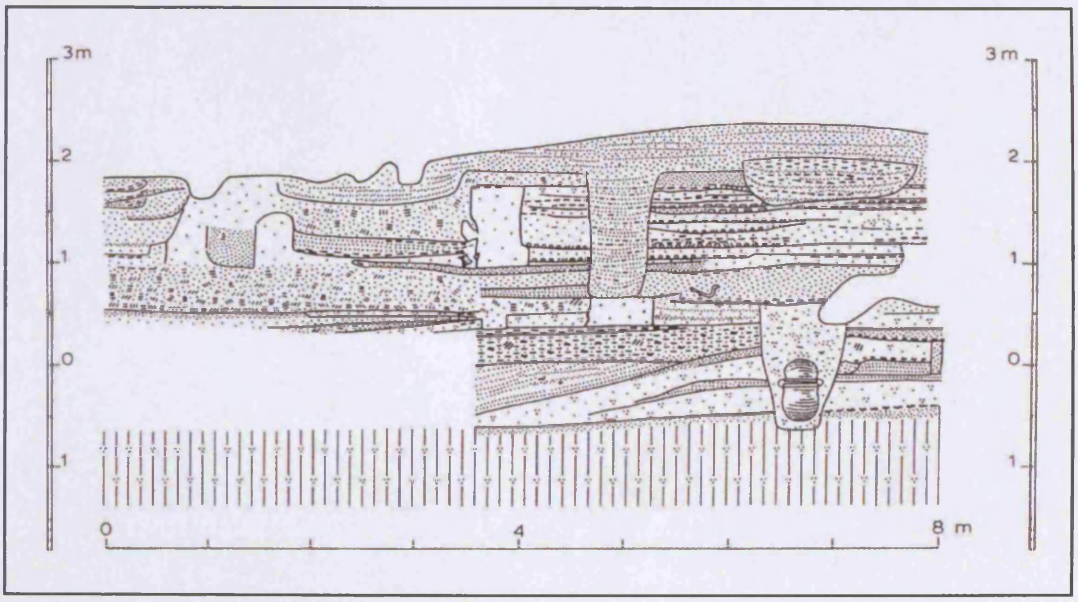


Figure 4.8 Toguéré Douwil, Section C. The elevation of the surface (visible at the right hand side) is man-made, maybe because of the region's high floods. An intact funerary jar is visible in the lower deposits (Bedaux and van der Waals 1994).

The subsistence economy was based on agriculture (millet, rice and fonio), the gathering of wild plants, fishing, hunting, and herding of cattle, sheep and goat. It seems as if neither engaged in any substantial trading activities, unlike Jenne-jeno. On the contrary, the material culture inventory indicates a homogeneous and stable population for both sites, which is further manifested by continuous funerary practices. The most prominent type was inhumation in funerary jars, while a second type consisted of pit burials in elongated or flexed positions. The former type was identified throughout the entire occupation sequence.

The recorded funerary jars are mostly associated with lids. They were buried in pits sometimes situated in the courtyard of a house (Fig.4.9). It seems as if no defined area was used for the burials, except at Toguéré Galia. 32% of funerary jars consisted of single inhumations. Infants were mainly buried in carinated bowls (with lids), while a more limited number were found in small jars as well as in large jars accompanied by adults. Multiple burials in jars accounted for 36% of inhumations at Toguéré Galia, while at Toguéré Doupwil only single inhumations were identified. Grave goods were only found in four instances, which consisted of metal bracelets. An additional custom seemed to have consisted of embalming with a layer of red ochre (32%).

Figure 4.9 Funerary jar with skeletal remains at Toguéré Doupwil (in Bedaux and van der Waals 1994).

In addition to continuous and unique burial customs, the pottery assemblage also seems to indicate a stable population. Toguérés Doupwil and Galia fit into the description of what has been observed for the ceramic traditions of the southern Delta, which has been termed by Gallais and Huysecom (1989) as "diachronically homogeneous", whereas the overall approach to pot shape and decoration shows a remarkable continuity over long periods of time. Additionally, there seem to be various parallels with the ceramics from Jenne-jeno's Phase IV, indicating cultural connections between these southern Delta populations.

4.2.1.4 The Lakes region

The Lakes region in the northern Delta consists of irregular inundated basins stretching from Lake Débo in the south, to Lake Faguibine in the north, and from Lake Tanda in the west to the region of Timbuktu in the east. Auvray called it "La tache bleue au centre de l'Afrique de l'Ouest" (Songoré 1991). Its monotonous topography is interrupted by quaternary fossil dunes situated in the west and north-west.

Similar to the southern Delta, clusters of settlement mounds as well as isolated sites occupy its landscape, which have been surveyed and test excavated during the 1980s by a team of French and Malian archaeologists (Raimbault and Sanogo 1991). A total of 38 sites were recorded, which consisted of individual mounds, twin mounds, site clusters, and iron working sites (Dembele 1991). An important objective has been to discern whether these mounds functioned as habitation or funerary sites. Desplagnes' excavations at El Oualadji (Fig. 4.10 and 4.11) had revealed two human interments with a considerable amount of grave goods underneath what has been called a "tumulus" (Sanogo and Raimbault 1991; R. McIntosh 1998). Hence, the Lakes region had become equated with funerary monuments of high-ranking personalities. However, the excavations of the 1980s at some of these mounds revealed evidence for habitation sites, showing relatively long occupations spanning the first millennium AD until their abandonment between the 9th and 11th centuries (Raimbault and Sanogo 1991). As a consequence it has been speculated that the Lakes region might have constituted an ancient kingdom, which emerged parallel to the one of Ghana (Sanogo 1991:513). The abandonment of various settlements before AD 1000 corresponds with the expansion of Ghana. Others, which were occupied until the 11th century, might have been abandoned due to the decline of Ghana and the conquest of the Almoravids.

The density of first millennium settlement mounds indicates that during this period the Lakes region might have constituted a favourable environment due to its agricultural and aquatic resources. Excavations at Kawinza (KWZ 1), Mouyssam II (KNT 2) and Toubel (GMB 1) confirmed that the region's economy was based on agriculture (rice and millet), pastoralism (sheep/goat and cattle) and fishing. Iron metal-

Figure 4.10 The funerary site of El-Oualadji (Raimbault and Sanogo 1991).

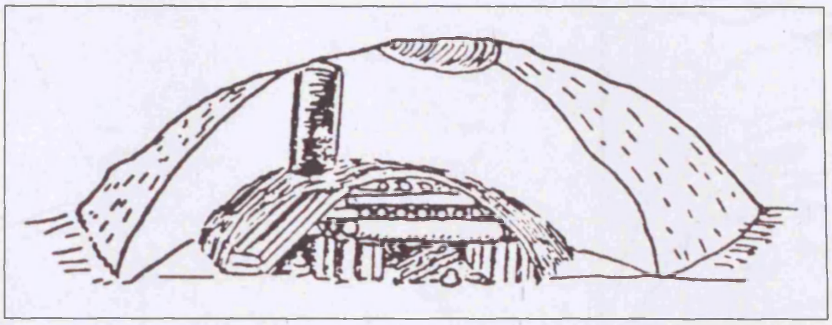


Figure 4.11 Reconstruction of El-Oualadji's funerary chamber (Desplagnes 1951, in Raimbault and Sanogo 1991).

lurgy also seems to have been a major occupation as a large number of settlement mounds exhibited considerable quantities of slag, while others were associated with separate iron working sites. Due to the vast amounts of iron, which seems to have been smelted, it has been suggested that at least parts of it must have been designated for export.

4.2.2 The Niger Bend

4.2.2.1 The Region of Timbuktu

In 1984 the McIntoshs carried out an archaeological survey in the Niger Bend region, aiming to compare settlement pattern data with data already available for the Djenne hinterland and to record ceramic assemblages and other surface artefacts (S.

McIntosh and R. McIntosh 1986). Two areas of the Niger Bend were selected, consisting of 260 km² immediately south and east of Timbuktu, and 50 km² approximately 90km farther down-river (Mangabéra region, 22km west of Gourma-Rharous) (Fig.4.12). This project formed part of their investigation of the existence of urban trade centres of the first millennium AD or earlier in the Middle Niger and Niger Bend

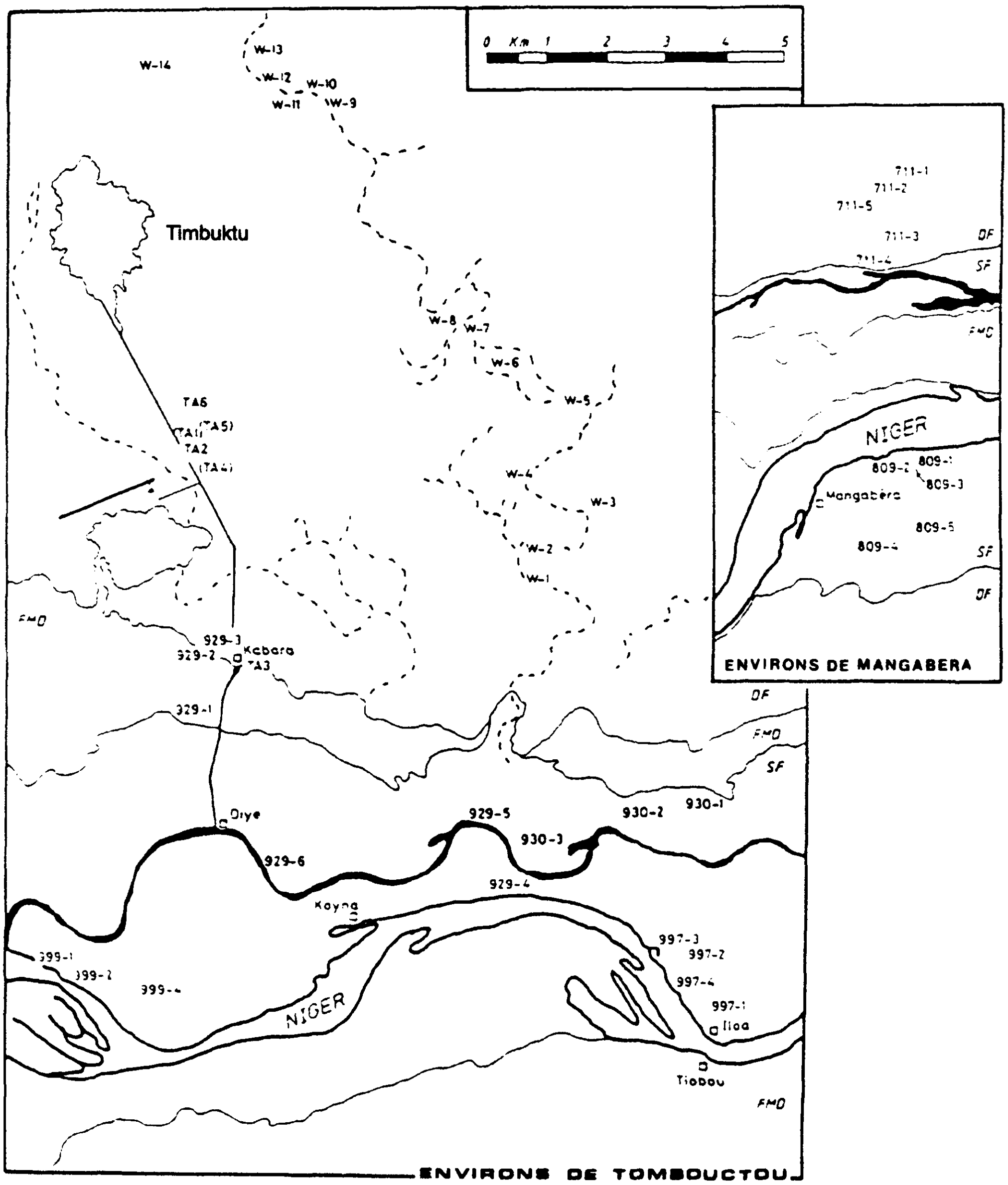


Figure 4.12 Site inventory of Timbuktu and Mangabera survey, FMD - remodeled dunes, DF - longitudinal dunes, SF - inundated plain (S. McIntosh and R. McIntosh 1986, in Raimbault and Sanogo 1991).

areas. Written and oral sources place Timbuktu's ascendancy as a commercial centre in the end of the 15th or the beginning of the 16th century, when it replaced Walata as the southern terminus of the salt trade. However, the results of the McIntoshs' survey suggested a different chronology of settlement development.

Forty-three sites have been recorded within the study area, of which none exhibited any traces of Late Stone Age occupation. The archaeological invisibility of Late Stone Age sites might have been due to the burial of material under dune sands, recent alluvium, or later occupation deposits, or due to the removal of material by an active fluvial regime involving meandering and channel cutting. Another reason might have simply been sampling error.

A considerable number of iron-smelting sites with extensive slag scatters were identified on the floodplain, which might have been one cause of deforestation in this now dune-based landscape. Habitation sites, measuring between less than 1ha and up to 50 ha in size were identified on the dune fields, on fluvially modelled dunes and the floodplain. The former two locations indicate that only extraordinary fluvial conditions could have allowed such settlements in the dune field along the margins of wadis such as the El Ahmar. It has been suggested that water flow increased in the wadis due to extraordinary flooding of the river (S. McIntosh and R. McIntosh 1986:316). As a consequence, the interdunal Badjindé ponds of Timbuktu might have been larger and more permanent until the 17th century, which marks the modern hyper-arid rainfall regime and limited Niger inundation. Hence, during much of the late first and early second millennia AD, the location of modern Timbuktu may have been characterised with a surface water supply and seasonal access by boat to the Niger (ibid.). As a result, it has been suggested that a major trade centre could have existed at or near Timbuktu in the late first and early second millennia AD, which is indicated by a regional site hierarchy reminiscent of urban settlement patterns. The recent period is characterised by a change of settlement preference to floodplain exclusively, which is accompanied by a decrease in settlement size (sites do not exceed ca. 7 ha). This may have been the result of population decrease due to climatic deterioration or political instability and an emigration of population towards the centre of Timbuktu.

Due to the lack of excavations and radiocarbon dates, the surface collected ceramics were only indirectly dated by comparing them with neighbouring assemblages, which included Jenne-jeno, the Lakes region and Gao. Hence, broad probable time brackets for three periods have been suggested, consisting of an Early (500 BC–AD 500), Middle (500–1500 AD) and Recent Assemblage (1600–1900 AD) (S. McIntosh and R. McIntosh 1986).

Curiously, it was not until 1996 that the town of Timbuktu became the focus of archaeological excavations focusing on the origins of the city (Insoll 2000, 2003). Though detailed results of these excavations are still in the process of being published, preliminary reports have shown that cultural layers within Timbuktu do not date further back than the beginning of the 18th century (ibid.). However, it seems unlikely that Timbuktu only emerged as late as the 18th century. Early material has been found on the surface in and around Timbuktu and its hinterland. The most obvious reason for the lack of such material during excavations is that sandstorms and sand encroachment seriously affected the landscape, burying the town's foundation much deeper than anything excavated so far (Insoll 2003:86).

4.2.2.2 The Gao Region

Just south of the Niger Bend, lies Gao, famous for having constituted a terminus for trans-Saharan trade and the capital of the Songhay Empire between the mid 15th and late 16th centuries. Excavations were mainly carried out by English teams of researchers during the 1970s (Flight 1975a, 1975b, 1979) and 1990s (Insoll 1993, 1994, 1996, 1999) at the settlement mounds of Gao Saney and Gao Ancien. The former is located ca. 6km to the east of the modern city of Gao, measuring 24 ha in size. The latter is situated at the northern end of modern Gao, once covering 2 square kilometres (today Gao Ancien is only partially visible, due to the encroachment of modern Gao) (Fig.4.13).

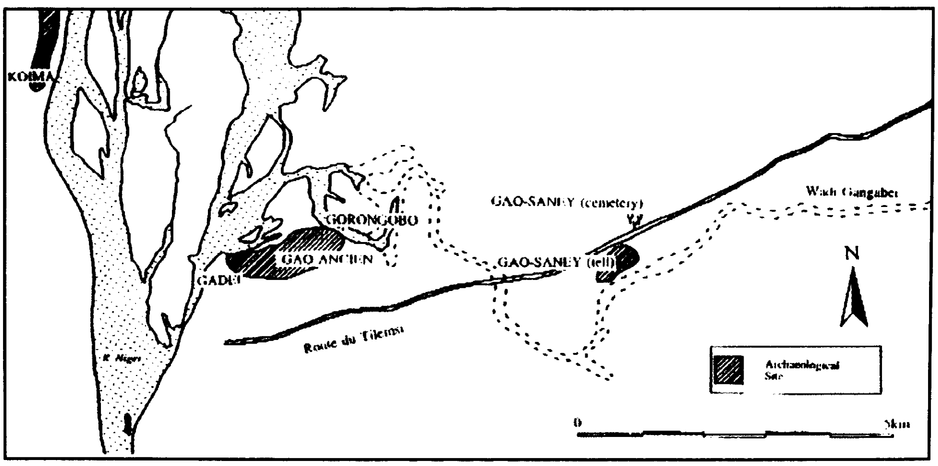


Figure 4.13 Map of Gao settlement mounds (Insoll 1996).

On the basis of these investigations, the following picture has emerged. The most ancient layers of Gao Ancien has provided a date of 1470±250 BP (GX-22807) (Insoll 2000:11). The initial occupation period has thus been dated between the 6th to the early 9th centuries. No structures or postholes were identified. The subsequent layers have been dated to the mid 9th to late 10th centuries, which exhibited a cache of hippopotamus ivory (this time period seems to be based on dated charcoal from previous and subsequent layers) (ibid.). The next period has yielded a date of 1005±75 BP (GX-22806), which has been interpreted as covering the 11th to 12th centuries. It is characterised by many imported North African goods. The following layers exhibited a fired brick building, which has been dated to the late 12th to 13th century (no radiocarbon dates have been illustrated for this habitation layer, which also applies to the subsequent periods) (Fig.4.14). The most recent occupation period starts from the

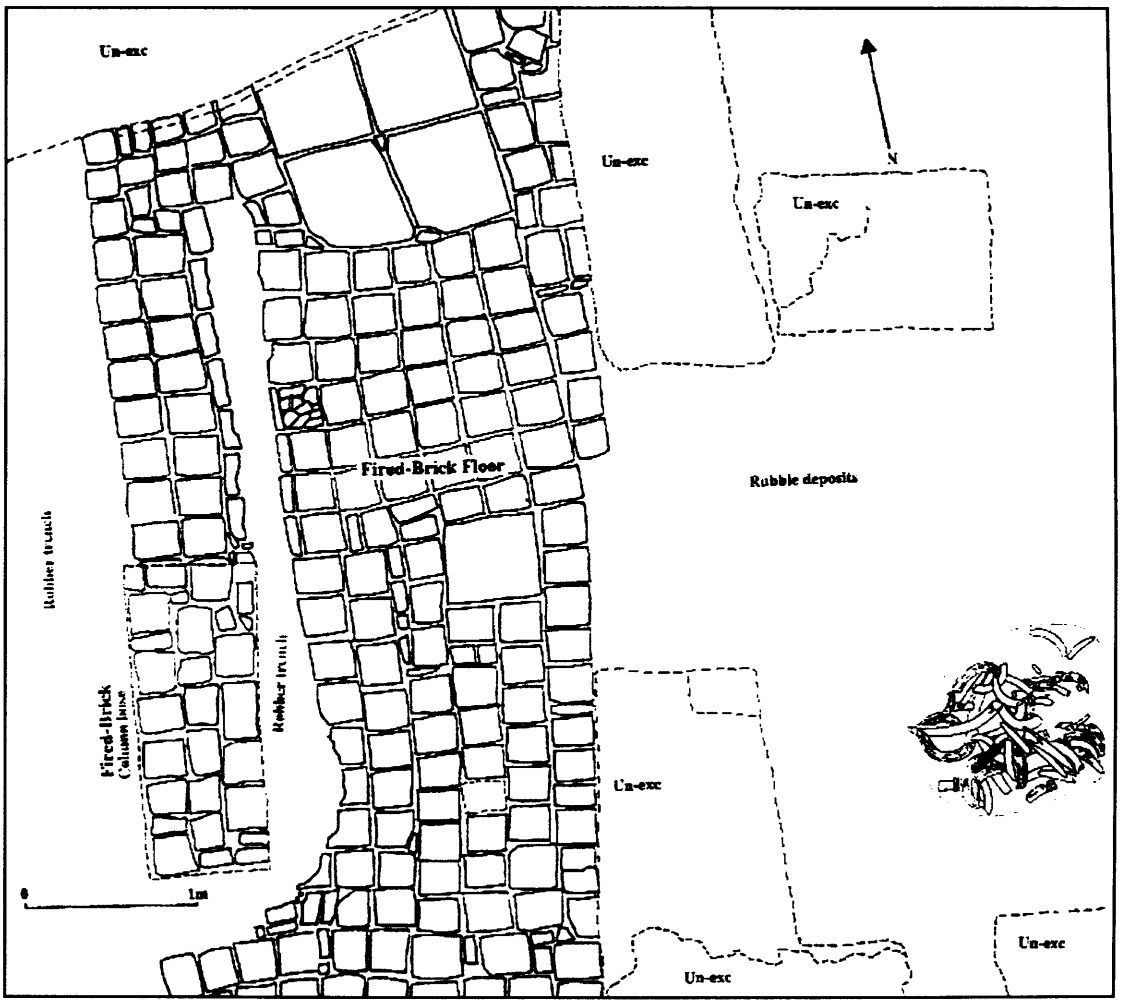


Figure 4.14 The hippopotamus tusks and the fired-brick building in Gao Ancien (Insoll 1996).

late 13th/early 14th century and might have ceased around the 16th century due to the absence of tobacco pipes (Insoll 2000), which were introduced to West Africa in the late 16th century (S. and R. McIntosh 1984). It has been suggested that the fired brick building might have functioned as a mosque, indicating the presence of a Muslim community already by the early 13th century (ibid.). The high quality of the imported pottery, glass and metalwork suggests that Gao Ancien might be identified with the royal town mentioned by Arab chroniclers.

Gao Saney, dated between the 10th to 13th centuries AD, has been interpreted as a mercantile and manufacturing community with perhaps a higher number of indigenous inhabitants (ibid.). The former is indicated by the presence of curved copper ingots (a currency item), five spindle whorls and several pieces of crucible as well as manufacturing debris (metal and bead). The latter is indicated by the absence of imported pottery, as well as fired mudbrick buildings.

In 1996 I carried out an archaeological survey south of Gao on the left bank side of the Niger, which until then had never been systematically investigated (Arazi 1999). With the assistance of Daouda Keita (then at the Institut de Sciences Humaines) we covered by foot an area of 40 square kilometres, which was divided into two survey transects. One was located to the northeast of the town of Ansongo and the second at the village of Bentia. The latter has been identified with Koukiya, which in Arabic texts is described as the founding place of the first Songhay dynasty and important trading entrepôt between Gao and regions further downstream (Lange 1994). A total number of 32 sites were identified, which consisted of settlement mounds, iron working sites and Islamic necropolises. Surface collected material indicates that human occupation south of Gao has been continuous since the 2nd Millennium BC.

Due to the region's dense occupation of archaeological sites and the fact that no excavations were carried out, I focused on site size to distinguish potential regional site hierarchies. My investigations (Arazi 1999) came to the following conclusions: Sites ranging between 30 and 80 ha, comparable to prehistoric towns such as Koumbi Saleh, Tegdaoust and Jenne-jeno, are present in quantity. Sites ranging between 10 and 25 ha form an intermediate category, and communities of less than 1 ha to 10 ha are either satellites of larger settlements or villages and hamlets. As the largest recorded sites in Ansongo have not exceeded 21 ha, it might have only consisted of large villages. Bentia, in contrast, exhibited three sites of considerable size, which include

Bilimbiri Bero (80 ha), Bentia Village (33 ha) and BVII-96 (31 ha). Due to their association with intermediate and rural settlements, Bentia exhibits an urban settlement pattern, similar to what has been found in the Inland Niger Delta and the Méma (Fig.4.15).

Indeed, preliminary data indicate that Bentia was occupied from at least the beginning of the 1st Millennium AD onwards, functioning as a trading entrepôt between the Niger Bend and down-river. A Muslim community might have flourished from at least the 14th century AD onwards, which is evidenced by the Islamic necropoli bearing Arabic inscriptions, of which the earliest dates to AD 1327 (De Gironcourt 1920:34).

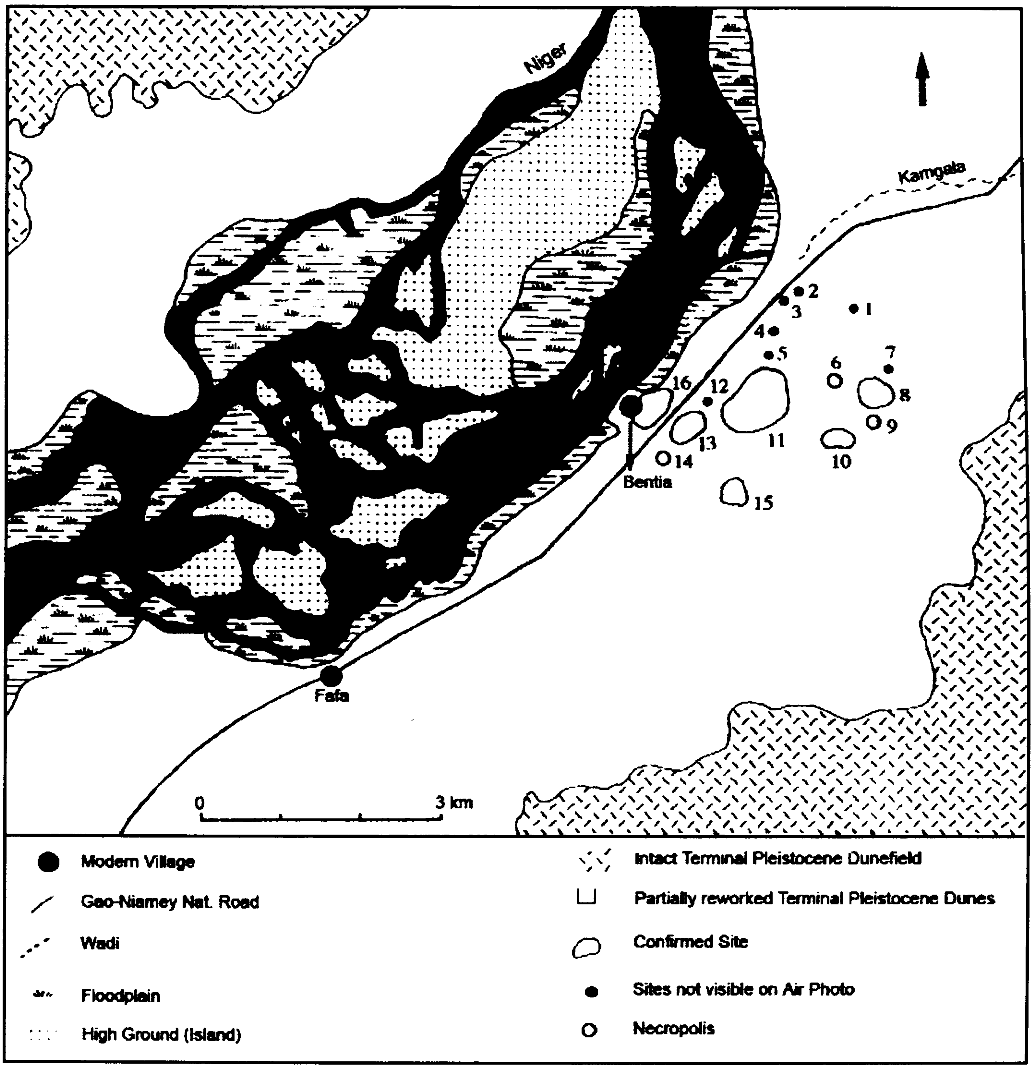


Figure 4.15 Bentia settlement clusters.

As a result, I have suggested that the region south of Gao might have witnessed similar urban developments as the IND, characterised by a clustered settlement pattern. Due to the preliminary nature of my data, which so far only consist of surface collected artefacts, it remains highly speculative to which extent the IND has been in direct contact with the region south of the Niger Bend. It has already been noted that affinities in material styles seem to decrease the further downriver we travel, of which Gao at the Niger Bend might signal the border of a different culture sphere. It can nevertheless be argued that the navigability of the Niger River has contributed a great deal to the spread of goods, ideas and people over a wide region.

4.3 The Méma

A fossil drainage of the Middle Niger, which is known as the Méma, has supplied concrete evidence for cultural connections between the Tichitt-Walata complex of southeastern Mauritania and the later civilisations of the Middle Niger. In fact, the Méma constituted one of the cultural corridors through which Proto-Mande populations passed on their way into the Inland Niger Delta, in the last four millennia, eventually contributing to the foundation of settlements such as Dia and Jenne-jeno.

The Méma, which is often referred to as the "Dead Delta", corresponds to a vast ancient flood plain, providing a dense network of dry water courses that was annually flooded until recently, forming a flood plain of pseudo-deltaic hydrology similar to the Inland Niger Delta of today. In 1989/1990 Téréba Togola and Kevin C. MacDonald carried out a systematic survey and test excavations in order to establish a cultural chronology for the region, during which 28 "Late Stone" Age sites (MacDonald 1994, 1996) and 109 "Iron Age" sites (Togola 1993, 1996) were recorded (Fig.4.16).

The LSA sites yielded four distinct ceramic facies, representing two broad cultural traditions, those of Kobadi and Tichitt (MacDonald 1994). These two traditions are thought to have been at least partially contemporaneous in the region, dating between 2000 and 800 BC on the basis of a small suite of eight radiocarbon dates from three sites (ibid.). The Faita facies – an offshoot of both the Tichitt and the Kobadi Traditions - in contrast, represents a later phase in the region's occupation, dated between 800 BC - AD 200.

The earliest occupants of the region are represented by the Kobadi tradition sites. They are usually located on "iselets" (Raimbault and Dutour 1989; MacDonald

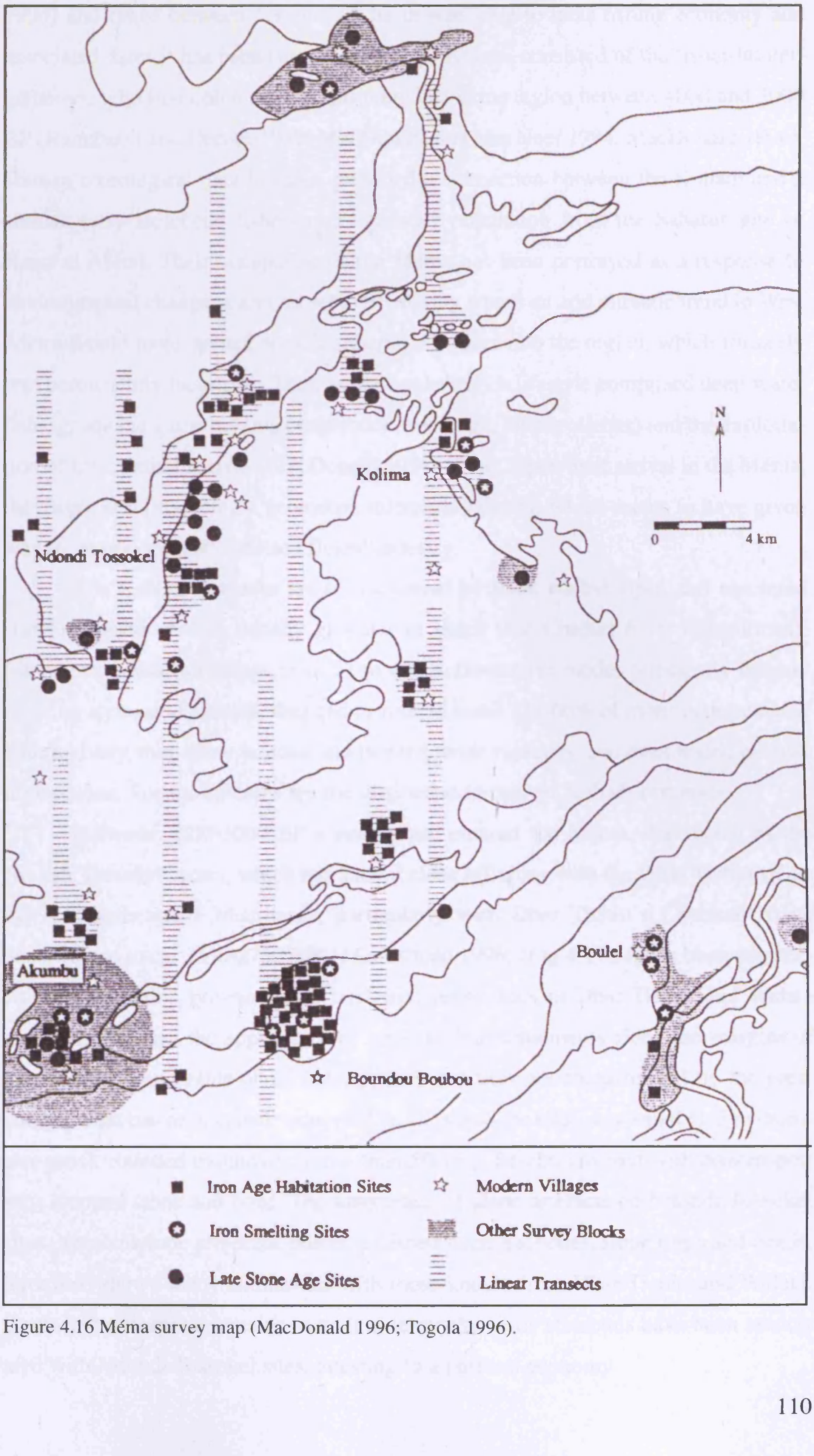


Figure 4.16 Méma survey map (MacDonald 1996; Togola 1996).

1994) and range between 1.9 and 7.6 ha in size. Due to their fishing economy and associated dates it has been suggested that the Kobadi consisted of the fisher-hunter-gatherers, who first colonised the shrinking lacustrine region between 4000 and 3000 BP (Raimbault and Dutour 1989; MacDonald and Van Neer 1994; MacDonald 1996). Human osteological data has also provided a connection between the Kobadi and a similar early Holocene fisher-hunter-gatherer population from the Saharan site of Hassi el Abiod. Their occupation of the Méma has been portrayed as a response to environmental change at around 4000 BP, during which an arid climatic trend in West Africa would have opened some terrestrial corridors into the region, which formerly was permanently lacustrine. Their aquatic subsistence lifestyle comprised deep-water fishing, aquatic game hunting (waterbuck, sitatunga, hippopotamus) and the exploitation of freshwater bivalves (MacDonald 1994, 1996). Upon their arrival in the Méma, they were still producing a geometric microlith industry, which seems to have given way to an opportunistic utilised flaked industry.

The Kobadi ceramics are characterised by thick-walled, open and restricted simple-rimmed vessels, usually globular in shape (see Chapter 6 for illustrations). Internal rim diameters range from 24 to 40cm. Decorative modes principally include pivoting stylus and pivoted, dragged or rocked comb (24-60% of motif occurrences). Alternatively, they show braided and twisted twine roulettes, and even textile or matt impressions. Sponge spicules are the distinctive temper of Kobadi ceramics.

Between 3500-3000 BP a new group entered the Méma, designated as the Ndondi Tossokel facies, which has shown close affinities with the Dhar Tichitt tradition of southeastern Mauritania, particularly with Dhar Tichitt's Chebka/Arriane phase (dated to ca. 3250-2750 BP) (MacDonald 1996) (Fig.4.17). It has been suggested that population pressures and territorial restrictions in Dhar Tichitt and Walata might have caused the appearance of small mobile settlements along the margins of the Méma's inundatable plain. Ndondi Tossokel sites are characterised by the presence of what has been called 'mini-middens', which are relatively small (1-5 m diameter sites), rounded mounds no more than 50cm in height, covered with broken pottery, chipped stone and bone. The assortment of stone artefacts on Ndondi Tossokel sites, which include projectile points, polished stone hachettes, stone rings and beads, have also shown many similarities with those known from Dhar Tichitt and Walata. Cattle and ovicaprine remains as well as terracotta cattle statuettes have been associated with Ndondi Tossokel sites, attesting to a pastoral economy.

Figure 4.17 Dhar Tichitt stone enclosures (in Phillipson 1993).

Ndondi Tossokel ceramics mainly consist of open simple-rimmed and closed everted-rimmed vessels. The everted-rim vessels have internal diameters of between 12 and 22cm and the simple rim vessels show internal diameters of between 14 and 38cm. The principal decorative motif consists of tightly spaced cord-wrapped cord roulettes descending vertically from the lip or collar of the vessel, comprising between 39 and 59% of total motif occurrences. Impressions using the same tool are also common as well as applied plastic nubbins and fillets, which are usually placed within or below the band of cord-wrapped stick décor, and simple incised lines or arcs. Its fabric usually consists of grog and coarse sand, which is sometimes augmented by chaff. Affinities with the Tichitt assemblages, especially during the Chebka and Arriane phases, are manifested by similar rim forms (everted rims) and similarly employed decorative tools (e.g. vertically rouletted cord-wrapped décor).

The most recent occupation of the Mema is represented by Faita tradition sites, which are located in a variety of geomorphological settings, including the floodplain, the margins of the floodplain, in the central basin and in escarpment areas (MacDonald 1994). They consist of dense concentrations of potsherds and stone grinding basins in undifferentiated midden deposits. Faita tradition sites are usually small in size (most do not exceed 1 ha) and minimally stratified (25-50cm).

However, one site, Kolima-Sud-Est, has been unique amongst the Faita sites in the Méma as it measures a considerable size of 12 ha, featuring traces of melted mudwall architecture, which so far constitutes the earliest evidence for mud structures. An important discovery has also been Faita's association with iron metallurgy in the form of several pieces of slag, which have been identified at Kolima-Sud-Est and Faita Ouest. At the former site the slag framents might have been intrusive from nearby furnace sites associated with the Classic period Kolima tell sites. At Faita Ouest, however, there are no tell sites in the vicinity and a concentration of slag and tuyère parts has been identified only 300 m east of the site (MacDonald 1994), which may be associated with the settlement.

An absolute date for the Faita facies in the Méma has been recently made available by a Japanese team of researchers who have re-launched archaeological excavations at the site in 2000 (Takezawa 2004). Three radiocarbon dates have provided the following dates at Kolima Sud Est, 2648 BP, 2722 BP and 2521 BP, which have all been calibrated to the beginning of the first millennium BC (ibid.). The Faita facies thus constitutes the transitional period of the LSA/Iron Age industry, representing the first iron using communities of the Méma.

Faita ceramics principally consist of well-formed angular everted rims and various varieties of thickened rims (see Chapter 6). They also feature pot lids, which is a unique phenomenon in the ceramic assemblages of the Later Stone Age. Internal diameters range from 16 to 24cm in everted rim vessels, from 12 to 24cm in closed thickened rim vessels, and from 40 to 60cm in open thickened rim vessels. Decoration mostly consists of cord-wrapped roulettes. However, rather than being used as roulettes, they have been used as single closely-spaced impressions, or in a rocker fashion (peigne fileté souple, Soper 1985:43), which is evidenced by their thicker cord or stick base and by wider spacing between cord wraps. Other characteristic motifs include accordion plaited strip roulettes and applied plastic décors. The latter usually consist of fillets (raised ridges of clay) incised with twine or cord wrapped roulettes. The distinctive temper of Faita ceramics is chaff, while instances of grog temper have also been recorded.

The Faita facies also shows affinities with the ceramic traditions of Tichitt-Oualata in south-eastern Mauritania, particularly with those of the terminal Tichitt Akjinjeir phase, dated to ca. 850-400 BC (Munson 1971, 1976). The affinities between the Faita and the Akjinjeir phase ceramics are exemplified by similar decorative modes, which include applied plastic décor such as nubbins and fillets, cord wrapped roulettes and impressed cord wrapped stick.

The following picture thus emerges. The Méma might have constituted a particularly early West African example of multi-cultural contemporaneity within a single region with at least two cultural groups present (MacDonald 1994, 1996). The Kobadi tradition, with physical and material cultural roots to the north-east at Hassi el Abiod, and the Ndondi Tossokel tradition with material and economic roots to the north-west at Dhar Tichitt and Walata. The Kobadi folk, who arrived between 3000 and 4000 BP, maintained an aquatic subsistence lifestyle. Evidence for food production associated with the Kobadi tradition has only been identified at the sites of Kobadi and Kolima Sud, where Ndondi Tossokel ceramics were also identified. At around 3000 and 3500 BP a new group might have entered the region, designated as Ndondi Tossokel, showing close affinities to the Dhar Tichitt tradition. Their economy seems to have been based on pastoralism. In some instances the two population groups appear to have lived side by side, maintaining seasonal trade contacts between them. By around 2500 and 2700 BP only one cultural group seems to have persisted in the Méma, that of the Faita tradition, which is characterised by widely scattered settlements with high numbers of grinding stones, mudwall architecture, metallurgy and a homogenisation in ceramic styles. Due to the increasing evidence for agricultural activity, a connection has been suggested between Faita and Dhar Tichitt sedentary millet cultivating populations, who continued migrating southwards due to population pressures and territorial restrictions. However, recent findings at the site of Kolima Sud Est have found the remains of cultivated fonio, which contrasts with the millet cultivating populations of Dhar Tichitt (Takezawa 2004).

In any case, this phenomenon has become known as the proto-Soninke Diaspora, with this process of southerly migration from Mauritania recorded in many Soninke oral traditions (and in the toponomy of Mauritania). These population movements have also been linked with the occupation of the Inland Niger Delta, where levels of inundation decreased during the early first millennium BC, opening up new pathways for penetration, resulting in the emergence of settlements such as Dia and Jenne-jeno. The fate of the Kobadi tradition is unknown, though MacDonald and van Neer (1994) have suggested a link with the modern Bozo fisherfolk, who were linguistically subsumed by the Soninke/Mande around 2000 years ago.

It should be noted here that some concrete evidence for these population movements has now come from Dia Shoma, where distinctive sherds of the Kobadi and Faita traditions have been identified in the earliest levels. The former is represented by two sherds from the lowest context of the site, which has been dated between 800 – 0 BC (Horizons IA and IB). They are both simple rims, tempered with sponge, and featuring pivoted comb and spatula décor. Faita ceramics have also been identified from Horizon I, which never comprise more than 30% of the total assemblage of diagnostic sherds (a more detailed discussion follows in Chapter Six). As a result, the new evidence from Dia Shoma corroborates the longstanding hypothesis of a cultural connection between the Tichitt-Walata complex of south-eastern Mauritania and the later civilisations of the Middle Niger.

4.4 Concluding Remarks

In the light of these investigations, one of the most important results has been the recognition of urbanism in the Middle Niger as an independent development dating to the first millennium AD, which contrasts with the conservative notion that "Arab-inspired trade from North Africa provided the requisite stimulus to economic reorganization" (S. McIntosh and R. McIntosh 1993:623). Indeed, the necessity of finding a viable cross-cultural definition of urbanism, has led scholars to discard Eurocentric ideologies, epitomized by Childe's trait-list approach (1957). The latter notion identified criteria that settlements must exhibit to be considered urban, as for instance monumental architecture, literacy and writing (ibid.). As a result, urban studies have shifted to functional concerns that sought to describe and explain the spatial organization of human settlement, which has led Trigger (1972:577) to his influential statement that "whatever else a city may be it is a unit of settlement which performs specialized functions in relationship to a broader hinterland". The Middle Niger and its archaeological landscape of clustered habitation mounds have thus entered the urban discourse.

In the case of Jenne-jeno, clusters usually consisted of one or more large sites orbited by a constellation of smaller sites (S. McIntosh and R. McIntosh 1993). Thus far, the survey data indicate that Jenne-jeno and its hinterland were developing rapidly during Phase III (AD 300–800). Site density apparently reached a maximum sometime between ca. AD 750 and 1150 (ibid.). Almost three-quarters of the surveyed sites had been abandoned by the end of Phase IV (AD 1400). Bedaux et al. (1978) found similar data at Toguérés Doupwil and Galia, which have been occupied from the 11th through the 15th centuries AD and then abandoned. Dia, according to the McIntoshs, revealed a chronology of settlement and abandonment and a ceramic sequence virtually indistinguishable from that of Jenne-jeno, but clusters tended to be in long lines of densely packed sites with no evident dominant mound (Haskell et al. 1988; McIntosh and McIntosh 1988). However, at Dia Phase IV ceramics were found on only 38% of all examined sites, which indicates that most sites were abandoned by the end of Phase III. In the Timbuktu and Mangabera vicinity along the Niger Bend similar clusters have been identified as in Jenne-jeno, consisting of one or more large sites orbited by a constellation of smaller sites (S. McIntosh and R. McIntosh 1986). Highest site density may have reached its maximum during the Middle period, which has been tentatively dated to the late first and early second millennium AD. Complementary data of urban clusters have also been identified in the Méma region (Togola 1996) and to the south of the Niger Bend (Arazi 1999). In the Méma, site clustering was already under way during the Late Stone Age (MacDonald 1994; Togola 1996). However, highest site density was reached during the mid-first millennium AD and lasted until the 14th century AD (Togola 1993:56). There, the most common clusters consisted of one large site surrounded by smaller satellite sites. In the Bentia region clustering reached its highest density during Period III, which has tentatively been dated to the first millennium AD (Arazi 1999). In contrast to the Méma and Jenne-jeno, at Bentia several major sites were surrounded by smaller satellite sites.

Despite the fact that the phenomenon of site clustering is not yet fully understood, it has been suggested that the fertility of the Middle Niger and its abundant aquatic resources constituted a catalyst for economic and social developments, which was further stimulated by the navigability of the Niger River as a major trade axis (S. McIntosh and R. McIntosh 1993). It has been suggested that the Inland Niger Delta was established as the agricultural support system for the sizeable settlements of the Niger Bend, which could not produce enough food locally to maintain their populations (ibid.). These contacts are best illustrated by the similarities in some of the pottery types (which I will discuss in Chapter 6) present at Timbuktu and those from the Inland Niger Delta (Insoll 2003; S. McIntosh and R. McIntosh 1986), which are also present, to a lesser extent however, as far down-river as Gao (Insoll 1996) and Bentia/Koukiya (Arazi 1999).

However, our understanding on the significance of these similarities as well as on the variability of Middle Niger ceramic traditions is still limited. Indeed, archaeological distributions of artefacts, especially ceramics, have frequently been shown to occur over much larger territories than population groups studied by archaeologists (MacEachern 1998:107). As a result, affinities in material culture style do not necessarily correspond with similar populations and group identities, which however does not preclude the transmission of trends, styles and influence. Dia, supposedly one of the oldest towns of the IND, might thus constitute an interesting case study from where some of these 'Middle Niger' influences might have originated.

Chapter Five

Dia Excavations 1998-2002

5.1 Introduction

In 1998 the Rijksmuseum voor Volkenkunde at Leiden initiated large-scale excavations at Dia, in close co-operation with international institutions from Mali, France the UK and Belgium (see Chapter 1). Dia was chosen for the following reasons: (1) Haskell and the McIntoshs' explorative field campaign during the 1980s revealed it to be a locality of archaeological importance. (2) Dia's reputation through oral history as one of the oldest cities of the Inland Niger Delta, predating the cities of Djenne and Timbuktu. (3) Its location in one of the most heavily looted areas of West Africa. (4) Due to the presence of Ceramic Late Stone Age material culture at the site and evidence for metalworking, Dia seemed suitable for the study of the stone to metal age transition (Bedaux et al.2001:837-8).

The Dia mound network consists of Shoma to the west, the modern town of Dia in the centre and Mara to the east. Four field campaigns were carried out between 1998 and 2002 with a particular focus on Shoma due to its large size of 49 ha. The first part of this chapter will present the general findings of the project's investigations at Shoma, which consisted of a surface collection and the excavation of fourteen exposures.

The second half of this chapter presents the results of the excavations conducted under my supervision with the assistance of Nafogo Coulibaly from the Institute of Human Sciences (Bamako) and five workmen from Dia during the course of three field seasons (November 1999 to February 2000, November 2000 to February 2001, and January and February 2002). The goal of our excavations was to obtain a full stratigraphic sequence from Shoma and Mara in order to reconstruct the sites' entire occupational histories. We excavated one unit of 5x5 m (Unit C) at the site of Shoma, and three units, one of 6x4 m (Unit M), one of 2x3 m (Unit Q) and one of 7x4 m (Unit S) at the neighbouring site of Mara.

5.2 Excavation Methods

All units were excavated using hoes (dabas), trowels and brushes, by horizontal stratigraphic contexts never allowed to exceed 15 cm in thickness. All of the excavated soil was passed through metal sieves with a grid size of 1 cm (or 2 mm in the case of ashy deposits). Samples were collected for faunal, botanical and chemical analysis. Units C, M, Q and S provided a total of around 20,646 body sherds, 2,899 rim sherds and 236 pot bases. Additionally, we recovered a diverse inventory of iron objects, spindle-whorls, beads and terracotta figurines. All units were excavated until we reached sterile soil, which revealed that cultural deposits overlie floodplain alluvium at both Shoma and Mara.

The following format has been applied for the chronological division of the sites' stratigraphy. Distinctive periods of occupation and abandonment have been defined as horizons. An occupational horizon describes a single depositional period, which can span several centuries. It mainly consists of distinctive soils and sediments, which occur across the site and might also provide a distinctive inventory of artefacts. A horizon is usually made up of many contexts, which in our case define features such as structures, abandonment debris, hearths, pits and living floors. Alternatively a context might designate a matrix, usually some kind of sediment or soil (blown or washed in), which differs from its surrounding area. The descriptions of my excavation results (sections 5.3.3 and 5.4) include the following, (1) the location of the unit with reference to a permanent benchmark and (2) a summary of the major outlines of depositional history represented in the unit, including all significant features, presented in chronological order. I will present a description of all contexts we identified during our excavations in Appendix 1. The discussion of the finds are reserved for Chapters 6 and 7.

5.3 Preliminary Results from the International Co-operation at Dia

5.3.1 Survey and Surface Collection at Shoma

The project began with a systematic site survey and surface collection (Wilson 1999). Due to its considerable size, only one third of Shoma's surface was surface collected with 20 m wide transects spread across its surface. Within each square, the approximate level of ground cover was recorded and material collected, which consisted of rim sherds larger than 3 cm, and artefacts such as slag, spindle whorls, microliths and beads.

The site's surface is largely barren, with areas of ground cover consisting of shrubs and larger areas of windblown sand. Shoma also has a grove of palm trees at its southern end (Fig.5.1). Architectural remains, in the form of mud brick wall bases or 'wall melt' are regularly visible across the site (Fig.5.2). However, due to the high levels of recent windblown sand it has been difficult to interpret the true distribution of Shoma's architecture. The northern end of the site appears to exhibit a fairly dense agglomeration of structures, which includes rectangular mud architecture and Shoma's city wall. The latter runs over a length of 230 m (Bedaux et al 2001) (Fig.5.3).

A considerable number of burials have been identified eroding from the site surface. They are spread over a substantial portion, covering an area of at least 240x225 m. Thirty eroded inhumations visible on the surface clearly indicated Islamic burial customs (skeletons were lying in an extended north-south axis looking towards Mecca) and five were non-Islamic (Zeitoun et al. 2004) (Fig.5.4). The surface burials are mainly concentrated to the north and north-east. They seem to be associated with the surface structures, which indicates that the dead were buried in close proximity to residential structures.

Wilson (1999) found that early period artefacts (which consist of microliths, 'Faita ware', the terminal Late Stone Age pottery also sometimes associated with iron working (MacDonald 1994; MacDonald and Schmidt 2004) and biconically perforated beads) were mostly associated with the low lying areas of the site. Hence, early period artefacts generally occurred in areas where later occupation did not seal in the earlier deposits. As a consequence Wilson suggested that they may occur more widely across the site than could be revealed by surface survey (1999:53).

Diagnostic artefacts of the 1st Millennium AD, such as painted ware (characteristic of this period at Jenne-jeno), were more widely spread than the preceding category, with the densest area of finds at the northern end of the site. Diagnostic artefacts of the first half of the second millennium AD, which include spindle whorls and T- and Y-rimmed pottery (the latter appear for the first time during this period at Jenne-jeno), have been particularly numerous at the site centre and the northern portion. Post AD 1500 diagnostic artefacts such as tobacco pipes were only found in one instance. Hence, it was impossible to document Shoma's post AD 1500 occupation by the survey itself.

Figure 5.1 Shoma, looking south, showing a rectangular mudbrick structure in the foreground. Its surface is also characterised by shrubs and windblown sand, and a grove of palm trees at its southern end.

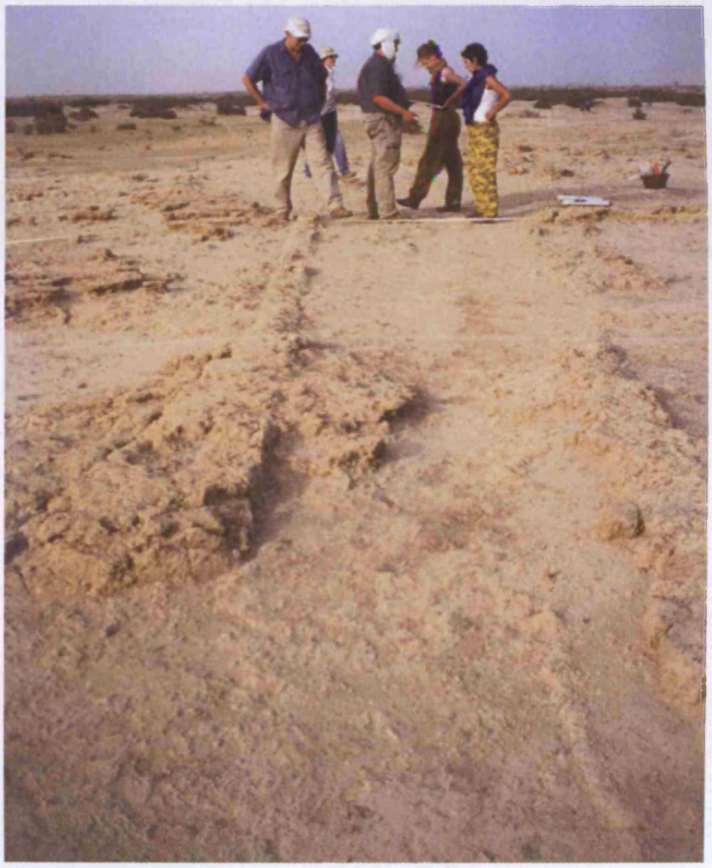


Figure 5.2 Rectangular mudbrick wall bases and wall melt on Shoma's surface.

Figure 5.3 Shoma's zigzag shaped city wall at the northern end of the site.

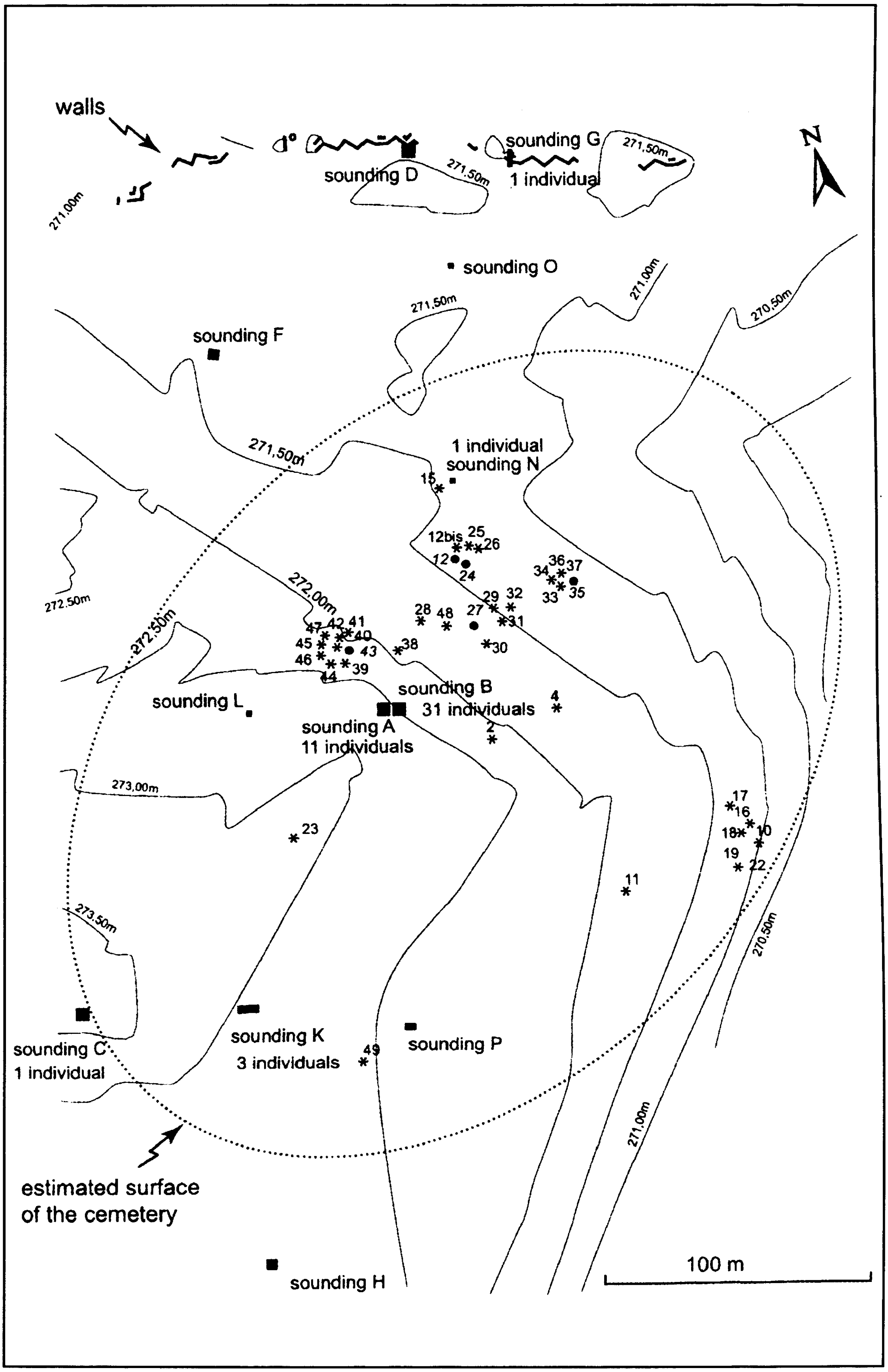


Figure 5.4 Map of Shoma, showing surface burials and excavation units; the stars indicate 'Islamic type' burials, and the black circles non 'Islamic types' (Zeitoun and al. 2004).

5.3.2 Large-Scale Excavations at Shoma

What followed were large-scale excavations with units mostly measuring 5x5 m. A total of fourteen units were excavated: A, B, C, D, E, F, G, H, K, L, N, O, R and Z (Fig.5.5). As the principal goal was to obtain a cross-section of the site, we placed the units in such an order as to reveal the site's North-South and East-West cross-section. Each unit was excavated until sterile soil was reached. Five different horizons were identified, based on sediment and soil type, soil colour (after Munsell) and density, the diversity of recovered objects and their stratigraphic position. What now follows is a synthesis of the preliminary results the project's excavations revealed at Shoma.

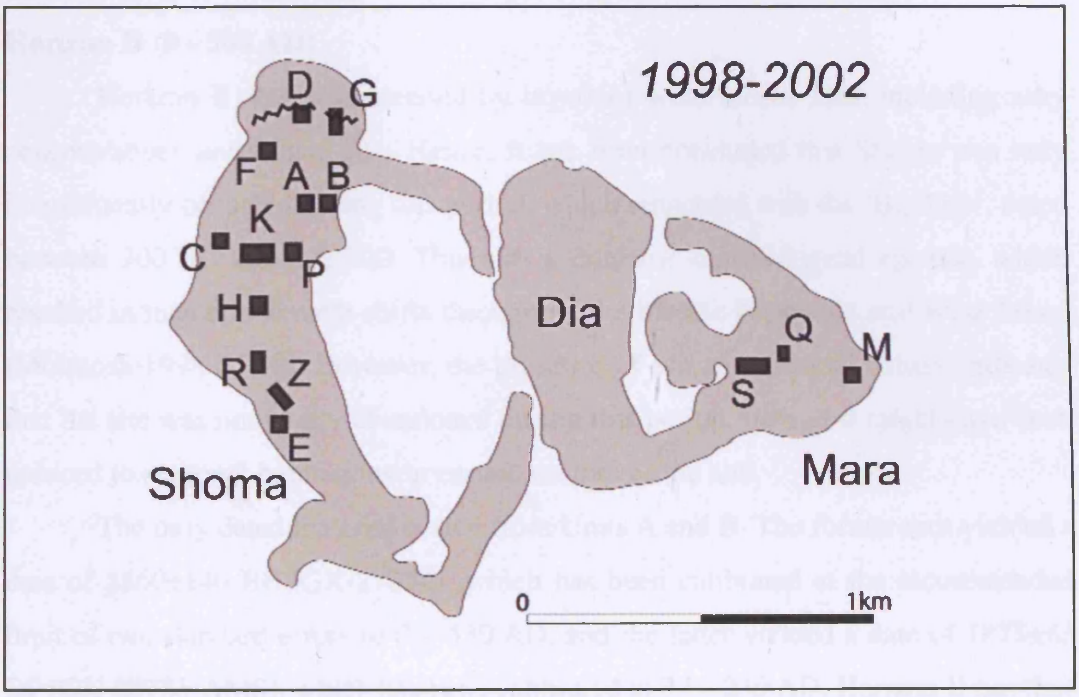


Figure 5.5 Excavation units on Shoma and Mara.

Horizon I (800 BC - 0 AD)

Horizon I constituted the first visible Holocene occupation at Shoma, exhibiting a mixture of clay and alluvial silt deposits, light yellowish brown in colour (Munsell 10YR 6/4) with occupational debris. Horizon I was identified in almost all units, except in Unit H. Hence, it has been estimated that Shoma's initial occupation already measured 19 ha in size. All the charcoal samples taken from this horizon consistently date to the same period, with the 1-sigma error range of most dates falling between 800 BC – 0 AD.

Many well preserved living floors characterised this horizon, which for most of the time were ash-rich layers on top of beaten, light reddish brown coloured (2.5YR 7/4) mud surfaces. They might have been floors of permanent mud structures of which no other in situ traces remained (Bedaux et al. 2001:841). A living floor in Unit A revealed an unusually high proportion of large charcoal fragments, of which most seem to come from palm wood. Due to its unsuitability as firewood and to its dislike by termites, palm wood has been a favourite construction material for roof-beams of mud houses. Burnt clay lumps, which could be taken as mud wall fragments, have been taken as further indicators of either piled mud or mudbrick houses in this horizon.

Horizon II (0 - 500 AD)

Horizon II was characterised by layers of wind blown sand, including ashy concentrations and refuse pits. Hence, it has been concluded that Shoma was only intermittently occupied during this period, which coincided with the 'Big Dry', dated between 300 BC and AD 300. This was a dramatic climatological episode, which resulted in major settlement shifts throughout the Middle Niger and arid West Africa (McIntosh 1998:66-80). However, the presence of ash and material culture indicates that the site was not totally abandoned during this period. Instead it might have been reduced to seasonal habitations in certain sectors of the site.

The only dated material is rice from Units A and B. The former unit yielded a date of 1860±140 BP (GX-27054), which has been calibrated at the recommended limit of two standard errors to 0 – 530 AD, and the latter yielded a date of 1878±43 BP (GX-25785-AMS), which has been calibrated to 77 – 239 AD. Horizon II has thus been dated between 0 – 500 AD.

Horizon III (500 - 1000 AD)

Horizon III was identified only in Units A, B, D and F. It was characterised by a homogeneous composition of the soil with a high clay content. Despite the absence of any standing mud walls, evidence of wall melt and wall collapse were ubiquitous present (indicated by mud brick fragments and hardened patches of "melt"). One living floor of compact beaten mud with charcoal concentrations was also identified. Hence, it seems as if Shoma was reoccupied during the period, which followed the

'Big Dry'.

In Units A and B, Horizon III was seriously disturbed by the cutting of refuse pits and graves. Preliminary results and a series of nine radiocarbon dates indicate that the burials can be divided into three chronological groups. The first group of burials dates between the 6th and the 11th century (Horizon III), the second group dates between the 11th and the 13th century (Horizon IV) and the third group dates between the 18th and the mid 19th century (Horizon V).

The disturbance of internal stratigraphy in this horizon has not yet been fully resolved. As a result, it remains unclear whether the layer of wall melt and collapse is contemporaneous with the first or second group of burials. A charcoal sample from the living floor (GX-25634-LS) has been dated between to 310±90 BP (for all calibrated dates consult Table 5.1), which as a consequence would attribute it to the upper layers of Horizon IV. However, a complete skeleton (B053-XXV), which was identified in one of the refuse pits, provided a date of 940±60 BP (Beta 20712). As a consequence, the pit should pre-date the skeleton, thus be attributed to Horizon III. In spite of the horizon's heavily disturbed stratigraphy, the evidence suggests that the dead were buried in domestic areas, where other activities such as pit digging were carried out. The living floor and layers of wall collapse indicate residential activities. Burials associated with residential areas have been recorded over wide areas of Africa (Küsters 1919-1920, 1921-1922; Monod 1955).

The burials from this horizon and Horizon IV all indicate non-Islamic funerary ritual as they were found with no preferential orientation and in various positions, of which nine distinctive types have been identified (Fig.5.6) (Zeitoun et al. 2004). The most often recurring position is that the dead were buried sideways with flexed legs and arms, the hands covering the face (Type 1) (Fig.5.7), or, on the back with the hands folded on the pelvis (Type 7) (Fig.5.8). Fourteen inhumations contained grave goods, including a pot, an iron harpoon, small iron axes, and ceramic beads. Hence, the position and the orientation do not in any instance correspond to Islamic funerary ritual, which are fairly uniform and vary little throughout the Muslim world (Insoll 1999:169). Islamic burials should exhibit an extended position of the skeleton with the skull in the direction of the qiblah, so that it lies on its right side with the face towards Mecca (ibid.). It has been suggested that Shoma's skeletal evidence points to the presence of a cultural melting pot, indicated by ten different burial types, which often occur contemporaneously (Zeitoun et al. 2004). Indeed, the faunal and archaeobotanical remains have yielded evidence for diverse subsistence strategies, including fishing, herding and farming, which might corroborate the view that various groups were present simultaneously at Shoma (a more detailed discussion of the faunal and archaeobotanical evidence will follow in Chapter 8).

Horizon IV (1000 - 1600 AD)

Horizon IV was represented in all units. In units A and B, Horizon IV was characterised by a large number of refuse pits, cutting into Horizon III. The refuse pits had a fill of a loose, heterogeneous soil composition, coupled with richness in objects and the great number of faunal and botanical remains. The large pits were of irregular forms. They contained traces of fire, which indicates that they might have served for the burning of waste. The small pits exhibited round, tubular forms with diameters of roughly 1 m and depths of less than 2 m. The walls of two pits were lined with a grey ashy plaster, which today is often used for the protection of organic contents, such as condiments, against termites and other insects (Bedaux et al. 2001:845). Hence, this plaster could indicate a primary use as storage for agricultural products.

Traces of rectilinear mud architecture were also identified in this horizon. They were made of loaf-shaped and rectangular mud bricks.

Charcoal samples provided consistent dates, which place Horizon IV between the 11th and the 17th century AD.

Horizon V (1600 – 1850 AD)

Horizon V was identified only in Units A, B and D, which was represented by the structures evident on the surface of Shoma. In Units A and B the well-preserved structural remains of Horizon V rested directly on the eroded grave pits. Even though the skeletal remains were buried under the 40 cm thick layer of Horizon V, they showed traces of surface erosion, which in some cases consumed half of the individual skeleton. Hence, it seems as if there has been a period during which these skeletons were exposed on the surface of the mound, indicating that the surface of Horizon IV was so eroded that a layer with a thickness equivalent to the depth of a grave pit had disappeared. As a consequence, this portion of the site might have been abandoned and subjected to strong erosional processes over a century or more.

A charcoal sample coming from one of the floors in Unit B (GX-25633-LS) provided a date of <100 BP, which might mean 100 or 200 years. Other indicators for the age of Horizon V include an abundance of highly decorated spindle whorls. Despite the fact that the present-day inhabitants of Dia retain no memory of habitation at Shoma, it has been proposed that Horizon V dates somewhere between 1600 and 1900 AD, with a range of ca. 1700-1850 AD being most likely. The latter dates correspond with the installation of the Koreissis at Dia, which has been documented by Ba and Daget (1962) to have occured during the Dina (c.1860s). Thus, Shoma must have been abandoned then, or before.

In Units A and B, Horizon V was characterised by a small road flanked on both sides by rectilinear houses with central courtyards (Fig.5.9). In one of the courtyards a hearth and an intact earthenware storage jar were discovered (Fig.5.10). The structures were made of both loaf-shaped and rectangular mud bricks. The rectangular bricks were placed in the direction of the length of the wall, while the loaf-shaped ones were placed diagonally. Two distinct floor layers were identified, which consisted of compact layers of beaten mud with particles of charcoal, and were covered with large horizontal lying potsherds and other settlement debris.

The remains of a city wall, which runs over a length of 230 m, visible solely on the northern part of the mound, also date to Horizon V. The wall was composed of two parallel walls in shape of a zigzag. It was built with loaf-shaped mud bricks, each individual wall having a thickness of 50 cm (four bricks) (Fig.5.11). Between the walls there was an interstice 1.3 m wide filled with rubble, indicating the robustness of this defensive work (Bedaux et al. 2001:840). It might be possible that the city wall continued to function in Horizon V, as its remains are still visible on the site surface in association with rectilinear structures dating to Dia's most recent occupation.

The burials dating to Horizon V are visible on the site surface and appear to be Islamic. They were lying in an extended north-south axis (feet in the north), looking towards Mecca (Fig.5.12). Hence, it seems that Islamic burial customs were only adopted sometime during the 18^{th} or 19^{th} centuries. The surface burials are mainly concentrated to the north and northeast of Units A and B. They might be associated with the surface structures dating to Horizon V. The skeletons' close proximity to houses reveal a similar phenomenon to what has already been encountered in Horizons III and IV. It might thus be suggested that even during the 19^{th} century the dead continued to be buried in close proximity to residential structures.

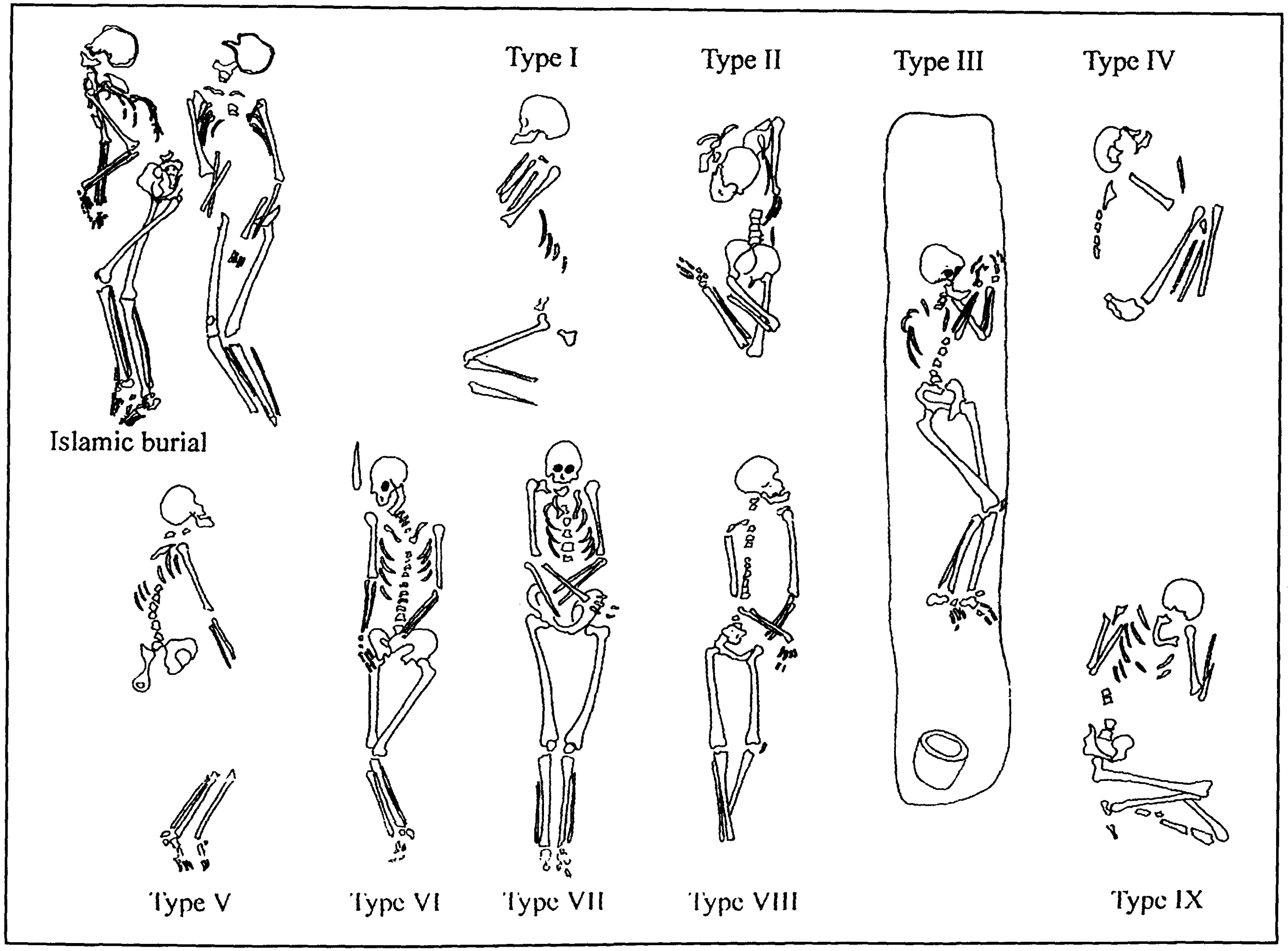


Figure 5.6 The nine distinctive burial types identified at Shoma (Zeitoun et al. 2004).

Figure 5.7 Skeleton B116-XXXX, Unit B, Shoma, dated to Horizon III; Burial type III (extension on the left side, hands close to the face, semi-flexed lower limbs) with a funerary jar containing rice at the feet of the skeleton.

Figure 5.8 Skeleton B081-XXXVII, Unit B, Shoma, dated to Horizon III; Burial Type VI with iron harpoon at the right side of the skull.

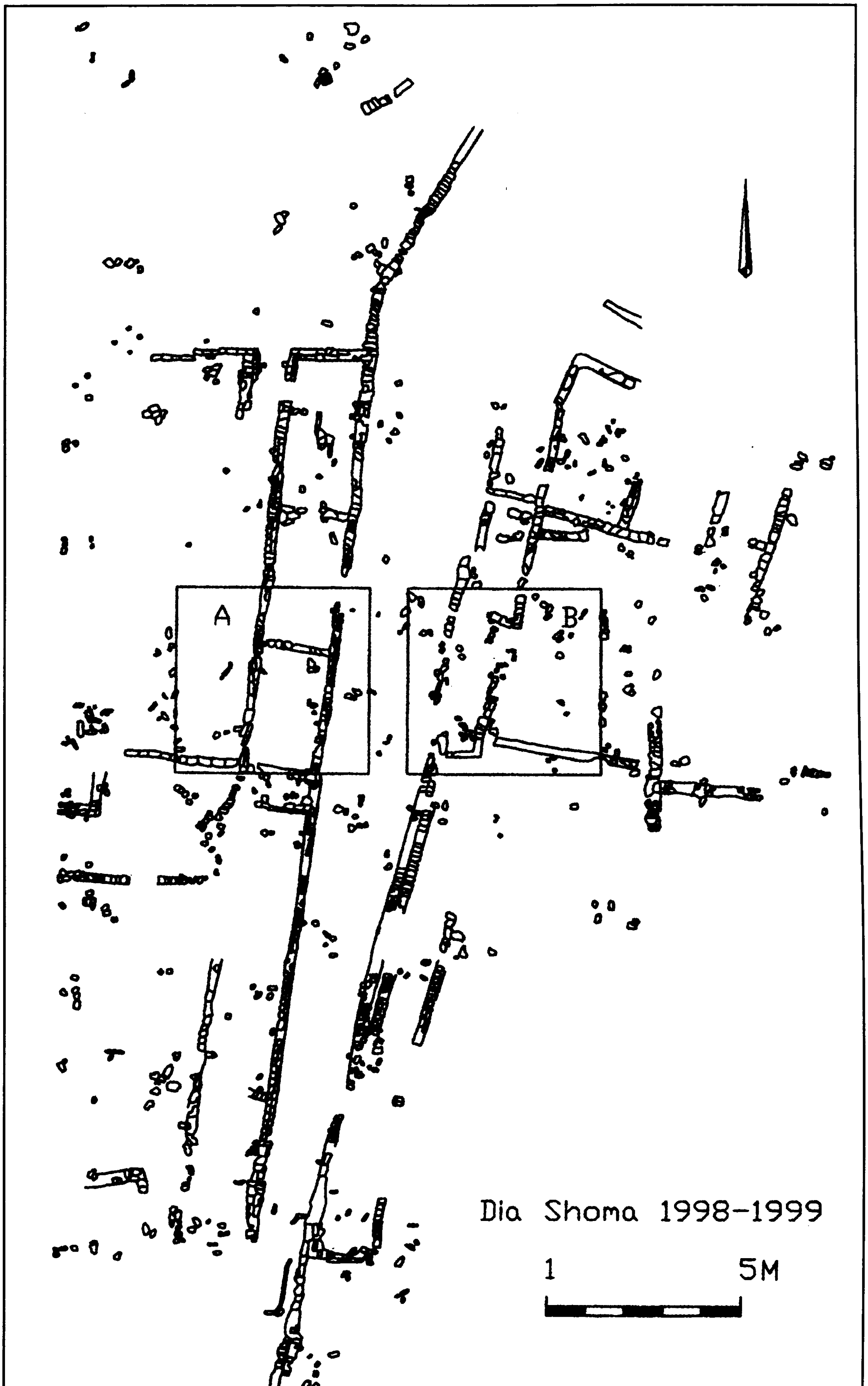


Figure 5.9 Map of surface structures in and around Units A and B at Shoma (Horizon V), showing rectilinear mud brick architecture.

Figure 5.10 Surface structures in Unit A, showing rectilinear rooms and loaf shaped mud bricks visible in the wall section.

Figure 5.11 Shoma's city wall (Unit D), showing zigzag shaped wall with loaf-shaped mud bricks.

Figure 5.12 Distinctive Islamic-type burial (Horizon V) eroding from the surface at Shoma (Photo by Héléne Rougier and Esther Gatto).

5.3.3 Excavations at Shoma – Unit C

The objective of Unit C was to obtain the entire occupation sequence of Shoma. Hence, I decided to place it at the highest point of the site (274.4 m), 14.12 m south of a permanent benchmark (Borne 9002). Wilson's surface survey implied a presence of all occupation phases at this portion of the site, which is indicated by pottery from multiple periods, quartz microliths and slag. Unit C measured 5x5 m, and its co-ordinates were taken at its north-east corner at N 14°21.245' and W 004°57.972'. Cultural deposits extend here to a depth of 3.4 m (Fig.5.13 and 5.14), within which four occupational horizons were identified (from bottom to top): Horizon IA, Horizon IB, Horizon II and Horizon IV (Fig.5.15). Horizon III, which was identified in other excavation units, was absent in Unit C.

Horizon IA

The earliest visible Holocene occupation in Unit C (Contexts 079, 085, 089, 092, 093, 096-099, 101-109) was characterised by a friable layer of loamy clay, which might have resulted from processes such as changing ground water levels. It appeared at a height of 269.4 m and closed at 270.57 m. The only preserved features were three living floors, which revealed beaten, pink to light reddish brown coloured (5YR 6/4,7/4) mud surfaces (Contexts 093, 0,98, 106). These might be interpreted as floors of temporary grass or piled mud structures, as was evidenced by two postholes in Unit C's oldest living floor (Context 106). The posts measured between 17 and 22 cm in diameter and reached depths of 7 and 11 cm, showing the same traces of beaten mud as was identified on the floor. Indeed, wooden poles, placed in regular intervals, are an essential feature of piled mud walls, as they need reinforcement due to their limited carrying capacity (Fig.5.16). No other *in situ* features remained and in contrast to Units A and B, no lumps of burnt clay were identified. Due to annual inundation and shorter dry seasons, architectural remains must have had a shorter life-span than in other areas and periods.

A charcoal sample (GX-27051), located upon Unit C's oldest living floor (at a height of 269.58m), gave a date of 2220±100BP (for all calibrated dates see Table 5.1). A second charcoal sample (GX-27050-AMS), in spite of its location upon the most recent living floor (Context 093) (at a height of 270.11m), yielded an older date of 2450±30 BP.

ed of two pits at the eastern (Contexts 057, 059, 062, 065, 069) (Fig.5.17) and two at the western sections (Contexts 044, 045, 050, 053, 056, 060, 063, 067). From the visible cuts of the pits, we were able to measure their depths, which consisted of 1.45 m and 1 m for the eastern pits and 1.45 m and 0.88 m for the western pits. They yielded heterogeneous contents, including pottery, faunal remains, grinding-stones, slag, metal fragments, spindle whorls, fragments of **terracotta** objects and beads. All pits featured considerable quantities of charred rice, which were mixed with charcoal, ash and sand. Traces of phosphoric soil (5Y 6/3 pale olive) were also identified at the bottom of these features, which indicate that they might have once served as latrines before they were filled up.

The area between the pits up to the most recent levels of the unit, where the mud walls were identified, were filled with heterogeneous layers of semi-compact clay and sand (Contexts 038, 039, 043, 049-041, 046-048, 054). At the eastern section the lower limbs of a skeleton were identified, which were lying in a flexed position. The bones cut into one of the eastern pits indicating that the body post-dates the pits.

The first architectural remains were identified at a depth of 271.01 m and closed at 271.56 m, and consisted of two rectilinear compound walls (Contexts 007, 022, 028, 029, 035, 036) with a passageway running in between them (Contexts 026, 032, 033) (Fig.5.18). The collapse of each compound wall had a drainpipe associated with it, these are usually found on top of walls directing rainwater onto a passageway (Fig.5.19). Thin traces of one living floor were also identified (Context 020), which belonged to the compound wall at the western half of the unit. The latter might have undergone two phases of construction as the upper layers revealed a partition wall (see Fig.5.18, superimposed photo on the left). The walls were made out of loaf-shaped and rectangular mudbricks, which even revealed smoothed outer coatings of mud, applied in order to preserve them against the seasonal rains and other erosional processes (see Fig.5.18, superimposed photo on the right).

The remaining layers might be identified as wall collapse and fill, mostly consisting of friable clay and banco (10YR 6/2 light brownish grey) (Contexts 001-006, 008, 012, 013, 015-019, 021, 023, 024, 030, 031, 034, 037).

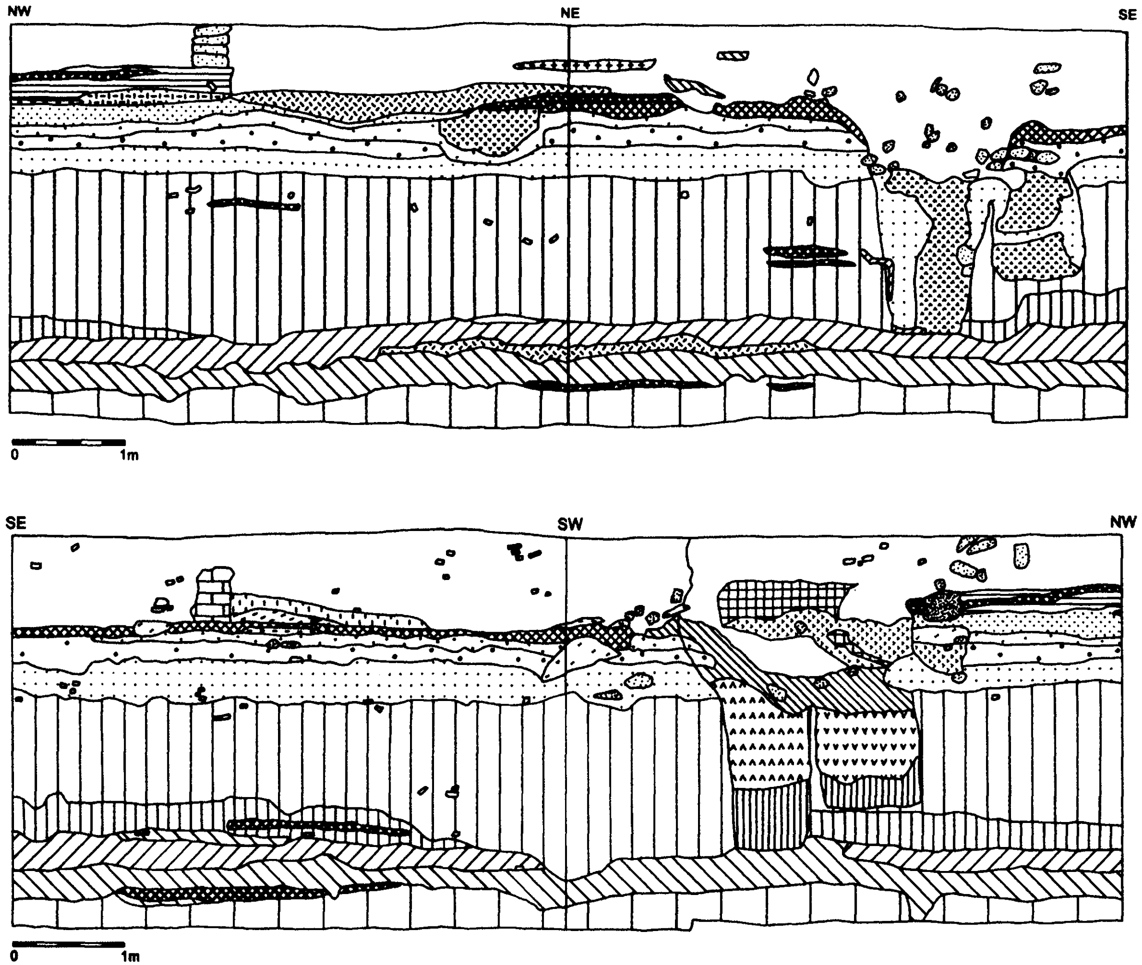
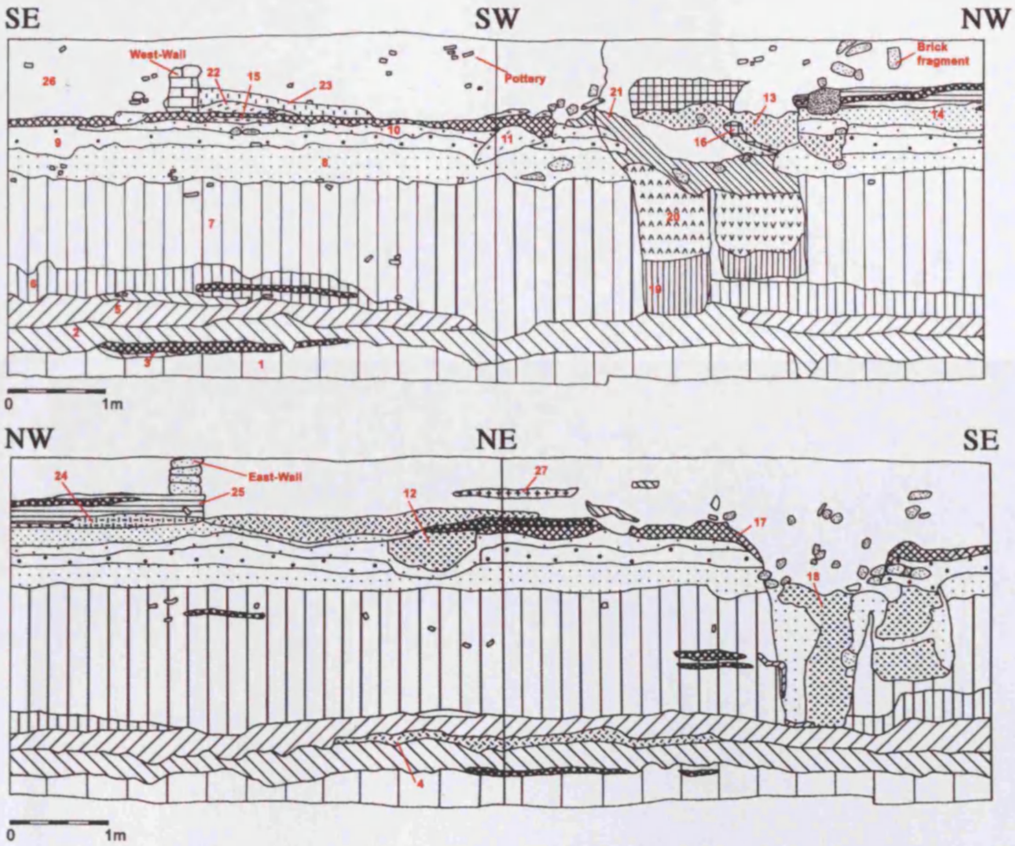


Figure 5.13 Section drawings, Unit C, Shoma.
Above - North Profile (left) and East Profile (right)
Below - South Profile (left) and West Profile (right)



1-Bedrock; compact clay with inclusions of silt Yellowish brown (10YR5/4)

2-Compact clay (HIA) Light brownish grey (10YR7/4)

3-Habitation surface (HIA) Light reddish yellow (2.5YR7/4)

4-Compact sand (HIA) Light brownish grey (10YR6/2)

5-Clay with silt inclusions (HIA); Strong brown (7.5YR4/6)

6-Compact loamy clay (HIA); Pale yellow (2.5YR7/3)

7-Compact clay with sand (HIA); 10YR7/6 (see colour in Munsell)

8-Compact sand (HII) Brown (10YR5/3)

9-Sand (HII) Light brown (7.5YR6/4)

10-Sand (HII) Reddish brown (5YR5/3)

11-Laminated sand (HII) Light yellowish brown (10YR6/4)

12-Midden with ash and fishbones (HIV) Dark grey (5Y4/1)

13-Sand mixed with clay and ash (HIV); Greyish brown (10YR5/2)

14-Sand with ash (HII) Light brown (7.5YR6/3)

15-Ash (HIV) Greyish brownand (10YR5/2)

16-Clay with sand (HIV) Light brownish grey (10YR6/2)

17-Semi-compact clay Pale brown (HIV) (10YR6/3)

18-Loose fill; sand, ash, rice and charcoal (HIV) Strong brown (7.5YR5/8)

19-Ash and phosphate (HIV) Pale olive (5Y6/4)

20-Ash and sand (HIV) Light brownish grey (2.5Y6/2)

21-Semi-compact fill (HIV) sand, ash and clay Pale brown (10YR6/3)

22-Wall melt (HIV) Pale brown (10YR6/3)

23-Wall melt (HIV) Light yellowish brown (10YR6/4)

24-Friable ash (HIV) Light brownish grey (2.5Y6/2)

25-Wall melt (HIV) Yellowish brown (10YR5/4)

26-Compact loamy clay (HIV) Light yellowish brown (10YR6/4)

27-Loose fill (HIV) ash and rice Light grey (10YR7/2)

Figure 5.14 Section drawing of Unit C with numerical legend, including associated occupational horizons.

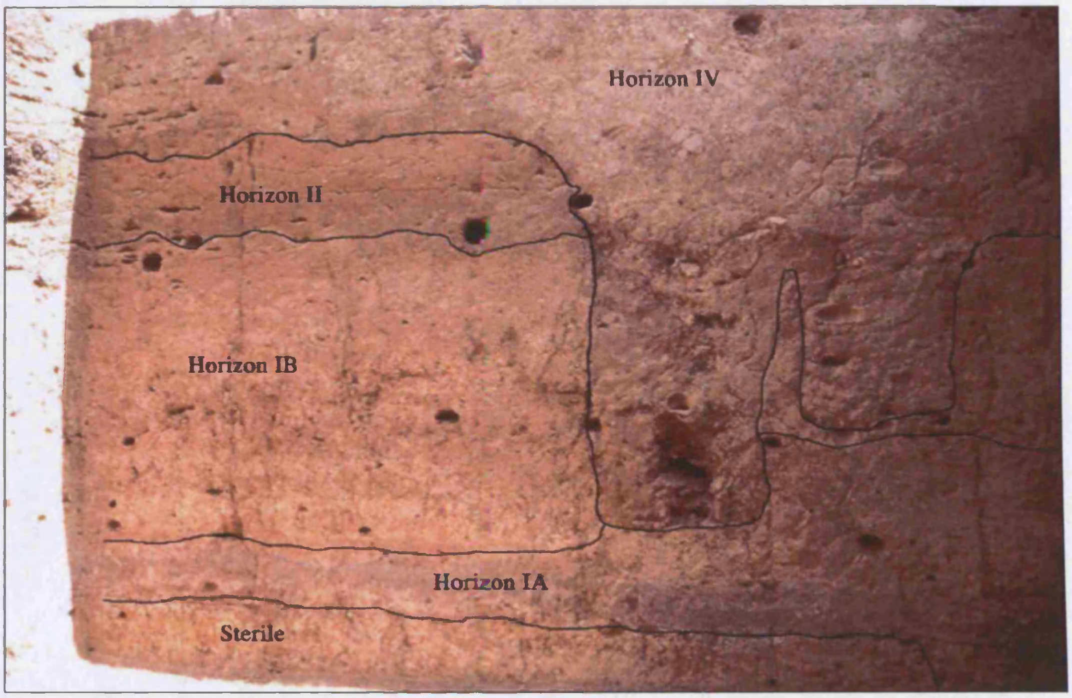


Figure 5.15 Stratigraphic sequence, Unit C, East Profile, with approximate extent of occupational horizons.

Table 5.1

C-14 Dates for Dia Shoma (Unit C, including dates from other units)

Lab number	**Context**	**Matter**	**Uncalibrated**	**Calibration (1 sigma)**	**Calibration (2 sigma)**	**Horizon**
GX-27050-AMS	C 092	charcoal	2450+/-30 BP	757 - 411 BC	761 - 407 BC	HIA
GX-27051	C 105	charcoal	2220+/-100 BP	395 - 170 BC	515 BC - 20 AD	HIA
GX-25786-AMS	B 122	charcoal	2550+/- 50 BP	799 - 545 BC	809 - 415 BC	HIA
GX-27055	F 081	charcoal	2470+/-70 BP	761 - 413 BC	783 - 407 BC	HIA
GX-27053	C 077	charcoal	2070+/-100 BP	335 BC - AD 50	365 BC - 125 AD	HIB
No Lab Nr.	A 094	rice	2050+/-110 BP	200 BC - AD 70	380 BC - 210 AD	HIB
GX-27054	A 115	charcoal	1990+/-50 BP	43 BC - AD 67	111 BC - 127 AD	HIB
GX-27054	A 147	rice	1860+/-140 BP	0 - 340 AD	195 - 530 AD	HII
GX-25785-AMS	B117	rice	1933+/-47 BP	25 - 127 AD	41 - 213 AD	HII
GX-25785-AMS	B 107	rice	1878+/-43 BP	77 -213 AD	31 - 239 AD	HII
GX-25636-LS	B/SQ 13	bone	1280+/-80 BP	661 - 857 AD	623 - 957 AD	HIII
GX-27054	A/SQ 19	bone	1185+/100 BP	720 - 745 AD	665 - 1015 AD	HIII
GX-25637-AMS	B 071	charcoal	1200+/-40 BP	779 - 885 AD	693 - 957 AD	HIII
GX-27056	F 067	charcoal	1240+/-100 BP	685 - 885 AD	645 - 995 AD	HIII
GX-27049	C 47	charcoal	940+/-60 BP	1025 - 1159 AD	997 - 1217 AD	HIV
GX-27052	C 031	charcoal	460+/-50 BP	1413 - 1475 AD	1329 - 1623 AD	HIV
GX-28172-AMS	D 059	charcoal	630+/-30 BP	1301 - 1391 AD	1295 - 1397 AD	HIV
GX-28166	H 028	charcoal	510+/-60 BP	1327 - 1445 AD	1299 - 1487 AD	HIV
GX-28173	P 043	charcoal	500+/-80 BP	1309 - 1481 AD	1297 - 1627 AD	HIV
GX-28168	K 021	charcoal	500+/-40 BP	1407 - 1439 AD	1327 - 1463 AD	HIV
GX-25634-LS	B 050	charcoal	310+/-90 BP	1475 - 1661 AD	1425 - 1951 AD	HIV
GX-25633-LS	B 017	charcoal	<100 BP			HV

Figure 5.16 Postholes associated with beaten mud floor (Context 106), Unit C, Shoma.

Figure 5.17 Eastern pit (Context 059), which in subsequent layers splits into two distinctive pits, Unit C, Shoma.

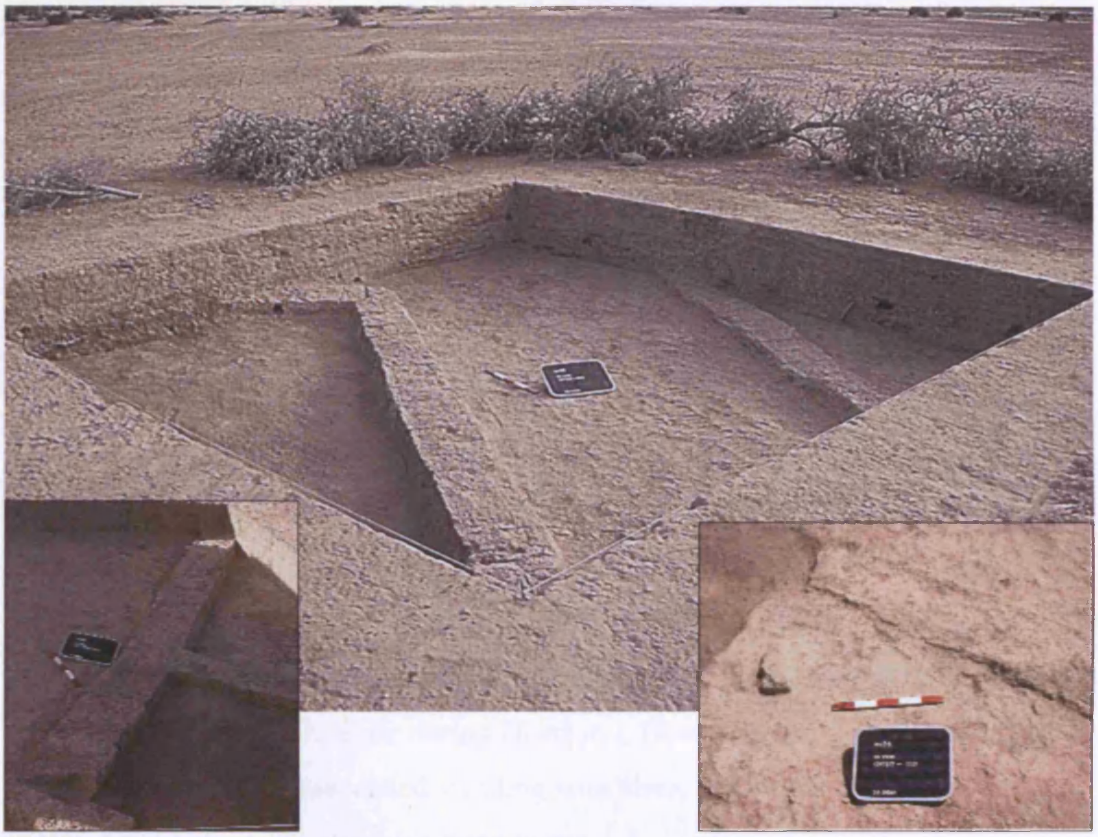


Figure 5.18 Mudbrick walls, Unit C, Shoma. The superimposed photo on the left shows the earliest construction phase of the western wall with a partition in the centre. The superimposed photo on the right shows that no mudbricks were visible. Instead it was only possible to identify the walls due to the crepisage lines.

Figure 5.19 Drainage pipe associated with western wall, Unit C, Shoma.

5.3.4 Unit C and the Greater Shoma Sequence

In contrast to many other exposures at Shoma, Unit C provided a considerably undisturbed stratigraphic sequence. Hence, Unit C has been crucial for the occupational reconstruction of Shoma. Its radiocarbon dates also tie in with the rest of the dated charcoal from Shoma, which indicates that it has not exhibited any anomalies with what has been found in other units.

Horizon I in Unit C was particularly thick (see Fig.5.15) and exhibited many well preserved living floors and postholes with considerable amounts of charcoal, which as a consequence also provided radiocarbon dates for Shoma's oldest living floors. In contrast to other units (such as A and B) where brick fragments have been identified, Unit C did not provide any. Its living floors and postholes led me to suggest the use of grass huts or piled mud wall structures during Horizon I. Due to the presence of burnt clay in other units, it seems possible that piled mud wall structures might already have been in use during Horizon I. However, the identification of beaten mud floors with no associated standing structures, has led me to suggest that temporary grass huts might also have been in use.

Indeed, Walicka Zeh's (2000) recent ethnographic study of Bozo village architecture has shown that permanent mudbrick architecture does not exclude the presence of temporary grass huts (Fig.5.20). The latter usually feature beaten mud floors and postholes (Fig.5.21), which serve to hold wooden poles for the grass cover. These structures are used by bachelors or newly-wed couples unable to afford the construction of a mudbrick house (ibid.). Hence, Shoma might have featured piled mud structures as well as temporary grass huts in its earliest occupational horizon.

Unit C's aeolian sand layer, which characterises Horizon II, has also been identified in all other excavation units at Shoma. Usually wind blown sand indicates a phase of abandonment. However, these sand layers also contained ash lenses, few brick fragments and artefacts, which as a result indicate that Shoma was not completely abandoned during Horizon II. Instead it seems to have radically contracted in size, with the possible use of ephemeral structures. Shoma's Horizon II, dated between 0 and 500 AD ties in partially with the 'Big Dry' and thus with a more transitory way of life, which was characterised by a greater mobility.

Horizon III constitutes the most unsettled period as it has only been identified in four out of fourteen excavation units (Units A, B, D and F), excluding Unit C. Moreover, in Units A and B, Horizon III was seriously disturbed by the cutting of pits and graves. Hence, it has been difficult to ascertain the chronological order of these features. Layers of wall melt indicate the presence of mud architecture during this period, which suggests that Shoma might have been gradually re-occupied with permanent mud structures. Another important observation has been that the dead were buried in close proximity to residential structures, which is evidenced by the layers of wall collapse associated with the burials.

Horizon IV is represented in all excavation units, indicating the apogee of Shoma's occupational history. Instead of ephemeral structures such as temporary grass housing, rectangular mudbrick structures have become the norm, suggesting permanent occupation. The association of drainage pipes, made of terracotta, with these walls indicates a strong resemblance to Dia's modern architecture. Indeed, rectangular mud structures with terracotta drainage pipes on a compound's wall top or bottom can still be observed in most of Mali's village architecture as well as in Dia (Fig.5.22). The mudbricks at Shoma are mainly loaf-shaped, a tradition which lasted until the arrival of the French when mudbricks started to be shaped with rectangular moulds. However, aspects of structural layouts remain unclear for Horizon IV as the units, which measured a maximum of 5x5 m never allowed to expose more than one structure.

Horizon V layers have only been identified in Units A, B and D, thus post AD 1600 Shoma seems to have shrunk in size. However, we posses the most complete architectural data for this period as we mapped an area of 30x40 m to scale, which included Units A and B, revealing the true layout of residential structures (see Fig.5.9). The majority were rectangular rooms of houses situated around a central open courtyard, flanked by a narrow road, which indicates a resemblance with modern Dia as the town's layout is characterised by narrow, winding roads flanked by rectangular mudbrick structures (see Fig.5.22).

Horizon V is also characterised by the remains of a city wall, running over a length of 230 m at the northern portion of the site. The structure might have constituted a defensive work due to its robustness, indicated by an interstice between the walls of 1.3 m in width filled with rubble (Sanogo et al. 2004). Furthermore, the zigzag shape of the wall indicates "state of the art" military engineering. Indeed, the 18th and 19th centuries were characterised by the rapid growth of city walls throughout the Western Sudan due to the reigning insecurities of slave raids and El Hadj Omar's conquests (Konaté 2000).

Dia's city wall might have also had a symbolic function. Since at least the fourteenth century Dia has held a reputation as a maraboutic centre, known for its magic rituals, which are kept undisclosed to any outsiders (Marty 1920). This position stands in stark contrast to economic centres, which are famous for their contact and exchange with people and goods from far-away places. It is also said that Dia has never had a weekly market. An anecdote tells that at the beginning of the colonial period the French decided to place an administrative station at Dia. They also wanted to launch a weekly market. However, every time the market was held mysterious events took place, which resulted in its failure. As a consequence the French abandoned the idea of a market and even withdrew from Dia to settle in Tenenku (Sakai 1990:211). In this light it can be suggested that Shoma's city wall might have also served as a protection against outsiders. Hull (1972:2) has proposed that many African cities and towns originated as spiritual centres such as Daura and Ife in Nigeria and Great Zimbabwe. As a consequence they were often surpassed in size and prosperity by cities governed under a commercial and/or political ethic. Hence, Dia's status as a religious centre might have also contributed in the construction of a wall in order to demarcate itself from the outside world. Unfortunately no charcoal samples associated with the wall have been dated. Hence it remains unclear when exactly the wall was constructed.

Skeletal remains of that period mostly exhibit Islamic burial customs, indicating that Islam seems to have become more prominent, which ties in with El-Hajj Oumar's conquest of Dia in 1864 resulting in the institutionalisation of Islam in this region (Sakai 1990:216).

Figure 5.20 Bozo village of Kakolodaga, showing grass house next to rectilinear mudbrick house and 'Sudanese-style' mosque (Photo, courtesy of Walicka-Zeh 2000).

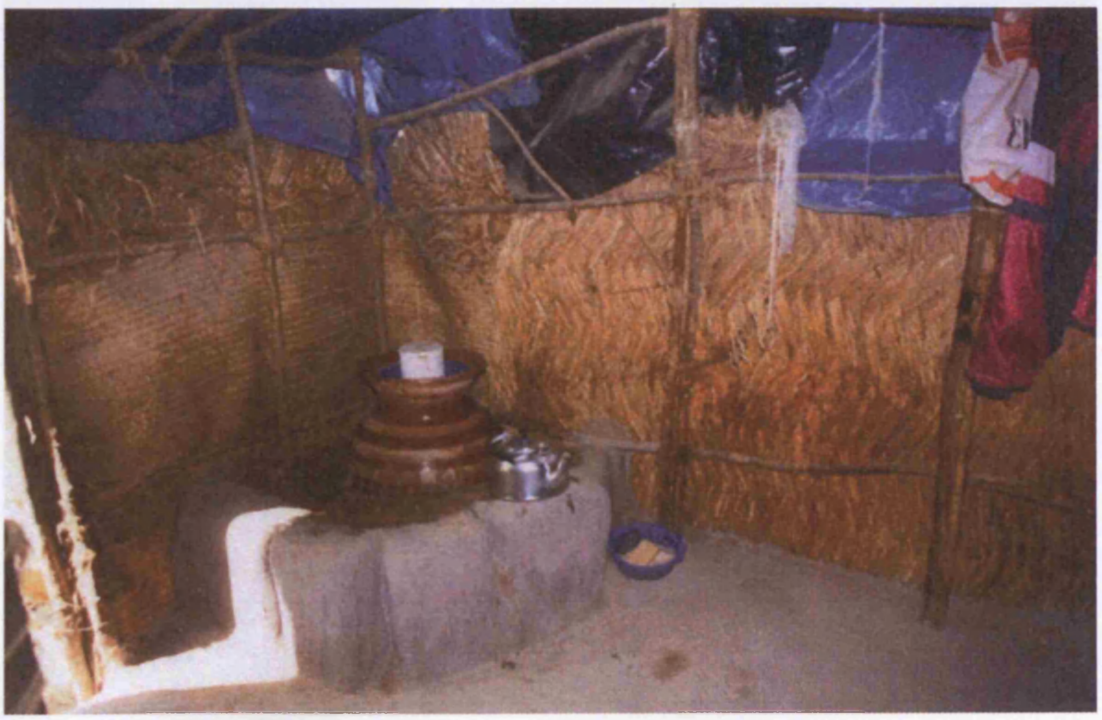


Figure 5.21 Interior of Bozo grass house (in Kakolodaga), showing beaten mud floor and wooden poles (Photo, courtesy of Walicka-Zeh 2000).

Figure 5.22 Narrow streets of Dia flanked by compound walls and rectilinear mudbrick houses associated with drainage pipes. In the foreground there is a cemetery with a drainage pipe used as grave marker, and in the background (in white) there is Dia's mosque.

5.4 Stratigraphy, Features and Chronology at Mara

During the field-seasons of 2000/2001 and 2002 additional excavations were carried out at the neighbouring site of Mara, which is located at the eastern edge of modern Dia (Fig.5.23). It measures 28 ha in size. Dia's modern population considers Mara to be their ancestral site, and the site features prominently in their oral traditions. Shoma in contrast seems to have been almost forgotten in Dia's communal memory. As a result we thought it essential to carry out a comparative analysis of the sites' occupational histories.

Figure 5.23 The northwestern edge of Mara with modern Dia visible in the background.

Due to Dia's proximity, the site of Mara continues to serve several functions. At its northern limit there is a pond (which might have started as a brick pit). Around its edges many private gardens are located, where salad and vegetables are grown. Another depression is located at the site centre, which is currently still in use for the extraction of clay to manufacture mudbricks (Fig.5.24). The eastern portion of the site serves as a football pitch. At the western edge there is functioning cemetey (Fig.5.25).

Moreover, a regular number of Dia's population traverses the site daily to reach their rice fields, which cover large expanses to the south and east of Mara. At night the site is often visited by Dia's marabouts, who perform many of their divination rituals on the soil of what they consider to be the home of their ancestors.

All these activities needed to be taken into consideration to choose the placement of three excavation units, which included Units M, Q and S. Cultural deposits extended to a depth of 2.70 m, within which three occupational horizons were identified. We decided to correlate Mara's occupation sequence to that of Shoma to facilitate the comparative analysis between the two sites. Its occupational horizons are thus as follows (from bottom to top): Horizon III, Horizon IV and Horizon V. As at Shoma, Mara's occupational horizons describe depositional events, which mainly consist of distinctive soils and sediments and might also provide a distinctive inventory of artefacts.

Figure 5.24 Brick pit in the site centre of Mara.

Figure 5.25 Mara's cemetery located at the western portion of the site.

5.4.1 Unit M

The first unit to be excavated, Unit M (Fig.5.26-5.28), was located at the south-eastern portion of Mara, characterised by a platform area of melted mudbrick structures. Unit M measured 6x4 m and its co-ordinates were taken at its north-eastern corner at N14°21.044' and W004°56.939'. It was placed 15 m due north-west of a site datum. A total station established its height at 272.33 m, from which all co-ordinates were taken. All heights indicated in here were taken from this site datum (BD).

Horizon III

Horizon IIIa: In contrast to Shoma, Mara's Horizon III has been split into an upper and lower layer due to differences in soil composition.

Mara's earliest visible occupation (Contexts 072, 071, 078, 083, 089, 094) appeared at a depth of 268.14 m and closed at 268.86 m. It was characterised by the rare presence of artefacts, in what otherwise seemed a sterile clay deposit, brownish yellow in colour (10YR 6/8) with inclusions of sand. Due to the lack of standing walls or mudbrick fragments it can be suggested that Mara's initial occupation might have been on a seasonal basis, consisting of ephemeral structures such as temporary grass habitations.

No charcoal samples suitable for dating were issued from Horizon IIIa. As a result, Unit's M oldest occupation can only be dated in relation to more recent deposits, from Horizon IV dated to around AD 1000. Therefore, Horizon III, including a and b, can only be said on excavation alone to pre-date AD 1000.

Horizon IIIb: The upper layers of Horizon III were characterised by yellowish brown (10YR 5/6), wind-blown sand and ash (Contexts 054-056, 059, 060, 065), which started at 268.81 m BD and closed at 269.23 m. Sand usually indicates phases of abandonment. In this case, however, one cannot make a straightforward correlation as a considerable number of artefacts were identified as well as ash lenses and a shallow pit. The latter measured 34 cm in depth and was filled with rice, ash and phosphoric soil, as well as pottery and a piece of red ochre.

The absence of architectural remains indicates that here occupation continued on a seasonal basis with structures possibly made of wattle and daub, which usually leave few clear traces.

Horizon IV

This horizon was characterised by permanent architecture, consisting of rectilinear and circular mudbrick structures. Other features included deflated rubbish pits, storage pits and a well. Three construction phases were identified (from bottom to top).

Lower: Two deflated rubbish pits of irregular shape (Contexts 064, 075, 079, 087, 088, 091, 099, 103, 106, 108), which were cut by the western section, defined the earliest occupation layer (see Fig.5.26). They started to appear at 267.67 m BD and closed at 268.95 m. The pits were filled with rice, brick fragments, charred grains, ash in various colours, sand, charcoal, phosphoric soil, pottery and burnt earth. Cotton (Gossypium sp.) seeds have also been identified from it. AMS dating of these seeds (GX-28196-AMS) revealed a date of 655±38 BP, which has been calibrated at the recommended limit of two standard errors to AD 1293 – 1397.

A well (Contexts 057, 062, 069, 076, 081, 096, 101, 105, 109) with a diameter of 90cm, was cut by the eastern section, showing only the western half of the feature (see Fig.5.26, East Profile). Its water level was reached at 267.12 m BD. Due to time constraints we stopped excavating at a depth of 266.75 m. The well closed at 269.12 m BD. Its fill consisted of dark yellowish brown (10YR 4/6) soil and included pottery, faunal remains, slag, a spindle whorl, a cowrie shell, a carnelian bead and a metal fragment.

The south-western corner of the unit held a circular mud structure, which might have functioned as a silo. It featured two components, including a subterranean storage pit (Contexts 007, 008, 063, 066, 073, 084, 090, 098) (Fig.5.29) and a circular mud wall above-ground structure (Contexts 004, 010) (Fig.5.30). The wall started at 269.06 m BD and closed at 269.91 m, thus exhibiting a standing structure measuring 0.85 m in height. Its interior diameter measured 92cm and the walls were 14 cm wide. The pit started at 268.11 m BD and closed at 268.97 m. The upper fill was characterised by large quantities of rice (we took 120 L of flotation samples) and ash. The lower layers included considerable amounts of charcoal and ash with some inclusions of sand. Due to the high rice and ash content, it seems as if the structure functioned as a rice silo. According to the workmen and other inhabitants of Dia, ash is used for protection against termites. We also recovered an intact pot lid, ceramic sherds and a spindle-whorl. It is possible that the silo continued functioning during the later phases of Horizon IV. A charcoal sample (GX-28165) from the silo provided a date of 660±30 BP.

Middle: The second occupation phase featured a straight mudbrick wall (Contexts 038, 047) in the southern half of the unit (Fig.5.31). It was cut by the southern and eastern sections respectively. Individual loaf-shaped mudbricks characterised the wall's construction. It started to appear at 269.17 m BD and closed at 269.48 m.

The area enclosed by the mudbrick wall consisted of two living floors, which were separated by thin layers of loamy clay with large amounts of charcoal. The earliest living surface associated with the wall appeared at 269.22 m BD, showing a yellowish brown (10YR 5/4) beaten mud surface (Fig.5.32). A circular pit (Contexts 045, 051, 058, 061, 068, 074, 080, 086, 093, 100, 104, 110), of which half was cut by the southern section, was associated with the oldest living floor (see Fig.5.27). It started at 267.52 m BD and closed at 269.25 m. The pit showed a diameter of 1 m. It might have functioned as a storage pit due to its fill, which consisted of considerable amounts of rice and ash. The latter might have been used for the preservation of the pit's content, as in the silo. A drainage pipe fragment, a spindle whorl as well as few pottery sherds were also recovered.

A rectilinear mud structure (Contexts 029, 039, 046) defined the northern half of the unit (see Fig.5.30 and 5.31). Only its southern and western walls were visible while the remaining walls were hidden behind the northern section. It was constructed with loaf-shaped mudbricks and patches of mud, which were applied in thick layers. It started to appear at 269.32 m BD and closed at 269.63 m. The wall's interior featured sand and substantial amounts of charcoal and rice. The structure continued to function into the later phases of this horizon with slightly modified wall angels.

The area between the mud structures might be interpreted as a passageway. It consisted of even layers of laminated sand, burnt earth, rice, ash and charcoal, which were particularly well preserved next to the northern structure (Fig.5.33). A pit (Context 043), filled with ash and charcoal, measuring 15 cm in depth, was identified at the western end of the passageway.

Upper: The most recent period witnessed a new construction phase, during which the placement of the previous mud structures slightly shifted.

The southern wall continued to be cut by the southern and eastern sections, however, in a much steeper gradient than during the middle phase (Fig.5.34). In contrast to its predecessor, it exhibited a piled mud wall, where one layer of mud is applied over and over again (Contexts 013, 028). The 'crepisage' (or plaster) lines, indicating the wall's limits, made it possible to identify the structure. It started at 269.52 m BD and closed at 269.79 m. A carnelian and a clay bead were identified within the wall matrix. The inside was filled with compact wall melt, patches of burnt earth, charcoal, rice and a few artefacts, which included another carnelian bead.

The northern structure also continued in function, however with few alterations (Context 017) (Fig.5.35). It exhibited a combination of rectangular and loaf-shaped mudbricks, which started at 269.56 m BD and closed at 269.75 m. A circular hearth (Context 019), made out of clay and filled with ash, was located in its north-western corner (see Fig.5.35). Its walls measured between 8 and 10cm in width, showing a diameter of 24cm. The interior of the northern structure was characterised by two living floors, showing patches of beaten earth and a considerable quantity of rice. A charcoal sample (GX-28165) from the first living floor provided a date of 530±40 BP.

A refuse pit (Context 002 and 026) was located in the western portion of the unit (see Fig.5.35). It started at 269.29 m BD and closed at 269.85 m. Its fill mainly consisted of ash, charcoal, faunal remains, pottery and mudbrick fragments.

Horizon V

No traces of Horizon V material have been identified here. Horizon IVc already made up the surface of Unit M.

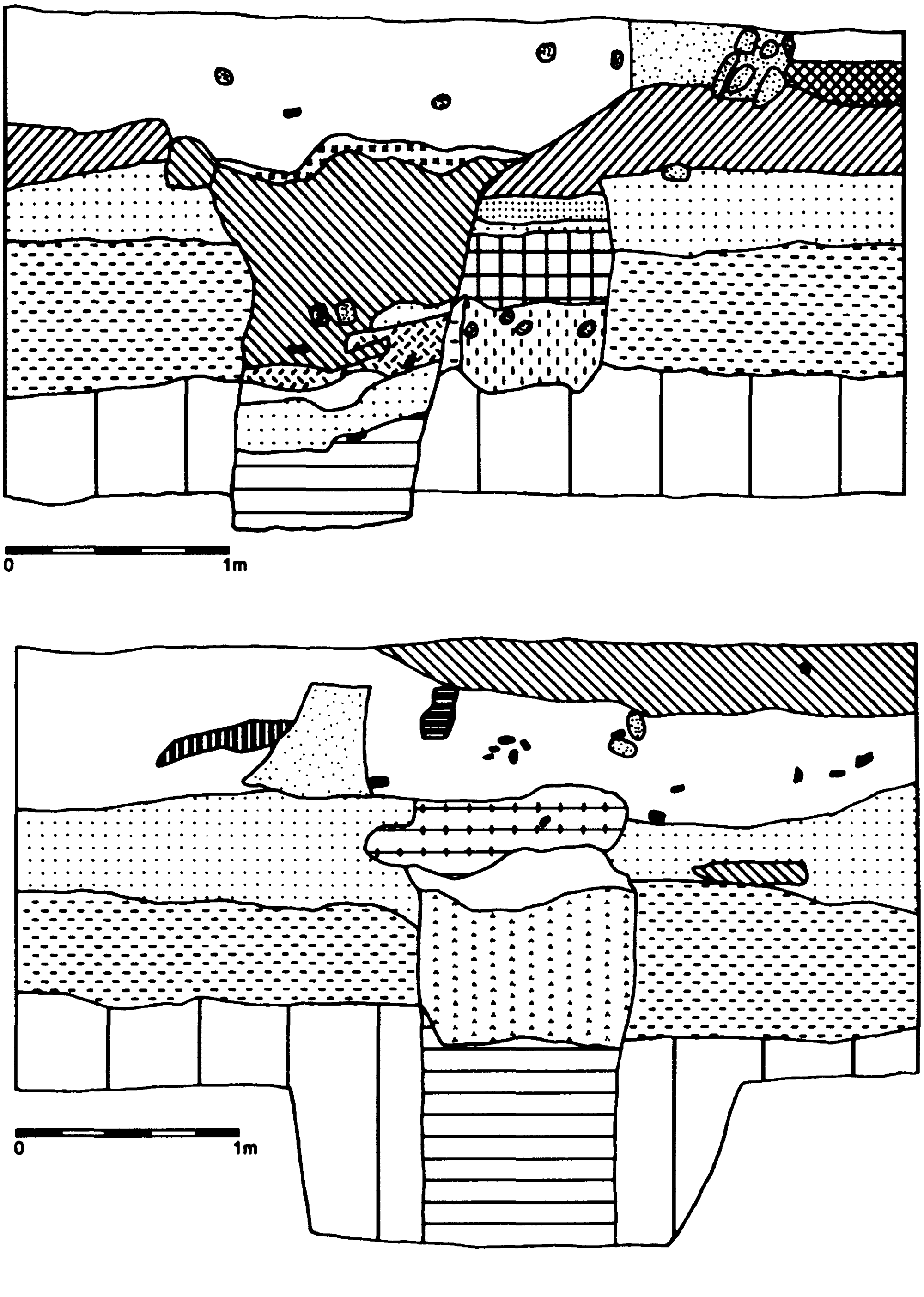


Figure 5.26 Section drawings, Unit M, Mara
above - West Profile
below - East Profile

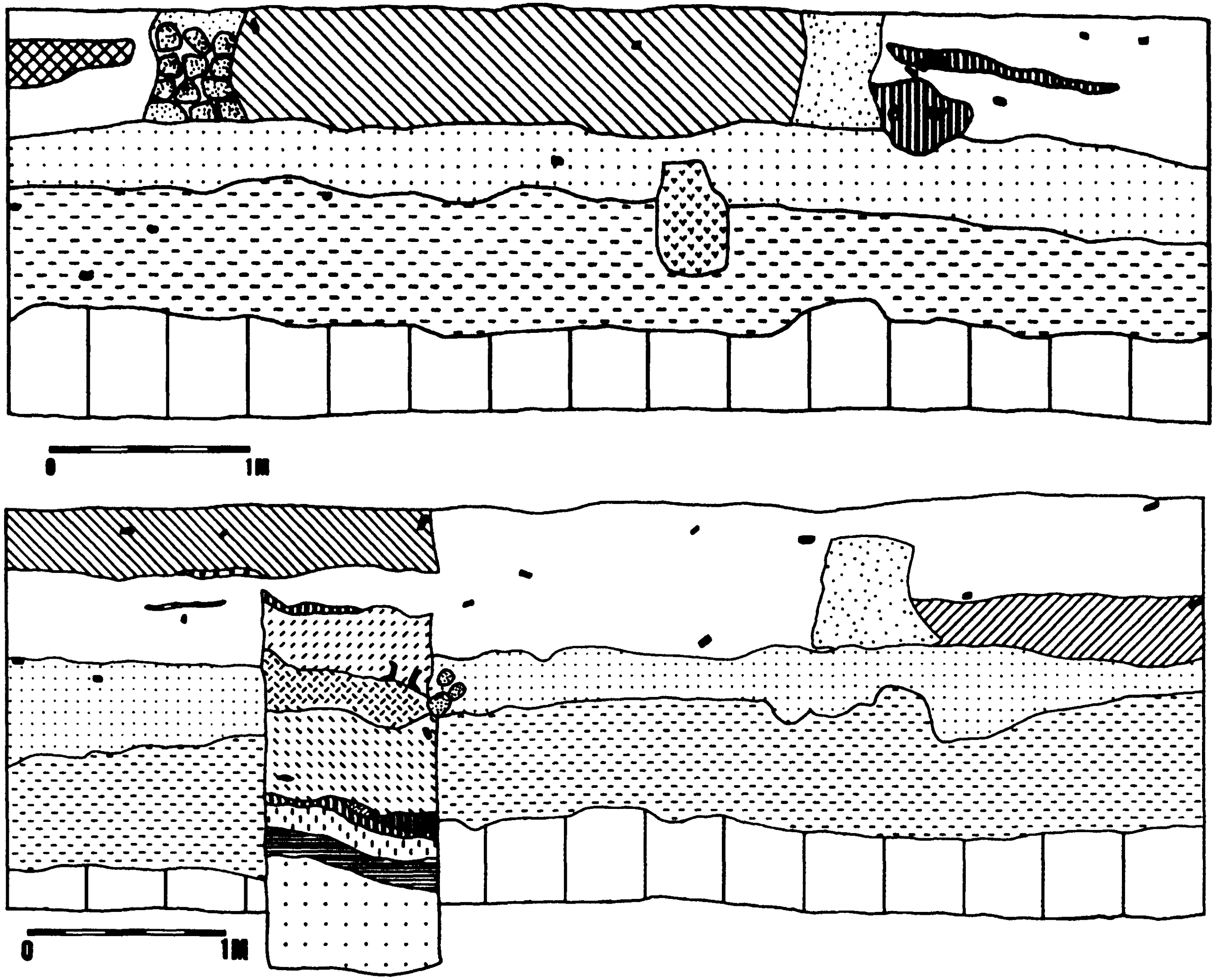
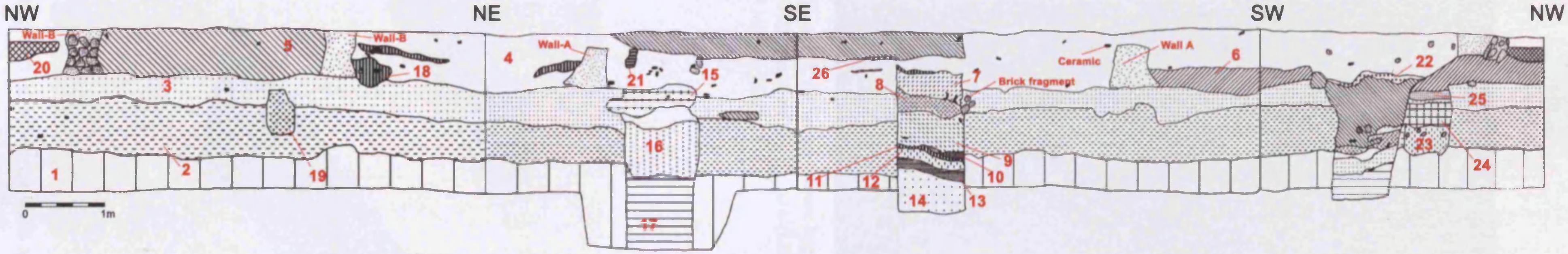


Figure 5.27 Section drawings, Unit M, Mara; above - North Profile and below - South Profile.



1-Bedrock; compact clay with silt inclusions Pale yellow (2.5Y7/3)

2-Compact loamy clay with sand (lower HIII); Light yellowish brown (10YR6/4)

3-Sand (upper HIII) Pale brown (10YR6/3)

4-Loamy clay with ash and laminated sand (HIV) Very pale brown (10YR7/3)

5-Compact loamy clay with silt inclusions (HIV) Light grey (10YR7/2)

6-Laminated sand with ash and charcoal (HIV) Light grey (10YR7/2)

7-Heterogeneous fill; rice, ash, clay and sand (HIV) Very pale brown (10YR8/2)

8-Heterogeneous fill; rice ash, sand, clay and fauna (HIV) Pale brown (10YR6/3)

9-Heterogeneous fill; rice, ash, sand and charcoal (HIV) Very pale brown (10YR7/3)

10-Laminated ash (HIV) Light grey (10YR7/2)

11-Laminated ash, rice and charcoal (HIV) Grey (10YR6/1)

12-Heterogeneous fill; rice, ash and clay (HIV) Pale brown (10YR4/1)

13-Compact clay with silt inclusions (HIV) Light grey (10YR7/2)

14-Sand and ash (HIV) Yellowish brown (10YR5/6)

15-Compact clay (HIV) Light grey (10YR7/2)

16-Heterogeneous fill; sand and rice (HIV) Pale brown (10YR6/3)

17-Heterogeneous fill; sand, clay and charcoal (HIV) Yellow brown (10YR5/4)

18-Heterogeneous layer; ash, rice and clay (HIV) Very pale brown (10YR7/4)

19-Heterogeneous fill; rice, ash and sand (upper HIII) Light yellowish brown (2.5Y6/4)

20-White ash, sand and charcoal (HIV); Light grey (10YR7/2), and White (2.5Y8/1)

21-Semi-compact clay and rice (HIV); Very pale brown (10YR7/3)

22-Heterogeneous fill; sand, ash, rice and clay (HIV) Light olive grey (5Y6/2)

23-Heterogeneous fill; sand, ash, brick fragments (HIV) Pale brown (10YR6/3)

24-Semi-compact clay (HIV) Light grey (10YR7/2)

25-Friable clay (HIV) Very pale brown (10YR8/2)

26-Habitation surface (HIV) Dark greyish brown (10YR4/2)

Figure 5.28 Section drawing of Unit M with numerical legend, including associated occupational horizons.

Figure 5.29 Subterranean storage pit, associated with round mud structure (Lower Horizon IV, Unit M, Mara).

Figure 5.30 Round mud structure associated with pit in Fig.5.29. It might have served as a silo during Horizon IV sequence (Unit M, Mara).

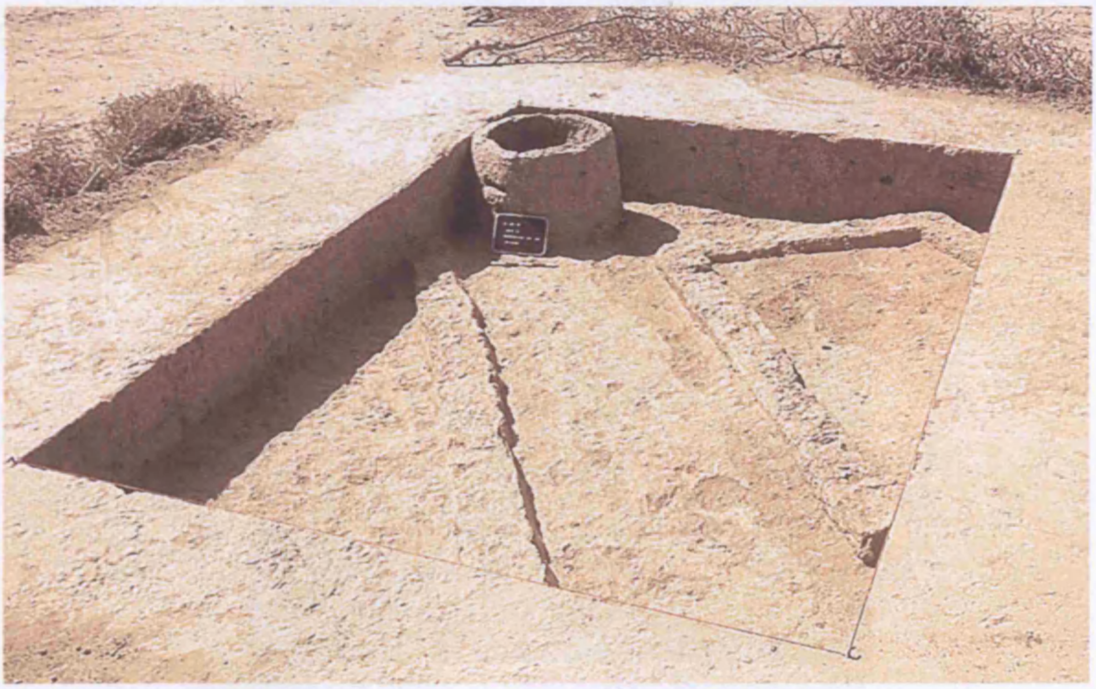


Figure 5.31 Mudbrick walls associated with silo (Middle Horizon IV, Unit M, Mara).

Figure 5.32 Portion of a habitation surface associated with South Wall (Middle Horizon IV, Unit M, Mara).

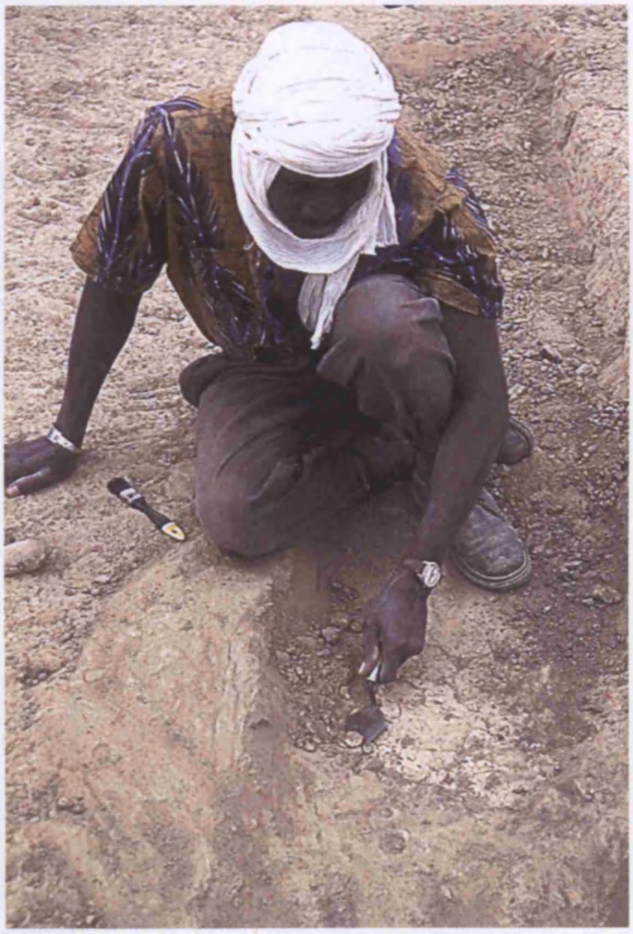


Figure 5.33 Nafogo Coulibaly exposes the laminated sand layer, which characterises the passageway in upper Horizon IV layers.

Figure 5.34 Upper Horizon IV (Unit M, Mara), showing most recent construction phase for mudbrick wall in the foreground.

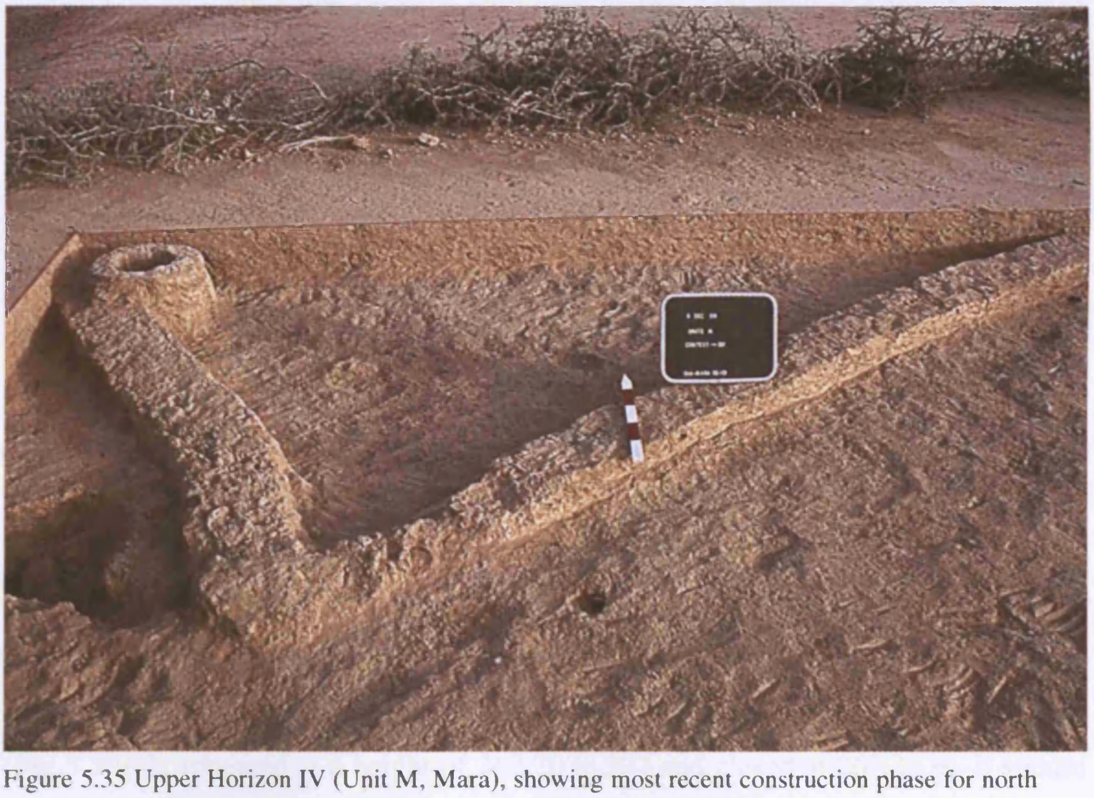


Figure 5.35 Upper Horizon IV (Unit M, Mara), showing most recent construction phase for north wall, which is associated with a hearth (at the corner) and a pit (outside of wall).

5.4.2 Unit Q

Unit Q was located at the north-western portion of Mara, which is characterised by dense agglomerations of surface features such as rectangular and circular mudbrick and simple clay structures. To its south lies a large brick pit. Our goal was to verify its occupational sequence with the one from Unit M. Unit Q measured 2x3 m and its co-ordinates were taken at its north-eastern corner at N14°21.075' and W004°57.092'. It was situated 20 m due west of a site datum. The height of the new datum, 271.00 m, was measured from the previous site datum. All heights indicated in the text (as BD = below datum) were taken from the new datum.

Cultural deposits extended to a depth of 2.10 m (Fig.5.36 and 5.37), within which three occupational horizons were identified, (from bottom to top): Horizon III, Horizon IV, and Horizon V.

Horizon III

Unit Q's initial occupation was characterised by a dark brown (10YR 3/3) humus-like soil, which at first was quite humid (Contexts 023-038). It started to appear at 266.04 m BD and closed at 267.26 m. The sections of the pond, which lies to the south of Unit Q, revealed the same dark brown soil, indicating that the ground water level at this portion of the site rises considerably.

The only structural remains identified were a few mudbrick fragments in its upper layers as well as patches of burnt earth, which appeared at 266.65 m BD. However, there was a considerable quantity of artefacts and faunal remains present. The sloping stratigraphy indicates that during this period Unit Q might have constituted the outer edges of the settlement, where litter and debris were discarded. Another characteristic was the good preservation of the recovered material, which included intact and nearly intact pots, metal objects and large quantities of faunal and floral remains (Fig.5.38). It may be that these layers have been frequently waterlogged.

A charcoal sample (GX-28750), taken from the lowest layers of this horizon, has been dated to 1250 ± 60 BP (see Table 5.2 for calibrated dates). This date corresponds to what has been defined as Horizon III at Shoma.

Horizon IV

Lower: The southern portion of the unit exhibited what could be interpreted as a pottery pavement (Context 022) in view of the horizontal placement of ceramic sherds (Fig.5.39). It appeared at a height of 267.20 m BD and closed at 267.36 m. It should be noted, however, that the individual sherds did not exhibit even shapes or sizes.

Instead they were small in size, and the surface of the floor was uneven. It might thus be suggested that this feature had a purely functional utility, such as solidifying the ground surface during the rainy season.

The central and northern portion of the unit showed faint dark yellowish brown traces of what might have constituted a circular mud wall, measuring 1.5 m in length (Context 021). Due to high moisture levels, it was not possible to identify individual mudbricks. Hence, it remains unclear whether it really constituted a wall. It appeared at a height of 267.19 m BD and closed at 267.37 m. To its west **lay** a circular feature (Context 019), which was delimited with a black **edge** while its fill was composed of brown (10YR 4/3) loamy clay with intrusions of sand. Its function remains enigmatic (see Fig.5.39).

On the basis of radiocarbon-dated charcoal from layers above and below, it can be suggested that the lowest layers of Horizon IV date somewhere between AD 1000 - 1200.

Middle: The second phase of Horizon IV started at a height of 267.35 m BD and closed at 267.90 m. It was characterised by a layer of compact wall melt, covering the southern half of the unit (Contexts 016, 018). The northern half exhibited the same dark brown humus-like soil we already encountered in Horizon III (Context 017). It contained many inclusions of charcoal, faunal remains, slag and pottery. The same deposit also provided a terracotta figurine head, in the style of what is known as Middle Niger terracottas (for a more detailed description, see Chapter 7). Despite having been recovered from a secondary deposition context, we decided to have associated charcoal radiocarbon dated, which would give us at least an indication of the time period the object was deposited. The charcoal sample (GX-28751) yielded a date of 630 ± 60 AD.

Upper: The above lying layers continued to exhibit the dark brown humus-like soil (Contexts 008, 014, 015), which contained lots of charcoal, ash, brick fragments, rice and faunal remains, as well as layers of compact wall melt (Contexts 009, 010, 012, 013). The latter might indicate mudbrick architecture. Despite the absence of dated charcoal, it can be suggested that these layers might correspond to the end of Horizon IV, around 1600 AD.

Horizon V

The most recent occupation was characterised by the remains of a circular mudbrick structure (Context 003), visible on the site surface (Fig.5.40). Unit Q included only the eastern half of the circular structure, allowing us to excavate its interior as well as the area outside of it. The structure was made out of rectangular mudbricks, showing an interior diameter of 1.90 m. It appeared at a height of 267.96 m BD and closed at 268.19 m. Its interior was characterised by a mixture of wall melt and ash including pottery and faunal remains. The considerable quantity of ash implies that it might have functioned as a kitchen/cooking area.

The exterior consisted of compact wall melt in the south and a heterogeneous layer of loose greyish-brown (10YR 5/2) soil in the north, which included a considerable quantity of ash, rice, charcoal and faunal remains.

No charcoal samples were dated from this context as according to the McIntoshs (1986) all dates <300 years are suspect in nature. It might be suggested, however, that Unit Q's most recent occupation dates between the 17th and 19th centuries, thus to what has been defined as Horizon V.

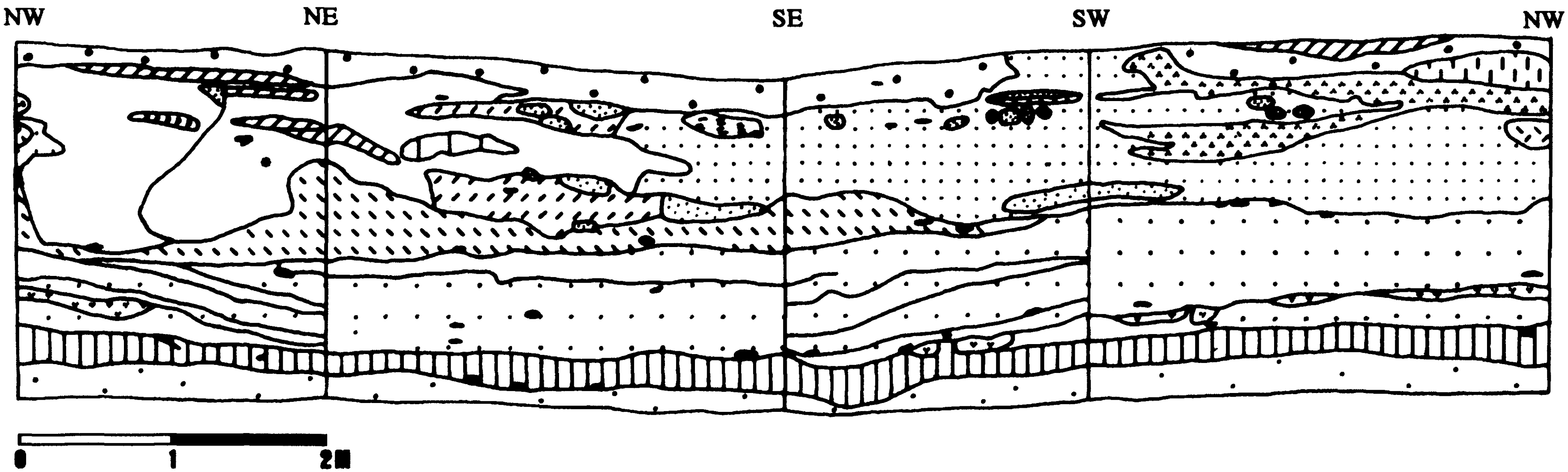
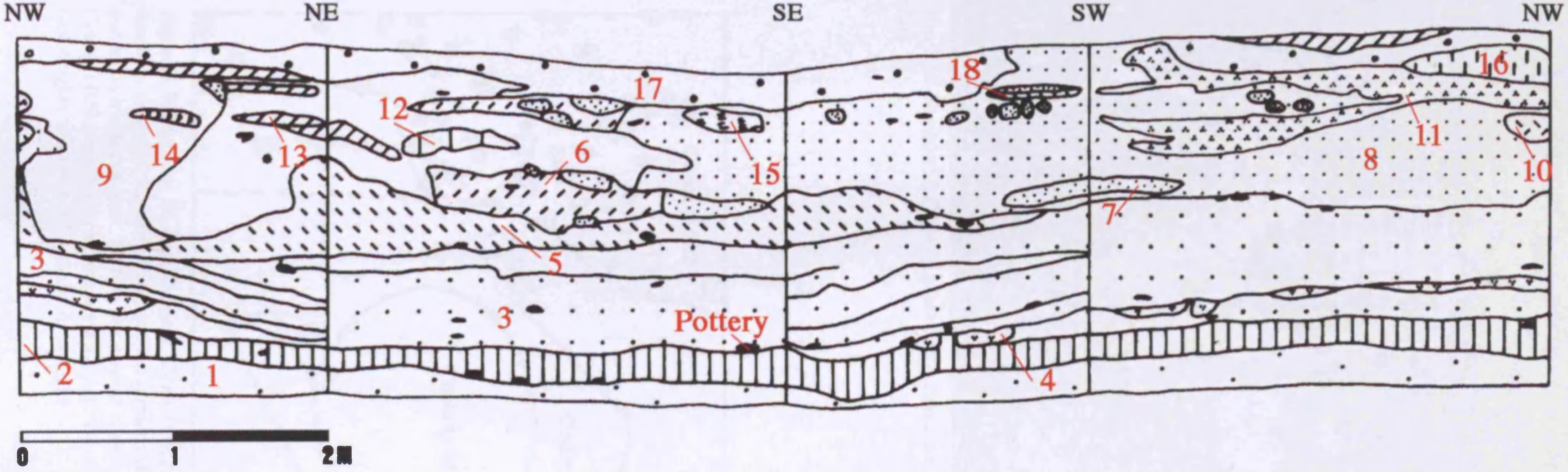


Figure 5.36 Stratigtaphic sequence, Unit Q, Mara.



1-Sterile silted clay
Brown (10YR4/3) and
Yellowish brown (10YR5/8)

2-Homogeneous clay with
small charcoal content (HIII)
Very dark greyish brown (10YR3/2)

3-Highly organic clay in bands of
black and yellowish clay (moist) (HIII)
Dark brown (10YR3/3)

4-Organic soil (burnt?) (HIII)
Red
(2.5YR5/6)

5-Silty clay with small ash content (HIV)
Yellowish brown
(10YR5/4)

6-Heterogeneous clay layer with ash,
charcoal and brick fragments (HIV)
Brownish grey (10YR6/2)

7-Brick(fragments) (HIV)
Brownish yellow
(10YR6/8)

8-Heterogeneous clay layer with (HIV)
silty spots, charcoal and sand
Light grey (10YR7/2)

9-Heterogeneous clay layer with charcoal,
rice chaff and laminated ash lenses (HIV)
Dark greyish brown (10YR4/2)

10-Burnt earth (HIV)
Very dark grey
5YR3/1)

11-Heterogeneous clay layer with ash,
charcoal and rice chaff (HIV)
Dark greyish brown (19YR4/2)

12-Ash in various clolours with
charcoal and pottery (HIV)
Munsell colour description missing

13-Ash, charcoal, rice chaff (burnt)
Dark grey (HIV)
(5YR4/1)

14-Loose organic soil
Brown (HIV)
(10YR4/3)

15-Heterogeneous clay layer with ash,
charcoal and rice chaff (HIV)
Dark grey (10YR4/1)

16-Heterogeneous clay layer with ash
and rice chaff (HV)
Dark greyish brown (10YR4/2)

17-Clay with laminated sand
lenses (HV)
Light grey (10YR7/1)

18-Phosporous soil (HIV)
Olive yellow
5Y(6/6)

Figure 5.37 Stratigraphic sequence, Unit Q, Mara, with numerical legend and associated occupational horizons.

Figure 5.38 Horizon III (Unit Q, Mara) with characteristic 'humus' soil and substantial amounts of pottery.

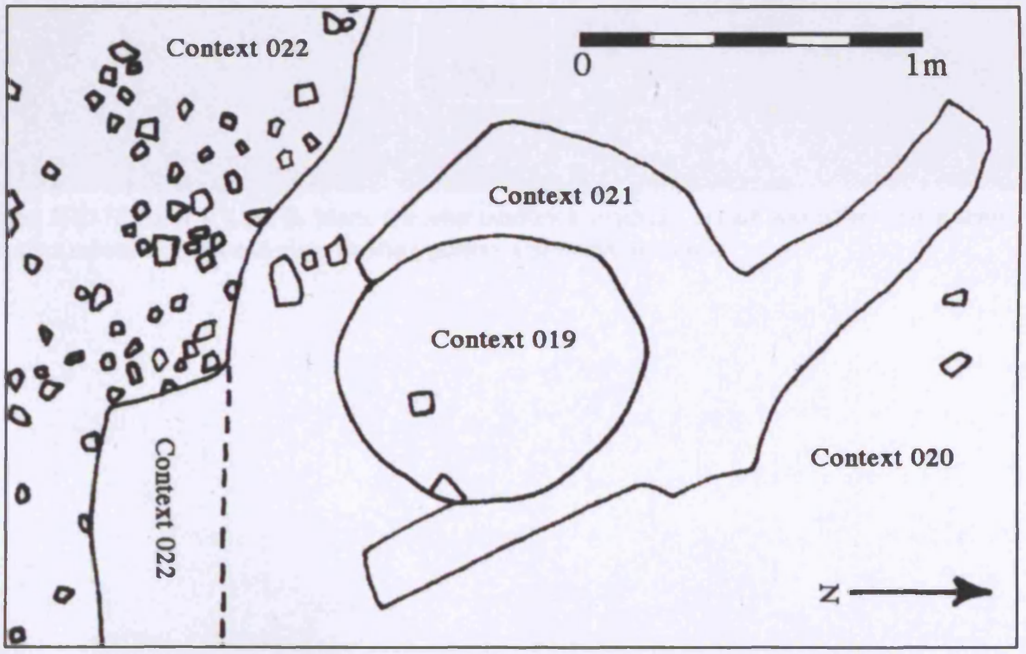


Figure 5.39 Horizon IV, Unit Q, Mara. Context 022 delimits an area of horizontal lying pottery sherds. Context 021 possibly outlines the remains of a mudwall. Context 019 was recognizable due to its black edges. Its fill consisted of Unit's Q 'humus' soil, pottery, sand and charcoal. Context 020 consisted of a compact silty clay. The irregular-shaped rectangles are pottery sherds (for heights see Table A1.3 in the Appendix).

Figure 5.40 Horizon V, Unit Q, Mara. Circular mudbrick structure, which was filled with a semi-compact mixture of ash and clay, yielding pottery and faunal remains.

5.4.3 Unit S

Unit S was located 20 m to the west of Unit Q (see Fig.5.23). Our goal was to obtain a better understanding of the circular clay structures, which characterise this portion of the site, as they have been recorded over wide areas of the Middle Niger region. It has been suggested that they serve for the smoking of fish, which is an ongoing Bozo tradition (Schmidt, pers. comm.). Hence, we decided to position Unit S to include as many of these circular structures as possible. Unit S also exhibited an architectural platform of wall melt associated with a rectangular wall in its northwestern quadrant and a mudbrick wall.

The unit measured 7x4 m. Its co-ordinates were taken at N14°21.067' and W004°57.106. Heights were measured from the same site datum as for Unit Q, which stood at a height of 271.00 m.

Cultural deposits extended to a depth of 2.10 m (Fig.5.41-5.42) within which three occupational horizons were identified, (from bottom to top): Horizon III, Horizon IV, and Horizon V.

Horizon III

The unit's initial occupation started to appear at 266.27 m BD and closed at 267.37 m. The western portion of the unit already exhibited nearly sterile soil, which was a loamy clay, brownish yellow (10YR 6/6) in colour and highly ferrogeneous, indicated by olive yellow spots (2.5Y 6/6) (Contexts 059, 060, 069, 070, 074, 076, 080, 086). There was a minimal content of artefacts.

The eastern portion exhibited similar layers of ferrogeneous loamy clay, however, with considerable amounts of charcoal (47 samples were recovered) and pottery (Contexts 067, 068, 072, 073, 075, 077-079, 081-085, 087, 089, 090, 092, 093, 094-097, 099, 101). Due to the lack of standing walls, brick fragments or wall melt, it might be suggested that the unit's initial occupation might have been characterised by habitation in ephemeral grass structures.

A charcoal sample taken at a height of 267.18 m provided a date of 1210 ± 40 BP. Hence, Unit S confirms what has already been found in Units M and Q, that Mara was first occupied during Horizon III, dated to ca. AD 600 - 1000.

Horizon IV

Lower: The eastern portion of the unit exhibited a considerable layer of wall melt, which included two living floors (Contexts 040 and 048). The wall melt appeared at 267.22 m BD and closed at 268.18 m. The first living floor was identified at a height of 267.61 m, and consisted of dark greyish brown (10YR 4/2) beaten clay. The second one also consisted of dark greyish-brown (10YR 4/2), beaten mud, yielding considerable amounts of rice and charcoal (Fig.5.43). It appeared at 267.76 m BD. The south-eastern corner yielded the dark-brown 'humus-like' soil we already identified in Unit Q, which was filled with charcoal, ash, sand, faunal remains and pottery.

A wall (Contexts 016, 026, 041, 056), running north-south, was located at the centre of the unit (see Fig.5.43). It appeared at 267.52 m BD and closed at 268.36 m (site surface). It was constructed out of rectangular mudbricks. Its substantial width of 0.60 m indicates that it must have once reached a considerable height. It remains difficult to state whether it represented a compound wall since its full exposure was limited to the unit. The wallmelt and the living floor in the eastern portion might thus be associated with the north-south running wall.

The western portion of the unit, which covered a considerable area of 16 m^2, constituted a single context (C 042) as it consisted of horizontal-lying pottery, cattle and canid remains, reaching a depth of 25 cm (see Fig.5.43). Hence, we recovered an enormous quantity of material, which included, in addition to slag and small finds, 32 bags of pottery and half of Mara's Horizon IV animal remains. As a result I have interpreted context 042 as a deflated midden due to the horizontal deposition of the broken pots and bones.

Kat Manning and Kevin C. MacDonald, who carried out Dia's faunal analysis, found that next to cattle, Context 042 yielded 84% of Dia's total canid assemblage (Manning 2003; Manning and MacDonald in press). Osteometric analysis of the canid remains revealed that the majority constituted modern jackal (*C. adustus and C. aureus*), of which a small proportion exhibited cut marks (c. 20% of the total assemblage) while no charred remains were identified. Hence, it seems as if the majority of the canid population was not used for their meat. Instead, it has been found that levels of bone fragmentation were quite low, suggesting that such amounts may have been used for their pelts or for other non-culinary purposes, such as "medicine". The latter can be observed in markets, where "traditional" medicine and stuffed animals are sold, also used as paraphernalia for fetish activities. The cattle and ovicaprine remains in contrast exhibited cut marks and charring, which suggests they were being used primarily for subsistence.

A charcoal sample from Context 042 (GX-28173) - the bone midden - yielded a date of 1010±40 BP.

Upper: The western portion exhibited a loose mixture of light grey (10YR7/2) and pale brown (10YR 8/2) soil, which revealed large quantities of faunal remains and pottery (Context 038). A band of white ash was located next to it and the north-south running wall. The east was filled with a deposit of compact wall melt.

Horizon V

This horizon constituted the most recent occupation in Unit S, visible on the site surface (Fig.5.44). It featured rectangular and circular mudbrick structures, which indicate permanent occupation. It also included five circular pits, a platform area of wall melt associated with a rectangular wall in the northwestern quadrant and a well in the east.

A total of five pits have been identified. In order to facilitate their description I have numbered them. Pit 1 (Contexts 006, 019, 027, 033) was located at the south-western corner of the unit. It had a diameter of 94 cm, and reached a depth of 50 cm. Its fill was characterised by a friable soil, brown in colour (10YR 5/3) and a considerable amount of ash. In addition to few ceramic sherds, large quantities of rice were identified.

Next to it was Pit 2 (Contexts 008, 021, 030). It had a diameter of 62 cm and exhibited one course of loaf shaped mudbricks. Its fill, which reached a depth of 30 cm, was characterised by a friable, yellowish brown (10YR 5/4) soil. It exhibited a minimal content of material culture, including pottery, faunal remains, and slag. Phosphoric soil was found along its edges and at its bottom.

Pit 3 (Context 009) was positioned immediately to the east. It had a diameter of 88 cm, reaching a depth of 30 cm. Its fill consisted of a light grey (10YR 7/1) loamy clay, exhibiting a minimal content of artefacts, which included one piece of slag, some pottery and brick fragments.

Pit 4 (Contexts 013, 022) was located in the south-eastern portion of the unit. It had a diameter of 84 cm, reaching a depth of 17 cm. Its fill consisted of compact clay, light grey (10YR 7/2) in colour, with a poor content of pottery, charcoal and rice.

A circular mud structure (Context 018), measuring 8 cm in height (with a diameter of 60 cm) was located in the north-eastern corner of the unit (Fig.5.45). At its southern half it showed an opening of around 25 cm. Similar features, which have recently gone out of use, have been observed on archaeological surveys in the Inland Niger Delta, yielding the residues of fish and charcoal (Fig.5.46). It might thus be suggested that Mara's circular feature constituted an oven for**smoking**fish. The opening might have served for placing wooden logs to produce sufficient heat to smoke fish. At the opening we identified a broken vessel, associated with patches of burnt earth. It reached a depth of 58 cm (Contexts 028, 034, 046). A white band of compact clay characterised its outer edges. It contained a heterogeneous mixture of half-intact vessels, charcoal, fish bones and rice. Indeed Pits 1-4 might also have served as fish ovens due to their shallow depths. Alternatively, they might have functioned for roasting vegetables (in the region of Segu, it has been observed that shea nuts are roasted in pits, MacDonald pers. comm.).

A circular feature (Contexts 057, 066, 071, 088, 091, 098, 100), which might have functioned as a well, was cut by the eastern section. It appeared at 266.19 m BD and closed at 268.29 m. It had a diameter of 1.06 m and was filled with light brownish grey (10YR 6/2) soil, exhibiting a minimal content of artefacts. At 266.97 m BD the soil turned humid, and contained a considerable amount of charcoal and pottery.

The north-west was characterised by an amalgamation of wall melt and brick fragments. It resembled a platform area on which maybe a room collapsed (Contexts 001, 003, 005). A circular mudbrick feature (Context 002) was associated with the room collapse. It had a diameter of 42 cm and measured 22 cm in depth. Its fill included half an intact pot, lots of rice and some charcoal. Due to its small diameter this feature might have functioned as a support for a ceramic vessel. A rectangular wall (Context 017) demarcated the platform area. The wall was preserved to one course of loaf-shaped bricks. The north-south running wall in the centre of the unit continued its function in Horizon V.

Dated charcoal from previous deposits suggests that Unit's S surface features date to Horizon V. However, it remains unclear whether all features are contemporary in age or whether for example the pits are of a later date than the platform area.

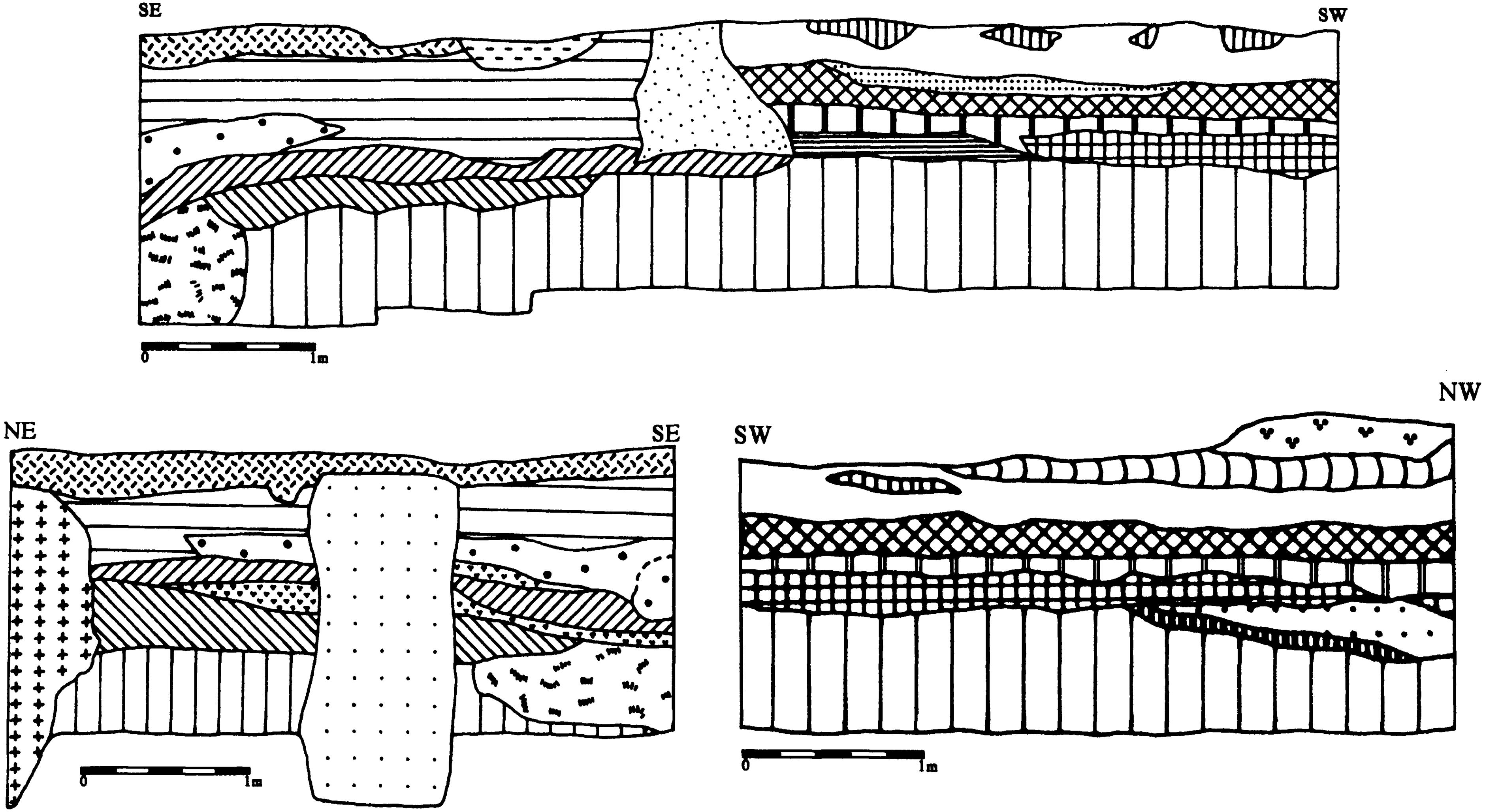
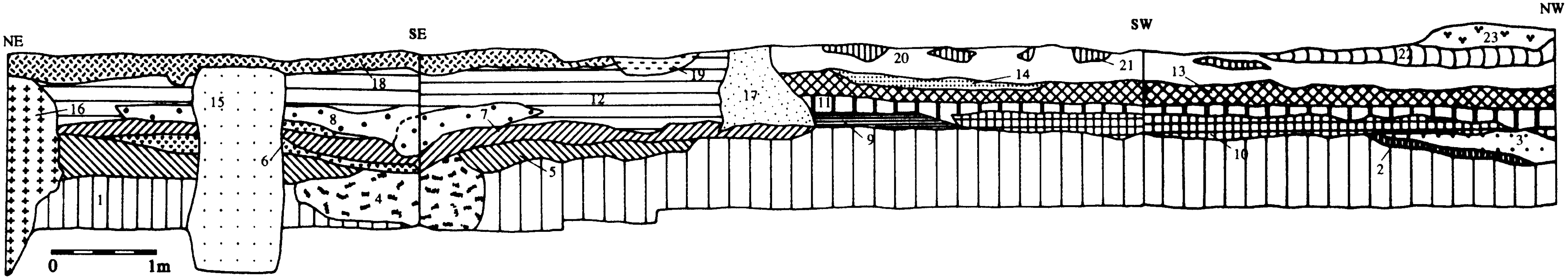


Figure 5.41 Unit S, South Profile (above), East Profile (below, left), and West Profile (below, right).



1-Loam, nearly sterile, with silty spots and ferrogenous content (HIII)
Very pale brown (10YR8/2)

2-Moderately compact loam (HIII)
Light grey
(2.5Y7/2)

3-Moderately compact loam with ferrogenous content (HIII)
Brownish yellow (10YR6/8)

4-Humid clay pit (HIII)
Brown
(10YR4/3)

5-Hard-packed loam with ferrogenous content (HIII)
Greyish brown (10YR5/2)

6-Moderately compact loam (HIII)
Yellowish brown
((10YR5/6)

7-Moderately compact loam ((HIII)
Very pale brown
(10YR7/4)

8-Loam with charcoal (---line delimits humid spot) (HIV)
Dark grey (10YR4/1)

9-Loam and silt (HIV)
Very pale brown and yellow
(10YR7/3, 10YR7/8)

10-Loam with phosphatic content (HIV)
Pale yellow (2.5Y7/3)

11-Loam, nearly sterile
Pale yellow (HIV)
(2.5Y7/3)

12-Hard-packed loam with charcoal (HIV)
Grey (10YR6/1)

13-Friable loam (C042) (HIV)
Light grey
(10YR7/2)

14-Ash (HIV)
Dark greyish brown
(10YR4/2)

15-Loam and sand (HIV)
Light grey
(10YR7/2)

16-Mixture of sand and loam (HIV); Grey and pinkish grey
(7.5YR6/1 and 7.5YR7/2)

17-Mudbrick wall (HIV)
Brownish yellow
(10YR6/6)

18-Hard-packed loam (HV)
Light grey
(10YR7/1)

19-Ash (HV)
White
(10YR8/1)

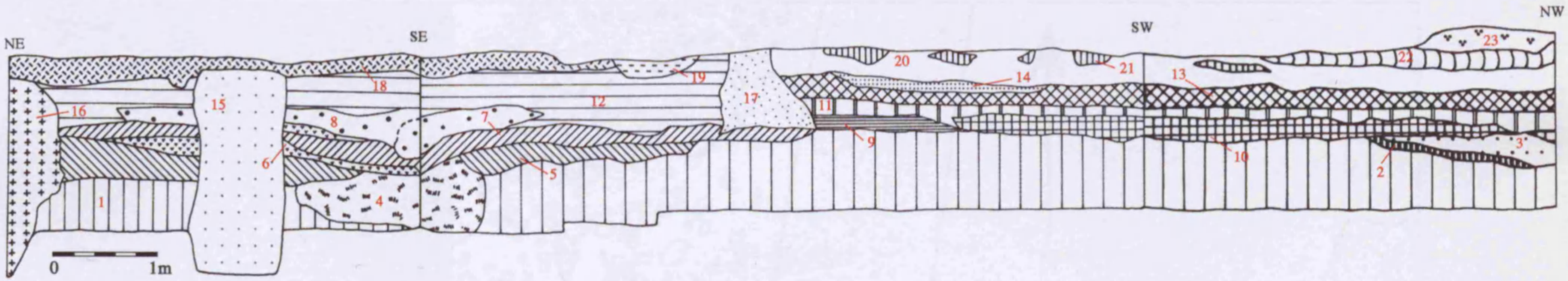
20-Loam (HV)
Light grey
(10YR7/1)

21-Loam with phosphatic content (HV)
Olive yellow
(5Y6/6)

22-Moderately compact loam (HV)
Light grey
(10YR7/1)

23-Hard-packed loam with brick fragments (HV)
(Light grey (10YR7/2)

Figure 5.42 Stratigraphic sequence Unit S, Mara, with numerical legend and associated ocupational horizons.



1-Loam, nearly sterile, with silty spots and ferrogenous content (HIII)
Very pale brown (10YR8/2)

2-Moderately compact loam (HIII)
Light grey
(2.5Y7/2)

3-Moderately compact loam with ferrogenous content (HIII)
Brownish yellow (10YR6/8)

4-Humid clay pit (HIII)
Brown
(10YR4/3)

5-Hard-packed loam with ferrogenous content (HIII)
Greyish brown (10YR5/2)

6-Moderately compact loam (HIII)
Yellowish brown
((10YR5/6)

7-Moderately compact loam ((HIII)
Very pale brown
(10YR7/4)

8-Loam with charcoal (---line delimits humid spot) (HIV)
Dark grey (10YR4/1)

9-Loam and silt (HIV)
Very pale brown and yellow
(10YR7/3, 10YR7/8)

10-Loam with phosphatic content (HIV)
Pale yellow (2.5Y7/3)

11-Loam, nearly sterile
Pale yellow (HIV)
(2.5Y7/3)

12-Hard-packed loam with charcoal (HIV)
Grey (10YR6/1)

13-Friable loam (C042) (HIV)
Light grey
(10YR7/2)

14-Ash (HIV)
Dark greyish brown
(10YR4/2)

15-Loam and sand (HIV)
Light grey
(10YR7/2)

16-Mixture of sand and loam (HIV); Grey and pinkish grey
(7.5YR6/1 and 7.5YR7/2)

17-Mudbrick wall (HIV)
Brownish yellow
(10YR6/6)

18-Hard-packed loam (HV)
Light grey
(10YR7/1)

19-Ash (HV)
White
(10YR8/1)

20-Loam (HV)
Light grey
(10YR7/1)

21-Loam with phosphatic content (HV)
Olive yellow
(5Y6/6)

22-Moderately compact loam (HV)
Light grey
(10YR7/1)

23-Hard-packed loam with brick fragments (HV)
(Light grey (10YR7/2)

Figure 5.42 Stratigraphic sequence Unit S, Mara, with numerical legend and associated ocupational horizons.

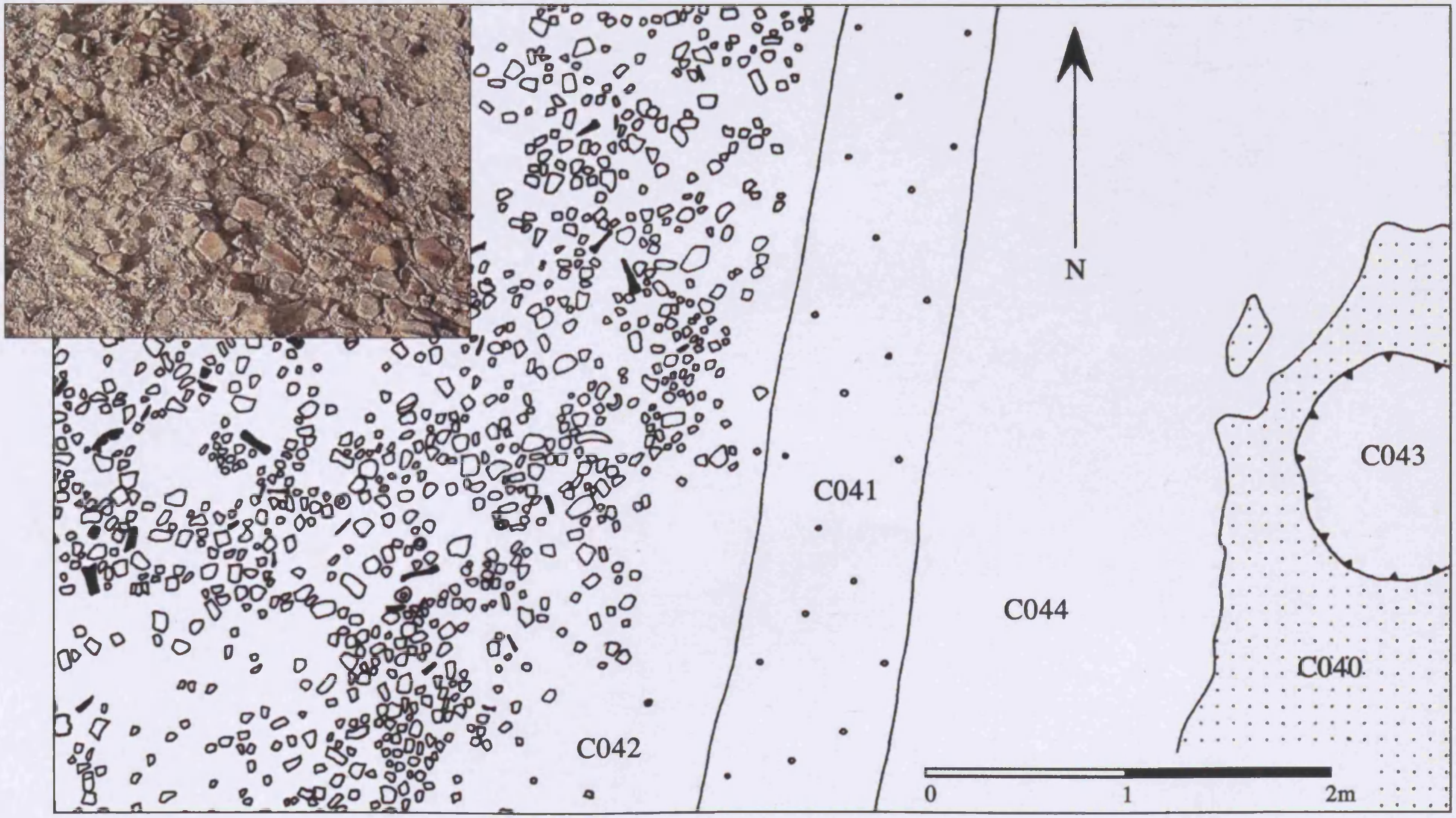


Figure 5.43 Unit S, Mara, showing the extent of Context 042. Objects drawn in black are faunal remains, the rest is pottery (for heights see Table A.1.4 in the Appendix).

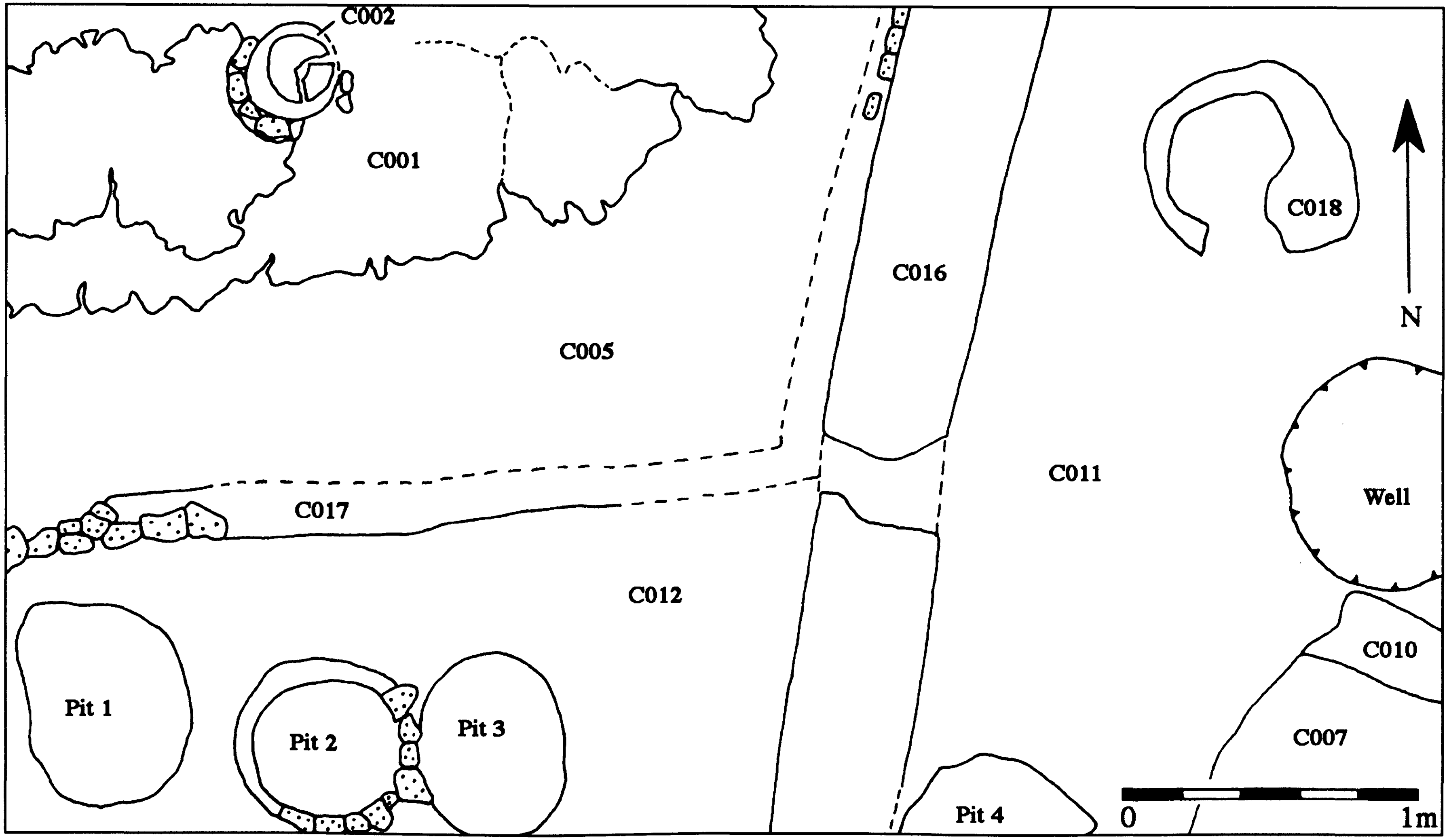


Figure 5.44 Unit S, surface structures (for heights see Table A1.4 in the Appendix).

Figure 5.45 Circular mud structure with opening at its southern end. A broken vessel is located next to the opening and patches of burnt earth are also visible.

Figure 5.46 Fish oven in the Dia hinterland (Photo, courtesy of Sjoerd van der Linde).

Table 5.2

C-14 dates for Mara (Units M, Q and S)

Lab Nr.	Context	Matter	Uncalibrated Date	Calibration (at 1 sigma)	Calibration (2 sigma)
GX-28169-AMS	M 099	cotton	655+/-38 BP	1293-1387 AD	1283-1397 AD
	M 084	charcoal	660+/-30 BP	1291-1387 AD	1285-1391 AD
GX-28165	M 025	charcoal	530+/-40 BP	1331-1433 AD	1307-1443 AD
GX-28750	Q 035	charcoal	1250+/-60 BP	687-859 AD	661-935 AD
GX-28751	Q 017	charcoal	630+/-60 BP	1297-1327 AD	1281-1413 AD
GX-28173	S 075	charcoal	1210+/-40 BP	777-883 AD	691-941 AD
	S 042	charcoal	1010+/-40 BP	983-1151 AD	903-1157 AD

5.4.4 Mara and its association with Shoma

After having illustrated Mara's occupational history, I would like to propose the following chronology. I decided to correlate it to Shoma's chronology in order to facilitate a comparative analysis between the two sites:

Dia Horizons	Shoma	Mara
Horizon IA	800 - 400 BC	
Horizon IB	400 - 0 BC	
Horizon II	0 - 500 AD	
Horizon III	500 – 1000 AD	500 - 1000 AD
Horizon IV	1000 - 1600 AD	1000 - 1600 AD
Horizon V	Discontinuity (1600 - 1700)	1600 - 1850 AD
	1700 - 1850 AD	

Mara's initial occupation, which started at around AD 500, contrasts with the findings of Haskell and the McIntoshs (1988), who proposed a "Phase I/II" date (250 BC – AD 400). They based their interpretations on the presence of Delta Ware in one unit (D6) they excavated close to the cemetery (Haskell et al. 1988). However, no charcoal was dated from the 'early' layers of D6. Due to the fact that we only identified five pieces of "Phase I/II" pottery, possibly indicated the very ephemeral nature of Phase I/II occupation at D6. It seems likely that the Phase I/II lenses at D6 represent early seasonal occupation of the western Mara area.

Mara's initial occupation (AD 500) coincides with a period in the Niger Delta, which was characterised by an increase in precipitation to +20% of the 1930-1960 average (mode VI) and a population and urban expansion (McIntosh 1998:77). The archaeological evidence suggests that Mara's original settlement might have been characterised by ephemeral structures such as temporary grass structures, occupying an area covering at least 8 ha in size. If mudbrick structures did exist, as indicated by a few brick fragments in Unit Q, they did so in a limited number. Hence, during Horizon III Mara seems to have undergone similar site formation processes as Shoma, which was marked by a gradual, more permanent occupation of settlement mounds, following a period of greater mobility and sporadic occupation.

During Horizon IV Mara seems to have grown into a fully-fledged town with permanent houses made of mudbrick. This evolution was particularly visible in Unit

M as Horizon III layers merely exhibited what might have constituted a seasonal settlement with ephemeral structures, while Horizon IV layers boasted various construction phases of rectilinear mudbrick structures. Mara's development goes hand in hand with what seems to have occurred at Shoma, where Horizon IV layers also indicate substantial settlement growth. The architecture, which consisted of rectilinear houses mostly made of loaf-shaped mudbricks with beaten mud floors, provides further evidence of common traditions.

Moreover, both sites have possibly revealed evidence for traditional religious practices and rituals (in this context "traditional" refers to "non-Islamic"), which I have presented in a recent article (Arazi 2002). The most convincing evidence comes from Shoma's extensive cemetery as it exhibited non-Islamic burial customs in Horizons III and IV while Islamic burials were only identified in Horizon V layers. At Mara, it is the 'enigmatic' Context 042, which suggests that some form of fetish activity involving the African jackal might have been practised. The presence of a terracotta figurine head in Mara Horizon IV, clearly resembling the common definition of the northern Delta style of terracottas (ibid.), associated to the veneration of ancestors, might indicate additional evidence of non-Islamic religious practises. In consequence it can be argued that in contrast to the idea of Islam's ancient tradition, the majority of Mara's and Shoma's population probably practised "traditional" religious beliefs or perhaps a syncretic form of Islam until at least the beginning of the jihads in the 19th century. Thus, the archaeological evidence challenges Dia's oral traditions and written sources, which propagate the establishment of an Islamic tradition since at least the 14th century (see Chapter 9 for a more detailed discussion).

At both sites Horizon V continues exhibiting the characteristics of a permanent settlement, consisting of rectilinear and circular mudbrick structures. However, Mara and Shoma did contract in size in Horizon V. Can this partial depopulation of Shoma and Mara be related to the foundation of modern Dia? Were the three mounds occupied contemporaneously at any one time between AD 1600-1850? Are these events linked to el-Hadjj Oumar's conquest of Dia in the 19th century and the institutionalisation of Islam, which signalled the end of many local rituals and practises? These and similar questions are discussed in Chapter 9, which attempts to correlate Dia's archaeological and historical data.

Mara's relatively recent occupation might explain its importance in Dia's communal memory. Shoma's occupation in contrast, which goes as far back as the first millennium BC, seems to have been obliterated from people's minds as Dia's inhabitants do not acknowledge any stories pertaining to the site. Indeed, Mara holds the status as Dia's ancestral site, while Shoma's connection to Dia seems too old to be remembered. Nevertheless, I believe that Shoma's and Mara's co-existence, which lasted for at least a thousand years, must have prompted various alliances between the two sites. Hence, their stories are intricately linked.

Chapter Six
The Pottery

6.1 Introduction

> Typologies are tools made for a purpose, and as long as they can be shown to work for that purpose they require no more abstract justification than does a crowbar.
>
> (Adams and Adams 1991:8)

> That artifact stylistic variation can inform upon social relations is self-evidently true in a general sense. The existence of an artifact assemblage co-varying through space or time implies that some sort of relationships between producers and consumers of the materials in question existed, but in and of itself this says little either about the nature of those relationships or about the characteristics of any human collective within which such relations were embedded. We may ask, then, why archaeologists so often assume that they see ethnic groups, rather than cultural patterning at larger and smaller scales, when examining distributions of stylistically similar artefacts.
>
> (MacEachern 1998:109)

Since its inception pottery studies have been subject to typologies and classifications, which to this day form the core of archaeological interpretation as they facilitate communication by providing a kind of shorthand for description as well as a means of expressing time-space relationships, allowing the formulation of cultural chronologies (Chilton 1999:44). The same holds true for Dia's ceramic assemblage, which requires classification in order to enter into archaeological discourse. Thus, the primary aim of my study has been to establish a typo-chronology for the pottery recovered during excavations.

However, traditional typological processes mask the diversity of ceramic assemblages by separating style from function and decoration from technology, which resulted not only in static classifications of pottery traditions but also, in static representations of human social organisation. Recent ethnoarchaeological investigations have shown that instead of focusing on only one stylistic feature, such as decorative attributes, a holistic approach may reveal patterns of variations, which are vital for the study of critical issues such as social interaction networks and identity (Gallay et al. 1996; Gosselain 1998, 2001; Stark 1998, 1999). My analysis, therefore, consists of a multidimensional data set, which gives equal weight to a variety of stylistic features, including decorative, functional and technological attributes. By considering these variables both in terms of variations in individual attributes and in the presence/absence of different attribute clusters over time, it will be possible to search for and document more than one pattern of variability at a time and thereby test whether any resultant patterns of heterogeneity and/or homogeneity key into historically asserted population incursions.

The opening of this chapter (6.2) provides a theoretical background on past and present notions of material style, illustrating the shift from the segregation to the merging of stylistic features. This trend has particularly been spearheaded by ethnoarchaeological pottery studies in West Africa, which will be mentioned in the following section (6.3). The latter investigations have indeed illustrated the importance of a holistic approach, which involves the reconstruction of entire pottery manufacturing processes, in order to tackle issues of social interaction networks and identity. However, it has been recognized that fundamental problems persist in reconstructing these manufacturing processes in the archaeological record, which is largely due to an absence of a coherent collection of experimental and ethnographic data to which archaeological pottery may be compared (Livingston Smith 2001:113). Thus, I have had to restrict the methodology of my pottery analysis to stylistic attributes, which were easily identifiable in the field as all of the recovered pottery had to be catalogued and described whilst being at Dia (6.4). This will be followed with the analysis proper of Dia's ceramic assemblages (6.5). However, instead of tackling the issue of the potters' identities per se, I will restrict my interpretations to the resulting patterns of variability and/or stability, which I will compare to the recurring references of population movements in the literature of Dia's oral and written sources. I will then contrast Dia's assemblage with the regional pottery assemblages known from other Inland Niger Delta sites (6.6).

6.2 Theoretical Background to Material Style

The notion of straightforward identifications between artefact stylistic variation and some particular levels of human social organisation, the latter most frequently defined as "peoples", "societies", or "ethnic groups", has decreased in popularity among archaeologists today. Indeed, archaeological distributions of artefacts have frequently been shown to occur over much larger territories than ethnic units that anthropologists study in the present (MacEachern 1998:107). Furthermore, current opinions hold that group identity is not a passive and straightforward reflection of a distinct culture and language (Jones 1999:224). Instead, it is a dynamic, contested and multi-layered phenomenon, which contrasts with the stereotypes of rigidly defined societies (ibid.). This resulted in serious doubts about the cultural, spatial and temporal coherence of many ethnic groups that archaeologists have used as conceptual models for ancient human groups.

Recent investigations, however, have provided promising methods to understand patterns of cultural variation, hence to identify and explore social boundaries in the material record. An important development has been to argue for a more integrated view of material style, in contrast to separating out the aspects of "style", "technology", and "function" (Dietler & Herbich, 1998:237). Chilton defines material style as the way an artefact is made, which includes, but is not limited to, the way it is decorated (1999:50). As a result it has been suggested that it is neither possible nor desirable to separate style from function or decoration from technology.

One usually refers to technology as the techniques and materials used in the primary production of objects. Function is usually taken to mean what might be called utilitarian or instrumental (as opposed to social) function, referring to those techniques that objects were designed to perform as "tools" acting upon matter. Style has a variety of meanings. In the most general sense, it is usually considered to correspond to that aspect of material patterning, which is thought to respond to social and cultural demands or constraints. Thus it is the realm where most archaeological attention has been focused by those interested in the social significance of material culture. In the case of ceramics, this has meant that studies of style have tended to focus almost exclusively upon what Sackett calls "adjunct form" (ibid.): traits that were presumably "added on" either to perform some social function or as a passive residue of social action. In practice, this has meant that the concept of ceramic style has become virtually synonymous with "decoration", which resulted in the perception of style as a medium of communication or as a tool for "information exchange" (Wobst 1977).

However, it has been shown that the full social significance and roles of objects cannot be understood by focusing on isolated traits. Ethnoarchaeological studies have demonstrated that decoration, for instance, is of highly variable significance in relation to other physical attributes (Stark 1998). Scholars have argued for the direction of more attention to research on "technological style", focusing on the relationship between techniques and society (van der Leeuw 1993:240). Emphasising technological style in this case does not intend to replace an overemphasis on decoration with an overemphasis on technology or function. Decoration is seen simply as one attribute of technical choice (Chilton 1999:50).

The methods and concepts of technological style, have been influenced by the French 'techniques et cultures' or 'technologie' school, which explores links between cognition and technological choice by examining the processes by which variation is created during the manufacturing sequence (Stark 1998). Much of the research on technological style is grounded in ethnography and focuses on the techniques and choices that underlay variation in the finished products that archaeologists analyse. Indeed, research in the realm of technological style has shown that in various contexts decorative style may be less indicative of group identity than technological traditions (Gosselain 1999; Stark 1998; Miller 1985).

The West African context has been of particular relevance. A growing body of literature from ethnoarchaeological studies of contemporary pottery and potters has confirmed elaborate links between the ceramic traditions and the different ethnic groups inhabiting this region (LaViolette 1987; Gallay & Huysecom 89-90; Gallay 1991-92; Gallay et al. 1996; Frank 1998).

6.3 Identity and Pottery in West Africa

Among the Mande speaking peoples of West Africa potters belong to a major professional class of artisans and other occupationally defined specialists, which also includes blacksmiths (*numuw*), leatherworkers (*garankéw*) and bards (*jeliw*) (Conrad and Frank 1995:1). They are known as *nyamakalaw*, who have been distinguished from the class of farmer "nobility" (*hòrònw*) and from that of slaves (*jonw*). The *nyamakalaw*, composed of primarily endogamous lineages, are casted people who generally amount to less than 5% of the population within which they live and whose language and customs they share (Gosselain 2001:102). The strict endogamy of the *nyamakalaw* has made them more prone than the *hòrònw* to cross ethnic/linguistic boundaries in order to find marriageable partners. However, recent studies of the Mande caste system have shown that individuals have responded to particular circumstances in such a way as to change the dynamics of their social environment, thus creating and contesting *nyamakalaw* identity (LaViolette 1995:175).

In the past the *nyamakalaw* were the principal spokespersons for Mande rulers and chiefs, serving as political advisors and spiritual guides to the noble class (Conrad and Frank 1995:1). Nowadays they continue to act as mediators in Mande society, called upon to negotiate marriages and settle family disputes. However, they are also regarded with a mix of awe and contempt by non-specialists, who often consider them as "dirty" and "impure" yet indispensable. There is real fear of harm from their power should an outsider have sexual intercourse with them, share their food or even enter their compounds.

In recent years lots of attention has been directed towards *nyamakalaw* potters and their pottery production systems, with a particular focus on the complete manufacturing processes or 'chaîne opératoire', from resource procurement to postfiring treatments, as well as the distribution of the products (Frank 1998; Gallay 1991-92; Gallay et al. 1996; LaViolette 1987, 1995). These investigations have revealed that technological choices usually appear as the result of a learning process, by which the selection and transformation of the materials have been handed down (ibid.). As a result, it has been proposed that technological behaviours have been assimilated to traditions, or styles, which can be associated to facets of social identity. The stage which is supposedly the most direct link to social identity is that of the vessel-shaping technique (ibid.).

Gosselain, attempting to compare vessel-shaping techniques throughout western sub-Saharan Africa, has summarised six basic techniques: (1) pounding in a concave mould, (2) coiling, (3) superimposition and drawing of large rings, (4) drawing of a ring-shaped lump, (5) moulding over a convex mould, and (6) drawing of a lump (2001:101). When mapping the occurrence of these categories and confronting their distribution to that of the main language subdivisions, he found that the distribution of shaping techniques tends to match that of linguistic boundaries – in this case language phyla and families – in the major part of the study area.

Similar results have been found in the Inland Niger Delta of Mali. It has been shown that, except for the Bozo, all the different ethnic groups have their proper ceramic traditions (Gallay 1991-92; Gallay et al. 1996; LaViolette 1987). Likewise, these are most clearly characterised by their distinctive vessel-shaping techniques. However, some other technical aspects including decorative tools, or tendencies to paint or not to paint, are also indicated. The Songhay and Peul potters, for instance, use a concave mould with variations on a paddle and anvil technique (Frank 1998:26). In Dia, where the potters belong to the blacksmith caste of the Somono (numu), they generally use a combination of a concave mould with a coiling technique in the initial phases of construction (Gosselain, pers. comm.).

The advantage of these studies lies in their ethnographic context, which allows the observation of each step of the manufacturing process. However, to render these studies relevant for archaeologists, more detailed descriptions are needed, concerning the identification of certain aspects of these processes on the archaeological material, particularly the vessel-shaping techniques, which seem the most indicative of social boundaries.

So far it has only been the Swiss ethnoarchaeological mission in West Africa (MESAO), which has conducted comparative studies of ethnographic and archaeological material (Gallay et al. 1990, 1996). Yet, descriptions of the traces, which are left by certain manufacturing techniques remain limited or are absent altogether (cf. Gallais 1991-92:36, "the bases of Somono pottery show an incurved form in s-shape due to the use of molds of a certain type"). As a result, it has been difficult to apply these observations on the archaeological material due to the absence of a coherent collection of experimental and ethnographic data to which archaeological pottery may be compared. As a result of this I had to limit my pottery analysis to aspects which could be easily identified and recorded during fieldwork, described in the following section of my analytical methods.

6.4 Methodology

The first step in my pottery analysis has been to characterise each sherd individually in terms of a number of formal and nonformal attributes, in order to allow multiple different groupings or classifications of pottery to be generated from the resulting data set. The approach of this investigation has emphasised variables which primarily relate to relationships of cultural continuity as well as functional and technological aspects. Hence, the variables that feature prominently, include elements which relate to decoration, function and technological style: rim dimension, rim form, rim shape, decorative tool (its employment and placement), wall thickness, rim diameter, temper, slip and burnish.

My analytical process entails three levels: Level 1 compares the relative frequencies of single attributes occurring through time and space, which is advantageous when dealing with the individual characteristics of the entire assemblage.

Level 2 includes the search for systematic co-occurrences of attributes over time and space. Combining technical and stylistic patterns of commonality, such as form and shape or temper and thickness, allows me to isolate different elements that constitute a pot and to follow their distribution over time and space. Simultaneously, it should provide an insight into the functional and technological trends of the assemblage.

Level 3 consists of creating combinations of attributes, which result into clusters and their distribution within the ceramic assemblage. These attribute clusters, which consist of the recording and quantifying of every combination of attributes within a given assemblage would ultimately result in "type-varieties" as each (in-) dependent attribute is afforded equal weight with every other (in-) dependent attribute (Munson 1993:172). Rather than dealing with individual discrete attributes ("phonemes"), which are often shared by many unrelated cultural groups, we are now dealing with clusters of particular discrete attributes ("morphemes"). The latter represent combinations of many "phonemes", and are thus much more likely to occur only where there is a historical relationship between two groups, given that the closer the relationship the greater the number of shared combinations.

This threefold analysis, and the attribute clusters in particular, will allow me to view patterns of continuity and change as well as to compare relationships over space. Shoma's and Mara's long occupation sequences present a favourable situation for measuring indices of stability and change, of which some might bear the expressions of contemporary social boundaries or temporal ruptures. In fact I will apply two methods of interpretation. One concerns the uniformity of the assemblage at any given moment, while the other focuses on marked stylistic and technological ruptures over time. In case of the former, it might be suggested that despite the various population movements the region witnessed throughout its occupation, the transmission of pottery manufacture remained stable. In case of the latter, depending whether a drastic change might be detected, it can be suggested that the pottery assemblage bears visible articulations of the new arrivals.

6.4.1 Maximal Independent Attribute Clusters

The inspiration, especially of employing individual attribute clusters, has primarily come from Patrick Munson and his study of the Dhar Tichitt assemblages from southeastern Mauritania (1971). Munson's analysis included the recording of every combination of discrete independent attributes, which occurs within a given assemblage. For this, each rim sherd was recorded via a standardised code for the entire collection, hence any sherd might be described in very compressed codified terms. An example from Munson (1971:234) reads "A1-B7-C1-D5-E1-F1-G2-H1", which would translate as "Bowl with recurvate incurving rim, interior thickened and rounded lip, partially smoothed-over fabric-impressed surface, sand and chaff temper, red filming absent, diagonal cord-impressed decoration in the upper rim area, and body decoration absent".

Munson refers to these combinations by the acronym of "MaxIAC" (Maximal Independent Attribute Cluster) (1971:235). They differ from traditional types in two ways: 1) Rather than having picked out, consciously or unconsciously, one or two attributes as being the most diagnostic in defining a taxon (e.g. "Wavy Line" or "Cardial Ware") each of a chosen set of attributes is given equal weight for each specimen. 2) The description is rigorous and replicable, avoiding one of the major pitfalls in ceramic analysis, cramming deviant types into established ones, as long, verbal descriptions of each added "type variant" are avoided. Furthermore, it is quite easy to determine exactly in which ways one MaxIAC is similar or different from another allowing researchers to isolate single elements of change over time. And finally, Munson's method shares the flexibility of individual attribute analysis since new attributes, as they occur, can easily be added.

I believe that Munson's approach constitutes a comprehensive method to identify Dia's different assemblages. The recording of every combination of discrete independent attributes, which in my investigation cover technological, functional, and stylistic aspects, should result in the representation of diagnostic taxons. Thus, in this manner I will distinguish Dia's different ceramic traditions, and whether any resultant patterns of heterogeneity and/or homogeneity key into historically asserted fluctuations of social diversity in this region.

6.4.2 Recovery and Sampling Procedures

At Dia, pottery recovery procedures were undertaken as follows: all soil was carefully sieved through a 1cm mesh for the recovery of artefacts before being emptied onto the tip. All potsherds recognised in this process were placed in tyvek bags, which were labelled with the excavation unit, date and the stratigraphic context number. Intact or nearly intact pots were drawn and photographed 'in situ' before removal and labelling. These were, however, few in number . Hence, the bulk of the data for pottery analyses and assemblage description comes from sherds and not whole vessels.

Due to the enormous number of potsherds recovered from the 1999/2000 and 2000/2001 and 2002 excavations, pottery sampling would seem to have been imperative. It was decided that whole samples were to be analysed due to the lack of any detailed prior studies, compromising the examination of all sherds larger than a coin of 50p/2.7 cm in diameter (sherds smaller than a coin of 50p/2.7 cm in diameter, which consisted of 6300 sherds, were discarded). All other body and feature sherds were recorded individually in terms of a number of formal variables (coded sherd variables are described in the following section). Unit C from Shoma, and Units M, Q and S from Mara make out the principal assemblage for this investigation, which include a total of 23781 sherds (2899 feature sherds, 20646 body sherds, and 236 bases; 6300 sherds were smaller than a coin of 50p).

6.4.3 Recording Methods

A major concern was to streamline the procedures for recording pottery. All body, feature sherds and bases were recorded individually onto an attribute spreadsheet. Once these data have been coded and entered into a computer, it can be sorted for patterns by attribute or attribute cluster.

The spreadsheet in Figure 6.1 illustrates the project's pottery recording system for rim sherds, depicting the various codes for individual attributes, which have been recorded for every single sherd. The following list represents a description of the coded rim sherd variables.

Rim Number. The rim number includes the stratigraphic context number of the excavation unit, succeeded by an individual sherd number.

Horizon. This variable indicates the temporal placement of the sherd, which uses the project's designation of occupational horizons (Horizons IA, IB, II, III, IV, V).

Dimension. Classes the size of the actual pottery fragment using diameter rings of the following dimensions: 1 = 0–5 cm, 2 = 5–7.5 cm, 3 = 7.5–10 cm, 4 = 10–12.5 cm, 5 = > 12.5 cm.

Vessel Part. This variable indicates which aspects of the original pot were represented by the sherd under observation. Six categories have been distinguished: L = Lip, C = Collar (for everted rims), N = Neck, S = Superior Body, M = Middle Body, F = Base.

Maximum Rim Thickness. The thickness of the vessel walls is related to the size of the container and its intended use, but it also depends on the property of the clay being used. Thus it might serve as an additional indicator of a pot's function. The measurements used are millimetres.

Minimum Rim Thickness. The same applies as for maximum rim thickness.

Rim Angle. Rim angle data determine whether the rim sherd under observation came from a restricted or unrestricted vessel. The rim angle was coded with the aid of a hard/flat surface by rocking a rim against it from the outer to inner side of the lip. The position of closest contact with the hard surface (i.e. no gaps visible) determines the rim angle, of which six categories have been identified: 1 = wide open, 2 = open, 3 = straight, 4 = closed, 5 = tightly closed, 6 = carinated.

Rim Type. Eight main categories of rim profiles or types have been recognized: S = Simple rim, X = Thickened at the exterior, N = Thickened at the interior, E = Everted rim, N = Incurved rim, T = T-rims, Y = Y-rims, C = Lids. Each category has been divided into further subtypes, which have been drawn and numbered so that similar rims could be described by means of a number code (Figure 6.2).

Rim Diameter. In order to determine the diameter of the pot lip, the rim sherd was placed in closest contact with a flat piece of paper on which arcs of circles with even diameters from 2 cm to 42 cm had been drawn with a compass. The sherd was moved onto the various arcs to determine which provided the closest fit to the arc of the lip's inner surface. The resulting fit was **then** recorded as the diameter of the pot at the lip

Temper. Temper refers to the classes of nonplastic inclusions, which were deliberately added to the clay. On the basis of visual inspection, it has been noted that virtually all Dia pottery is grog-tempered, while a small quantity is believed to contain a mixture of grog and sand. The following codes have been used to describe the nonplastic inclusions: 31 = grog, 32 = grog+sand.

Slip. This variable mainly informs us on the presence (coded as 1) or absence (coded as 0) of slip on the external sherd surface. At Dia the most common color of slip was dark red/orange.

Burnish. This variable indicates the presence (coded as 1) or absence (coded as 0) of burnish on the external sherd surface. Burnishing provides a surface luster, which can be achieved by rubbing back and forth a smooth hard object such as a pebble or seeds.

Delta Ware. This variable classifies a sherd as 'Delta fabric' pottery (coded as 1). Delta ware has been defined as fine-paste, highly-fired, burnished ceramics, which has been referred to previously as 'China ware' (McIntosh and McIntosh 1980; S. McIntosh 1995) (see Figure 6.21). When a sherd does not exhibit Delta ware characteristics, it has been coded as 0.

Décor Type. This variable informs us on the décor types that are present on each individual sherd (see Figure 6.3 for a complete list of Dia's decoration types). One of the most common techniques used for decorating pot bodies at Shoma and Mara are cord-wrapped décor types, which can be impressed (all PFI décor types, see Fig.6.3) or rolled as a roulette (all PFR décor types, see Fig.6.3). Alternatively there are cord impressions (all CI décor types, see Fig.6.3) and roulettes (all CR types, see Fig.6.3) without the use of a stick (or base). Hurley's (1979) analysis of cord impressions on pottery has constituted the main impetus for the identification of these decoration techniques. Further cross-refernces were made with Susan McIntosh's (1995) analysis, Bedaux et al. (1978) and Soper (1985).

Placement. This variable indicates the placement of every particular décor motif on the vessel, which consists of six categories: I = Interior, C = Collar, L = Lip, N = Neck, S = Superior Part, M = Middle Part, F = Base.

The description of body sherds was restricted to decorative variables, including temper and fabric since all the non-decorative aspects were already recorded on the rims. The same method was used for recording the bases of pots, which also included a variable designating the type of base (Figure 6.3).

All subsequent analyses have been deduced from this database.

Rim Nr.	Horizon	Dimens.	Part	Max.R.T.	Min.R.T.	Angle	Rim Type	Diameter	Temper	Burnish	Slip	Delta	Décor 1	Loc 1	Décor 2	Loc 2	Décor 3	Loc 3	Décor 4	Loc 4
C002/001	4	3	LNS	1	0,9	3	T1	99	31	1	0	0	EROD							
C002/002	4	2	LNS	1,3	1,3	1	C3	30	31	0	0	0	CR-6	NS						
C002/003	4	2	LNS	1,9	1,8	1	C1	40	31	0	1	0	FIL-1	NS						
C002/004	4	2	LN	1	0,9	4	X7	20	31	0	1	0	MCH	L	PA-5	L	CR-0	N		
C002/005	4	1	LNS	1,4	1,3	1	C1	32	31	0	1	0	EROD							
C002/006	4	2	LNS	1	1	1	C1	26	31	0	0	0	FIL-1	NS						
C002/007	4	2	LNS	1	0,9	1	C1	40	31	0	0	0	C1-2	NS						
C002/008	4	3	LNSM	1,3	1,2	1	C1	42	31	0	0	0	EROD							
C002/009	4	1	LN	1,4	0,8	4	S1	99	31	1	1	0	CH	L	PA-5	N				
C002/010	4	1	LN	0,8	0,7	3	S1	24	31	0	0	0	CR-0	N						
C002/011	4	1	LNSM	1,4	1,4	1	C3	20	31	0	1	0	CR-6	SM						
C002/012	4	1	LN	0,5	0,5	3	X1	16	31	0	1	0	FIL-1	N						
C002/013	4	3	LN	1,5	1,2	4	T1	20	31	0	0	0	PE-1	N						
C002/014	4	3	LNSM	2,1	1,7	4	S1	36	31	0	1	0	MCH	N	PFR-4	S	CR-6	M		
C002/015	4	3	LNS	1,2	1	4	T1	38	31	1	1	0	CH	L	PNC-1	L				
C002/016	4	1	LNS	1	1	4	S1	24	31	1	1	0	MCH	N	FIL-1	S				
C002/017	4	2	LNSM	1,3	1,2	1	C1	34	31	0	1	0	CR-6	NSM						
C002/018	4	1	LNS	1,2	1,1	1	C1	28	31	0	0	0	CR-6	NS						
C002/019	4	2	LN	0,9	0,9	4	T1	26	31	1	1	0	PLAIN							
C002/020	4	2	LN	1,4	1,3	1	C2	24	31	1	1	0	PLAIN							
C002/021	4	1	LNS	1,3	1,3	1	C1	20	31	0	1	0	CR-6	NS						
C002/022	4	1	LNS	1,3	1,2	1	C3	26	31	1	1	0	FIL-1	NS						
C002/023	4	1	LN	1	0,9	1	C1	20	31	1	1	0	PLAIN							
C002/024	4	1	LNSM	1,2	1,1	6	CU1	26	31	1	1	0	CH	L	MCH	SM	PA-5	CARIN		
C002/025	4	1	LNSM	1,3	1,2	1	C3	20	31	1	0	0	MCH	N (int)						
C002/026	4	1	LNSM	1,5	1,2	1	C1	28	31	0	0	0	CR-6	NSM						
C002/027	4	1	LNS	1,4	1,3	1	C1	40	31	0	1	0	EROD							
C002/028	4	2	LNSM	1	0,9	4	S1	16	31	1	0	0	MCH	N	FIL-1	SM				
C002/029	4	1	LN	1,5	1,2	1	C1	99	31	0	0	0	FIL-1	N						
C002/030	4	1	LNS	1,4	1,2	1	C1	22	31	0	1	0	PE-1	N	CR-6	NS				
C002/031	4	1	LNS	0,5	0,4	4	T1	16	31	1	0	0	CR-4	NS						
C002/032	4	1	LN	1,5	1,5	1	C1	30	31	0	0	0	CR-0	N						
C002/033	4	1	LN	1,3	1,2	1	C3	18	31	0	0	0	CR-0	N						
C002/034	4	1	LN	0,9	0,9	3	T1	20	31	1	1	0	CH	L	CR-0	N				

Figure 6.1 Spreadsheet for recording rim sherds.

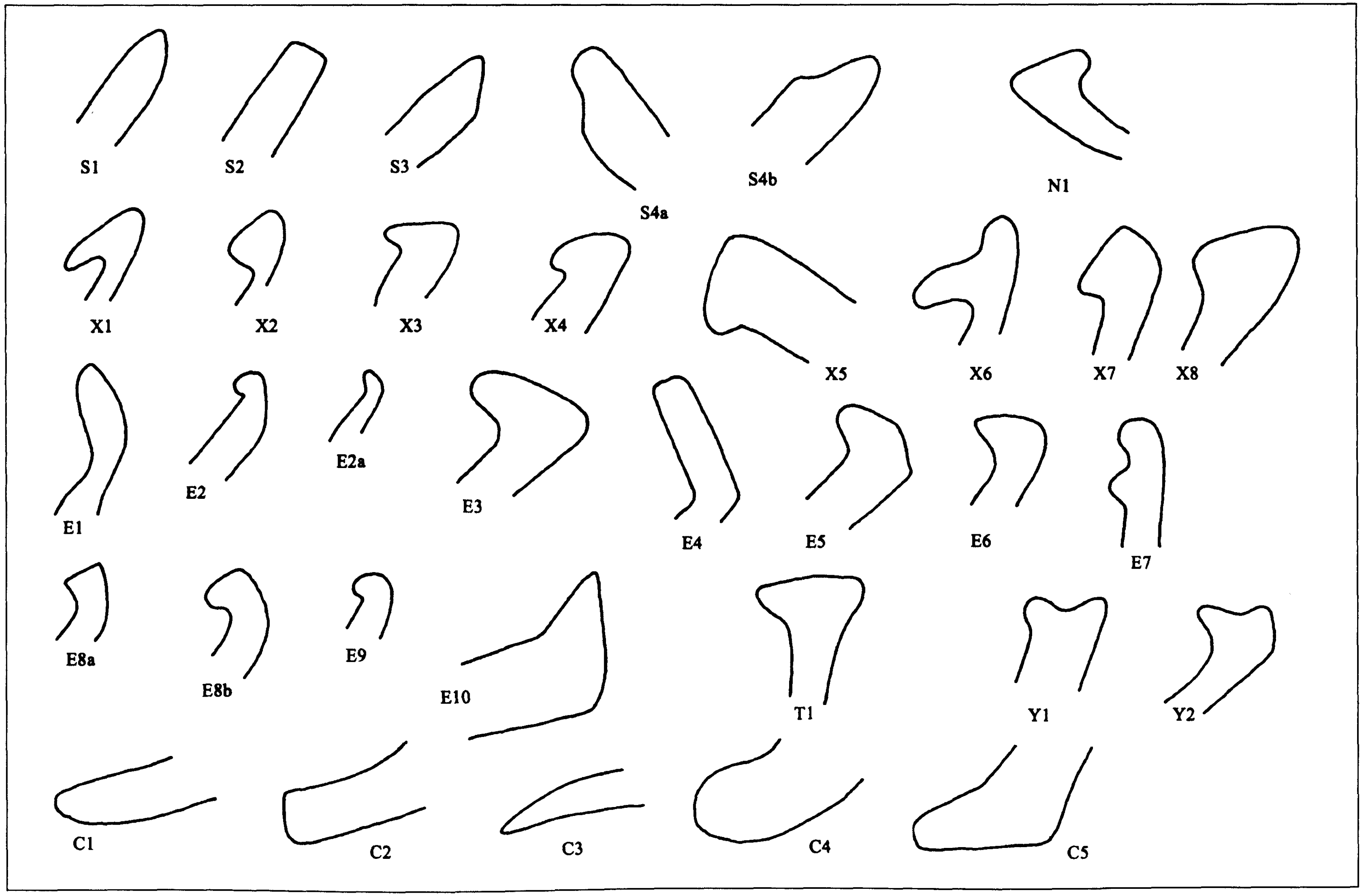


Figure 6.2a Rim types identified at Shoma and Mara (S=Simple Rims, N=In-Turned Rim, X=Thickened Out-Tunrned Rims, E=Everted Rims, T=T-Rim, Y=Ledged Rims, C=Lids).

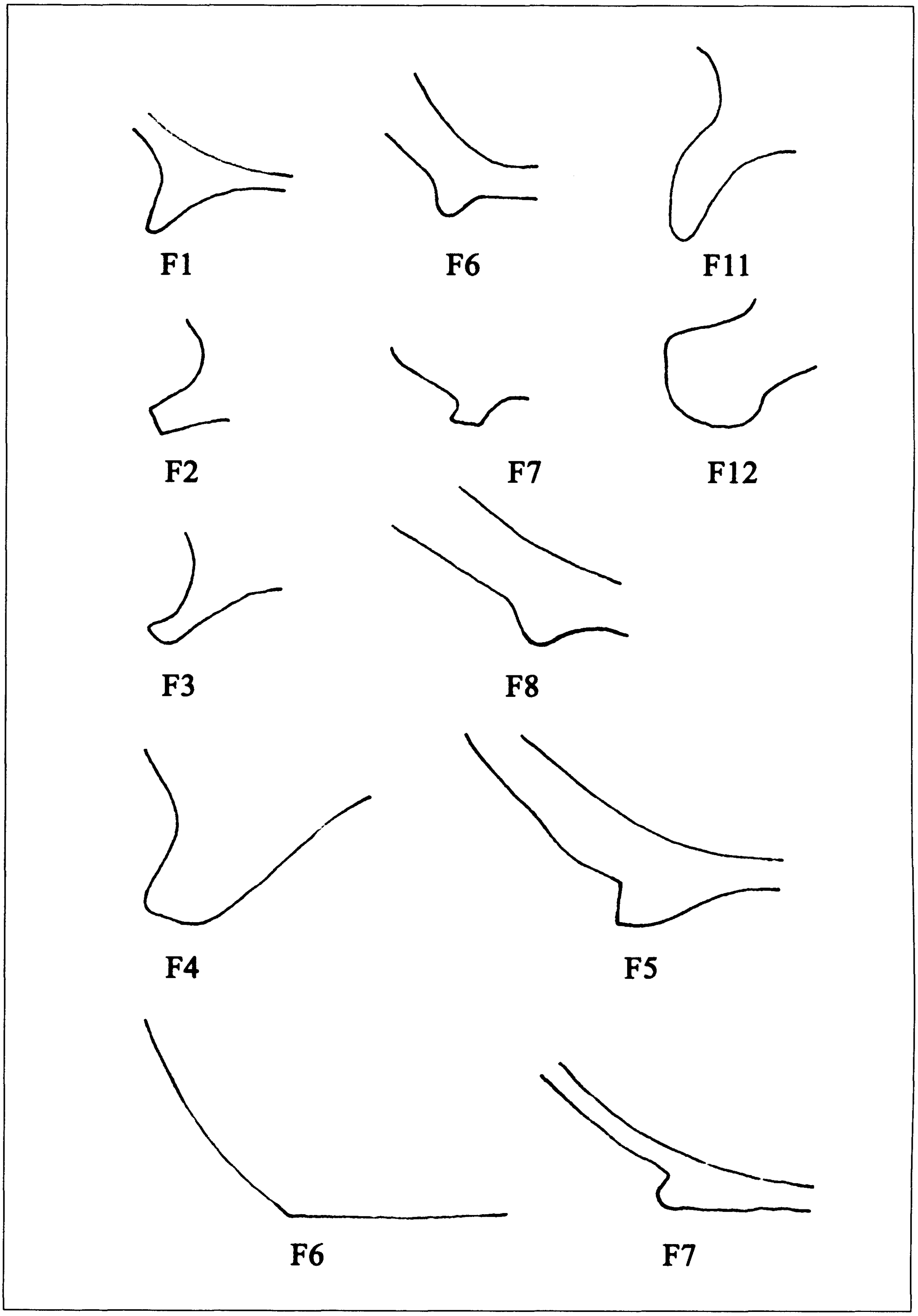


Figure 6.2b Base types at Shoma and Mara.

1. **Cord-Wrapped Stick Décor**

Impressed Cord-Wrapped Décors
PFI-1 = Tightly Spaced (1.5 mm or less between wraps), stick marks
PFI-2 = Widely Spaced (more than 1.5 mm between wraps), stick marks
PFI-3 = Tightly Spaced (1.5 mm or less between wraps), no stick marks
PFI-4 = Widely Spaced (more than 1.5 mm between wraps), no stick marks (Fig.6.4)

Cord-Wrapped Roulettes
PFR-1 = Single Bead, Single Base, no stick marks (Hurley 271)
PFR-2 = Single Bead, Single Base, stick marks (Hurley 216)
PFR-3 = Single Bead, Triple Base (Hurley 262, 269) (Fig.6.5)
PFR-4 = Rough Cord, Single Base (Hurley 215; McIntosh Tw14)
PFR-5 = 'Net Wrapped', Single Base (Hurley 255-261; McIntosh Tw8)
PFR-6 = Double Bead, Single Base
PFR-7 = Honey Comb Grid

2. **Cord Impressions and Roulettes**

Cord Roulette
CR-1 = Knotted Cord (Hurley 165, 182-198)
CR-2 = Double Braided (Hurley 210; McIntosh Tw1&2; Bedaux et al. Type 1a-c) (Fig.6.6)
CR-3 = Triple Braided (Hurley 211-12; McIntosh Tw3; Bedaux et al. Type 1i)
CR-4 = Accordion Pleat Roulette (McIntosh Tw4&5; Bedaux et al. Type 1d) (Fig.6.7)
CR-5 = Knotted Strip Roulette (Soper Fig.5)
CR-6 = Twisted Cord Roulette (Hurley 54-62,; McIntosh Tw6; Bedaux et al. Type 1f) (Fig.6.8)
CR-7 = Looped Cord (Hurley 172, McIntosh Tw12)
CR-8 = similar to CR-6, but roulette was applied unevenly
CR-9 = Multi-Element Twisted Cord Roulette
CR-10 = Oppositely Twisted Cord Roulette (Hurley 65-76)
CR-11 = like CR-5, plus a horizontal cord impression
CR-12 = Double or Triple CR-6
CR-13 = Double Twisted Cord Roulette

Cord Impressions
CI-1 = impressed in patterns (waves, triangles, etc) (Fig.6.9)
CI-2 = impressed in a single row/channel
CI-3 = collection of loosely twisted cords impressed in a line
CI-4 = a wad or loop of cord 'dabbed' onto the vessel
CI-5 = impressed in more than one pattern

3. **Comb Décors**

Dragged Comb
PE-1 = Linear (Fig.6.10)
PE-2 = Wave
PE-3 = Cross-Hatched
PE-4 = Other Geometric

Dragged Stone/Fingernail
OE = Single Line
MOE = Multiple Lines

Stabbed Comb
PI-1 = Linear
PI-2 = Geometric (Fig.6.11)

Figure 6.3a Décor Coding Sheet 1998-2002

4. **Stylus Décors**

Channels
CH = Single Channel (Fig.6.12)
MCH = Multiple Channels

Simple Stylus
SI-1 = Waves (Fig.6.13)
SI-2 = Cross-hatched
SI-3 = Dashed Lines
SI-4 = Other Geometric
SI-5 = Linear

Punctate
PNC-1 = Simple circular holes or depressions
PNC-2 = Stick Impressions (Fig.6.14)

5. **Organic Décors**

Organic Roulettes
VPR = Fish Spine Roulette
NR = Fruit Stone Roulette
IWT = Incised Wooden Twig (rectangle)
IWT-2 = Incised Wooden Twig (diamond shape)
IWT-3 = Incised Wooden Twig (honey comb)
IWT-4 = Incised Wooden Twig (linear)
IWT-5 = Incised Wooden Twig (arches)

Dragged Organics
EP = Dragged Fish Spine
HERB = Dragged Straw
GeoHerb = Straw Dragged in Patterns

Impressed Organics
OI = Fingernail Impressed
TI = Potsherd Impressed

6. **Net-Formed or Mat-Formed Impressions**

Net-Formed
Fil-1 = Tightly Applied Net (Fig.6.15)
Fil-2 = Loosely Applied Net (Fig.6.16)

Mat-Formed
Dogon = mat-formed impressions comparable to current Dogon techniques
Natte = Grass Mat impressed
Textile = Woven Mat (formation with interlocking weave visible)

Figure 6.3b Décor Coding Sheet 1998-2002.

7. Paint

Three letter code describing:

Initial Code:	P = Paint
Colour Code:	R = Red
	B = White
	N = Black
	M = Brown
Design Code:	W = Washed
	C = Cross-Hatch (Fig.6.17)
	L = Parallel Lines
	R = Circles (Fig.6.18)
	T = Triangles
	G = Other Geometric

8. Applied Plastic

PA-1 = Flattened Nubbins
PA-2 = Rounded Nubbins
PA-3 = Plain Band
PA-4 = Notched Bands (Fig.6.19)
PA-5 = Pinched Bands
PA-6 = Anthropomorphic representations
PA-7 = Zoomorphic Representations
PA-8 = Geometric
PA-9 = Cord Impressions
PA-10 = Band with Cord Roulette Impressions

9. Stamp

E-1 = Circles
E-2 = Triangles
E-3 = S-shape
E-4 = Rectangles
E-5 = 8-shape
E-6 = Star-shape (Fig.6.20)

Figure 6.3c Decor coding sheet, 1998-2002.


Figure 6.4 Impressed Cord-Wrapped Decor (PFI-4)


Figure 6.5 Cord-Wrapped Roulette (PFR-3)


Figure 6.6 Double Braided Cord Roulette (CR-2)


Figure 6.7 Accordion Pleat Roulette (CR-4)


Figure 6.8 Twisted Cord Roulette (CR-6)


Figure 6.9 Cord Impressed in Patterns (CI-1)


Figure 6.10 Dragged Linear Comb (PE-1), and CR-4 (below)


Figure 6.11 Single Channel (CH)


Figure 6.12 Stabbed Geometric Comb (PI-2)


Figure 6.13 Simple Stylus in Waves (SI-1) (middle band)


Figure 6.14 Stick Impressions (PNC-1) on the lip, CR-4 (below)

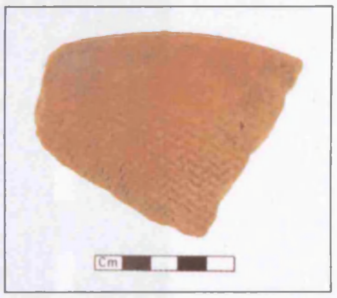


Figure 6.15 Tightly Applied Net Impression (Fil-1)

Figure 6.16 Loosely Applied Net Impression (Fil-2)

Figure 6.17 Red, Cross-Hatched Paint (P-R-C)

Figure 6.18 White Paint in Circles (P-B-R)

Figure 6.19 Applied plastic band with notches (PA-4), PE-1 (above) and CR-6 (below)

Figure 6.20 Star-shape Stamp (E6), PE-1 (above and below)

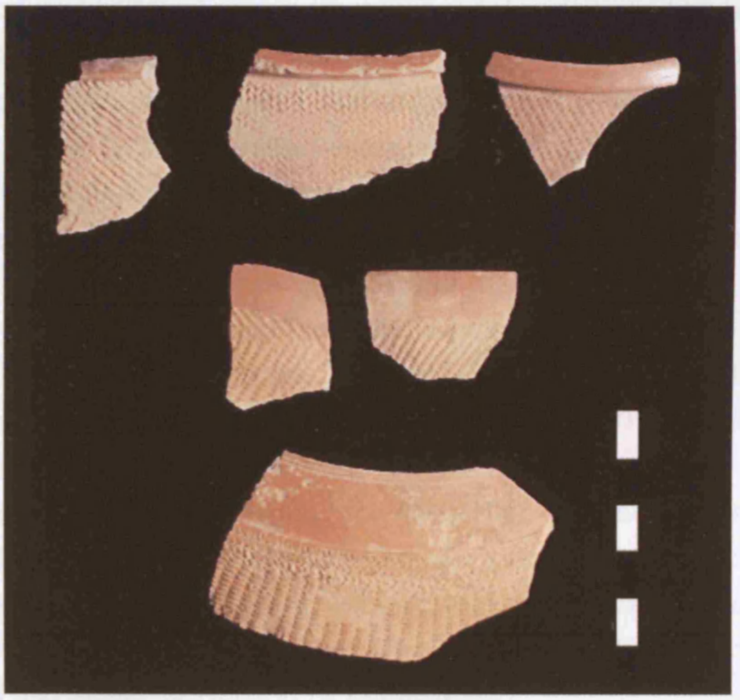


Figure 6.21 Examples of Delta Ware sherds from Shoma. Delta fabric pottery tend to show red slip on the lip and neck area, paint as well as cord roulettes decors.

6.5 Results of the Analysis

6.5.1 Unit C, Shoma – Level 1 Analysis

Tables 6.1 to 6.17 represent Level 1 of my pottery analysis, which consists of frequency distributions of single variables over time and space. I list below the trends visible in this sort of analysis.

As 'Delta fabric' pottery has been shown elsewhere to be highly temporally diagnostic (S. McIntosh 1995), my first step has been to divide the pottery into Delta fabric sherds and the ones that are not. Delta fabric amounts to 51% in Horizon IA, increasing to 78% in Horizon IB, after which there is a marked decrease to 32% in Horizon II and to 8% in Horizon IV (Table 6.1). Body sherds, which have been identified as Delta fabric show a similar trend, increasing from 46% in Horizon IA to 58% in Horizon IB, sharply decreasing to 5% in Horizon II and to 8% in Horizon IV (Table 6.2). These results suggest that Delta fabric pottery might have been characteristic of the earlier periods (Horizons IA-B and II) in contrast to the later periods (Horizons IV and V).

The application of red slip in Dia's ceramic inventory seems to have been quite popular, which is also indicated by a considerable presence of red ochre in the archaeological record (see Chapter 8). Red ochre continues to this day to be the preferential material used for the slipping process. At Dia, slipping might have served for functional purposes as it renders pottery less permeable (McIntosh 1995:134) and for decorative purposes, which is illustrated by the sherds exhibiting red slip only on the rims.

In Horizon IA 71% of rim sherds exhibit red slip, rising to 82% in Horizon IB. In Horizon II red slipped rim sherds decrease to 73% and to 47% in Horizon IV (Table 6.3). In Horizon IA red slipped body sherds amount to 37%, rising to 48% in Horizons IB. They decrease to 24% in Horizon II and increase to 48% in Horizon IV (Table 6.4). These figures indicate that during Horizon IA red slip might have primarily served for decorative purposes as 71% of rim sherds exhibit traces of red slip, while only 37% of body sherds are slipped. This trend slightly changes in Horizon IB, where nearly 50% of body sherds exhibit traces of red slip, indicating that these vessels' entire surfaces were slipped. In Horizon II the same applies as in Horizon IA. Horizon IV, in contrast, marks a drastic change, which is characterised by 50% of entirely slipped surfaces.

In almost all cases of slipping, the pot surface had subsequently been burnished to a low lustre, which is recognizable by the pattern of thin lines created by the process. Today, potters in Dia use a string of baobab seeds as burnishing tool. In Horizon IA 78% show burnished surfaces. They amount to 59% in Horizon IB, to 61% in Horizon II and to 58% in Horizon IV (Table 6.5).

In Dia, the majority of pots show a relatively thin thickness of vessel walls, which might indicate a considerable presence of cooking and serving vessels as thin walls are better heat conductors. 68% measure between 3 mm and 10 mm, 26% measure between 10 mm and 20 mm, while only 0.9% measure more than 20 mm (Table 6.6). Due to their stability, and their ability to keep moisture in or out of the vessel, thicker walls are mostly associated with storage or water containers, and might also have been used for the processing of food such as pounding, stirring or mixing (Rice 1987:227). There is a marked increase of thicker vessel walls in Horizon IV. 66% measure between 10 and 20 mm and 2% measure more than 20 mm.

Similar to the thickness of vessel walls, the average rim diameters also seem to increase steadily through time. In Horizons IA and IB the mean rim diameter falls between 10 cm and 30 cm, increasing to 30 cm and 40 cm in Horizons II and IV (Table 6.7).

The use of temper seems the most stable variable in the assemblage as virtually all sherds (including rims, body sherds and bases) exhibit the use of grog, while only a small quantity is believed to contain a mixture of grog and coarse sand. However, due to the fact that the recording was limited to visual inspection, it has been difficult to ascertain the intentional use of sand. Thus, all of the pottery is considered to have been grog-tempered, in all horizons.

Table 6.8 shows the frequency distribution of rim shapes through time. In Horizon IA rim shapes mostly include everted rims (39%) and **thickened** out-turned rims (36%). These shapes usually allow a sure grip of the vessel, which might correlate with the abundant presence of cooking and serving vessels during this period. Horizons IB and II are marked by a sharp increase of simple rims to 41% and 62% respectively. This abundant presence of simple rims might be connected to an increase of open (or unrestricted) vessels during this period as well as to the fabrication of thicker vessel walls. The considerable rise **in** potlids, 37% in Horizon IV, might indicate a greater need for storage.

In Horizon IA vessel shapes mostly consist of straight (30%) and restricted pots (38%) (Table 6.9). The former might be correlated with the majority presence of cooking and serving vessels, while restricted openings are usually advantageous for transport. In Horizon IB open (or unrestricted) vessels increase to 12% and straight ones to 58%, while restricted ones decrease to 23%. Open vessels are usually associated with repeated access to vessel contents. Thus, unrestricted orifices might have served for cooking, washing and storage. In Horizon II open and closed vessels remain stable (14% and 26% respectively), while restricted vessels increase (29%). There is also a marked appearance of carinated vessels (6%), whose shape usually allows a sure grip, and are thus of advantage for cooking and serving. Wide-open vessels sharply increase from 2% (in Horizon I) to 23% in Horizon II, and to 36% in Horizon IV. These vessels were possibly used as a family's communal serving dish. Open, closed and carinated vessels decrease (to 12% , 17% and 2% respectively).

Unit's C frequency distribution of décor motifs on rim sherds (Table 6.10) suggests a relatively homogeneous use of décor tools through time. During Horizons I and II there seem to be three major classes of motifs, consisting of undecorated surfaces, cord roulettes (mostly simple twisted cord roulettes and accordion pleat roulettes) and paint (washed, red). Horizon IV shows similar trends, except for a decrease in painted décors. This period is also characterised by a marked presence of incised decorations and net-formed impressions. Moreover, at closer inspection one can notice an abundance of 'minor' décor motifs, such as the ones made with a stylus or an organic tool. Applications of nubbins and bands are also significant. Even though these types may appear in insignificant numbers, they show that Dia's potters experimented with a considerable range of tools. Delta fabric pottery are decorated similarly (see Table 6.11) and sometimes feature two decoration types, which are superimposed, such as accordion pleat roulettes and horizontal channels. Tables 6.12 and 6.13 present the types of decoration, which amount to less than 0,5%. They might be useful in showing that a considerable number of pots are decorated with more than one or two motifs, which are often superimposed (indicated with a *). Tables 6.14 and 6.15 present the types of decoration on body sherds (0,5% or more). Indeed, it is interesting to note the amount of motifs present on body and rim sherds, especially in regard to Mara's ceramic assemblage as the latter shows up to five different motifs on one pot (see section 6.5.3). At Shoma, in contrast, there is a maximum of four motifs present, which applies only to Horizons II (0,2%) and IV (0,3%) (Table 6.16). Body sherds show a maximum of three motifs, which account to 2% in Horizons IA, IB and II and to 1% in Horizon IV (Table 6.17).

Table 6.18 illustrates the types of bases present in Unit C, which only consist of raised foot types (F1-4, F6-13). No flat bases have been identified (F5). Rounded bases have only been identified on intact vessels, for it is hard to distinguish the base from the side in case of broken sherds. However, there must have been a considerable quantity of rounded bases at Shoma as they have been identified on most of the intact vessels.

Shoma	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Unit C	N	%	N	%	N	%	N	%	N	%
Delta Ware	183	51	359	78	51	32	49	8	642	40
Other	178	49	101	22	110	68	561	92	950	60
Total	361		161		161		610		1,592	

Table 6.1 Frequency Distribution for Delta Ware, Unit C, Shoma (Rim sherds only)

Shoma	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Unit C	N	%	N	%	N	%	N	%	N	%
Delta Ware	260	46	173	58	11	5	85	8	529	24
Other	306	54	127	42	192	95	1,013	92	1,638	76
Total	566		300		203		1,098		2,167	

Table 6.2 Frequency Distribution for Delta Ware, Unit C, Shoma (Body sherds only)

Unit C	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Red Slip	N	%	N	%	N	%	N	%	N	%
0 Delta Ware	49	52	25	9	34	9	75	10	183	11
0 Other	45	13	19	7	64	17	298	42	426	25
1 Delta Ware	127	39	176	68	173	48	44	6	520	31
1 Other	106	32	37	14	90	25	290	41	523	31

Table 6.3 Frequency Distribution for red slip on rim sherds, Unit C, Shoma

Unit C	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Red Slip	N	%	N	%	N	%	N	%	N	%
0 Delta Ware	588	24	640	27	19	1	53	1	1300	12
0 Other	940	39	568	24	990	76	2396	51	4894	45
1 Delta Ware	516	21	905	39	18	1	79	1	1518	14
1 Other	394	16	215	9	309	23	2244	47	3162	29

Table 6.4 Frequency Distribution for red slip on body sherds, Unit C, Shoma

Unit C	Horizon IA		Horizon IB		Horizon II		Horizon IV		TOTAL	
Burnish	N	%	N	%	N	%	N	%	N	%
0 Delta Ware	58	17	77	30	75	20	9	1	219	14
0 Other	47	14	26	10	63	17	261	40	397	25
1 Delta Ware	118	36	124	48	132	36	44	7	418	26
1 Other	104	32	30	11	91	25	327	51	552	35

Table 6.5 Frequency Distribution for burnish, Unit C, Shoma

Unit C	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Max.R.T.	**N**	%	**N**	%	**N**	%	**N**	%	**N**	%
0,3	11	2	8	1	2	1	2	0,3	23	1
0,4	40	8	47	10	2	1	11	1	100	6
0,5	68	14	101	22	1	0,6	20	3	190	12
0,6	76	16	96	21	3	2	17	2	192	12
0,7	66	13	56	12	14	9	20	3	156	10
0,8	33	7	58	12	25	16	39	6	155	10
0,9	18	3	37	8	20	12	53	9	128	8
1	15	3	32	7	15	9	78	13	140	9
1,1	2	0,4	6	1	15	9	54	9	77	5
1,2	7	1	6	1	14	9	68	11	95	6
1,3	3	0,6	2	0,4	8	5	76	13	89	5
1,4	4	0,8	1	0,2	11	7	57	9	73	4
1,5	2	0,4	1	0,2	4	2	41	7	48	3
1,6	3	0,6	0	0	4	2	15	2	22	1
1,7	2	0,4	0	0	8	5	8	1	18	1
1,8	2	0,4	1	0,2	2	1	6	1	11	0,7
1,9	0	0	0	0	3	2	7	1	10	0,6
2	1	0,2	0	0	2	1	2	0,3	5	0,3
2,1	0	0	0	0	0	0	3	0,5	3	0,1
2,3	0	0	1	0,2	1	0,6	2	0,3	4	0,2
2,4	0	0	0	0	0	0	1	0,1	1	0
2,5	1	0,2	1	0,2	0	0	1	0,1	3	0,1
2,6	1	0,2	0	0	0	0	2	0,3	3	0,1
2,7	1	0,2	0	0	0	0	1	0,1	2	0,1
3,1	0	0	0	0	1	0,6	0	0	1	0
3,3	0	0	0	0	1	0,6	0	0	1	0
3,5	0	0	0	0	0	0	1	0,1	1	0
4,1	0	0	0	0	0	0	1	0,1	1	0
4,6	0	0	0	0	0	0	1	0,1	1	0
5,9	0	0	0	0	0	0	1	0,1	1	0
Total	475		454		156		588		1,554	

Table 6.6 Frequency Distribution for maximum rim thickness, Unit C, Shoma

Potlids		C1		C2		C3		C4		C5		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Horizon IA	Delta Ware	0	0	0	0	3	0,8	0	0	0	0	3	0,8
	Other	4	1	1	0,2	2	0,5	0	0	0	0	7	2
Horizon IB	Delta Ware	1	0,2	1	0,2	1	0,2	0	0	1	0,2	4	0,8
	Other	7	1	1	0,2	5	1	0	0	0	0	13	3
Horizon II	Delta Ware	2	1	0	0	5	3	0	0	0	0	7	4
	Other	12	7	0	0	8	5	1	0,6	0	0	21	13
Horizon IV	Delta Ware	2	0,3	0	0	5	0,8	0	0	0	0	7	1
	Other	130	22	7	1	83	14	0	0	6	1	226	141
Total		158		10		112		1		7		288	

Everted Rims		E1		E2		E3		E4		E5		E6		E7		E8A		E8B		E9		E10		Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Horizon IA	Delta Ware	4	1	2	0,5	12	3	0	0	2	0,5	4	1	0	0	2	0,5	20	5	11	3	2	0,5	59	16
	Other	5	1	5	1	36	10	0	0	4	1	10	3	0	0	1	0,2	6	1	15	4	1	0,2	83	23
Horizon IB	Delta Ware	12	2	42	9	5	1	0	0	3	0,6	5	1	9	2	83	18	2	0,4	0	0	0	0	161	35
	Other	2	0,4	3	0,6	1	0,2	0	0	1	0,2	1	0,2	0	0	5	1	12	2	0	0	0	0	25	5
Horizon II	Delta Ware	1	0,6	5	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0,6	0	0	1	0,6	8	5
	Other	9	5	1	0,6	0	0	0	0	1	0,6	0	0	0	0	0	0	0	0	0	0	0	0	11	7
Horizon IV	Delta Ware	0	0	4	0,6	0	0	0	0	0	0	0	0	0	0	1	0,1	7	1	0	0	0	0	12	2
	Other	14	2	8	1	6	1	2	0,3	2	0,3	2	0,3	0	0	1	0,1	8	1	3	0,5	1	0,1	47	8
Total		47		70		60		2		13		22		9		93		56		29		5		406	

Inturned Rims		N1		Total	
		N	%	N	%
Horizon IA	Delta Ware	0	0	0	0
	Other	3	0,8	3	0,8
Horizon IB	Delta Ware	1	0,2	1	0,2
	Other	0	0	0	0
Horizon II	Delta Ware	0	0	0	0
	Other	3	2	3	0,6
Horizon IV	Delta Ware	0	0	0	0
	Other	8	1	8	1
Total		15		15	

Simple Rims		S1		S2		S3		S4A		S4B		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Horizon IA	Delta Ware	13	3	2	0,5	9	2	0	0	0	0	24	6
	Other	21	5	2	0,5	6	1	0	0	0	0	29	8
Horizon IB	Delta Ware	95	21	8	2	51	11	0	0	0	0	154	33
	Other	22	5	6	1,3	15	3	0	0	0	0	43	9
Horizon II	Delta Ware	23	14	1	0,6	11	7	0	0	0	0	35	22
	Other	53	33	7	4	5	3	0	0	0	0	65	40
Horizon IV	Delta Ware	11	2	1	0,1	6	0	0	0	0	0	18	3
	Other	164	27	21	3	13	3	1	0,1	0	0	202	33
Total		402		48		116		1		0		570	

T-Rims		T1		Total	
		N	%	N	%
Horizon IA	Delta Ware	4	1	4	1
	Other	2	0,5	2	0,5
Horizon IB	Delta Ware	0	0	0	0
	Other	1	0,2	1	0,2
Horizon II	Delta Ware	0	0	0	0
	Other	5	3	5	3
Horizon IV	Delta Ware	0	0	0	0
	Other	32	5	32	5
Total		44		44	

X-Rims		X1		X2		X3		X4		X5		X6		X7		X8		Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Horizon IA	Delta Ware	49	14	22	6	5	0,2	0	0	1	0,2	7	2	0	0	0	0	84	23
	Other	21	6	7	2	5	0,2	1	0,2	2	0,5	10	3	1	0,2	1	0,2	48	13
Horizon IB	Delta Ware	19	4	9	2	0	0	0	0	7	1,5	0	0	0	0	0	0	35	7
	Other	10	2	2	0,4	0	0	0	0	4	0,8	3	0,6	0	0	0	0	19	4
Horizon II	Delta Ware	1	0,6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,2
	Other	0	0	1	0,6	0	0	1	0,6	0	0	0	0	2	0	0	0	4	2,5
Horizon IV	Delta Ware	7	1	3	0,5	0	0	0	0	1	0,1	0	0	0	0	1	0,1	12	2
	Other	10	1	5	0,8	4	0,6	2	0,3	2	0,3	3	0,5	3	0,5	3	0,5	32	5
Total		117		49		14		4		17		23		4		7		235	

Y-Rims		Y1		Y2		Total	
		N	%	N	%	N	%
Horizon IA	Delta Ware	1	0,2	4	1	5	1
	Other	1	0,2	3	0,8	4	1
Horizon IB	Delta Ware	0	0	0	0	0	0
	Other	1	0,2	0	0	1	0,2
Horizon II	Delta Ware	0	0	0	0	0	0
	Other	0	0	0	0	0	0
Horizon IV	Delta Ware	0	0	1	0,1	1	0,1
	Other	0	0	2	0,3	2	0,3
Total		3		10		13	

Table 6.7 Frequency Distribution for rim shapes, Unit C, Shoma

Vessel Shapes		Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Unit C		N	%	N	%	N	%	N	%	N	%
1 Wide Open	Delta Ware	3	0.8	4	0.8	8	5	7	1	22	1
	Other	7	2	12	2	27	18	239	35	285	18
2 Open	Delta Ware	7	2	48	10	6	4	1	0.1	62	4
	Other	11	3	9	2	16	10	82	12	118	7
3 Straight	Delta Ware	87	4	222	48	12	8	20	3	341	22
	Other	93	26	48	10	27	18	100	14	268	17
4 Closed	Delta Ware	80	22	78	17	23	15	20	3	201	13
	Other	62	17	29	6	21	14	96	14	208	13
5 Tightly Closed	Delta Ware	3	0.8	3	0.6	1	0.6	0	0	7	0.4
	Other	3	0.8	1	0.2	1	0.6	6	0.8	11	0.7
6 Carinated	Delta ware	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	9	6	19	2	20	1
Total		356		454		151		681		1,543	

Table 6.8 Frequency distribution for vessel shapes, Unit C, Shoma

Rim Diameters		Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Unit C		N	%	N	%	N	%	N	%	N	%
6	Delta Ware	2	0.6	2	0.4	0	0	0	0	4	0.2
	Other	2	0.6	2	0.4	1	0.8	3	0.6	8	0.5
8	Delta Ware	6	2	12	3	1	0.8	0	0	19	1
	Other	9	2	1	0.2	0	0	6	1	16	1
10	Delta Ware	9	2	22	5	1	0.8	3	0.6	35	2
	Other	7	2	6	1	2	1	19	3	47	3
12	Delta Ware	13	4	22	5	0	0	0	0	35	2
	Other	13	4	6	1	3	2	13	2	35	2
14	Delta Ware	28	8	69	16	9	7	11	2	117	8
	Other	14	4	10	2	5	4	25	5	54	3
16	Delta Ware	26	7	65	15	8	7	7	1	106	7
	Other	21	6	17	4	4	3	46	9	88	6
18	Delta Ware	33	9	46	11	3	2	5	1	87	6
	Other	21	6	9	2	8	7	47	9	85	6
20	Delta Ware	24	7	37	9	6	5	5	1	72	5
	Other	30	9	12	3	10	8	62	12	114	8
22	Delta Ware	15	4	9	2	5	4	2	0.4	31	2
	Other	11	3	6	1	4	3	58	11	79	5
24	Delta Ware	6	2	10	2	6	5	2	0.4	24	1
	Other	10	3	7	1	7	6	45	9	69	4
26	Delta Ware	5	1	21	5	3	2	1	0.2	30	2
	Other	12	3	4	0.9	6	5	40	8	62	4
28	Delta Ware	0	0	4	0.9	0	0	2	0.4	6	0.4
	Other	3	1	3	0.7	2	1	31	6	39	2
30	Delta Ware	1	0.3	3	0.7	1	0.8	0	0	5	0.3
	Other	1	0.3	3	0.7	9	7	17	3	30	2
32	Delta Ware	2	0.6	0	0	0	0	0	0	2	0.1
	Other	1	0.3	1	0.2	2	1	9	2	13	0.8
34	Delta Ware	0	0	1	0.2	0	0	2	0.4	3	0.2
	Other	1	0.3	0	0	3	2	5	1	9	0.6
36	Delta Ware	1	0.3	1	0.2	1	0.8	0	0	3	0.2
	Other	1	0.3	1	0.2	3	2	10	2	15	1
38	Delta Ware	0	0	0	0	0	0	0	0	0	0
	Other	1	0.3	0	0	0	0	10	2	11	0.7
40	Delta Ware	0	0	0	0	0	0	0	0	0	0
	Other	3	1	0	0	0	0	9	2	12	0.8
42	Delta Ware	0	0	0	0	1	0.8	0	0	1	0
	Other	2	0.6	1	0.2	2	1	5	1	10	0.6
>42	Delta Ware	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	1	0.2	1	0

Table 6.9 Frequency Distribution for rim diameter (in cm), Unit C, Shoma

Unit C	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Decoration	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
CH	0	0	2	0,4	4	2	43	7	49	29
CH/CR-4	1	0,3	3	0,7	2	1	1	0,1	7	4
CH/CR-3	0	0	1	0,2	1	0,6	0	0	2	1
CH/CR-6	0	0	1	0,2	1	0,6	2	0,3	4	2
CH/P-R-C	0	0	0	0	1	0,6	0	0	1	0,6
CH/MCH/PA-5	0	0	0	0	1	0,6	1	0,1	2	1
CH/PNC-2/CR-4	0	0	0	0	1	0,6	0	0	1	0,6
CH/PA-4/CR-0	0	0	0	0	1	0,6	0	0	1	0,6
CI-2	0	0	0	0	0	0	6	1	6	3
CI-2/P-R-W	0	0	0	0	1	0,6	0	0	1	0,6
CR-0	11	3	5	1	2	1	19	3	37	22
CR-4	9	2	23	5	14	8	33	5	79	48
CR-4*/MOE*	6	1	4	0,9	0	0	0	0	10	6
CR-4/MCH/PE-1	0	0	0	0	1	0,6	0	0	1	0,6
CR-4/PE-1/PE-2	0	0	0	0	1	0,6	0	0	1	0,6
CR-6	18	5	9	2	4	2	37	6	68	41
CR-12	2	0,5	1	0,2	0	0	4	0,6	7	4
FIL-1	3	0,8	0	0	1	0,6	36	6	40	24
HERB	0	0	0	0	2	1	5	0,8	7	4
HERB/CR-12	0	0	0	0	1	0,6	0	0	1	0,6
MCH	0	0	4	0,9	4	2	12	2	20	12
MCH/CR-4	0	0	0	0	1	0,6	2	0,3	3	2
MCH/CR-0	0	0	0	0	1	0,6	0	0	1	0,6
MCH/FIL-1	1	0,3	0	0	0	0	3	0,5	4	2
MCH/PFR-5	0	0	0	0	1	0,6	0	0	1	0,6
MOE/CR-6	0	0	0	0	1	0,6	0	0	1	0,6
PA-3	1	0,3	0	0	0	0	3	0,5	4	2
PA-4	0	0	0	0	0	0	4	0,6	4	2
PA-4/PE-1/SI-4	0	0	0	0	1	0,6	0	0	1	0,6
P-B-L	0	0	0	0	1	0,6	0	0	1	0,6
P-B-L*/PE-1*/PA-0	0	0	0	0	1	0,6	0	0	1	0,6
P-B-W	0	0	0	0	1	0,6	0	0	1	0,6
PE-1	1	0,3	1	0,2	6	3	10	1	18	11
PE-1/CR-6	0	0	1	0,2	0	0	3	0,5	4	2
PE-1/PA-3	0	0	0	0	2	1	1	0,1	3	2
PE-1/PA-4	0	0	0	0	1	0,6	3	0,5	3	2
PE-1/PA-9	0	0	0	0	1	0,6	0	0	1	0,6
PFR-2	2	0,5	0	0	0	0	0	0	2	1
PFR-3	3	0,8	1	0,2	0	0	0	0	4	2
PFR-5	0	0	0	0	2	1	0	0	2	1
PFR-5/CR-4	0	0	0	0	1	0,6	0	0	1	0,6
PFR-5/CH/CR-4	0	0	0	0	1	0,6	0	0	1	0,6
PLAIN	67	19	19	4	36	21	228	39	350	212
PNC-1	0	0	0	0	0	0	7	1	7	4
PNC-2	0	0	0	0	0	0	4	0,6	4	2
P-R-L	1	0,3	0	0	1	0,6	0	0	2	1
P-R-L/CR-6	0	0	0	0	1	0,6	0	0	1	0,6
P-R-L*/PE-1*/PA-0	0	0	0	0	1	0,6	0	0	1	0,6
P-R-W	9	2	12	3	0	0	3	0,5	24	14
P-R-W/CR-0	8	2	0	0	0	0	0	0	8	5
P-R-W/CR-4	8	2	3	0,7	0	0	1	0,1	12	7
P-R-W/CR-6	5	1	1	0,2	0	0	2	0,3	8	5
P-R-W/PFR-3	2	0,5	0	0	0	0	0	0	2	1
P-R-W/CR-6*/MOE*	2	0,5	0	0	0	0	0	0	2	1
P-R-W/PFR-5/CR-4	0	0	0	0	1	0,6	0	0	1	0,6
TEXTILE	0	0	0	0	1	0,6	0	0	1	0,6

Table 6.10 Frequency distribution of decoration types, Unit C, Shoma (>0,5%, rim sherds only, Delta Ware not included)

Unit C	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Decoration	N	%	N	%	N	%	N	%	N	%
CH	0	0	6	1	7	4	4	0,6	17	10
CH/CR-4	0	0	2	0,4	2	1	0	0	5	3
CH/PFR-5	0	0	0	0	2	1	0	0	2	1
CH/P-R-L/CR-0	0	0	0	0	1	0,6	0	0	1	0,6
CI-2	0	0	1	0,2	1	0,6	0	0	2	1
CI-2/CR-4	0	0	0	0	1	0,6	0	0	1	0,6
CR-0	11	3	9	2	0	0	2	0,3	22	13
CR-3	2	0,5	3	0,7	0	0	0	0	5	3
CR-4	13	3	51	12	3	2	4	0,6	71	43
CR-4*/MOE*	4	1	14	3	2	1	1	0,1	21	12
CR-4*/PE-1*	0	0	8	2	0	0	0	0	8	5
CR-6	18	5	13	3	0	0	2	0,3	33	20
CR-6*/MOE*	3	0,8	1	0,2	0	0	0	0	4	2
CR-12	0	0	2	0,4	4	2	1	0,1	7	4
CR-12/CR-4	0	0	5	1	1	0,6	0	0	6	3
HERB	0	0	1	0,2	3	2	0	0	4	2
MCH	0	0	5	1	3	2	1	0,1	9	5
MCH/CR-4	0	0	4	1	0	0	0	0	4	2
MCH/CR-8	0	0	0	0	1	0,6	0	0	1	0,6
MCH/P-R-C	1	0,2	3	0,7	0	0	1	0,1	5	3
MCH/P-R-C/PFR-5	0	0	0	0	1	0,6	0	0	1	0,6
MCH/PFR-5/CR-4	0	0	1	0,2	1	0,6	0	0	2	1
MOE	1	0,2	2	0,4	1	0,6	1	0,1	5	3
MOE/CR-4	0	0	0	0	1	0,6	1	0,1	2	1
PE-1	2	0,5	5	1	0	0	3	0,5	10	6
PE-1/CR-4	1	0,2	5	1	0	0	0	0	6	3
P-B-W	0	0	1	0,2	1	0,6	0	0	2	1
PFR-0	0	0	0	0	1	0,6	0	0	1	0,6
PFR-3	2	0,5	0	0	0	0	0	0	2	1
PFR-5	0	0	5	1	1	0,6	1	0,1	7	4
PFR-5/CR-4	3	0,8	3	0,7	2	1	0	0	8	5
PLAIN	54	15	118	28	11	6	19	3	202	122
P-R-C	1	0,2	3	0,7	1	0,6	0	0	5	3
P-R-C*/MCH*	0	0	0	0	1	0,6	0	0	1	0,6
P-R-L	0	0	3	0,7	1	0,6	0	0	4	2
P-R-L/CR-4	0	0	3	0,7	0	0	0	0	3	2
P-R-W	30	8	0	0	0	0	3	0,5	33	20
P-R-W/CR-0	8	2	5	1	0	0	0	0	13	8
P-R-W/CR-4	9	2	0	0	1	0,6	1	0,1	11	6
P-R-W/CR-4*/MOE*	3	0,8	0	0	0	0	0	0	3	2
P-R-W/CR-6	5	1	0	0	0	0	0	0	5	3

Table 6.11 Frequency Distribution of decoration types, Unit C, Shoma (>0,5%, Delta Ware rim sherds only)

Unit C	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Decoration	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
CH/MCH	0	0	0	0	1	0,6	0	0	1	0,6
CH/CR-0	0	0	0	0	0	0	1	0,1	1	0,6
CH/FIL-1	0	0	0	0	0	0	2	0,3	2	1
CH/PA-3	0	0	0	0	0	0	1	0,1	1	0,6
CH/PA-4	0	0	0	0	0	0	2	0,3	2	1
CH/PA-5	0	0	0	0	0	0	1	0,1	1	0,6
CH/PA-10	0	0	0	0	0	0	1	0,1	1	0,6
CH/PNC-1	0	0	0	0	0	0	1	0,1	1	0,6
CH/PNC-2	0	0	0	0	0	0	2	0,3	2	1
CH/PA-3/PE-1	0	0	0	0	0	0	1	0,1	1	0,6
CH/PFR-5/CR-6	0	0	0	0	0	0	1	0,1	1	0,6
CI-1	1	0,3	0	0	0	0	1	0,1	2	1
CI-2/P-R-W	0	0	0	0	1	0,6	0	0	1	0,6
CR-0/CR-4	0	0	0	0	0	0	1	0,1	1	0,6
CR-0/CR-6	0	0	0	0	0	0	1	0,1	1	0,6
CR-3	0	0	2	0,4	0	0	0	0	2	1
CR-4/CR-3	0	0	0	0	0	0	1	0,1	1	0,6
CR-4/PA-5	0	0	0	0	0	0	1	0,1	1	0,6
CR-4/PA-9	0	0	0	0	0	0	1	0,1	1	0,6
CR-4/P-R-L	0	0	1	0,2	0	0	0	0	1	0,6
CR-4*/PE-1*	0	0	1	0,2	0	0	2	0,3	3	2
CR-6/CH	0	0	0	0	0	0	1	0,1	1	0,6
CR-6/CR-4	0	0	1	0,2	0	0	0	0	1	0,6
CR-6*/MOE*	1	0,3	0	0	0	0	0	0	1	0,6
CR-6/PA-4/CR-0	0	0	0	0	0	0	1	0,1	1	0,6
CR-8	0	0	0	0	0	0	1	0,1	1	0,6
CR-9	0	0	0	0	0	0	1	0,1	1	0,6
FIL-1/CR-4	0	0	0	0	0	0	1	0,1	1	0,6
FIL-1/CR-6	0	0	0	0	0	0	1	0,1	1	0,6
FIL-1/PE-1	0	0	0	0	0	0	1	0,1	1	0,6
HERB/CR-12	0	0	0	0	1	0,6	0	0	1	0,6
MCH/PA-3	0	0	0	0	0	0	1	0,1	1	0,6
MCH/PFR-5	0	0	0	0	1	0,6	0	0	1	0,6
MCH/PNC-1	0	0	0	0	0	0	1	0,1	1	0,6
MCH/PA-5/CR-0	0	0	0	0	0	0	1	0,1	1	0,6
MCH/PFR-4/CR-6	0	0	0	0	0	0	1	0,1	1	0,6
MCH/PNC-2/FIL-1	0	0	0	0	0	0	1	0,1	1	0,6
MOE	0	0	0	0	0	0	1	0,1	1	0,6
MOE*/CR-0*	1	0,3	0	0	0	0	0	0	1	0,6
PA-3/CH	0	0	0	0	0	0	2	0,3	2	1
PA-3/MCH/CR-0	0	0	0	0	0	0	1	0,1	1	0,6
PA-3/MCH/CR-4	0	0	0	0	0	0	2	0,3	2	1
PA-3/P-R-W*/CH*/PFR-5	0	0	0	0	0	0	1	0,1	1	0,6
PA-4/CR-12	0	0	0	0	0	0	1	0,1	1	0,6
PA-5	0	0	0	0	0	0	2	0,3	2	1
P-B-W/CR-3	0	0	0	0	0	0	1	0,1	1	0,6
P-N-W/CH/MCH	0	0	0	0	0	0	1	0,1	1	0,6
P-R-W	0	0	0	0	0	0	1	0,1	1	0,6
PE-1/CR-4	0	0	1	0,2	0	0	1	0,1	2	1
PE-1/CR-5	0	0	0	0	0	0	1	0,1	1	0,6
PE-1/PA-3	0	0	0	0	2	1	1	0,1	3	2
PE-1/SI-3	0	0	0	0	0	0	1	0,1	1	0,6
PE-1/CR-4/PA-9	0	0	0	0	0	0	1	0,1	1	0,6
PFR-5/CR-6	0	0	1	0,2	0	0	0	0	1	0,6
PNC-2/CR-6	1	0,3	0	0	0	0	0	0	1	0,6
PNC-2/CH/FIL-1	0	0	0	0	0	0	1	0,1	1	0,6
PNC-2/MCH	0	0	0	0	0	0	1	0,1	1	0,6
P-R-C/MCH	0	0	0	0	0	0	1	0,1	1	0,6
P-R-L/PA-3	0	0	0	0	0	0	2	0,3	2	1
P-R-W/CH	0	0	0	0	0	0	1	0,1	1	0,6
P-R-W/CR-3	1	0,3	0	0	0	0	0	0	1	0,6
P-R-W/FIL-1	1	0,3	0	0	0	0	0	0	1	0,6
P-R-W/MOE	1	0,3	0	0	0	0	0	0	1	0,6
P-R-W/CR-4*/MOE*	1	0,3	0	0	0	0	0	0	1	0,6
SI-5/CR-4	0	0	0	0	0	0	1	0,1	1	0,6
SI-5*/CR-6*	0	0	1	0,2	0	0	1	0,1	2	1
SI-5/PA-5	0	0	0	0	0	0	2	0,3	2	1

Table 6.12 Frequency Distribution of decoration types, Unit C, Shoma (<0,5%, rim sherds only, Delta Ware not included)

Unit C	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Decoration	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
CH/CI-2	0	0	1	0,2	0	0	0	0	1	0,6
CH/CR-0	0	0	1	0,2	0	0	0	0	1	0,6
CH/CR-3	0	0	1	0,2	0	0	0	0	1	0,6
CH/CR-6	0	0	1	0,2	0	0	0	0	1	0,6
CH/CR-6/CR-4	0	0	1	0,2	0	0	0	0	1	0,6
CH/CR-6/P-R-L*/CH*	0	0	1	0,2	0	0	0	0	1	0,6
CH/CR-12/CR-4	0	0	0	0	0	0	1	0,1	1	0,6
CH/PFR-5/CR-4	0	0	2	0,4	0	0	0	0	2	1
CH/P-R-C	0	0	1	0,2	0	0	0	0	1	0,6
CR-0*/MOE*	0	0	2	0,4	0	0	0	0	2	1
CR-3*/MOE*	0	0	1	0,2	0	0	0	0	1	0,6
CR-4/P-R-W	0	0	1	0,2	0	0	0	0	1	0,6
CR-6/CR-4	1	0,2	0	0	0	0	0	0	1	0,6
FIL-1	1	0,2	1	0,2	0	0	0	0	2	1
FIL-1*/MOE*	1	0,2	0	0	0	0	0	0	1	0,6
HERB/CR-4	0	0	1	0,2	0	0	0	0	1	0,6
MCH/P-R-L	0	0	1	0,2	0	0	0	0	1	0,6
MCH/PFR-5/P-R-C/CR-4	0	0	1	0,2	0	0	0	0	1	0,6
MCH/P-R-W	0	0	1	0,2	0	0	0	0	1	0,6
PA-3/CH	0	0	0	0	0	0	1	0,1	1	0,6
PE-1/CR-0	0	0	1	0,2	0	0	0	0	1	0,6
PE-1/CR-3	0	0	1	0,2	0	0	0	0	1	0,6
PE-1*/CR-4*	0	0	2	0,4	0	0	0	0	2	1
PE-1/CR-6	0	0	0	0	0	0	1	0,1	1	0,6
PE-1*/P-B-W*	0	0	1	0,2	0	0	0	0	1	0,6
PE-1/P-R-C	0	0	2	0,4	0	0	0	0	2	1
PE-1/PFR-5/CR-4	0	0	1	0,2	0	0	0	0	1	0,6
P-N-W/CR-4	0	0	1	0,2	0	0	0	0	1	0,6
P-R-C/CH	0	0	1	0,2	0	0	0	0	1	0,6
P-R-C/PFR-5	0	0	1	0,2	0	0	0	0	1	0,6
P-R-L/CR-0	0	0	1	0,2	0	0	0	0	1	0,6
P-R-L/PFR-5	0	0	1	0,2	0	0	0	0	1	0,6
P-R-L*/PE-1*/CR-4	0	0	1	0,2	0	0	0	0	1	0,6
P-R-L*/PE-1*/PFR-5	0	0	1	0,2	0	0	0	0	1	0,6
P-R-L/P-R-W*/CH*/PFR-5	0	0	0	0	0	0	1	0,1	1	0,6
P-R-W/CR-3	1	0,2	0	0	0	0	0	0	1	0,6
P-R-W/CR-6*/MOE*	1	0,2	0	0	0	0	0	0	1	0,6
P-R-W/MOE	1	0,2	0	0	0	0	0	0	1	0,6

Table 6.13 Frequency Distribution of types of decoration by occupational horizons, Unit C, Shoma (<0.5%, Delta Ware rim sherds only)

Unit C	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Decoration	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
CH	35	1	16	0.6	21	2	64	1	136	1
MCH	9	0.3	6	0.2	24	2	47	1	86	0.8
CR-0	151	6	29	1	21	2	116	2	317	3
CR-3	25	1	31	1	8	0.7	11	0.2	75	0.7
CR-4	1313	51	2075	80	619	56	1152	26	5159	48
CR-6	213	8	67	2	139	12	381	8	800	7
FIL-1	11	0.4	6	0.2	51	4	274	6	342	3
HERB	0	0	15	0.6	11	1	73	1	99	1
MOE	127	5	1	0.04	0	0	3	0.07	131	1
PE-1	26	1	104	4	57	5	106	2	293	2
PFI-3	339	13	7	0.2	6	0.5	44	1	396	3
PFR-5	2	0.08	26	1	21	2	15	0.3	64	0.6
PLAIN	132	5	126	5	79	7	1902	44	2239	21

Table 6.14 Frequency Distribution of decoration types on body sherds, Unit C, Shoma (>0,5%)

Unit C	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Decoration	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
CI-1	9	0.3	0	0	0	0	4	0.09	13	0.1
CI-2	27	1	6	0.2	1	0.09	13	0.3	47	0.4
CI-5	1	0.04	0	0	0	0	0	0	1	0.01
CI-6	3	0.1	0	0	0	0	0	0	3	0.03
CR-2	4	0.1	0	0	5	0.4	7	0.1	16	0.1
CR-5	3	0.1	1	0.04	1	0.09	8	0.2	13	0.1
CR-8	28	1	6	0.2	4	0.3	8	0.2	46	0.4
CR-11	0	0	0	0	2	0.2	0	0	2	0.02
CR-12	10	0.4	13	0.5	1	0.09	0	0	24	0.2
FIL-2	0	0	1	0.04	0	0	12	0.3	13	0.1
PA-0	0	0	0	0	1	0.09	1	0.02	2	0.02
PA-3	1	0.04	0	0	7	0.6	10	0.2	18	0.1
PA-4	0	0	0	0	1	0.09	15	0.3	16	0.1
PA-5	0	0	0	0	5	0.4	5	0.1	10	0.09
PA-9	0	0	0	0	2	0.2	1	0.02	3	0.03
PE-3	0	0	1	0.04	1	0.09	5	0.1	7	0.07
PE-4	0	0	1	0.04	2	0.2	2	0.05	5	0.05
PERF	0	0	1	0.04	1	0.09	0	0	2	0.02
MPERF	1	0.04	0	0	0	0	2	0.05	3	0.03
PFI-1	21	0.8	9	0.3	2	0.2	8	0.2	40	0.4
PFI-2	1	0.04	0	0	0	0	3	0.07	4	0.04
PFI-4	3	0.1	0	0	0	0	5	0.1	8	0.08
PFR-2	11	0.4	3	0.1	1	0.09	4	0.09	19	0.2
PFR-3	36	1	2	0.08	0	0	6	0.1	44	0.4
PFR-4	1	0.04	2	0.08	1	0.09	1	0.02	5	0.05
PFR-7	0	0	0	0	1	0.09	1	0.02	2	0.02
PI-1	0	0	0	0	1	0.09	2	0.05	3	0.03
PI-2	0	0	0	0	0	0	1	0.02	1	0.01
PNC-2	0	0	0	0	0	0	3	0.07	3	0.03
P-B-L	0	0	0	0	1	0.09	1	0.02	2	0.02
P-N-C	0	0	0	0	1	0.09	3	0.07	4	0.04
P-N-L	1	0.04	3	0.1	0	0	0	0	4	0.04
P-R-0	1	0.04	1	0.04	0	0	0	0	2	0.02
P-R-C	0	0	5	0.2	4	0.3	3	0.07	12	0.1
P-R-G	0	0	0	0	0	0	1	0.02	1	0.01
P-R-L	26	1	11	0.4	1	0.09	7	0.1	45	0.4
P-R-W	1	0.04	0	0	0	0	0	0	1	0.01
P-W-L	0	0	0	0	0	0	1	0.02	1	0.01
SI-1	0	0	0	0	1	0.09	1	0.02	2	0.02
SI-2	0	0	0	0	0	0	1	0.02	1	0.01
SI-3	1	0.04	0	0	0	0	0	0	1	0.01
SI-4	0	0	0	0	2	0.2	3	0.07	5	0.05
SI-5	1	0.04	3	0.1	0	0	0	0	4	0.04
TEXT	1	0.04	1	0.04	0	0	0	0	2	0.02

Table 6.15 Frequency Distribution of decoration types on body sherds, Unit C, Shoma (<0,5%)

Decoration	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Unit C	N	%	N	%	N	%	N	%	N	%
1 Motif	242	74	185	71	274	75	549	85	1250	78
2 Motifs	73	22	65	25	76	21	76	12	290	18
3 Motifs	10	3	9	3	14	4	17	2	50	3
4 Motifs	0	0	0	0	1	0,2	2	0,3	3	0,2
Total	325		259		365		644		1593	

Table 6.16 Frequency Distribution of number of motifs present (rim sherds only), Unit C, Shoma

Decoration	Horizon IA		Horizon IB		Horizon II		Horizon IV		Total	
Unit C	N	%	N	%	N	%	N	%	N	%
1 Motif	1996	90	2171	92	941	91	3516	94	8624	92
2 Motifs	179	8	147	6	78	7	201	5	605	6
3 Motifs	41	2	40	2	9	2	13	1	103	2
Total	2216		2358		1028		3730		9332	

Table 6.17 Frequency Distribution of number of motifs present (body sherds only), Unit C, Shoma

UnitC		Horizon IA	% per horizon	Horizon IB	% per horizon	Horizon II	% per horizon	Horizon IV	% per horizon	Total	
Pot Bases		N	%	N	%	N	%	N	%	N	%
F1	DW	2	1	10	8	0	0	3	2	15	12
	Other	0	0	0	0	4	3	3	2	7	5
F2	DW	0	0	1	1	0	0	0	0	1	1
	Other	0	0	0	0	3	2	4	3	7	5
F3	DW	0	0	4	3	1	1	0	0	5	4
	Other	0	0	1	1	0	0	3	2	4	3
F4	DW	0	0	0	0	1	1	1	1	2	1
	Other	0	0	1	1	3	2	13	10	17	13
F5	DW	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0
F6	DW	0	0	3	2	1	1	0	0	4	3
	Other	0	0	0	0	2	1	6	5	8	6
F7	DW	0	0	1	1	0	0	0	0	1	1
	Other	0	0	0	0	1	1	0	0	1	1
F8	DW	0	0	0	0	0	0	1	1	1	1
	Other	0	0	0	0	2	1	0	0	2	1
F9	DW	0	0	0	0	1	1	0	0	1	1
	Other	0	0	1	1	1	1	1	1	3	2
F10	DW	0	0	1	1	0	0	0	0	1	1
	Other	0	0	1	1	3	2	6	5	20	16
F11	DW	0	0	0	0	0	0	0	0	0	0
	Other	0	0	1	1	0	0	8	6	9	7
F12	DW	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	6	5	6	5
F13	DW	2	1	3	2	0	0	0	0	5	4
	Other	0	0	0	0	2	1	3	2	5	4

Table.6.18 Frequency Distribution of pot bases, Unit C, Shoma

6.5.2 Unit C – Level 2 Analysis

Level 2 of my analysis seeks systematic co-occurrences of attributes over time and space, which should provide an insight into the stylistic trends of the assemblage.

Table 6.19 presents co-occurrences of vessel and rim shapes. Simple rims show the largest number and variety as they occur with all vessel shapes, indicating that they are the most easily adaptable rim shapes. The other quite versatile rim type, however less common than simple rims, are T-rims. They occur with unrestricted and restricted vessel shapes. All other rim shapes are associated with restricted and straight vessel shapes, including everted and in-turned rims. Thickened out-turned and ledged rims, which allow a sure grip, are mostly associated with restricted vessel shapes.

Table 6.20 shows co-occurrences of rim diameters and vessel shapes. Medium (between 20 and 30 cm) and small-size vessels (<10 to 20 cm), which are the most numerous, are associated with all vessel shapes. Hence, no specific vessel shapes have been found in association with specific rim diameters. The only category showing a specific range are large vessels (>30 cm) as they tend to exhibit straight and (wide-) open vessel shapes. Large vessels with straight walls might have served for the storage of condiments or water and the ones with wide-openings might have constituted dishes and plates.

Table 6.21 shows co-occurrences of vessel shapes and the wall thickness. The only types showing a specific range are the thin-walled Delta Ware sherds. They have a mean rim thickness of only 4 and 8 mm and tend to be associated with straight and restricted pots. Indeed Delta fabric pottery might have had restricted functional use as they never exceed the medium-size range (up to 20 cm in diameter) (see Table 6.22). Their popularity in Horizons I and II may indicate smaller family units than in Horizon IV, during which vessels became thicker and larger. All other vessel types may exhibit various ranges, which can be as small as 8 cm or as large as 40 cm.

Table 6.22 illustrates co-occurrences of vessel wall thickness and rim diameters. As already mentioned, Delta fabric pottery is characterised by thin vessel walls (mostly ranging between 4 and 9 mm) and medium-sized rim diameters (between 10 cm and 20 cm). Non-Delta fabric pottery, which show thicker vessel walls, mostly ranging between 6 and 14 mm, also have larger rim diameters. The latter fall between 16 cm and 26 cm.

Table 6.23 illustrates co-occurrences of rim diameters and rim shapes. Potlids, which are diagnostic in Horizon IV, show medium-sized rim diameters ranging between 10 cm and 26 cm. Indeed, all other rim types also exhibit medium-sized rim diameters, mostly ranging between 14 and 22 cm. Simple rims are the only category, which show an increase of mean rim diameters from Horizon IB (14 cm and 20 cm) to Horizon IV (up to 28 cm).

The most important conclusion that can be drawn is an increase in vessel size through time, which is indicated by increasing rim diameters and vessel walls, reaching its peak in Horizon IV. Thus, there might be a greater need for storage and processing during the second millennium AD, which may indicate growing population numbers. However, in spite of an increase in vessel size through time, most types remain in the medium-size category, with rim diameters ranging between 10 and 30 cm and a mean wall thickness of 5 and 16 mm.

Simple rims seem to be the most adaptable rim shape as they show the widest range of rim angles. Manipulated rims, in contrast, such as everted, inturned, thickened out-turned and ledged rims, tend to be associated with restricted and straight vessel openings. Thus, they might have mostly been used for cooking or storage. These shapes might have been particularly significant in relation to cooking as they allowed a firm grip of the vessel. Potlids, which are the most numerous in Horizon IV, might have been used in association with serving vessels (to keep the food warm) or storage.

Delta fabric pottery seems to be the most diagnostic type - recognizably fine-pasted, highly-fired and burnished. They tend to exhibit thin walls and small to medium-sized rim diameters, mostly showing restricted and straight vessel openings. They might have served for cooking, serving and storage. Due to their limited capacity, it might be possible that the large numbers of Delta fabric pottery in Horizons I and II indicate smaller population groups at Shoma than in Horizon IV, when Delta Ware became much rarer.

Vessel Shapes	Horizon		1 Wide Open	% per horizon	2 Open	% per horizon	3 Straight	% per horizon	4 Closed	% per horizon	5 Tightly Closed	% per horizon	6 Carinated	% per horizon	Total
Rim Shapes			**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
Pot Lids (C)	**IA**	**Delta Ware**	3	0,8	0	0	0	0	0	0	0	0	0	0	3
		Other	7	2	0	0	0	0	0	0	0	0	0	0	7
	IB	**Delta Ware**	4	0,9	0	0	0	0	0	0	0	0	0	0	4
		Other	11	2	1	0,2	0	0	0	0	0	0	0	0	12
	II	**Delta Ware**	7	4	0	0	0	0	0	0	0	0	0	0	11
		Other	20	13	0	0	0	0	0	0	0	0	0	0	33
	IV	**Delta Ware**	0	0	7	1	0	0	0	0	0	0	0	0	8
		Other	225	38	1	0,1	0	0	0	0	0	0	0	0	226
Everted Rims (E)	**IA**	**Delta Ware**	0	0	0	0	37	10	19	5	1	0,2	0	0	57
		Other	0	0	0	0	55	15	27	7	0	0	0	0	82
	IB	**Delta Ware**	0	0	3	0,6	137	31	19	4	1	0,2	0	0	160
		Other	0	0	0	0	18	4	6	1	0	0	0	0	24
	II	**Delta Ware**	0	0	0	0	2	1	6	1	0	0	0	0	8
		Other	0	0	0	0	7	4	3	2	0	0	0	0	10
	IV	**Delta Ware**	0	0	0	0	7	1	5	0,8	0	0	0	0	12
		Other	2	0,3	3	0,5	28	5	11	2	1	0,1	0	0	45
Inturned Rims (N)	**IA**	**Delta Ware**	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	1	0,2	2	0,5	0	0	0	0	3
	IB	**Delta Ware**	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	1	0,2	0	0	0	0	0	0	1
	II	**Delta Ware**	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	1	0,2	1	0,6	0	0	9	6	11
	IV	**Delta Ware**	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	1	0,1	2	0,3	4	0,6	17	3	0	0	24
Simple Rims (S)	**IA**	**Delta Ware**	0	0	7	2	8	2	10	3	0	0	0	0	25
		Other	0	0	8	2	10	3	7	2	3	0,8	0	0	28
	IB	**Delta Ware**	0	0	45	10	63	14	42	9	2	0,4	0	0	152
		Other	0	0	7	1	17	4	14	3	1	0,2	0	0	39
	II	**Delta Ware**	1	0,6	6	4	10	6	17	11	1	0,6	0	0	35
		Other	8	5	14	9	14	9	14	9	0	0	0	0	50
	IV	**Delta Ware**	0	0	0	0	6	1	10	1	0	0	0	0	16
		Other	11	2	63	11	42	7	56	9	4	0,6	0	0	176
T-Rims (T)	**IA**	**Delta Ware**	0	0	0	0	0	0	3	0,8	1	0,2	0	0	4
		Other	0	0	1	0,2	0	0	1	0,2	0	0	0	0	2
	IB	**Delta Ware**	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
	II	**Delta Ware**	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	1	0,6	3	2	0	0	1	0,6	0	0	5
	IV	**Delta Ware**	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	12	2	14	2	6	1	0	0	0	0	32
X-Rims (X)	**IA**	**Delta Ware**	0	0	0	0	37	10	45	13	1	0,2	0	0	83
		Other	0	0	2	0,5	22	6	22	6	0	0	0	0	46
	IB	**Delta Ware**	0	0	0	0	20	4	15	3	0	0	0	0	35
		Other	0	0	0	0	9	2	7	1	0	0	0	0	16
	II	**Delta Ware**	0	0	0	0	0	0	1	0,6	0	0	0	0	1
		Other	0	0	1	0,6	0	0	3	2	0	0	0	0	4
	IV	**Delta Ware**	0	0	0	0	8	1	4	0,6	0	0	0	0	12
		Other	0	0	1	0,1	8	1	17	3	1	0,1	0	0	27
Y-Rims (Y)	**IA**	**Delta Ware**	0	0	0	0	4	1	1	0,2	0	0	0	0	5
		Other	0	0	0	0	3	0,8	1	0,2	0	0	0	0	4
	IB	**Delta Ware**	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
	II	**Delta Ware**	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
	IV	**Delta Ware**	0	0	0	0	0	0	1	0,1	0	0	0	0	1
		Other	1	0,1	1	0,1	1	0,1	0	0	0	0	0	0	3

Table 6.19 Frequency Distribution of vessel and rim shapes, Unit C, Shoma

Vessel Shape		1 Wide Open		2 Open		3 Straight		4 Closed		5 Tightly Closed		6 Carinated		Total
Diameter (cm)		N	%	N	%	N	%	N	%	N	%	N	%	N
6	Delta Ware	0	0	0	0	3	0,2	1	0,07	0	0	0	0	4
	Other	0	0	0	0	6	0,4	1	0,07	1	0,07	0	0	8
8	Delta Ware	0	0	0	0	15	1	5	0,3	0	0	0	0	20
	Other	1	0,07	2	0,1	6	0,4	4	0,3	2	0,1	1	0,07	16
10	Delta Ware	1	0,07	4	0,3	18	1	13	1	0	0	0	0	36
	Other	12	0,9	1	0,07	12	1	7	0,5	1	0,07	2	0,1	35
12	Delta Ware	1	0,07	1	0,07	18	1	15	1	0	0	0	0	35
	Other	4	0,3	1	0,07	19	1	12	1	0	0	0	0	36
14	Delta Ware	1	0,07	5	0,3	70	5	39	3	2	0,1	0	0	117
	Other	9	0,6	8	0,5	15	1	19	1	1	0,07	2	0,1	54
16	Delta Ware	4	0,3	2	0,1	70	5	29	2	3	0,2	0	0	108
	Other	15	1	10	0,7	38	2	24	1	1	0,07	1	0,07	89
18	Delta Ware	2	0,1	10	0,7	46	3	28	2	0	0	0	0	86
	Other	20	1	11	1	29	2	23	1	0	0	2	0,1	85
20	Delta Ware	4	0,3	11	1	40	3	17	1	2	0,1	0	0	74
	Other	41	3	15	1	34	2	23	1	1	0,07	1	0,07	115
22	Delta Ware	1	0,07	4	0,3	16	1	12	1	0	0	0	0	33
	Other	28	2	9	0,6	22	1	16	1	0	0	2	0,1	77
24	Delta Ware	0	0	9	0,6	7	0,5	9	0,6	0	0	0	0	25
	Other	21	1	10	0,7	15	1	17	1	2	0,1	2	0,1	67
26	Delta Ware	1	0,07	9	0,6	12	1	7	0,5	1	0,07	0	0	30
	Other	23	1	6	0,4	18	1	11	1	0	0	2	0,1	60
28	Delta Ware	0	0	2	0,1	4	0,3	0	0	0	0	0	0	6
	Other	11	1	11	1	7	0,5	9	0,6	0	0	1	0,07	39
30	Delta Ware	1	0,07	0	0	3	0,2	1	0,07	0	0	0	0	5
	Other	11	1	8	0,5	8	0,5	3	0,2	0	0	1	0,07	31
32	Delta Ware	0	0	1	0,07	0	0	0	0	0	0	0	0	1
	Other	5	0,3	2	0,1	4	0,3	3	0,2	0	0	0	0	14
34	Delta Ware	2	0,1	0	0	1	0,07	0	0	0	0	0	0	3
	Other	2	0,1	2	0,1	2	0,1	3	0,2	0	0	0	0	9
36	Delta Ware	1	0,07	0	0	2	0,1	0	0	0	0	0	0	3
	Other	8	0,5	1	0,07	1	0,07	5	0,3	0	0	1	0,07	16
38	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	5	0,3	2	0,1	1	0,07	3	0,2	0	0	0	0	11
40	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	6	0,4	2	0,1	0	0	2	0,1	1	0,07	1	0,07	12
42	Delta Ware	0	0	0	0	0	0	1	0,07	0	0	0	0	1
	Other	5	0,3	2	0,1	2	0,1	1	0,07	0	0	0	0	10
Total		246		161		564		363		18		19		1371

Table 6.20 Frequency Distribution of rim diameter and vessel shapes, Unit C, Shoma

Vessel Shape		1 Wide Open		2 Open		3 Straight		4 Closed		5 Tightly Closed		6 Carinated		Total
M.R.T. (mm)		N	%	N	%	N	%	N	%	N	%	N	%	N
3	Delta Ware	0	0	0	0	13	1	8	0,5	1	0,07	0	0	22
	Other	0	0	0	0	0	0	1	0,07	0	0	0	0	1
4	Delta Ware	0	0	1	0,07	58	4	26	1	1	0,07	0	0	86
	Other	0	0	0	0	6	0,4	4	0,2	0	0	0	0	10
5	Delta Ware	4	0,2	3	0,2	114	7	28	2	2	0,1	0	0	151
	Other	0	0	3	0,2	20	1	18	1	0	0	0	0	41
6	Delta Ware	1	0,07	14	1	67	4	44	3	0	0	0	0	126
	Other	0	0	4	0,2	35	2	20	1	0	0	1	0,07	60
7	Delta Ware	2	0,1	11	0,7	42	2	28	2	0	0	0	0	83
	Other	4	0,2	4	0,2	41	2	21	1	1	0,07	0	0	71
8	Delta Ware	5	0,3	12	0,7	29	2	31	2	1	0,07	0	0	78
	Other	13	1	6	0,4	24	1	30	2	2	0,1	0	0	75
9	Delta Ware	6	0,4	12	0,7	9	0,5	16	1	0	0	0	0	43
	Other	16	1	15	1	24	1	29	2	1	0,07	1	0,07	86
10	Delta Ware	1	0,07	5	0,3	6	0,3	11	0,7	1	0,07	0	0	24
	Other	37	2	14	1	32	2	28	2	1	0,07	1	0,07	113
11	Delta Ware	2	0,1	2	0,1	1	0,07	2	0,1	1	0,07	0	0	8
	Other	27	1	10	0,6	16	1	19	1	2	0,1	2	0,1	76
12	Delta Ware	0	0	0	0	1	0,07	1	0,07	0	0	0	0	2
	Other	41	2	15	1	20	1	11	0,7	0	0	5	0,3	92
13	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	54	3	11	0,7	12	0,7	6	0,4	1	0,07	4	0,2	88
14	Delta Ware	0	0	0	0	1	0,07	0	0	0	0	0	0	1
	Other	36	2	13	1	9	0,5	8	0,5	0	0	6	0,4	72
15	Delta Ware	0	0	0	0	0	0	2	0,1	0	0	0	0	2
	Other	23	1	10	0,6	6	0,4	6	0,4	2	0,1	1	0,07	48
16	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	8	0,5	2	0,1	5	0,3	3	0,2	0	0	2	0,1	20
17	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	3	0,2	3	0,2	4	0,2	3	0,2	0	0	3	2	16
18	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	5	0,3	1	0,07	3	0,2	2	0,1	0	0	0	0	11
19	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	5	0,3	0	0	4	0,2	1	0,07	0	0	0	0	10
20	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	2	0,1	2	0,1	1	0,07	0	0	0	0	5
21	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	1	0,07	1	0,07	1	0,07	0	0	3
23	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	1	0,07	2	0,1	0	0	1	0,07	0	0	0	0	4
24	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	1	0,07	0	0	0	0	0	0	0	0	0	0	1
25	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	2	0,1	0	0	1	0,07	0	0	0	0	3
26	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	2	0,1	0	0	1	0,07	0	0	0	0	0	0	3
27	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	3	0,2	0	0	0	0	0	0	0	0	3
31	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	1	0,07	0	0	0	0	0	0	1
33	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	1	0,07	0	0	0	0	0	0	0	0	0	0	1
46	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	1	0,07	0	0	0	0	0	0	0	0	0	0	1
59	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	1	0,07	0	0	0	0	0	0	0	0	0	0	1
Total		300		180		594		403		17		26		1520

Table 6.21 Frequency Distribution of maximum rim thickness and vessel shapes, Unit C, Shoma

	Rim Diameter	6		8		10		12		14		16		18		20		22		24		26		28		30		32		34		36		38		40		42	
Max.R.T. (mm)		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
3	Delta Ware	0	0	0	0	0	0	0	0	3	0.2	2	0.1	7	0.5	2	0.1	3	0.2	1	0.07	2	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Delta Ware	0	0	2	0.1	3	0.2	5	0.3	17	1	28	2	13	1	11	1	4	0.3	2	0.1	2	0.1	1	0.07	0	0	0	0	1	0.07	1	0.07	0	0	0	0	1	0.07
	Other	0	0	0	0	1	0.07	0	0	2	0.1	4	0.3	1	0.07	2	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Delta Ware	2	0.1	2	0.1	10	0.7	12	0.8	33	2	32	2	25	2	18	1	6	0.4	2	0.1	1	0.07	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	1	0.07	2	0.1	2	0.1	6	0.4	0	0	9	0.6	5	0.3	3	0.2	3	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Delta Ware	2	0.1	6	0.4	10	0.7	11	0.8	29	2	22	1	14	1	9	0.6	3	0.2	4	0.3	6	0.4	1	0.07	2	0.1	0	0	0	0	0	0	0	0	0	0	0	0
	Other	1	0.07	3	0.2	2	0.1	9	0.6	6	0.4	15	1	7	0.5	11	1	2	0.1	1	0.07	3	0.2	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0
7	Delta Ware	0	0	4	0.3	4	0.3	4	0.3	19	1	9	0.6	11	1	12	1	4	0.3	4	0.3	2	0.1	2	0.1	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0
	Other	0	0	4	0.3	4	0.3	2	0.1	7	0.5	12	1	11	1	12	1	4	0.3	6	0.4	4	0.3	1	0.07	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0
8	Delta Ware	0	0	5	0.3	4	0.3	3	0.2	13	1	8	0.6	8	0.6	9	0.6	8	0.6	5	0.3	7	0.5	0	0	1	0.07	0	0	0	0	1	0.07	0	0	0	0	0	0
	Other	1	0.07	4	0.3	6	0.4	5	0.3	5	0.3	7	0.5	11	1	12	1	7	0.5	5	0.3	3	0.2	3	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Delta Ware	0	0	0	0	2	0.1	0	0	4	0.3	4	0.3	4	0.3	11	1	1	0.07	2	0.1	6	0.4	2	0.1	1	0.07	0	0	2	0.1	0	0	0	0	0	0	0	0
	Other	2	0.1	0	0	6	0.4	3	0.2	6	0.4	9	0.6	9	0.6	11	1	9	0.6	4	0.3	7	0.5	5	0.3	4	0.3	1	0.07	1	0.07	1	0.07	0	0	0	0	0	0
10	Delta Ware	0	0	0	0	1	0.07	0	0	0	0	3	0.2	4	0.3	2	0.1	3	0.2	3	0.2	3	0.2	0	0	0	0	1	0.07	0	0	1	0.07	0	0	0	0	0	0
	Other	1	0.07	1	0.07	4	0.3	1	0.07	6	0.4	9	0.6	12	1	21	1	14	1	7	0.5	6	0.4	4	0.3	2	0.1	0	0	2	0.1	0	0	2	0.1	2	0.1	0	0
11	Delta Ware	0	0	0	0	1	0.07	1	0.07	0	0	0	0	1	0.07	0	0	1	0.07	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	1	0.07	2	0.1	4	0.3	5	0.3	2	0.1	2	0.1	6	0.4	10	0.7	7	0.5	5	0.3	3	0.2	2	0.1	2	0.1	2	0.1	0	0	1	0.07	2	0.1	0	0
12	Delta Ware	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	2	0.1	0	0	2	0.1	1	0.07	3	0.2	5	0.3	6	0.4	5	0.3	13	1	4	0.3	10	0.7	9	0.6	2	0.1	3	0.2	0	0	4	0.3	2	0.1	3	0.2	1	0.07
13	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	1	0.07	1	0.07	2	0.1	1	0.07	8	0.6	6	0.4	11	1	4	0.3	15	1	10	0.7	3	0.2	5	0.3	2	0.1	1	0.07	4	0.3	0	0	1	0.07	2	0.1
14	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	1	0.07	3	0.2	6	0.4	3	0.2	4	0.3	7	0.5	3	0.2	10	0.7	8	0.6	4	0.3	4	0.3	2	0.1	0	0	0	0	1	0.07	1	0.07	1	0.07
15	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	1	0.07	0	0	0	0	0	0	1	0.07	5	0.3	4	0.3	7	0.5	6	0.4	1	0.07	4	0.3	5	0.3	2	0.1	0	0	0	0	0	0	2	0.1	0	0	1	0.07
16	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	1	0.07	2	0.1	1	0.07	1	0.07	1	0.07	0	0	4	0.3	2	0.1	0	0	1	0.07	2	0.1	0	0	0	0	1	0.07	0	0	0	0	0	0
17	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	1	0.07	0	0	1	0.07	1	0.07	4	0.3	0	0	2	0.1	1	0.07	0	0	1	0.07	0	0	0	0	1	0.07	0	0	0	0	1	0.07
18	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	1	0.07	1	0.07	0	0	0	0	1	0.07	0	0	1	0.07	2	0.1	0	0	2	0.1	0	0
19	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	2	0.1	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	1	0.07	2	0.1	2	0.1	0	0	0	0	0	0	0	0	1	0.07	0	0
20	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	1	0.07	1	0.07	1	0.07	0	0	0	0	0	0	0	0
21	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	1	0.07	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0
23	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	1	0.07	0	0	0	0
24	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0
25	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	2	0.1
26	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0
27	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07	0	0	0	0	0	0	0	0
33	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07
46	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07
59	Delta Ware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.07

Table 6.22 Frequency Distribution of maximum rim thickness and rim diameter, Unit C, Shoma

Rim Shapes	Rim Diam.	6 N	6 %	8 N	8 %	10 N	10 %	12 N	12 %	14 N	14 %	16 N	16 %	18 N	18 %	20 N	20 %
C	Horizon IA	0	0	0	0	0	0	0	0	1	0,07	1	0,07	1	0,07	1	0,07
	Horizon IB	0	0	0	0	0	0	0	0	1	0,07	1	0,07	1	0,07	0	0
	Horizon II	0	0	0	0	1	0,07	1	0,07	0	0	1	0,07	3	0,2	7	0,5
	Horizon IV	0	0	1	0,07	12	0,9	4	0,3	8	0,5	14	1	17	1	36	2
E	Horizon IA	1	0,07	6	0,4	7	0,5	10	0,7	15	1	15	1	21	1	11	1
	Horizon IB	1	0,07	7	0,5	3	0,2	5	0,3	17	1	33	2	15	1	5	0,3
	Horizon II	0	0	4	0,3	8	0,6	9	0,6	26	2	15	1	6	0,4	10	0,7
	Horizon IV	1	0,07	2	0,1	7	0,5	4	0,3	8	0,6	8	0,6	14	1	11	1
N	Horizon IA	0	0	0	0	0	0	0	0	0	0	0	0	1	0,07	1	0,07
	Horizon IB	0	0	0	0	0	0	1	0,07	0	0	0	0	0	0	0	0
	Horizon II	0	0	0	0	0	0	0	0	1	0,07	0	0	1	0,07	0	0
	Horizon IV	0	0	1	0,07	2	0,1	0	0	0	0	0	0	1	0,07	1	0,07
S	Horizon IA	1	0,07	6	0,4	3	0,2	5	0,3	6	0,4	4	0,3	5	0,3	6	0,4
	Horizon IB	1	0,07	2	0,1	8	0,6	7	0,5	16	1	16	1	12	1	13	1
	Horizon II	2	0,1	1	0,07	6	0,4	3	0,2	18	1	16	1	17	1	20	1
	Horizon IV	2	0,1	3	0,2	3	0,2	8	0,6	14	1	23	1	14	1	12	1
T	Horizon IA	1	0,07	0	0	0	0	0	0	0	0	0	0	0	0	1	0,07
	Horizon IB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,07
	Horizon IV	0	0	0	0	0	0	0	0	1	0,07	3	0,2	4	0,3	5	0,3
X	Horizon IA	1	0,07	2	0,1	4	0,3	7	0,5	16	1	23	1	21	1	26	2
	Horizon IB	0	0	0	0	1	0,07	1	0,07	3	0,2	4	0,3	3	0,2	1	0,07
	Horizon II	0	0	1	0,07	5	0,3	3	0,2	8	0,6	6	0,4	6	0,4	7	0,5
	Horizon IV	0	0	0	0	0	0	1	0,07	8	0,6	7	0,5	6	0,4	6	0,4
Y	Horizon IA	0	0	0	0	0	0	1	0,07	0	0	1	0,07	0	0	2	0,1
	Horizon IB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon IV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,07

Rim Shapes	Rim Diam.	22 N	22 %	24 N	24 %	26 N	26 %	28 N	28 %	30 N	30 %	32 N	32 %	34 N	34 %	36 N	36 %	38 N	38 %	40 N	40 %	42 N	42 %
C	Horizon IA	1	0,07	0	0	2	0,1	0	0	0	0	0	0	0	0	0	0	0	0	1	0,07	1	0,07
	Horizon IB	0	0	1	0,07	1	0,07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,07
	Horizon II	2	0,1	2	0,1	4	0,3	0	0	2	0,1	0	0	0	0	1	0,07	0	0	0	0	0	0
	Horizon IV	26	2	16	1	19	1	8	0,5	9	0,6	3	0,2	4	0,3	5	0,3	4	0,3	5	0,3	2	0,1
E	Horizon IA	13	1	3	0,2	6	0,4	1	0,07	0	0	0	0	1	0,07	1	0,07	0	0	0	0	1	0,07
	Horizon IB	1	0,07	3	0,2	4	0,3	0	0	2	0,1	0	0	1	0,07	0	0	0	0	0	0	0	0
	Horizon II	5	0,3	3	0,2	4	0,3	0	0	0	0	0	0	1	0,07	0	0	0	0	0	0	1	0,07
	Horizon IV	8	0,6	3	0,2	4	0,3	0	0	1	0,07	0	0	1	0,07	0	0	1	0,07	0	0	1	0,07
N	Horizon IA	0	0	0	0	0	0	1	0,07	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon IB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon II	0	0	1	0,07	0	0	0	0	1	0,07	1	0,07	0	0	0	0	0	0	0	0	0	0
	Horizon IV	2	0,1	1	0,07	1	0,07	1	0,07	0	0	0	0	0	0	1	0,07	0	0	1	0,07	0	0
S	Horizon IA	0	0	4	0,3	2	0,1	0	0	1	0,07	1	0,07	0	0	0	0	1	0,07	2	0,1	0	0
	Horizon IB	8	0,6	7	0,5	10	0,7	4	0,3	2	0,1	0	0	0	0	2	0,1	0	0	0	0	0	0
	Horizon II	9	0,6	10	0,7	10	0,7	3	0,2	6	0,4	0	0	2	0,1	4	0,3	0	0	0	0	1	0,07
	Horizon IV	17	1	18	1	12	1	17	1	6	0,4	5	0,3	1	0,07	3	0,2	3	0,2	1	0,07	0	0
T	Horizon IA	1	0,07	1	0,07	1	0,07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon IB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon II	0	0	0	0	0	0	0	0	1	0,07	1	0,07	0	0	0	0	0	0	0	0	1	0,07
	Horizon IV	2	0,1	5	0,3	4	0,3	2	0,1	1	0,07	0	0	1	0,07	0	0	2	0,1	0	0	0	0
X	Horizon IA	10	0,7	6	0,4	5	0,3	1	0,07	1	0,07	2	0,1	0	0	0	0	0	0	0	0	0	0
	Horizon IB	0	0	1	0,07	0	0	1	0,07	1	0,07	1	0,07	0	0	0	0	0	0	0	0	0	0
	Horizon II	0	0	2	0,1	0	0	1	0,07	1	0,07	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon IV	4	0,3	3	0,2	1	0,07	2	0,1	0	0	1	0,07	0	0	1	0,07	0	0	0	0	1	0,07
Y	Horizon IA	2	0,1	1	0,07	0	0	0	0	0	0	0	0	0	0	1	0,07	0	0	0	0	0	0
	Horizon IB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon IV	1	0,07	0	0	0	0	1	0,07	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 6.23 Frequency Distribution for rim diameter and rim shapes, Unit C, Shoma

6.5.3 Unit C - Level 3 Analysis

Level 3 of the analysis constitutes Munson's Maximum Independent Attribute Clusters as applied for the Dia assemblage. Before carrying out the analysis, I needed to decide which attributes these clusters should include. For this investigation I have chosen the following variables: Vessel Shape, Rim Shape, Delta Ware and Decoration Types. The latter have been re-coded into 30 types, which are based on the frequencies in all rim sherds from all excavations at Shoma. These codes have then been marked in the columns of the various pot zones. Figure 6.22 shows the variables and codes used for recording MaxIAC, which were recorded on an excel spreadsheet and then sorted for number of occurrences.

A. Sherd reference number (string)
B. Vessel Shape (1-6)
C. Rim Shape (33 variables)
D. Delta Ware (0/1)

Décor codes divided by pot zone
E. Lip
F. Neck/Collar
G. Superior
H. Middle
I. Interior

Décor codes based on frequencies in all rim sherds (Units A, B, D, F, G, H, K, P)
1. PFI-3
2. All other PFI
3. PFR-1, PFR-2 & PFR-3
4. PFR-5 & PFR-7
5. All other PFR
6. CR-6
7. CR-5
8. CR-4
9. CR-2 & CR-3
10. All other CR
11. All CI
12. PE-1
13. All other PE
14. CH
15. MCH
16. All SI
17. All PNC
18. MOE
19. Herb
20. Fil
21. Text
22. PA-1 & PA-2
23. PA-3, PA-4 & PA-5
24. All other PA
25. P-R-W
26. P-R-* & P-M-*
27. P-B-W
28. P-N-*
29. P-R-C
30. P-R-L
31. P-N-W
32. P-R-0
33. P-B-L
34. IWT
35. E-1
36. OI
37. Mperf
38. PI-1
00. Plain
99. Not Present

Excluded
All eroded
All having only L
All without precise rim type and vessel shape

Figure 6.22 Codes and variables for recording MaxIAC

Table 6.24 illustrates the results of Unit C's independent attribute clusters. I decided that a minimum of five counts is necessary to define a cluster (even though I left 'clusters' consisting of three and four counts in the table). I will illustrate the reading of such attribute clusters for each horizon.

Horizon IA

3-E3-DW0-L0-N0-S99-M99-I0 – straight vessel with an everted rim (Type E3, see Fig.6.2), non Delta fabric, with a plain surface on the lip and neck (superior and middle parts are missing, plain on the interior); 14 counts

3-X1-DW1-L0-N0-S99-M99-I0 – straight vessel with a thickened out-turned rim (Type X1, see Fig.6.2), Delta fabric, with a plain surface on the lip and neck (superior and middle parts are missing, plain on the interior); 5 counts

3-X2-DW1-L0-N0-S99-M99-I0 – straight vessel with a thickened out-turned rim (Type X2, see Fig.6.2), Delta fabric, with a plain surface on the lip and neck (superior and middle parts are missing, plain on the interior); 6 counts

4-X1-DW1-L0-N0-S0-M99-I0 – closed vessel with a thickened out-turned rim (Type X1, see Fig.6.2), Delta fabric, with a plain surface on the lip, neck and superior body parts (middle part is missing, plain on the interior); 7 counts

4-X1-DW1-L25-N0-S99-M99-I0 – closed vessel with a thickened out-turned rim (Type X1, see Fig.6.2), Delta fabric, red washed paint on the lip, plain on the neck (superior and middle body parts are missing, plain on the interior); 6 counts

Horizon IB

2-S1-DW1-L0-N0-S99-M99-I0 – open vessel with a simple rim (Type S1, see Fig.6.2), Delta fabric, with a plain surface on the lip and the neck (superior and middle parts are missing, plain on the interior); 8 counts

3-E1-DW1-L0-N0-S0-M0-I0 – straight vessel with an everted rim (Type E1, see Fig.6.2), Delta fabric, with a plain surface on the lip, neck, superior and middle body parts (plain on the interior); 5 counts

3-E2-DW1-L0-N0-S0-M99-I0 – straight vessel with an everted rim (Type E2, see Fig.6.2), Delta fabric, with a plain surface on the lip, neck and superior body parts (middle body part missing, plain on the interior); 5 counts

3-E2-DW1-L0-N0-S99-M99-I0 – same as previous cluster, except for a missing superior body part; 12 counts

3-E8A-DW1-L0-N0-S99-M99-I0 - straight vessel with an everted rim (Type E8A, see Fig.6.2), Delta fabric, with a plain surface on the lip and neck (superior and middle parts are missing, plain on the interior); 5 counts

3-E8B-DW1-L0-N0-S99-M99-I0 - straight vessel with an everted rim (Type E8B, see Fig.6.2), Delta fabric, with a plain surface on the lip and neck (superior and middle parts are missing, plain on the interior); 29 counts

3-E8B-DW1-L0-N6-S6-M99-I0 - straight vessel with an everted rim (Type E8B, see Fig.6.2), Delta fabric, with a plain surface on the lip, twisted cord roulette (CR-6) on the neck and superior body parts (middle part is missing, plain on the interior); 5 counts

3-E8B-DW1-L0-N8-S8-M99-I0 - straight vessel with an everted rim (Type E8B, see Fig.6.2), Delta fabric, with a plain surface on the lip, an unevenly twisted cord roulette (CR-8) on the neck and superior body parts (middle part is missing, plain on the interior); 12 counts

3-E8B-DW1-L0-N/C8*+18*-S8*+18*-M99-I0 – straight vessel with an everted rim (Type E8B, see Fig.6.2), Delta fabric, with a plain surface on the lip, accordion plaited strip roulette (CR-4) and multiple channels with dragged fingernail (MOE) superimposed on the neck and the superior body parts (middle part is missing, plain on the interior); 6 counts

3-E8B-DW1-L25-N0-S99-M99-I0 – straight vessel with an everted rim (Type E8B, see Fig.6.2), Delta fabric, with washed red paint on the lip and a plain surface on the neck (superior and middle parts are missing, plain on the interior); 5 counts

3-S1-DW1-L0-N0-S99-M99-I0 – straight vessel with a simple rim (Type S1, see Fig.6.2), Delta fabric, with a plain surface on the lip and the neck (superior and middle parts are missing, plain on the interior); 5 counts

3-S1-DW1-L0-N8-S8-M8-I0 – straight vessel with a simple rim (Type S1, see Fig.6.2), Delta fabric, with a plain surface on the lip and an unevenly twisted cord roulette on the superior and middle body parts (plain on the interior); 6 counts

3-S3-DW1-L0-N0-S99-M99-I0 – straight vessel with a simple rim (Type S3, see Fig.6.2), Delta fabric, with a plain surface on the lip and neck (superior and middle parts are missing, plain on the interior); 7 counts

4-E2-DW1-L0-N0-S0-M99-I0 – closed vessel with an everted rim (Type E2, see Fig.6.2), Delta fabric, with a plain surface on the lip, neck and superior body parts (middle part is missing, plain on the interior); 8 counts

4-S3-DW1-L0-N0-S0-M99-I0 – closed vessel with a simple rim (Type S3, see Fig.6.2), Delta fabric, with a plain surface on the lip, neck and superior body parts (middle part is missing, plain on the interior); 6 counts

Horizon II

1-C1-DW0-L0-N0-S99-M99-I0 – (wide open) potlid (Type C1, see Fig.6.2), no Delta fabric, with a plain surface on the lip and neck (superior and middle parts are missing, plain on the interior); 7 counts

Horizon IV

1-C1-DW0-L0-N0-S0/99-M0/99-I0 – (wide open) potlid (Type C1, see Fig.6.2), no Delta fabric, with a plain surface on the lip and neck as well as on the superior and middle parts (alternatively the superior and middle parts are missing, plain on the interior); 57 counts

1-C1-DW0-L0-N6-S6-M99-I0 - (wide open) potlid (Type C1, see Fig.6.2), no Delta fabric, with a plain surface on the lip and twisted cord roulette (CR-6) on the neck and superior body parts (middle part is missing, plain on the interior); 7 counts

1-C1-DW0-L0-N20-S20-M99-I0 - (wide open) potlid (Type C1, see Fig.6.2), no Delta fabric, with a plain surface on the lip and tightly applied net formed impressions (Fil-1) on the neck and superior body parts (middle part is missing, plain on the interior); 10 counts

1-C3-DW0-L0-N0-S0/99-M0/99-I0 – (wide open) potlid (Type C3, see Fig.6.2), no Delta fabric, with a plain surface on the lip, neck, superior and middle body parts (alternatively the superior and/or middle body parts are missing, plain on the interior); 39 counts

1-C3-DW0-L0-N10-S99-M99-I0 – (wide open) potlid (Type C3, see Fig.6.2), no Delta fabric, with a plain surface on the lip and unidentified cord roulette type (CR-10) on the neck (superior and middle body parts are missing, plain on the interior); 5 counts

1-S1-DW0-L0-N0-S0/99-M0/99-I0 – wide open vessel with a simple rim (Type S1, see Fig.6.2), no Delta fabric, with a plain surface on the lip and neck, superior and middle body parts (alternatively the superior and/or middle body parts are missing, plain on the interior); 20 counts

3-E1-DW0-L0-N0-S99-M99-I0 – straight vessel with an everted rim (Type E1, see Fig.6.2), no Delta fabric, with a plain surface on the lip and neck (superior and middle body parts are missing, plain on the interior); 7 counts

3-E8B-DW0-L0-N0-S99-M99-I0 – straight vessel with an everted rim (Type E8B, see Fig.6.2), no Delta fabric, with a plain surface on the lip and neck (superior and middle body parts are missing, plain on the interior); 7 counts

3-S1-DW0-L0-N0/14-S99-M99-I0 – straight vessel with a simple rim (Type S1, see Fig.6.2), no Delta fabric, with a plain surface on the lip and neck, alternatively with a single channel (CH) on the neck (superior and middle body parts are missing, plain on the interior); 12 counts

4-S1-DW0-L0-N0/14-S99-M99-I0 – closed vessel with a simple rim (Type S1, see Fig.6.2), no Delta fabric, with a plain surface on the lip and neck, alternatively with a single channel (CH) on the neck (superior and middle body parts are missing, plain on the interior); 16 counts

These results illustrate that Shoma's pottery assemblage provides limited amounts of diagnostic types, which are mostly characterised by clusters not exceeding more than 20 counts. On the contrary, these small 'cluster-sizes' suggest that Shoma's pottery seems to be relatively diverse. In other words, all identified vessel and rim shapes as well as surface treatment (burnish, slip) and decoration types have been found in association with each other, exhibiting an assorted ceramic collection with a diverse range of attributes. Moreover, each Horizon tends to be characterised by different trends (see following paragraphs). Indeed, it might be suggested that Shoma's pottery assemblage undermines the classic notion of typology as only thirty-one clusters, of between 5 and a maximum of 39 counts, have been identified. These clusters cover the four occupational horizons identified at Shoma, which makes this number even more insignificant in relation to the site's temporal depth.

The group, which carries the most exclusive imprints, is what has been called Delta fabric pottery - a dinstinctive category of thin-walled, finely prepared pottery. Illustrations of Delta Ware and other types according to occupational horizons can be consulted in Figures 6.23 - 6.30. In Horizon IA Delta fabric pottery tend to be burnished and red slipped. They are mainly characterised by straight and restricted vessel angles, mostly with thickened out-turned rims (Fig.6.23C). Delta fabric or not, they have plain surfaces, or alternatively, they show red cross-hatched paint on the neck, or cord roulettes (CR-6, CR-8, CR-10), also on the neck and the superior (and middle) body parts (Fig.6.23A-C).

Delta Ware continue to dominate in Horizon IB, though showing slight changes in comparison to the preceding period. They now exhibit mostly simple (Fig.6.24A-C) and everted rim shapes (see Fig.6.23) (in contrast to thickened out-turned rims), and a larger quantity of unrestricted vessel shapes. Surfaces are kept plain (Fig.6.25A) or might exhibit a single channel, red washed paint on the lip, twisted cord roulettes or superimposed motifs.

Horizon II is represented by five clusters, of which the largest only yields 7 counts. There is an appearance of potlids, T-rims (Fig.6.26B) and carinated vessels with inturned rims. The latter show incised décor types such as dragged linear comb (PE-1) above the carination. Potlids are mainly kept plain. There is only one cluster of Delta fabric pottery (3 counts), which signals a break of this diagnostic type by Horizon II (Fig.6.26A).

Horizon IV shows the strongest break in attribute clusters, especially in relation to Horizons IA and IB. There is a drastic increase of potlids, which are mostly dome-shaped (Fig.6.27). They have plain surfaces, or beginning at the neck they can exhibit twisted cord roulettes (CR-6), cord impressions (CI), single channels (CH) or net-formed impressions (Fil-1). Horizon IV is also characterised by an increase of T-rimed vessels, which are absent in Horizons IA and IB. T-rimmed pots have unrestricted or straight vessel openings (Fig.6.28C). One cluster reveals a punctate decoration type (PNC) on the lip. Alternatively, there is one cluster with a net-formed impression (Fil-1) on the neck. Carinated vessels also become more popular, mostly exhibiting simple rims, with or without burnished surfaces and a variety of décor types (Fig.6.28B). By now, Delta fabric pottery is reduced to three clusters, consisting of potlids and everted rimed vessels, which are all left plain. In contrast to Horizons IA and IB, Horizon IV does not have a single cluster of thickened out-turned rimmed vessels, and only has two clusters of everted rimmed vessels (in contrast to ten in Horizon IB).

Horizon	Form	Rim	Delta Ware	Lip	Neck/Collar	Superior	Middle	Interior	Number
IA	3	E3	0	0	0	99	99	0	14
IA	3	E6	0	0	0	99	99	0	3
IA	3	E9	0	0	0	99	99	0	3
IA	4	E3	0	0	0	99	99	0	3
IA	4	E3	0	0	6	6	99	0	3
IA	4	E9	0	0	0	99	99	0	3
IA	4	S1	0	0	0	99	99	0	3
IA	4	X1	0	0	0	99	99	0	3
IA	4	X2	0	0	0	99	99	0	3
IA	3	E3	1	0	0	0	0	0	4
IA	3	E8B	1	0	0	99	99	0	4
IA	3	E8B	1	0	8	99	99	0	3
IA	3	X1	1	0	0	99	99	0	5
IA	3	X1	1	25	0	99	99	0	3
IA	3	X2	1	0	0	99	99	0	6
IA	3	X2	1	25	8	99	99	0	4
IA	3	X5	1	0	0	99	99	0	3
IA	4	E9	1	0	6	6	99	0	3
IA	4	S3	1	0	0	0	99	0	3
IA	4	X1	1	0	0	0	99	0	7
IA	4	X1	1	0	10	99	99	0	3
IA	4	X1	1	25	0	99	99	0	6
IA	4	X1	1	25	10	99	99	0	3
IA	4	X2	1	25	0	99	99	0	3
IB	4	S3	0	0	8	8	99	0	3
IB	4	X1	0	25	0	99	99	0	3
IB	2	S1	1	0	0	8	8	0	3
IB	2	S1	1	0	0	99	99	0	8
IB	2	S1	1	0	8	8	8	0	4
IB	2	S1	1	0	12	8	8	0	3
IB	2	S2	1	0	0	8	99	0	3
IB	3	E1	1	0	0	0	0	0	5
IB	3	E2	1	0	0	0	99	0	5
IB	3	E2	1	0	0	99	99	0	12
IB	3	E8A	1	0	0	99	99	0	5
IB	3	E8B	1	0	0	0	99	0	3
IB	3	E8B	1	0	0	99	99	0	29
IB	3	E8B	1	0	6	6	99	0	5
IB	3	E8B	1	0	8	8	99	0	12
IB	3	E8B	1	0	10	99	99	0	3
IB	3	E8B	1	0	8*+18*	8*+18*	99	0	6
IB	3	E8B	1	25	0	99	99	0	5
IB	3	S1	1	0	0	8	99	0	3
IB	3	S1	1	0	0	99	99	0	5
IB	3	S1	1	0	8	8	8	0	6
IB	3	S3	1	0	0	0	99	0	4
IB	3	S3	1	0	0	99	99	0	7
IB	3	S3	1	0	14	99	99	0	3
IB	3	X1	1	25	0	99	99	0	3
IB	4	E2	1	0	0	0	99	0	8
IB	4	S3	1	0	0	0	99	0	6
IB	4	S3	1	0	0	8	99	0	3
IB	4	X1	1	25	0	99	99	0	4
II	1	C1	0	0	0	99	99	0	7
II	2	S1	0	0	0	99	99	0	4
II	3	E1	0	0	0	99	99	0	3
II	6	N1	0	0	0	12	23	0	3
II	4	S1	1	0	14	99	99	0	3
IV	1	C1	0	0	0	0	0	0	7
IV	1	C1	0	0	0	0	99	0	9
IV	1	C1	0	0	0	99	99	0	41
IV	1	C1	0	0	6	6	99	0	7
IV	1	C1	0	0	10	99	99	0	4
IV	1	C1	0	0	11	11	99	0	3
IV	1	C1	0	0	14	99	99	0	3
IV	1	C1	0	0	20	20	99	0	10
IV	1	C3	0	0	0	0	0	0	7
IV	1	C3	0	0	0	0	99	0	10
IV	1	C3	0	0	0	99	99	0	22
IV	1	C3	0	0	6	6	99	0	3
IV	1	C3	0	0	6	99	99	0	3
IV	1	C3	0	0	10	99	99	0	5
IV	1	C5	0	0	0	99	99	0	3
IV	1	S1	0	0	0	0	0	0	3
IV	2	S1	0	0	0	0	99	0	7
IV	2	S1	0	0	0	99	99	0	13
IV	2	S1	0	0	8	8	99	0	4
IV	2	T1	0	0	0	99	99	0	3
IV	2	T1	0	17	0	0	99	0	3
IV	3	E1	0	0	0	99	99	0	7
IV	3	E2	0	0	0	99	99	0	3
IV	3	E8B	0	0	0	99	99	0	7
IV	3	S1	0	0	0	99	99	0	6
IV	3	S1	0	0	14	99	99	0	6
IV	3	S2	0	0	0	99	99	0	3
IV	3	S2	0	0	14	0	99	0	4
IV	3	T1	0	0	20	99	99	0	3
IV	4	E2	0	0	0	99	99	0	3
IV	4	S1	0	0	0	0	0	0	3
IV	4	S1	0	0	0	0	99	0	4
IV	4	S1	0	0	0	99	99	0	8
IV	4	S1	0	0	14	99	99	0	8
IV	4	S2	0	0	0	99	99	0	4
IV	1	C3	1	0	0	99	99	0	3
IV	3	E8B	1	0	0	99	99	0	3
IV	4	E2	1	0	0	99	99	0	3

Table 6.24 Maximum independent attribute clusters for Unit C, Shoma

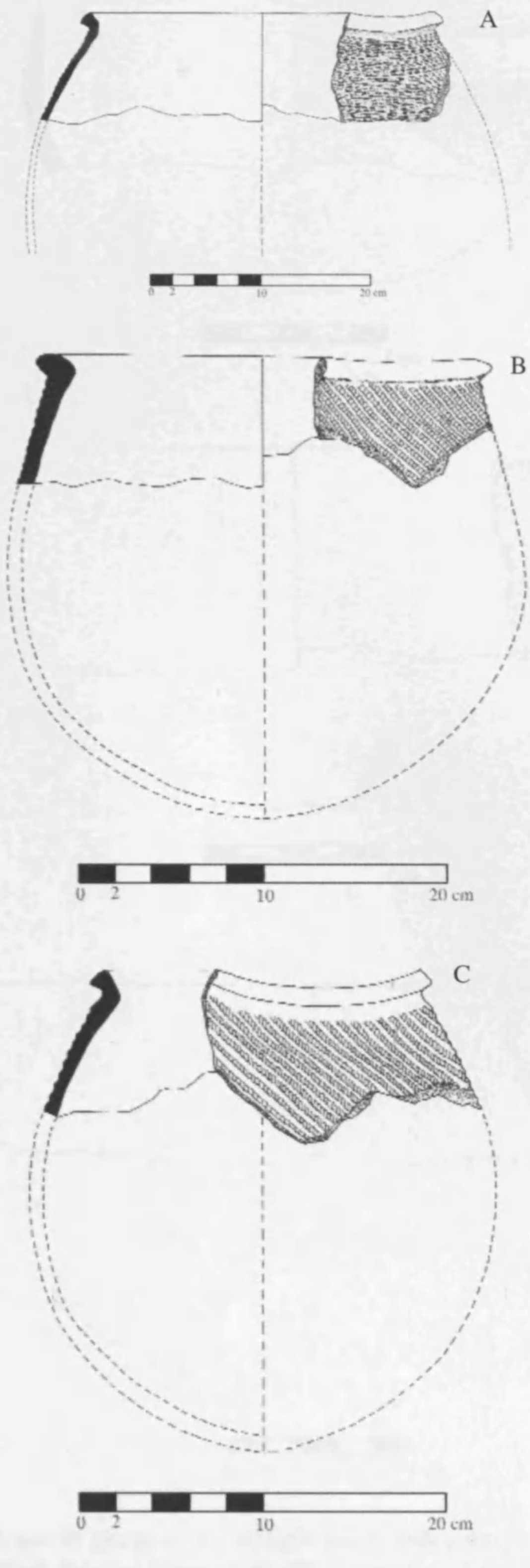


Figure 6.23 Horizons IA and IB (Shoma); A - Restricted vessel with an everted rim (Type E3), burnished surface (no slip) and twisted cord roulette (CR-6)
B - Restricted vessel with an everted rim (Type E9), Delta fabric, no slip and burnish, and twisted cord roulette (CR-6)
C - Restricted vessel with thickened out-turned rim (Type Y2), Delta fabric, burnished surface (no slip), twisted cord roulette (CR-6)

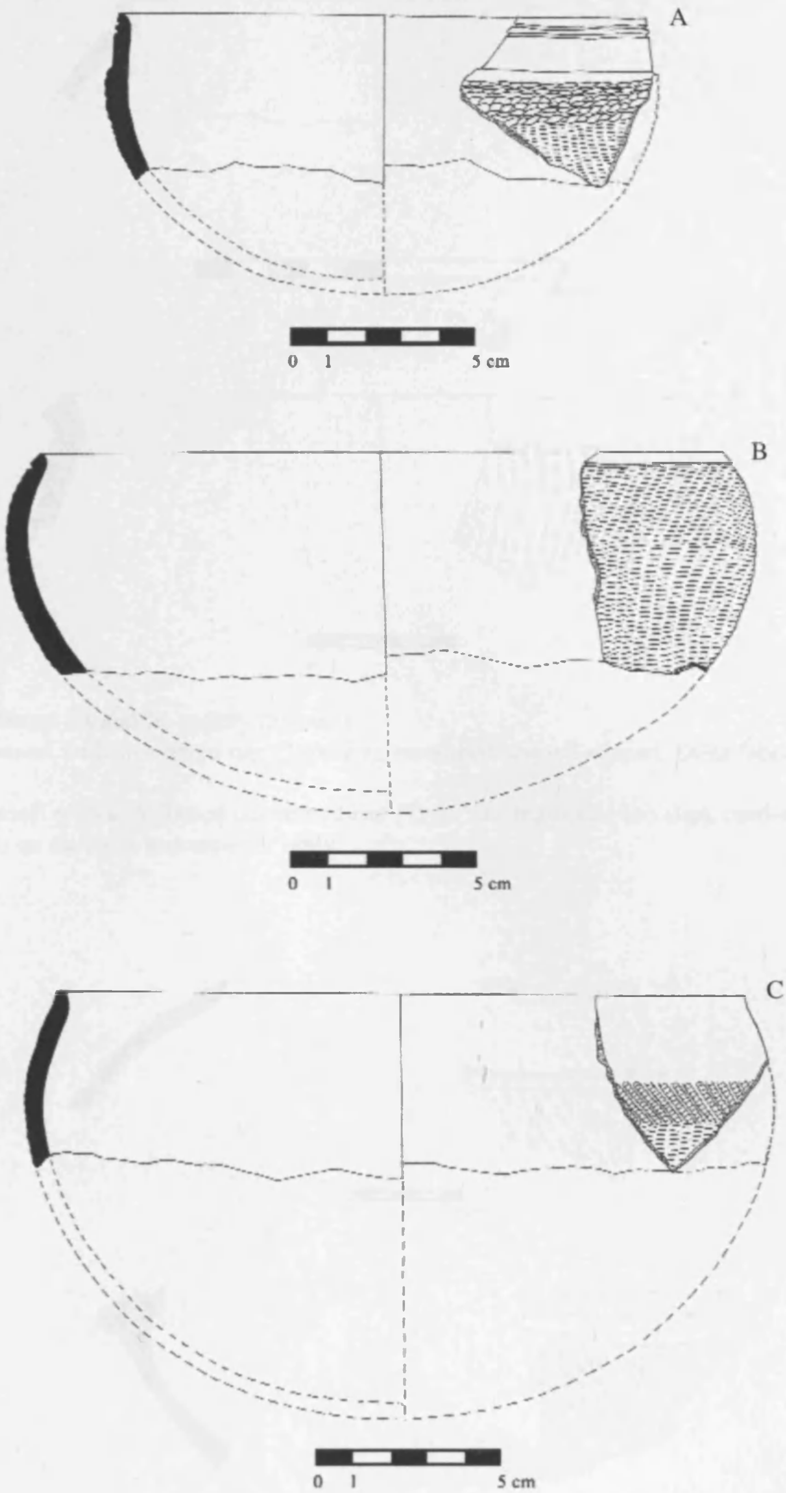


Figure 6.24 Horizons IA and IB (Shoma); A - Straight vessel with a simple rim (Type S1), burnished and red slipped, Delta fabric, dragged linear comb (PE-1) décor on the neck, cord-wrapped roulette (PFR-5) on the superior body and accordion pleat roulette (CR-4) on the middle body
B - Straight vessel with a simple rim (Type S3), burnished and red slipped, Delta fabric, single channel (CH) on the neck, cord-wrapped roulette (PFR-5) on the superior body and accordion pleat roulette on the middle body
C - Straight vessel with simple rim (Type S1), burnished surface (no slip), Delta fabric, double twisted cord roulette (CR-12) on the superior body and accordion pleat roulette on the middle body

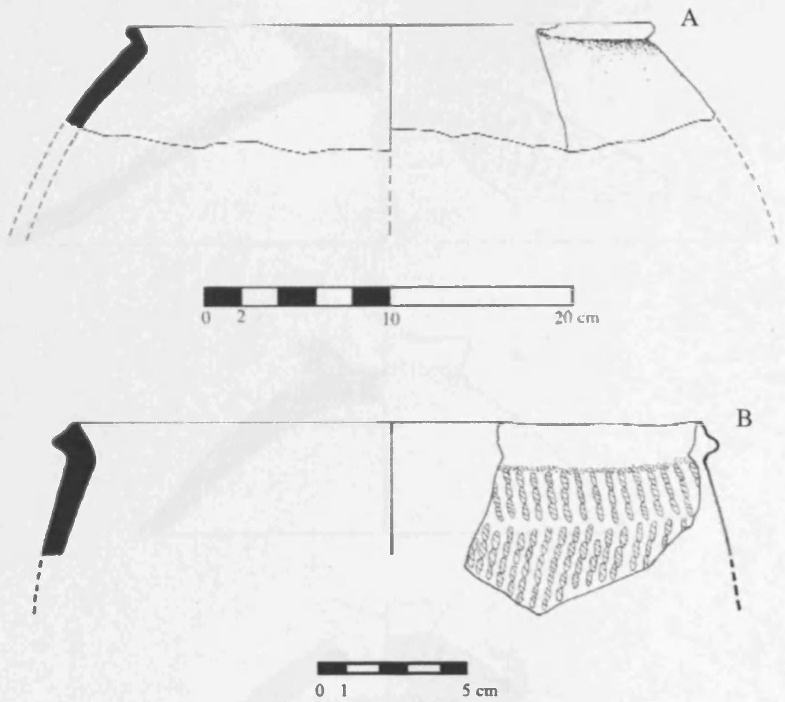


Figure 6.25 Horizons IA and IB pottery (Shoma)
A - Restricted vessel with an everted rim (Type E9), burnished and red slipped, Delta fabric, plain surface
B- Restricted vessel with a thickened out-turned rim (Type Y2), burnished (no slip), cord-wrapped roulette (PFR-3) on the neck and superior body

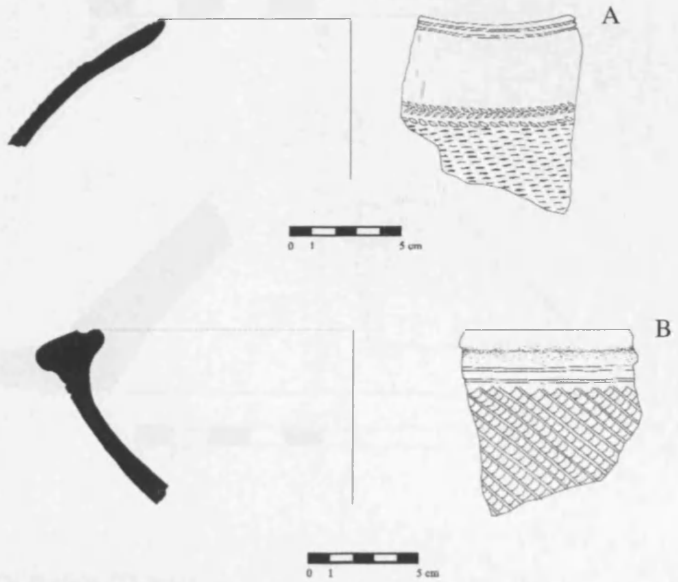


Figure 6.26 Horizon II pottery (Shoma)
A - Tightly closed vessel with a simple rim (Type S3), burnished (no slip), Delta fabric, multiple channels on the neck, cord-wrapped roulette (PFR-5) on the superior body and accordion pleat roulette on the middle body
B - Unrestricted vessel with a T-rim (Type T1), burnished (no slip), multiple channels on the neck and twisted cord roulette on the superior and middle body

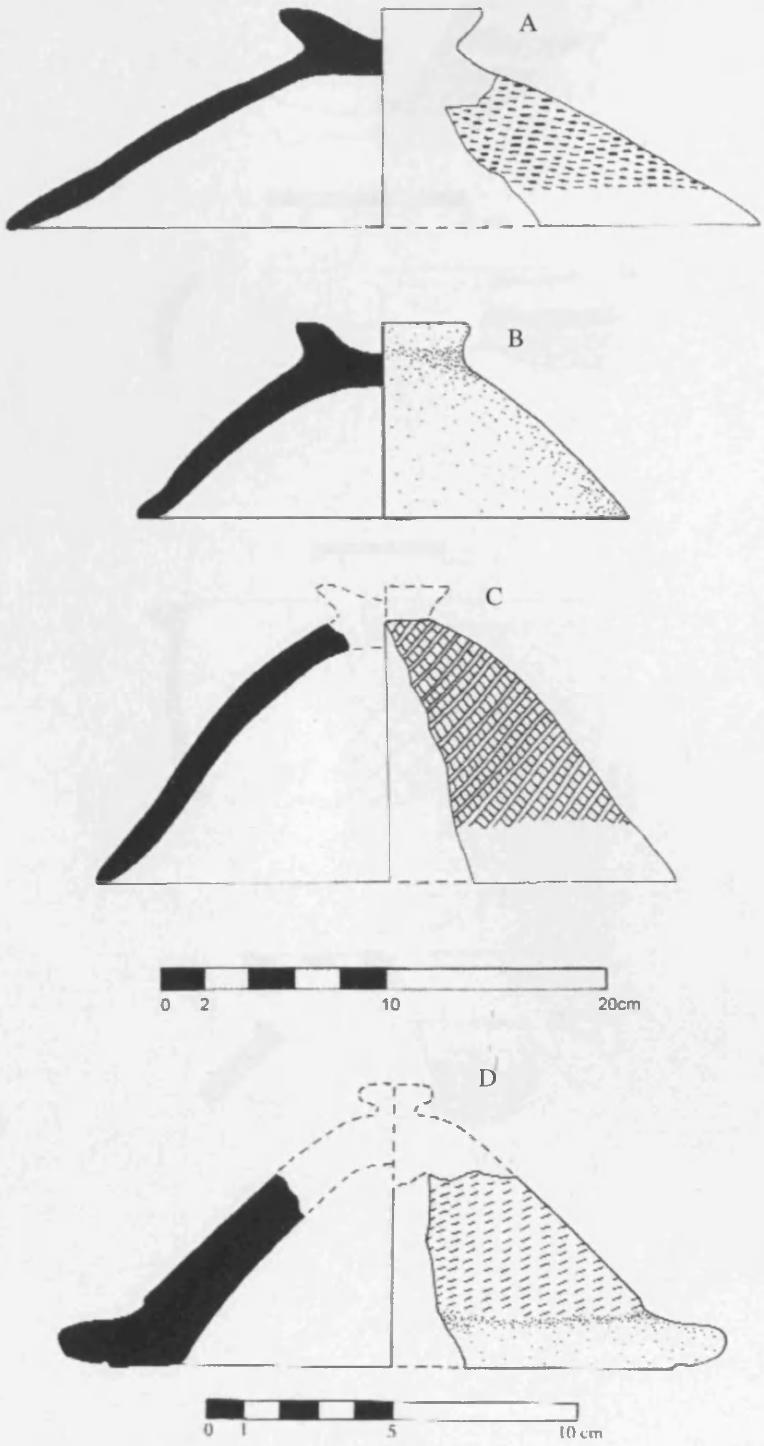


Figure 6.27 Horizon IV Potlids (Shoma)
A - Potlid (Type C1), no burnish, no slip, accordion pleat roulette on the superior and middle body
B -Potlid (Type C4), red slipped (no burnish), plain surface
C - Potlid (Type C3), red slipped (no burnish), twisted cord roulette on the superior and middle body
D - Potlid (Type C5), no burnish, no slip, accordion pleat roulette on the interior of the lip and on the superior and middle body

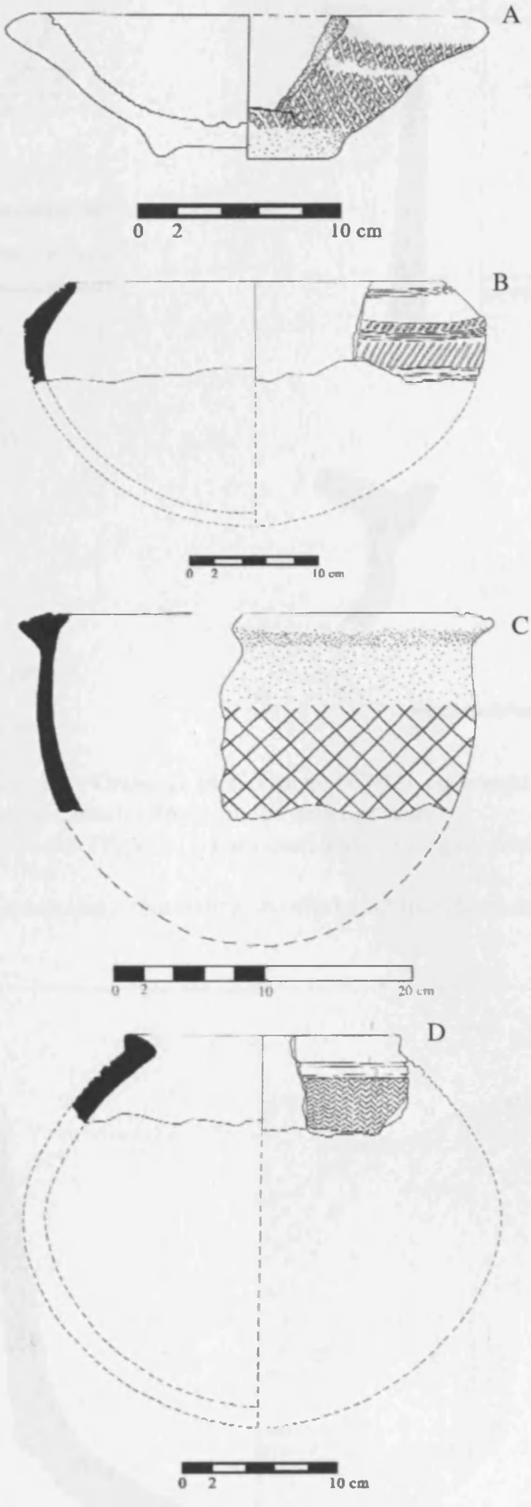


Figure 6.28 Horizon IV pottery (Shoma); A - Wide-open plate or dish with a thickened out-turned rim (Type X8), no burnish, no slip, twisted cord roulette (CR-6) on the superior and middle body
B - Restricted carinated vessel with a simple rim (Type S1), no burnish, no slip, multiple channels (MCH) on the neck, cord impressed in a row (CI-2) and multiple channels (MCH) on the carination, accordion pleat roulette (CR-4) and multiple channels (MCH) on the middle body
C - Straight vessel with a T-rim (Type T1), burnished and red-slipped surface, tightly applied net impression (Fil-1) on the superior and middle body
D - Restricted vessel with an everted rim (Type E3), burnished (no slip), multiple channels (MCH) and tightly applied net impression (Fil-1) on the superior body

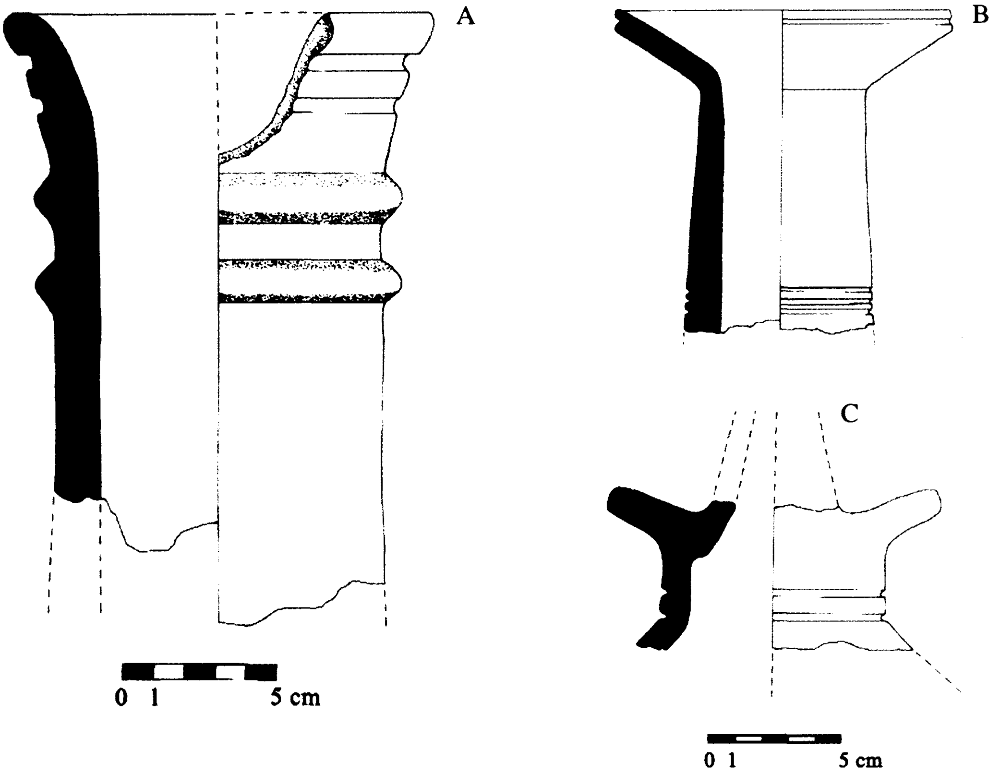


Figure 6.29 Horizon IV, Shoma A - Drainage pipe (Context C043), no burnish, red slipped, multiple channels on the neck and applied bands (PA-3) on the superior body
B - Bottleneck with an everted rim (Type E7), burnished and red slipped, multiple channels (MCH) on the middle body
C - Collar of a bottle (rim is missing), burnished (no slip), multiple channels on the middle body

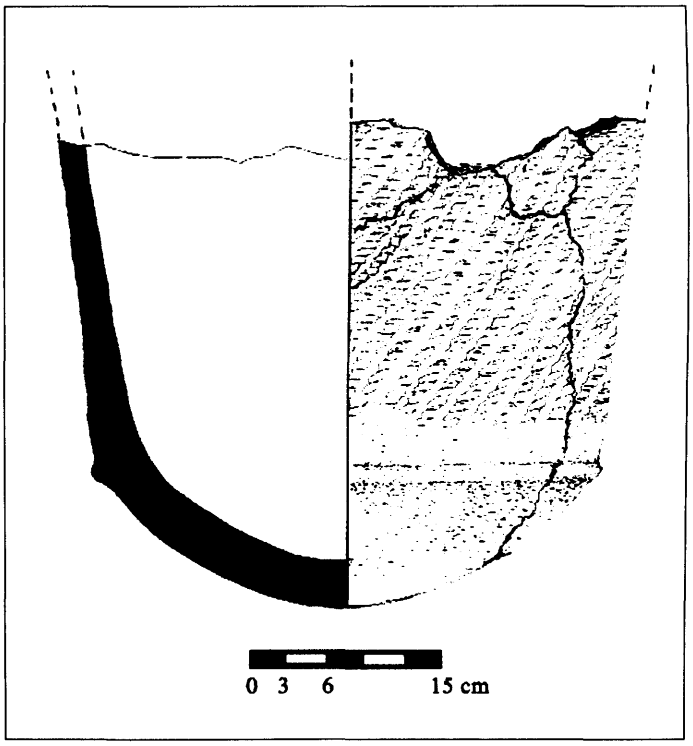


Figure 6.30 Potbase (Type F5), no burnish, no slip, twisted cord roulette (CR-6) on the middle body (Horizon IV, Shoma)

6.5.4 Mara (Units M, Q and S)

In contrast to Shoma, Mara's occupation began at the second half of the first millennium AD (Horizon III) and lasted until the 18th or 19th century (Horizon V). It should also be emphasized that Mara's occupational horizons have yielded highly unequal quantities of pottery. In Horizon III 322 rim sherds and 1642 body sherds have been identified, in contrast to 800 rim sherds and 6844 body sherds in Horizon IV, and only 85 rim sherds and 520 body sherds in Horizon V. Horizon's IV immense quantity of pottery is largely due to a single context in Unit S (S042), which yielded several layers of horizontally lying pottery spread out on a surface of 3x4 m (see Chapter 5). As a result, it might be suggested that Mara's unequal distribution of pottery might be linked to specific depositional events, such as context S042, and the site's differential intensity of occupation, which rose steadily until the end of Horizon IV. In spite of these unbalanced samples, all of the recovered pottery has been used in the analysis.

6.5.5 Mara – Level 1 Analysis

Due to its later occupation, only a handful of Delta ware sherds have been identified at Mara. They amount to less than 1% for rim and body sherds (Tables 6.25 and 6.26), which indicates that they were probably brought over from the neighbouring site.

The application of red slip seems to have been quite popular at Mara, especially on the lip and collar/neck portion of pots (Table 6.27). Red slipped rim sherds amount to 89% in Horizon III, to 76% in Horizon IV and to 95% in Horizon V. Body sherds, in contrast feature less red slip, decreasing from 65% in Horizon III to 41% in Horizon V (Table 6.28).

The majority of vessels were burnished. They amount to 91% in Horizon III, slightly decreasing to 83% in Horizon IV. In Horizon V they increase to 90% (Table 6.29).

In contrast to Shoma, Mara's ceramic assemblage shows thicker vessel walls (Table 6.30). In Horizon III they mostly range between 0,8 cm and 1,8 cm. In Horizon IV the wall thickness increases to 2,8 cm, and decreases in Horizon V to a mean range of 1,2 cm. As a result, it might be suggested that heavy vessels were relatively common at Mara, probably serving for storage purposes or as water containers (*jidaga*).

The most common rim shapes consist of potlids (35%), simple (22%) and everted rims (20%) (Table 6.31). In contrast to Shoma, inturned rims seem to have been quite popular at Mara, of which 9% have been identified. Other, less common rim types include thickened out-turned (7%), T- (4%) and ledged rims (1%). Horizon III mostly features potlids (48%), simple rims (22%) and inturned rims (15%). In Horizon IV, the latter decrease to 8%, and pot lids too, which decrease to 37%, while simple rims increase to 26%. Everted rims significantly increase from 6% in Horizon III to 14% in Horizons IV and V. The most common types in Horizon V are simple rims (32%) and potlids (26%). There is also a marked increase of thickened out-tunred rims to 17%. Inturned rims slightly increase to 11%, and T- and ledged-rims disappear completely.

In Horizon III the dominant vessel shapes consist of open (unrestricted) vessels (65%) (Table 6.32). Horizon IV shows more diversity as straight vessels increase to 27% and closed or restricted vessels to 15%. Nevertheless, unrestricted vessels continue to provide the majority (20% for wide-open and 29% for open vessels). In Horizon V straight and unrestricted vessels continue to be the most common types (40% and 38% respectively), while restricted vessels slightly decrease to 13%.

Rim diameters are also generally larger at Mara than at Shoma, ranging between 24 cm and 30 cm in Horizon III (Table 6.33). There is also a considerable number of vessels with rim diameters ranging between 40 cm (6%) and 42 cm (5%), indicating the presence of large containers used for storage. Rim diameters slightly decrease in Horizon IV, ranging between 20 cm and 22 cm. In Horizon V they slightly increase between 24 cm and 28 cm.

The most common decoration types on rim sherds consist of the following (Table 6.34). In Horizons III and IV they mostly exhibit single and multiple channels, accordion plaited strip roulettes, simple twisted cord roulettes, net-impressions, linear comb, and plain surfaces. Horizon V, in contrast, is characterised by a marked increase of paint such as red washed and black horizontal lines. The latter, however, need to be viewed with caution due to the small pottery sample of Horizon V. Decoration types on body sherds show more or less the same patterns, except for the painted motifs, which are mostly reserved for the upper portions of the vessels (Table 6.35).

A striking difference between Shoma's and Mara's pottery assemblages is the number of motifs present on one pot. Mara's pottery may exhibit up to five motifs (Tables 6.36 and 6.37), in contrast to Shoma's pottery, where there are never more than three motifs (see Tables 6.16 and 6.17). Mara's trend of applying several decorative motifs might have resulted from a desire of the potters to differentiate themselves from their neighbours, which might also be indicated by the use of stamping (E1) and organic roulettes (IWT and VPR). The latter are absent at Shoma.

Table 6.38 illustrates the types of bases present at Mara, which mostly consist of the raised foot types (F1-4, F6-13). In contrast to Shoma flat bases have also been identified (F5), in limited numbers however. Rounded bases have only been identified in association with intact vessels due to the difficulty of distinguishing the base from the side in case of broken sherds. However, there must have been a considerable quantity of rounded bases also at Mara as they have been identified on most of the intact vessels.

Mara	Horizon III		Horizon IV		Horizon V		Total	
Delta Ware	N	%	N	%	N	%	N	%
1	2	0,6	3	0,3	0	0	5	0,4
0	310	99	802	99	85	100	1197	99
Total	312		805		85		1202	

Table 6.25 Frequency Distribution for Delta Ware, Units M, S, Q, Mara (Rim sherds only)

Mara	Horizon III		Horizon IV		Horizon V		Total	
Delta Ware	N	%	N	%	N	%	N	%
1	2	0,12	17	0,26	3	0,58	22	0,25
0	1635	100	6498	100	517	99	8650	100
Total	1637		6515		520		8672	

Table 6.26 Frequency Distribution for Delta Ware, Units M, S, Q, Mara (Body sherds only)

Mara	Horizon III		Horizon IV		Horizon V		Total	
Red Slip	N	%	N	%	N	%	N	%
0	35	11	200	23	4	4	239	19
1	282	89	641	76	81	95	1004	80
Total	317		841		85		1243	

Table 6.27 Frequency Distribution for red slip on rim sherds, Units M, S, Q, Mara

Mara	Horizon III		Horizon IV		Horizon V		Total	
Red Slip	N	%	N	%	N	%	N	%
0	565	34	2419	35	306	59	3290	37
1	1074	65	4357	64	213	41	5644	63
Total	1639		6776		519		8934	

Table 6.28 Frequency Distribution for red slip on body sherds, Units M, Q, S, Mara

Mara	Horizon III		Horizon IV		Horizon V		Total	
Burnish	N	%	N	%	N	%	N	%
0	24	8	81	17	37	10	142	13
1	264	91	394	83	306	90	964	87
Total	288		475		343		1106	

Table 6.29 Frequency Distribution for burnish, Units M, Q, S, Mara

Mara	Horizon III		Horizon IV		Horizon V		Total	
Max.R.T.	**N**	%	**N**	%	**N**	%	**N**	%
0,4	0	0	2	0,2	1	1	3	0,2
0,5	1	0,3	1	0,1	0	0	2	0,1
0,6	3	1	8	1	0	0	11	1
0,7	4	1	5	0,6	1	1	10	1
0,8	11	3	17	2	0	0	28	2
0,9	19	6	37	4	3	3	59	5
1	17	5	63	7	3	3	83	7
1,1	31	10	82	10	7	7	120	10
1,2	37	12	89	11	13	14	139	11
1,3	48	15	114	14	9	9	171	14
1,4	40	12	69	8	8	8	117	9
1,5	36	11	56	7	7	7	99	8
1,6	22	7	40	5	9	9	71	6
1,7	13	4	26	3	3	3	42	3
1,8	11	3	26	3	2	2	39	3
1,9	1	0,3	26	3	2	2	29	2
2	4	1	20	2	2	2	26	2
2,1	2	0,6	15	2	1	1	18	1
2,2	1	0,3	20	2	3	3	24	2
2,3	0	0	7	1	0	0	7	0,5
2,4	3	1	6	0,7	2	2	11	1
2,5	2	0,6	12	1	1	1	15	1
2,6	0	0	15	2	4	4	19	1
2,7	1	0,3	7	1	1	1	9	0,7
2,8	2	0,6	15	2	8	8	25	2
2,9	1	0,3	6	0,7	0	0	7	0,5
3	0	0	4	0,4	0	0	4	0,3
3,1	0	0	3	0,3	1	1	4	0,3
3,2	2	0,6	4	0,4	0	0	6	0,4
3,3	0	0	2	0,2	0	0	2	0,1
3,4	0	0	2	0,2	0	0	2	0,1
3,5	0	0	1	0,1	0	0	1	0,08
3,6	0	0	3	0,3	0	0	3	0,2
3,7	0	0	1	0,1	0	0	1	0,08
3,8	1	0,3	1	0,1	1	1	3	0,2
4	0	0	2	0,2	0	0	2	0,1
4,2	0	0	3	0,3	0	0	3	0,2
Total	313		810		92		1215	

Table 6.30 Frequency Distribution for maximum rim thickness, Units M, Q, S, Mara

Potlids	C1		C2		C3		C4		C5		Total C	
	N	%	N	%	N	%	N	%	N	%	N	%
Horizon V	5	6	0	0	17	20	0	0	0	0	22	26
Horizon IV	169	22	9	1	103	13	4	1	4	1	289	37
Horizon III	59	19	3	1	88	28	1	0	0	0	151	48
Total	233	18	12	1	208	16	5	0	4	0	462	35

Everted	E1		E2		E3		E4		E5		E6		E7		E8A		E8B		E9		E10		Total E	
Rims	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Horizon V	1	1	0	0	3	4	0	0	0	0	5	6	2	2	0	0	0	0	1	1	0	0	12	14
Horizon IV	8	1	21	3	14	2	5	1	1	0	23	3	2	0	3	0	9	1	11	1	14	2	111	14
Horizon III	2	1	3	1	1	0	0	0	0	0	7	2	1	0	1	0	1	0	2	1	1	0	19	6
Total	11	1	24	2	18	1	5	0	1	0	35	3	5	0	4	0	10	1	14	1	15	1	265	20

Inturned	N1		Total N	
Rims	N	%	N	%
Horizon V	9	11	9	11
Horizon IV	65	21	65	8
Horizon III	47	15	47	15
Total	121	9	121	9

Simple	S1		S2		S3		S4A		S4B		Total S	
Rims	N	%	N	%	N	%	N	%	N	%	N	%
Horizon V	25	30	1	1	0	0	1	1	0	0	27	32
Horizon IV	153	20	26	3	10	1	8	1	3	0	200	26
Horizon III	50	16	14	0	3	1	0	0	1	0	68	22
Total	228	17	41	3	13	1	9	1	4	0	295	22

T-Rims	T1		Total T	
	N	%	N	%
Horizon V	0	0	0	0
Horizon IV	42	5	42	5
Horizon III	12	4	12	4
Total	54	4	54	4

X-Rims	X1		X2		X3		X4		X5		X7		X8		Total X	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Horizon V	0	0	2	2	2	2	0	0	9	11	0	0	1	1	14	17
Horizon IV	1	0	3	0	11	1	5	1	14	2	5	1	28	4	67	9
Horizon III	0	0	2	1	2	1	2	1	6	2	0	0	1	0	13	4
Total	1	0	7	1	15	1	7	1	29	2	5	0	30	2	94	7

Y-Rims	Y1		Y2		Y3		Total Y	
	N	%	N	%	N	%	N	%
Horizon V	0	0	0	0	0	0	0	0
Horizon IV	5	1	3	0	0	0	8	1
Horizon III	3	1	0	0	2	1	5	2
Total	8	1	3	0	2	0	13	1

Table 6.31 Frequency Distribution of rim shapes, Units M, Q, S, Mara

Vessel	Horizon III		Horizon IV		Horizon V		Total	
Shapes	N	%	N	%	N	%	N	%
1 wide open	24	8	161	20	6	7	191	16
2 open	202	65	230	29	32	38	464	38
3 straight	34	11	216	27	34	40	284	23
4 closed	35	11	120	15	11	13	166	13
5 tightly closed	6	2	18	2	2	2	26	2
6 carinated	12	4	49	6	0	0	61	5
7 bottles	0	0	3	0	0	0	3	0,2
Total	313		797		85		1,195	

Table 6.32 Frequency Distribution of Vessel Shapes, Units M, Q, S, Mara

Rim Diameters	Horizon III		Horizon IV		Horizon V		Total	
Mara	N	%	N	%	N	%	N	%
4	3	1	3	0,4	2	2	8	0,6
6	2	0,7	18	2	0	0	20	1
8	1	0,3	11	1	1	1	13	1
10	1	0,3	10	1	0	0	11	1
12	8	3	29	4	3	4	40	3
14	5	2	40	5	3	4	48	4
16	11	4	58	7	3	4	72	6
18	14	5	66	9	8	11	88	7
20	24	9	143	19	5	6	172	14
22	21	8	77	10	6	8	104	8
24	29	11	55	7	10	13	94	8
26	25	9	65	8	11	15	191	16
28	17	6	42	5	8	11	67	5
30	29	11	45	6	5	6	79	6
32	14	5	18	2	7	9	39	3
34	14	5	20	2	0	0	34	3
36	11	4	19	2	1	1	31	2
38	9	3	12	1	0	0	21	1
40	17	6	14	2	2	2	33	2
42	14	5	7	1	1	1	22	2
Total	266		749		74		1187	

Table 6.33 Frequency Distribution of rim dimeter, Units M, S, Q, Mara

Mara	Horizon III		Horizon IV		Horizon V		Total	
Decoration	N	%	N	%	N	%	N	%
CH	29	6	135	12	30	23	194	12
CI-1	2	0,4	1	0,09	0	0	3	0,1
CI-2	0	0	5	0,4	2	1	7	0,4
CI-5	0	0	2	0,1	0	0	2	0,1
CR-0	7	1	16	1	1	0,7	24	1
CR-2	0	0	5	0,4	0	0	5	0,3
CR-3	7	1	4	0,3	2	1	13	0,8
CR-4	46	11	65	6	4	3	115	7
CR-6	25	6	88	8	6	4	119	7
CR-8	0	0	2	0,1	0	0	2	0,1
DI	0	0	8	0,7	0	0	8	0,5
E1	0	0	1	0,09	0	0	1	0,06
FIL-1	28	6	88	8	4	3	120	7
IWT	0	0	2	0,1	0	0	2	0,1
IWT-2	1	0,2	0	0	0	0	1	0,06
Mperf	1	0,2	2	0,1	0	0	3	0,1
MCH	16	3	113	10	13	10	142	8
MOE	47	11	29	2	2	1	78	4
PA-0	0	0	6	0,5	0	0	6	0,3
PA-3	6	1	29	2	0	0	35	2
PA-4	3	0,7	22	2	0	0	25	1
PA-5	0	0	22	2	3	2	25	1
PA-9	0	0	2	0,1	0	0	2	0,1
PA-10	0	0	2	0,1	0	0	2	0,1
P-B-L	8	2	18	1	6	4	32	2
P-B-R	1	0,2	1	0,09	0	0	2	0,1
P-B-W	4	1	7	0,6	1	0,7	12	0,7
P-N-L	5	1	15	1	13	10	33	2
P-N-R	0	0	1	0,09	0	0	1	0,06
P-N-W	0	0	6	0,5	1	0,7	7	0,4
P-R-L	0	0	1	0,09	0	0	1	0,06
P-R-W	0	0	2	0,1	6	4	8	0,5
PE-1	133	31	161	15	21	16	315	19
PE-2	12	2	9	0,8	0	0	21	1
PE-4	1	0,2	4	0,3	0	0	5	0,3
PI-1	1	0,2	0	0	0	0	1	0,06
PI-2	0	0	1	0,09	0	0	1	0,06
PLAIN	32	7	160	15	12	9	204	12
PFR-1	3	0,7	0	0	0	0	3	0,1
PFR-5	0	0	1	0,09	0	0	1	0,06
PFR-7	0	0	1	0,09	0	0	1	0,06
PNC-1	2	0,4	3	0,2	0	0	5	0,3
PNC-2	2	0,4	10	1	0	0	12	0,7
SI-2	0	0	2	0,1	0	0	2	0,1
SI-3	0	0	10	1	0	0	10	0,6
SI-4	0	0	1	0,09	1	0,7	2	0,1
SI-5	0	0	3	0,2	0	0	3	0,1
TOTAL	422		1066		128		1616	

Table 6.34 Frequency Distribution of decoration types (rim sherds only), Units M, S, Q (Mara)

Decoration	Horizon III		Horizon IV		Horizon V		Total	
Mara	N	%	N	%	N	%	N	%
CH	21	1	238	3	23	4	282	3
CI-2	2	0,1	22	0,3	1	0,1	25	0,2
CI-5	1	0,07	0	0	0	0	1	0,01
CR-0	8	0,5	71	1	16	3	95	1
CR-2	5	0,3	15	0,2	1	0,1	21	0,2
CR-3	20	1	80	1	31	5	131	1
CR-4	214	14	1712	23	224	407	2150	23
CR-5	6	0,3	18	0,2	0	0	14	0,1
CR-6	254	16	997	13	21	4	1272	13
CR-8	3	0,2	10	0,1	0	0	13	0,1
CR-10	0	0	13	0,1	3	0,5	16	0,1
CR-12	2	0,1	1	0,01	0	0	3	0,03
E1	1	0,07	2	0,03	0	0	3	0,03
FIL-1	149	9	898	12	19	3	1066	11
IWT-2	2	0,1	2	0,03	0	0	4	0,04
IWT-3	1	0,07	0	0	0	0	1	0,01
MCH	20	1	271	3	23	4	314	3
Mperf	1	0,07	9	0,1	0	0	10	0,1
MOE	43	2	79	1	0	0	122	1
NATTE	0	0	9	0,1	0	0	9	0,1
OE	0	0	16	0,2	0	0	16	0,1
PA-0	0	0	10	0,1	0	0	10	0,1
PA-3	33	2	64	1	4	0,7	101	1
PA-4	13	0,8	55	0,7	1	0,1	69	0,7
PA-5	8	0,5	63	1	1	0,1	72	0,7
P-B-W	30	2	17	0,2	0	0	47	0,5
P-B-0	24	1	19	0,2	0	0	43	0,4
P-R-W	2	0,1	3	0,04	0	0	5	0,05
P-N-C	0	0	3	0,04	0	0	3	0,03
P-N-L	9	0,5	19	0,2	1	0,1	29	0,3
P-N-W	3	0,2	20	0,2	0	0	23	0,2
PE-1	326	21	955	13	51	9	1332	14
PE-2	7	0,4	17	0,2	1	0,1	25	0,2
PE-3	3	0,2	13	0,1	1	0,1	17	0,1
PE-4	17	1	1	0,01	0	0	18	0,1
PFI-1	14	1	21	0,2	1	0,1	36	0,3
PFI-2	0	0	1	0,01	0	0	1	0,01
PFI-3	1	0,07	36	0,4	0	0	37	0,3
PFI-4	0	0	3	0,04	0	0	3	0,03
PFR-2	1	0,07	5	0,07	0	0	6	0,06
PFR-3	0	0	3	0,04	0	0	3	0,03
PFR-4	0	0	4	0,05	0	0	4	0,04
PFR-5	1	0,07	12	0,1	0	0	13	0,1
PFR-6	0	0	1	0,01	0	0	1	0,01
PFR-8	0	0	1	0,01	0	0	1	0,01
PLAIN	280	18	1446	20	126	23	1852	19
PNC-1	2	0,1	3	0,04	0	0	5	0,05
PNC-2	0	0	1	0,01	0	0	1	0,01
SI-2	4	0,2	7	0,1	0	0	11	0,1
SI-3	0	0	8	0,1	0	0	8	0,09
SI-4	2	0,1	9	0,1	1	0,1	12	0,1
SI-5	1	0,07	1	0,01	0	0	2	0,02
VPR	2	0,1	3	0,04	0	0	5	0,05
Total	1536		7287		550		9373	

Table 6.35 Frequency Distribution of decoration types (body sherds only), Units M, S, Q (Mara)

Decoration	Horizon III		Horizon IV		Horizon V		Total	
Mara	N	%	N	%	N	%	N	%
1 Motif	181	57	572	70	61	71	814	67
2 Motifs	78	24	158	19	11	13	247	20
3 Motifs	33	10	45	5	10	11	88	7
4 Motifs	22	7	23	3	2	2	47	4
5 Motifs	2	0,6	8	1	1	1	11	1
6 Motifs	0	0	3	0,3	0	0	3	0,2
Total	316		809		85		1210	

Table 6.36 Frequency Distribution of number of motifs present (rim sherds only) Units M, Q, S, Mara

Decoration	Horizon III		Horizon IV		Horizon V		Total	
Mara	N	%	N	%	N	%	N	%
1 Motif	1195	78	5443	85	477	92	7115	84
2 Motifs	252	16	762	12	40	7	1054	12
3 Motifs	71	4	137	2	1	0,2	209	2
4 Motifs	6	0,3	21	0,3	0	0	27	0,3
5 Motifs	0	0	3	0,05	0	0	3	0,04
Total	1524		6366		518		8408	

Table 6.37 Frequency Distribution of number of motifs present (body sherds only) Units M, Q, S, Mara

Unit C	Horizon III	% per horizon	Horizon IV	% per horizon	Horizon V	% per horizon	Total	
Pot Bases	N	%	N	%	N	%	N	%
F1	3	2	2	1	1	1	6	5
F2	3	2	3	2	1	1	7	5
F3	2	1	1	1	1	1	4	3
F4	10	8	33	27	7	5	50	41
F5	1	1	1	1	1	1	3	2
F6	0	0	1	1	3	2	4	3
F7	0	0	1	1	0	0	1	1
F8	2	1	2	1	1	1	5	4
F9	2	1	3	2	0	0	5	4
F10	1	1	5	4	1	1	7	5
F11	2	1	2	1	0	0	4	3
F12	3	2	16	13	0	0	19	15
F13	1	1	3	2	2	1	6	5

Table 6.38 Frequency Distribution of pot bases, Units M,Q,S, Mara

6.5.6 Mara – Level 2 Analysis

Table 6.39 shows the co-occurrences of rim and vessel shapes. The most diagnostic occurrences seem to be in relation to T-rims, thickened out-turned- and ledged-rims, as they are mostly associated with straight and restricted vessel shapes. Everted, inturned and simple rims, in contrast, do not seem to exhibit any specific occurrences. Indeed, they seem to be more versatile as they can be associated with unrestricted as well as with restricted and straight vessel shapes. Another diagnostic type seems to be the carinated vessel, which tends to be associated with simple or inturned rims and straight vessel shapes.

Table 6.40 illustrates the results of rim diameters and associated vessel shapes. Most vessel shapes tend to fall into the medium-sized vessel range with rim diameters measuring between 16 cm and 25 cm. They include carinated vessels as well as straight and restricted ones. Bottles, in contrast, tend to show small rim diameters (between 6 and 8 cm), which seem to be more practical for immediate consumption. Wide-open vessels, which can measure up to 30 cm, indicate the presence of communal plates. Open vessels can also exhibit large rim diameters, measuring up to 42 cm. They might have served for storage.

Table 6.41 illustrates the frequencies of rim diameters and associated vessel wall thickness. The majority of rim diameters, which fall into a medium-size range (between 16 and 30 cm), are mostly associated with a vessel wall thickness ranging between 9 mm and 16 mm. However, small rim diameters (for instance 12 cm) might also show thick vessel walls (26 mm). Nevertheless, most vessels with large rim diameters tend to be associated with thicker vessel walls.

Table 6.42 shows co-occurrences of rim shapes and rim diameters. Potlids show diameters ranging from 12 cm to 40 cm, which attests to their widespread use for small as well as for large vessels. Everted rims either show small rim diameters of 6 cm or fall into the medium-size category (between 16 cm and 22 cm). Indeed, all other rim classes also fall into the medium-size range (inturned rims: 22 cm, simple rims: between 16 cm and 26 cm, T-rims and thickened out-turned rims: 20 cm, and ledged-rims 22 cm), which seems to be the most versatile size for cooking, serving and storage.

	Vessel Shapes	1 wide-open	% per horizon	2 open	% per horizon	3 straight	% per horizon	4 closed	% per horizon	5 tightly closed	% per horizon	6 carinated	% per horizon	7 bottle	% per horizon	Total
Rim Shapes		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Pot Lids (C)	**Horizon V**	3	3	19	22	0	0	0	0	0	0	0	0	0	0	22
	Horizon IV	149	19	136	17	0	0	3	0,3	0	0	0	0	0	0	288
	Horizon III	18	6	121	40	0	0	0	0	0	0	0	0	0	0	139
Everted Rims (E)	Horizon V	0	0	0	0	6	7	4	4	2	2	0	0	0	0	12
	Horizon IV	0	0	5	0,6	69	9	30	4	4	0,5	4	0,5	0	0	112
	Horizon III	1	0,3	12	4	7	2	1	0,3	0	0	0	0	0	0	21
Inturned Rims (N)	**Horizon V**	0	0	4	4	4	4	1	1	0	0	0	0	0	0	9
	Horizon IV	0	0	30	4	15	2	11	1	3	0,3	1	0,1	0	0	60
	Horizon III	1	0,3	38	12	10	3	0	0	0	0	0	0	0	0	49
Simple Rims (S)	**Horizon V**	1	1	5	5	18	21	4	4	0	0	0	0	1	1	28
	Horizon IV	6	0,7	39	5	53	7	51	6	4	0,5	43	5	1	0,1	197
	Horizon III	1	0,3	18	6	10	3	21	7	4	1	3	1	0	0	57
T-Rims (T)	**Horizon V**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon IV	0	0	7	1	18	2	11	1	2	0,2	1	0,1	0	0	39
	Horizon III	0	0	4	1	6	2	1	0,3	1	0,3	0	0	0	0	12
X-Rims (X)	**Horizon V**	2	2	4	4	6	7	2	2	0	0	0	0	0	0	14
	Horizon IV	0	0	7	1	43	5	12	1	4	0,5	0	0	1	0,1	67
	Horizon III	3	1	3	1	1	0,3	6	2	1	0,3	0	0	0	0	14
Y-Rims (Y)	**Horizon V**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon IV	0	0	3	0,3	2	0,2	2	0,2	1	0,1	0	0	0	0	8
	Horizon III	0	0	1	80	27	20	6	0	0	0	0	0	0	0	5

Table 6.39 Frequency Distribution of vessel and rim shapes, Units M, Q, S, Mara

Vessel Shape	1 Wide Open	% per horizon	2 Open	% per horizon	3 Straight	% per horizon	4 Closed	% per horizon	5 Tightly Closed	% per horizon	6 Carinated	% per horizon	7 bottle	% per horizon	Total
Diameter (cm)	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
4	0	0	0	0	2	0,3	0	0	0	0	0	0	0	0	2
6	0	0	1	0,1	2	0,3	3	0,4	0	0	0	0	2	0,3	8
8	2	0,3	0	0	5	0,7	1	0,1	0	0	0	0	1	0,1	9
10	0	0	3	0,4	1	0,1	3	0,4	1	0,1	0	0	0	0	8
12	3	0,4	1	0,1	6	1	6	1	0	0	3	0,4	0	0	19
14	2	0,3	5	0,7	6	1	12	2	1	0,1	0	0	0	0	26
16	14	2	8	1	12	2	20	3	1	0,1	5	0,7	0	0	60
18	14	2	11	1	8	1	14	2	0	0	6	1	0	0	53
20	19	3	18	2	11	1	20	3	2	0,3	6	1	0	0	76
22	20	3	10	1	8	1	10	1	3	0,4	6	1	0	0	57
24	17	2	25	3	7	1	12	2	1	0,1	6	1	0	0	68
26	16	2	21	3	8	1	3	0,4	4	0,6	9	1	0	0	61
28	9	1	23	3	5	0,7	1	0,1	0	0	1	0,1	0	0	39
30	11	1	27	4	6	1	5	0,7	0	0	4	0,6	0	0	53
32	6	1	16	2	4	0,6	2	0,3	1	0,1	0	0	0	0	29
34	5	0,7	16	2	0	0	1	0,1	1	0,1	0	0	0	0	23
36	4	0,6	9	1	3	0,4	2	0,3	0	0	0	0	0	0	18
38	6	1	6	1	2	0,3	1	0,1	0	0	0	0	0	0	15
40	2	0,3	18	2	2	0,3	1	0,1	0	0	0	0	0	0	23
42	0	0	13	2	3	0,4	1	0,1	0	0	1	0,1	0	0	18
Total	150		231		101		118		15		47		3		665

Table 6.40 Frequency Distribution of vessel shapes and rim diameter, Units M, Q, S, Mara

Rim Diameter	6		8		10		12		14		16		18		20		22		24		26		28		30		32		34		36		38		40		42		Total
Max.R.T.	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
4	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0,1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5	0	0	1	0,1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6	1	0,1	2	0,2	1	0,1	3	0,3	0	0	0	0	0	0	3	0,3	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
7	0	0	0	0	0	0	2	0,2	0	0	0	0	1	0,1	0	0	3	0,3	2	0,2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
8	0	0	2	0,2	0	0	2	0,2	2	0,2	3	0,3	4	0,4	2	0,2	3	0,3	2	0,2	1	0,1	0	0	2	0,2	0	0	0	0	0	0	0	0	0	0	0	0	23
9	0	0	1	0,1	2	0,2	3	0,3	1	0,1	3	0,3	5	0,5	13	1	6	0,6	3	0,3	3	0,3	1	0,1	3	0,3	0	0	2	0,2	1	0,1	0	0	0	0	2	0,2	49
10	1	0,1	0	0	1	0,1	2	0,2	8	0,8	9	1	9	1	11	1	11	1	3	0,3	8	0,8	3	0,3	1	0,1	2	0,2	0	0	0	0	2	0,2	0	0	0	0	71
11	1	0,1	0	0	0	0	6	0,6	8	0,8	12	1	8	0,8	20	2	12	1	6	0,6	11	1	4	0,4	7	0,7	3	0,3	2	0,2	1	0,1	1	0,1	0	0	0	0	102
12	5	0,5	0	0	1	0,1	3	0,3	6	0,6	6	0,6	9	1	15	1	8	0,8	14	1	14	1	9	1	6	0,6	2	0,2	4	0,4	1	0,1	2	0,2	1	0,1	0	0	106
13	5	0,5	0	0	2	0,2	5	0,5	7	0,7	8	0,8	15	1	19	2	13	1	11	1	13	1	4	0,4	15	1	5	0,5	5	0,5	6	0,6	4	0,4	7	0,7	3	0,2	147
14	1	0,1	1	0,1	0	0	0	0	3	0,3	5	0,5	14	1	11	1	6	0,6	8	0,8	9	1	12	1	11	1	6	0,6	2	0,2	5	0,5	2	0,2	5	0,5	1	0,1	102
15	3	0,3	1	0,1	0	0	1	0,1	4	0,4	4	0,4	3	0,3	7	0,7	4	0,4	14	1	4	0,4	5	0,5	7	0,7	5	0,5	5	0,5	5	0,5	1	0,1	5	0,5	4	0,4	82
16	1	0,1	1	0,1	1	0,1	0	0	1	0,1	5	0,5	2	0,2	9	1	4	0,4	9	1	5	0,5	10	1	4	0,4	2	0,2	1	0,1	1	0,1	2	0,2	0	0	1	0,1	59
17	0	0	0	0	0	0	4	0,4	0	0	3	0,3	3	0,3	2	0,2	6	0,6	2	0,2	1	0,1	3	0,3	2	0,2	1	0,1	2	0,2	1	0,1	1	0,1	2	0,2	2	0,2	35
18	1	0,1	0	0	2	0,2	0	0,4	0	0	2	0,2	1	0,1	5	0,5	3	0,3	3	0,3	4	0,4	3	0,3	3	0,3	1	0,1	0	0	0	0	0	0	2	0,2	3	0,3	33
19	0	0	0	0	0	0	0	0	1	0,1	3	0,3	3	0,3	4	0,4	2	0,2	1	0,1	0	0	0	0	2	0,2	1	0,1	2	0,2	1	0,1	1	0,1	0	0	1	0,1	22
20	0	0	1	0,1	0	0	1	0,1	2	0,2	1	0,1	0	0	1	0,1	1	0,1	2	0,2	4	0,4	1	0,1	3	0,3	0	0	0	0	0	0	2	0,2	2	0,2	0	0	21
21	0	0	0	0	0	0	0	0	0	0	1	0,1	2	0,2	0	0	2	0,2	3	0,3	0	0	3	0,3	2	0,2	0	0	0	0	0	0	0	0	0	0	0	0	13
22	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	1	0,1	3	0,3	1	0,1	5	0,5	2	0,2	0	0	2	0,2	0	0	1	0,1	0	0	2	0,2	0	0	18
23	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	2	0,2	0	0	0	0	2	0,2	0	0	0	0	0	0	0	0	0	0	6
24	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	1	0,1	1	0,1	2	0,2	1	0,1	0	0	1	0,1	0	0	0	0	0	0	7
25	0	0	2	0,2	0	0	1	0,1	0	0	0	0	0	0	0	0	2	0,2	0	0	1	0,1	0	0	0	0	1	0,1	0	0	1	0,1	1	0,1	2	0,2	0	0	11
26	1	0,1	0	0	0	0	4	0,4	0	0	0	0	2	0,2	1	0,1	1	0,1	0	0	0	0	1	0,1	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	11
27	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	1	0,1	1	0,1	0	0	2	0,2	0	0	0	0	1	0,1	1	0,1	7
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0,2	1	0,1	0	0	1	0,1	1	0,1	2	0,2	1	0,1	0	0	0	0	2	0,2	3	0,3	3	0,3	16
29	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	1	0,1	0	0	0	0	0	0	0	0	2	0,2	0	0	1	0,1	0	0	0	0	0	0	0	0	5
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	0	0	0	0	2	0,2	0	0	0	0	0	0	3
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0,2	0	0	0	0	0	0	2	0,2	0	0	0	0	0	0	0	0	0	0	0	0	4
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	1	0,1	0	0	0	0	2
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0,2	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	0	0	0	0	3
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	1
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	1
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	1	0,1	0	0	0	0	0	0	0	0	2
Total	20		11		11		37		43		68		83		130		96		86		90		64		79		35		30		29		22		32		21		987

Table 6.41 Frequency Distribution of maximum rim thickness and rim diameter, Units, S, M and Q, Mara

	Rim Diameter	6		8		10		12		14		16		18		20		22		24		26		28		30		32		34		36		38		40		42	
Rim Shapes		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Pot Lids (C)	Horizon V	0	0	0	0	0	0	0	0	1	1	1	1	3	4	1	1	3	4	2	2	4	5	1	1	1	1	1	1	0	0	0	0	0	0	1	1	0	0
	Horizon IV	1	0,1	2	0,2	0	0	10	1	10	1	18	2	24	3	35	5	24	3	23	3	23	3	20	3	20	3	10	1	9	1	5	0,7	7	1	3	0,4	0	0
	Horizon III	1	0,3	0	0	0	0	1	0,3	2	0,7	4	1	7	2	12	4	7	2	16	6	14	5	11	4	16	6	10	3	7	2	3	1	6	2	14	5	9	3
Everted Rims (E)	Horizon V	0	0	1	1	0	0	3	4	1	1	2	2	1	1	0	0	1	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
	Horizon IV	12	1	4	0,5	1	0,1	3	0,4	6	1	11	1	10	1	14	2	12	1	2	0,2	9	1	5	0,7	3	0,4	3	0,4	3	0,4	2	0,2	2	0,2	2	0,2	1	0,1
	Horizon III	1	0,3	0	0	0	0	0	0	1	0,3	0	0	3	1	3	1	1	0,3	2	0,7	1	0,3	0	0	1	0,3	0	0	0	0	1	0,3	2	0,7	1	0,3	0	0
Inturned Rims (N)	Horizon V	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	2	2	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
	Horizon IV	0	0	0	0	3	0,4	0	0	3	0,4	1	0,1	4	0,4	2	0,2	12	1	6	1	3	0,4	7	1	3	0,4	0	0	0	0	0	0	0	0	1	0,1	1	0,1
	Horizon III	0	0	0	0	1	0,3	0	0	2	0,7	0	0	2	0,7	5	2	4	1	4	1	3	1	4	1	5	2	2	0,7	3	1	5	2	1	0,3	1	0,3	3	1
Simple Rims (S)	Horizon V	2	2	0	0	0	0	0	0	0	0	0	0	2	2	3	4	0	0	3	4	1	1	7	9	1	1	3	4	0	0	1	1	0	0	0	0	0	0
	Horizon IV	3	0,4	4	0,5	5	0,7	7	1	16	2	15	2	20	3	24	3	23	3	19	2	18	2	4	0,5	12	1	1	0,1	6	1	4	0,5	2	0,2	4	0,5	3	0,4
	Horizon III	2	0,7	1	0,3	0	0	6	2	0	0	6	2	1	0,3	3	1	5	2	8	3	4	1	3	1	6	2	1	0,3	0	0	1	0,3	3	1	1	0,3	0	0
T-Rims (T)	Horizon V	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon IV	0	0	0	0	0	0	0	0	2	0,2	7	1	1	0,1	12	1	1	0,1	3	0,4	4	0,5	3	0,4	3	0,4	0	0	0	0	2	0,2	0	0	0	0	0	0
	Horizon III	0	0	0	0	0	0	0	0	0	0	1	0,3	1	0,3	1	0,3	3	1	0	0	1	0,3	0	0	2	0,7	0	0	0	0	1	0,3	0	0	0	0	2	0,7
X-Rims (X)	Horizon V	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	3	4	5	6	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0
	Horizon IV	0	0	1	0,1	1	0,1	9	1	4	0,5	5	0,7	3	0,4	10	1	4	0,5	2	0,2	5	0,7	4	0,5	2	0,2	2	0,2	1	0,1	3	0,4	2	0,2	2	0,2	1	0,1
	Horizon III	1	0,3	0	0	0	0	1	0,3	0	0	0	0	0	0	1	0,3	1	0,3	0	0	1	0,3	0	0	0	0	1	0,3	1	0,3	0	0	0	0	0	0	0	0
Y-Rims (Y)	Horizon V	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Horizon IV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,1	4	0,5	0	0	0	0	0	0	0	0	2	0,2	0	0	0	0	0	0	0	0	1	0,1
	Horizon III	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0,7	0	0	0	0	0	0	0	0	0	0	0	0	1	0,3	1	0,3

Table 6.42 Frequency Distribution of rim shapes and rim diameter, Units S, M, Q, Mara

6.5.7 Mara - Level 3 Analysis

The following independent attribute clusters (a minimum of three counts) have been identified at Mara (Table 6.43).

Horizon III

2-C1-L0-N12/18-S0/12/18+6-M99-I0 – (unrestricted) potlid (Type C1), plain on the lip, dragged linear comb (PE-1) or multiple lines (MOE) and twisted cord roulette on the superior body (middle body missing, plain on the interior); 12 counts

2-C3-L0-N0/12/18-S0/12/6/8/18-M99-I0 – (unrestricted) potlid (Type C3); Type a - plain on the lip, neck and superior body; Type b - plain on the lip with linear dragged comb (PE-1) on the neck or superior body; Type c – plain on the lip with linear dragged comb (PE-1) on the neck, repeated PE-1, accordion pleat roulette (CR-4), or twisted cord roulette (CR-6) on the superior body; Type d – plain on the lip with multiple lines (MOE) on the neck and twisted cord roulette (CR-6) or repeated multiple lines (MOE) on the superior body (middle body missing, plain on the interior); 40 counts

2-N1-L0/12-N12-S8/99-M99-I0 – unrestricted vessel with an inturned rim (Type N1); Type a - plain on the lip, linear dragged comb (PE-1) on the neck and accordion pleat roulette (CR-4) on the superior body; Type b - linear dragged comb (PE-1) on the lip and neck, and accordion pleat roulette (CR-4) on the superior body (middle body is missing, plain on the interior); 14 counts

2-S1-L0-N0-S12-M99-I0 – unrestricted vessel with a simple rim (Type S1), plain on the lip and neck, dragged linear comb (PE-1) on the superior body (middle body is missing, plain on the interior); 4 counts

Horizon IV

1-C1-L0-N0/6/8/14-S0/8/9/11/14/6-M0/10/99/14/6-I0 – (wide-open) potlid (Type C1), plain on the lip; Type a – plain on the neck, superior and middle body parts; Type b – plain on the neck with an unidentified cord roulette (CR-10) on the superior body part; Type c – plain on the neck with accordion pleat roulette (CR-4), or double (CR-2) braided cord roulette on the superior body; Type d – plain on the neck and an impressed cord décor (CI) on the superior body; Type e – plain on the neck with a single channel on the superior body; Type f – twisted cord roulette on the neck and superior body; Type g – accordion pleat roulette on the neck and superior body; Type h – single channel on the neck and superior body (plain on the interior); 94 count

1-C3-L0-N0/6-S14/6-M99-I0 – (wide-open) potlid (Type C3) with a plain lip; Type a – plain on the neck and a single channel (CH) on the superior body; Type b – twisted cord roulette (CR-6) on the neck and superior body (middle body is missing, plain on the interior); 7 counts

2-C1-L0/28-N0/6/12/20-S6/8/99-M99/8-I0 – (open) potlid (Type C1) with a plain lip; Type a – plain on the neck (superior and middle body parts are missing);

Type b – plain on the neck, twisted cord roulette (CR-6) or accordion pleat roulette (CR-4) on the superior body; Type c – twisted cord roulette (CR-6) on the neck and superior body part; Type d – dragged linear comb (PE-1) on the neck (superior and middle body parts are missing); Type e – tightly applied net impressions (Fil-1) on the neck (superior and middle body parts are missing); Type f - with black paint on the lip and plain neck (superior and middle body parts are missing, plain on the interior); 46 counts

2-C3-L0-N0/9/12-S6/99/8-M99-I0 – (open) potlid (Type C3) with a plain lip; Type a – plain on the neck (superior and middle body parts are missing); Type b – plain on the neck and twisted cord roulette (CR-6) on the superior body; Type c – double braided cord roulette on the neck (superior and middle body parts are missing); Type e – dragged linear comb (PE-1) on the neck and accordion pleat roulette (CR-8) on the superior body (middle part is missing, plain on the interior); 32 counts

2-N1-L15-N12-S99-M99-I0 – unrestricted vessel with an inturned rim (Type N1), multiple channels (MCH) on the lip, linear dragged comb (PE-1) on the superior body (middle part is missing, plain on the interior); 3 counts

2-S1-L0-N6/20-S6/20-M99-I0 – unrestricted vessel with a simple rim (Type S1), plain on the lip, twisted cord roulette (CR-6) on the neck and superior body part; alternatively with tightly applied net impressions (Fil-1) on the neck and superior body (middle part is missing, plain on the interior); 8 counts

3-E10/8B-L0-N0-S0/99-M99-I0 – straight vessel with an everted rim (Type E10 or E8B), plain on the lip, neck and superior body part (middle part is missing, plain on the interior); 32 counts

3-N1-L0-N0-S15-M99-I0 – straight vessel with an inturned rim (Type N1), plain on the lip and neck, multiple channels (MCH) on the superior body part (middle part is missing, plain on the interior); 3 counts

3-S1-L0-N0/18-S0/18-M99-I0 – straight vessel with a simple rim (Type S1), plain on the lip, neck and superior body; alternatively multiple lines (MOE) on the neck and superior body (middle part is missing, plain on the interior); 11 counts

3-S2-L0-N0-S0/8-M99-I0 – straight vessel with a simple rim (Type S2), plain on the lip, neck and superior body; alternatively with accordion pleat roulette on the superior body (middle part is missing, plain on the interior); 6 counts

3-X7-L0-N12-S10-M99-I0 – straight vessel with a thickened out-turned rim (Type X7), plain on the lip, dragged linear comb (PE-1) on the neck and unidentified cord roulette (CR-10) on the superior body (middle part is missing, plain on the interior); 4 counts

3-X8-L0-N0/14-S99-M99-I0 – straight vessel with a thickened out-turned rim, plain on the lip neck and superior body; alternatively with a single channel on the neck (superior and middle body parts are missing, plain on the interior); 6 counts

4-E2-L0-N0-S23-M99-I0 – restricted vessel with an everted rim (Type E2), plain on the lip and nack, applied plastic band on the superior body (middle part is missing, plain on the interior); 4 counts

4-S1-L0-N0-S0/12/99-M99/0-I0 – restricted vessel with a simple rim (Type S1), plain on the lip, neck and superior body; alternatively with a plain neck, linear dragged comb (PE-1) on the superior body and plain on the middle part (plain on the interior); 25 counts

4-T1-L0-N0-S0/23-M99-I0 – restricted vessel with T-rim (Type T1), plain on the lip, neck and superior body (middle part is missing); alternatively applied plastic band on the superior body (middle body part is missing, plain on the interior); 9 counts

5-N1-L0-N0S0-M99-I0 – tightly closed vessel with an inturned rim (Type N1), plain on the lip, neck and superior body part (middle body part is missing, plain on the interior); 3 counts

6-E2-L0-N0-S0-M0-I0 – carinated vessel with an everted rim (Type E2), plain on the lip, neck, superior and middle body (plain on the interior); 3 counts

6-S1-L0-N0-S0-M0/99-I0 – carinated vessel with a simple rim (Type S1), plain on the lip, neck superior and middle body (plain on the interior); 21 counts

Horizon V

2-C3-L0-N14-S99-M99-I0 – (open) potlid (Type C3), plain on the lip, single channel (CH) on the neck (superior and middle body parts are missing); 3 counts

As can be seen from Table 6.43, at Mara the majority of attribute clusters consists of dome-shaped potlids. Figures 6.31-34 show the different types of identified potlids, most of them being dome-shaped. However, one example also shows a concave shape (see Fig.6.34 Type B).

In contrast to Shoma, Delta fabric pottery does not seem to have been produced at Mara, as only a handful of Delta sherds have been identified, which might have been brought over from Shoma. On the other hand, a considerable number of vessels with acutely inturned rims have been recorded, exhibiting intricately decorated surfaces of three or even four motifs (Fig.6.25-6). As a consequence, it might be suggested that these vessels were not used for cooking purposes, but rather for serving due to their aesthetic value. There is also another category of this type, showing not as acutely inturned rims and less dėcor motifs (see Fig.6.33).

Everted rimmed vessels mostly show ovoid-shaped bowls (Fig.6.27). They might have served as cooking pots, as one of them showed traces of fire blackening (Fig.6.28). Wide-open dishes or plates have also been identified (Fig.6.29-30).

Vessels might have also served for other activities than cooking, serving and/or storage, which is evidenced by a small-sized pot showing a diameter of only 8 cm (Fig.6.31). However, its function remains purely speculative as no contents have been identified inside the pot. Maybe it served to keep red ochre, which has been found in considerable quantities at Mara, or some other kind of decorative stone or beauty ointment.

Bottles have also been found at Mara, but in relatively small quantities (Fig.6.32). Carinated vessels seem more popular at Mara than at Shoma, exhibiting several clusters consisting of simple and everted rims with plain surfaces or one décor motif (Fig.6.34B). Alternatively, there are clusters of unrestricted and straight vessels with a T-rim (Fig.6.34A and C).

Horizon	Form	Rim	Lip	Neck/Collar	Superior	Middle	Interior	Total Nr.
3	2	C1	0	12	0	99	0	3
3	2	C1	0	12	12	99	0	6
3	2	C1	0	18	18+6	99	0	3
3	2	C3	0	0	0	99	0	6
3	2	C3	0	0	12	99	0	5
3	2	C3	0	12	0	99	0	3
3	2	C3	0	12	6	99	0	4
3	2	C3	0	12	8	99	0	8
3	2	C3	0	12	12	99	0	6
3	2	C3	0	18	6	99	0	3
3	2	C3	0	18	18	99	0	3
3	2	N1	0	12	8	99	0	4
3	2	N1	0	12	99	99	0	4
3	2	N1	12	12	8	99	0	6
3	2	S1	0	0	12	99	0	4
4	1	C1	0	0	0	0	0	3
4	1	C1	0	0	0	10	0	3
4	1	C1	0	0	0	99	0	13
4	1	C1	0	0	8	99	0	3
4	1	C1	0	0	9	99	0	3
4	1	C1	0	0	11	99	0	4
4	1	C1	0	0	14	0	0	3
4	1	C1	0	0	14	14	0	10
4	1	C1	0	0	14	99	0	20
4	1	C1	0	6	6	6	0	4
4	1	C1	0	6	6	99	0	13
4	1	C1	0	8	8	99	0	4
4	1	C1	0	14	0	99	0	7
4	1	C1	0	14	14	99	0	4
4	1	C3	0	0	14	99	0	4
4	1	C3	0	6	6	99	0	3
4	2	C1	0	0	6	99	0	8
4	2	C1	0	0	8	99	0	10
4	2	C1	0	0	8	8	0	4
4	2	C1	0	0	99	99	0	4
4	2	C1	0	6	6	99	0	6
4	2	C1	0	12	99	99	0	8
4	2	C1	0	20	99	99	0	3
4	2	C1	28	0	99	99	0	3
4	2	C3	0	0	6	99	0	4
4	2	C3	0	0	99	99	0	10
4	2	C3	0	9	99	99	0	3
4	2	C3	0	12	8	99	0	3
4	2	C3	0	12	99	99	0	12
4	2	N1	15	12	99	99	0	3
4	2	S1	0	6	6	99	0	4
4	2	S1	0	20	20	99	0	4
4	3	E10	0	0	99	99	0	4
4	3	E8B	0	0	0	99	0	3
4	3	N1	0	0	15	99	0	3
4	3	S1	0	0	0	99	0	4
4	3	S1	0	0	18	99	0	4
4	3	S1	0	18	18	99	0	3
4	3	S2	0	0	0	99	0	3
4	3	S2	0	0	8	99	0	3
4	3	X7	0	12	10	99	0	4
4	3	X8	0	0	99	99	0	3
4	3	X8	0	14	99	99	0	3
4	4	E2	0	0	23	99	0	4
4	4	S1	0	0	0	99	0	15
4	4	S1	0	0	12	0	0	3
4	4	S1	0	0	12	99	0	4
4	4	S1	0	0	99	99	0	3
4	4	T1	0	0	0	99	0	6
4	4	T1	0	0	23	99	0	3
4	5	N1	0	0	0	99	0	3
4	6	E2	0	0	0	0	0	3
4	6	S1	0	0	0	0	0	18
4	6	S1	0	0	0	99	0	3
5	2	C3	0	14	99	99	0	3

Table 6.43 Maximum Independent Attribute Clusters, Units S, M and Q

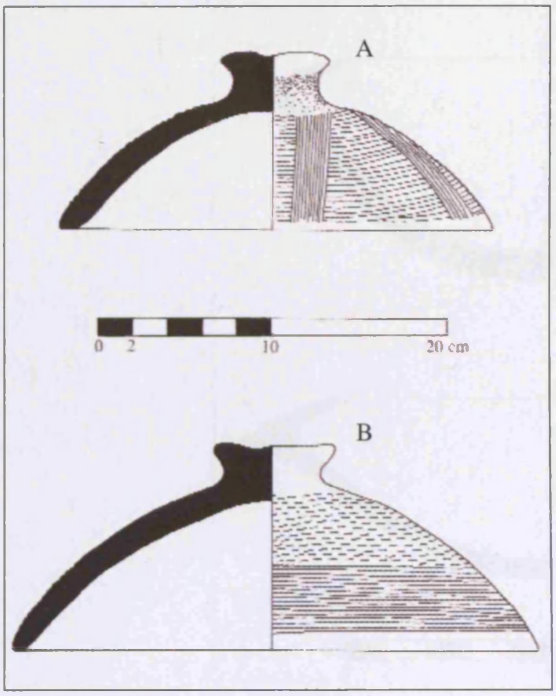


Figure 6.31 Mara Horizon III; A - Potlid (Type C3) with a burnished and red slipped surface, dragged linear comb (PE-1) in horizontal and vertical manner; B - Potlid (Type C3) with a burnished and red slipped surface, linear dragged comb (PE-1) on the neck and superior body, white paint superimposed on the PE-1 décor, accordion pleat roulette (CR-4) on the middle body

Figure 6.32 Mara, Horizon III
above - Type B of Fig.6.32
below, right - Potlid (Type C3) with twisted cord roulette (CR-6) on the superior and middle body (no burnish, no slip)
below, left - Type A of Fig.6.31

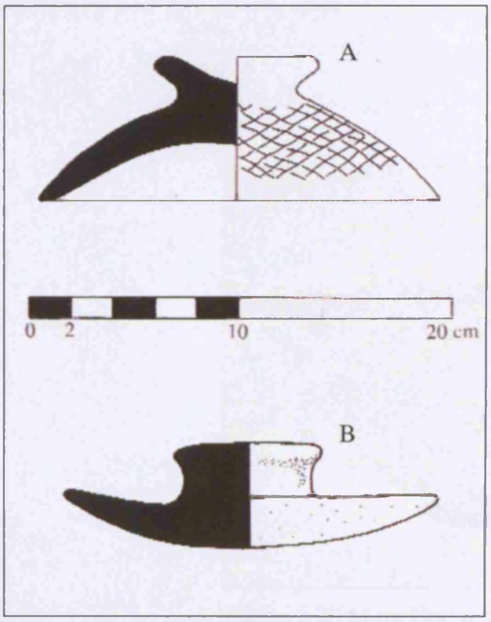


Figure 6.33 Mara Horizon IV
A - Potlid (Type C3), red slipped (no burnish), tightly applied net impressions on the superior and middle body parts; B - Potlid (Type C1), burnished, red slipped, plain surface

Figure 6.34 above - Potlid Type A from Fig.6.33
below . Potlid Type B from Fig.6.33

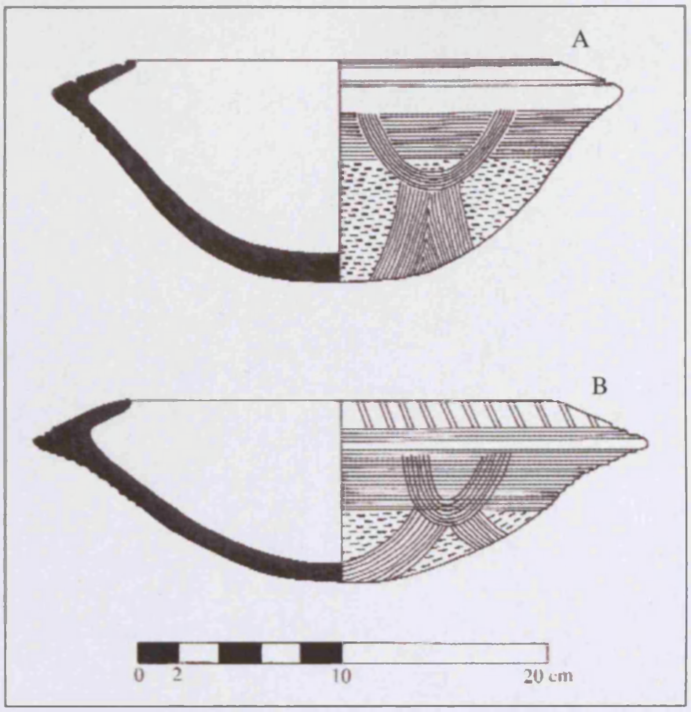


Figure 6.25 Mara Horizon III, Vessels with acutely inturned rims (Type N1); A - burnished and red slipped, multiple channels (MCH) on the lip, linear dragged comb (PE-1) on the neck and superior body with superimposed white paint and circular dragged comb (PE-4), aoccordion pleat roulette on the middle body and base with superimposed geometric dragged comb (PE-4); B - same as Type A, except for linear white paint on the lip

Figure 6.26 Mara Horizon III, Vessel Type A from Fig.6.25

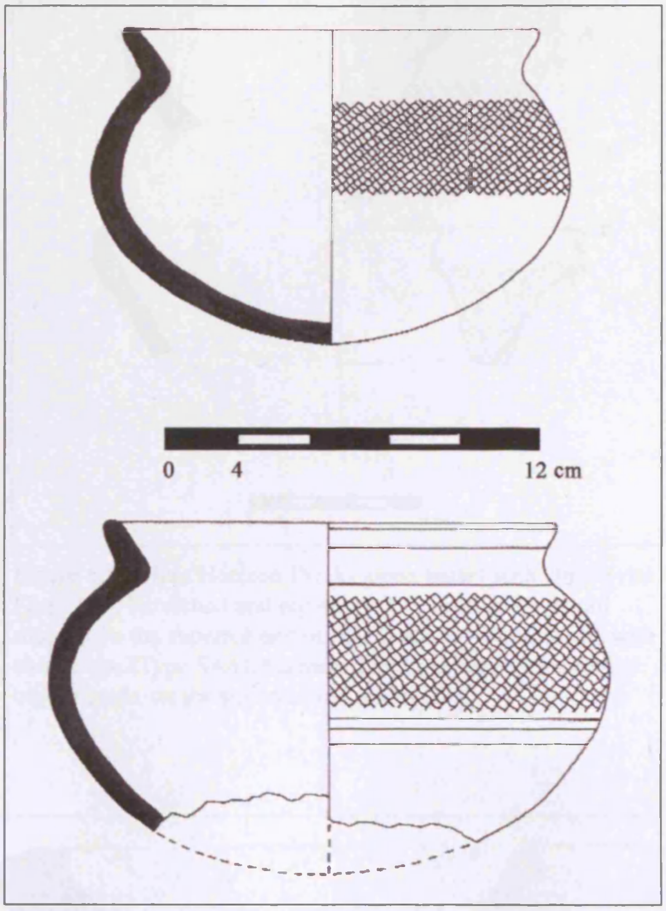


Figure 6.27 Mara, Horizon IV; A - Vessel with an everted rim (Type E3), burnished and red slipped surface, twisted cord roulette (CR-6) on the superior body; B - same as above with single channels (CH) on the lip, neck and middle body

Figure 6.28 Mara, Horizon IV; left - everted rimmed vessel with burnished and red slipped surface, red paint in parallel lines (horizontal and vertical) (P-R-L); right everted rimmed vessel, burnished, probably red-slipped, plain surface

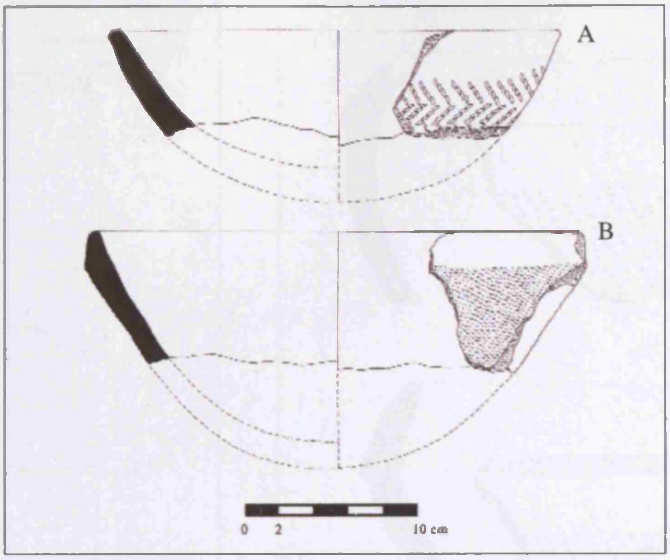


Figure 6.29 Mara Horizon IV; A - open vessel with simple rim (Type S1), burnished and red slipped, double braided cord roulette on the superior and middle body; B - open vessel with simple rim (Type S4A), burnished and red slipped, twisted cord roulette on the superior and middle body

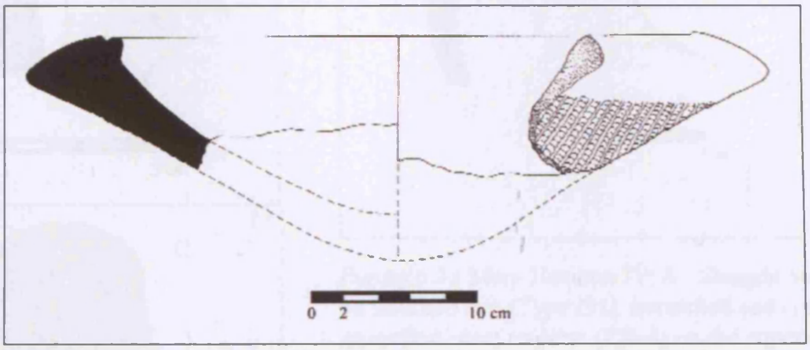


Figure 6.30 Mara Horizon IV; Wide-open vessel with inturned rim (Type N1), burnished and red slipped, single channel (CH) on the lip and twisted cord roulette on the superior and middle body

Figure 6.31 Mara Horizon IV; Open vessel with inturned rim (N1), burnished and red slipped, white paint on the lip, eroded body

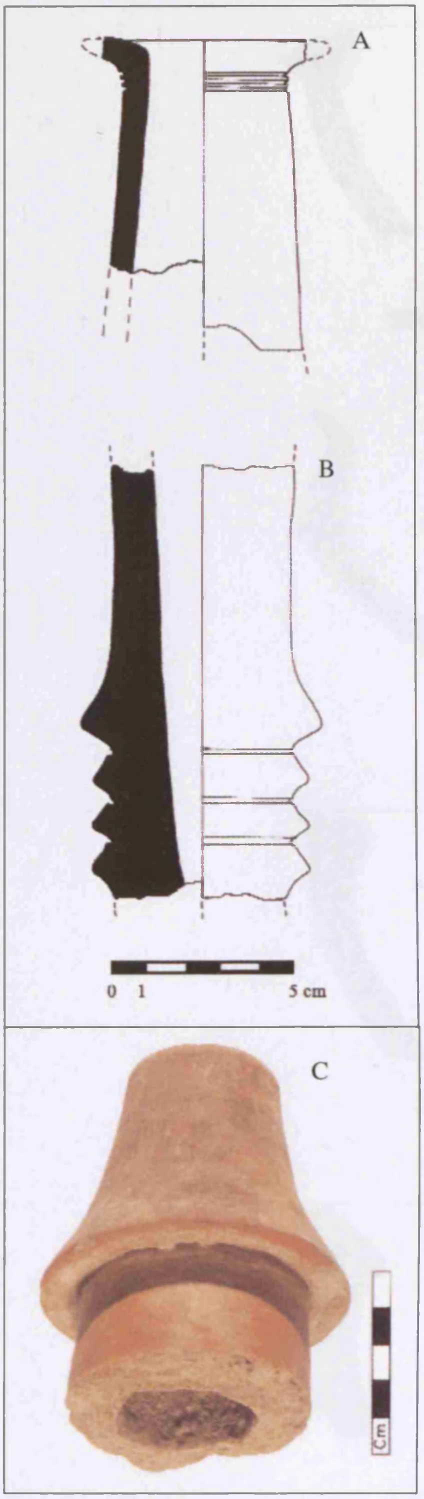


Figure 6.32 Mara Horizon IV, A - Bottleneck with an everted rim (Type E6), burnished and red slipped, multiple channels on the neck; B - Neck of a bottle with missing rim, burnished and red slipped, applied bands of plastic (PA-3), single channels (CH) in between; C - bottleneck with an everted rim (Type E1), burnished and red slipped surface

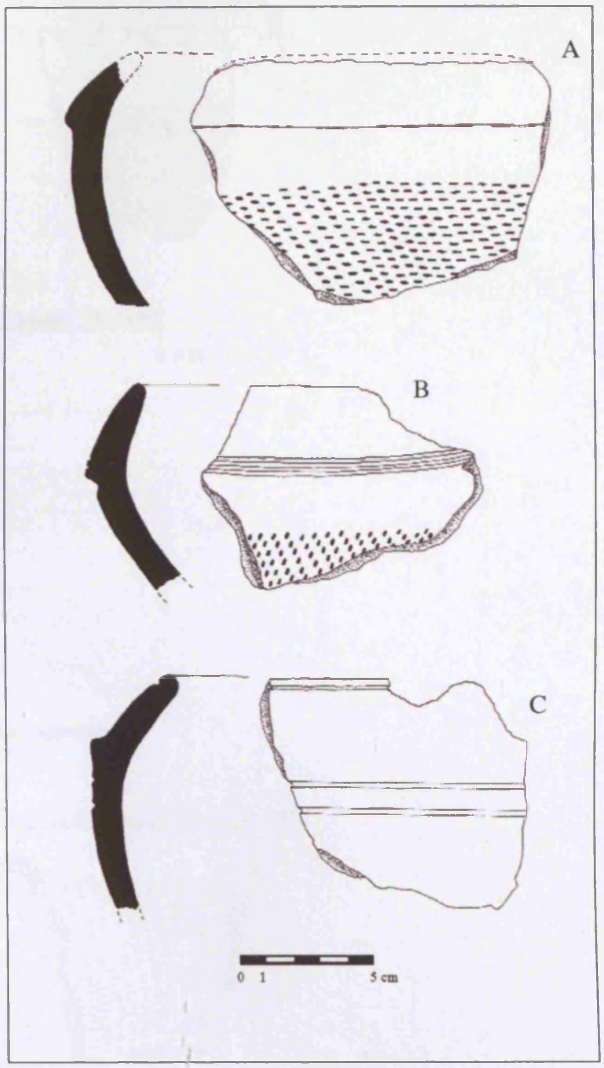


Figure 6.33 Mara Horizon IV; A - Straight vessel with an inturned rim (Type N1), burnished and red slipped, accordion pleat roulette (CR-4) on the superior and middle body; B - Straight vessel with an inturned rim (Type N1), burnished and red slipped, multiple lines (MOE) on the lip, accordion pleat roulette on the superior body; C - Straight vessel with a simple rim (Type S1) and slight carination, burnished and red slipped, single channel (CH) on the lip and neck

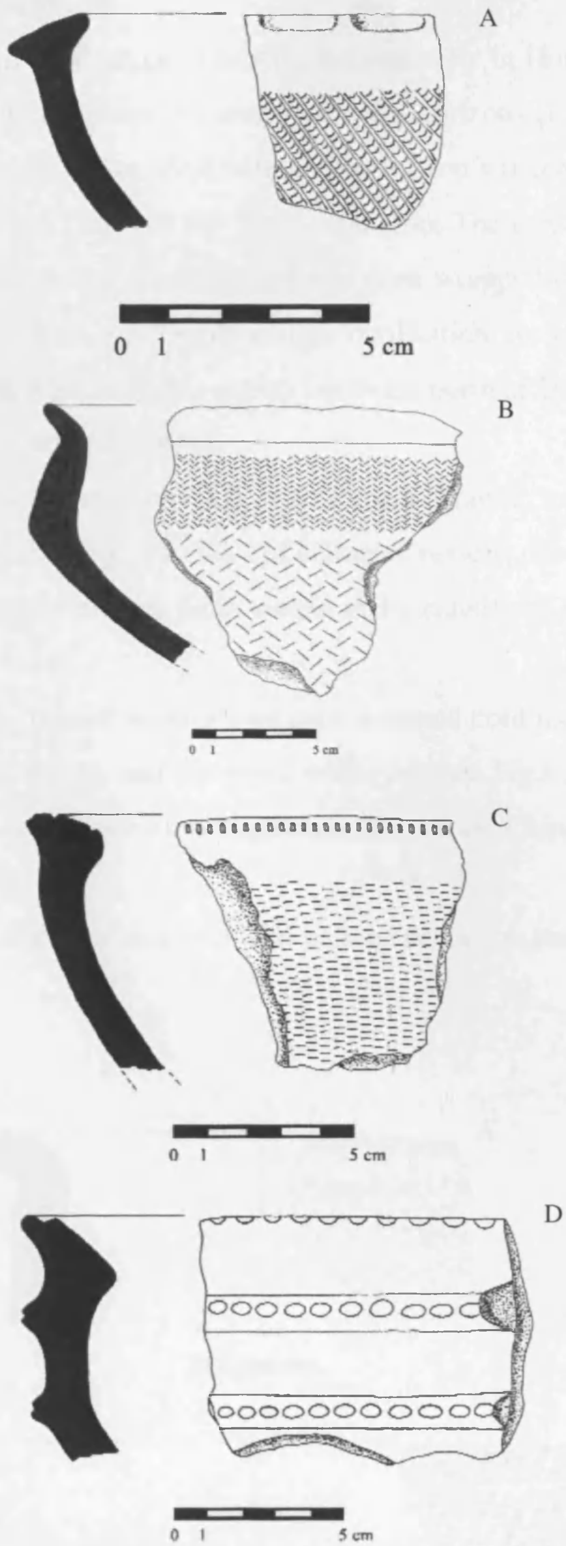


Figure 6.34 Rim and vessel shapes at Mara, Horizon IV; A - Open vessel with a T-rim (Type T1), burnished and red slipped, finger impressions (DI) on the lip, accordion pleat roulette on the superior and middle body; B - Carinated vessel with an everted rim (Type E3), no burnish, no slip, tightly applied net impressions (FIL-1) on the neck, superior and middle body; C - Straight vessel with a T-rim (Type T1), burnished and red slipped, single channel on the lip (interior), dashed lines (SI-3) on the lip (exterior), accordion pleat roulette on the superior and middle body; D - Straight vessel with an everted rim (Type E3), burnished and red slipped, circular holes (PNC-1) on the lip, applied bands of plastic with notches (PA-4) on the neck and superior body

6.6 Discussion of Results

Shoma's assemblage suggests relative homogeneity in Horizons I and II over time, with an almost total rupture occurring between Horizons II and IV. The ceramics of Horizons IA and IB and to some extent also Horizon's II ceramics, appear to be derivative from the Faïta facies of the Tichitt tradition. The ceramics of this facies, which are characterised by impressed or rouletted cord-wrapped stick or braided cord roulettes, are known from the Tichitt-Walata civilisation in southern Mauritania (Munson 1980) and the Malian Méma region just to the north of Dia (MacDonald 1994, 1996; MacDonald and Schmidt 2004).

In Dia the Faïta facies is typified by four main ceramic 'attribute clusters':

1. thick (>2cm) rimmed, ca. 30+ cm diameter vessels, decorated both inside and out with cord roulettes (both simple and pleated) and tempered with grog (Fig.6.35 and 6.36);
2. thin everted rimmed vessels with cord-wrapped cord roulettes descending vertically from the lip, and tempered with grog (see Fig.6.36);
3. Delta Ware with everted or simple rims (known as "China Ware"), either left undecorated, or
4. (as above) with cord roulettes and painted decors on the exterior.

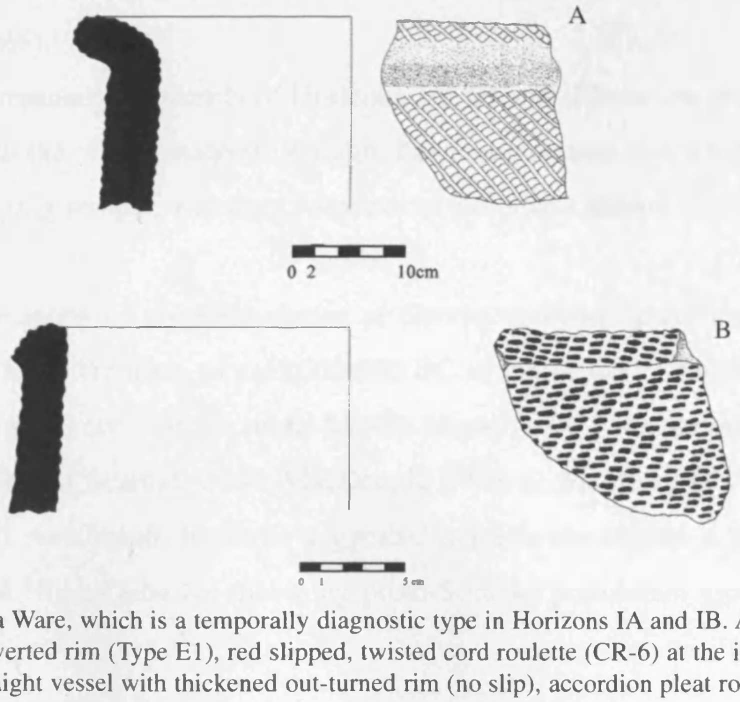


Figure 6.35 Faita Ware, which is a temporally diagnostic type in Horizons IA and IB. A - Straight vessel with an everted rim (Type E1), red slipped, twisted cord roulette (CR-6) at the interior and exterior; B - Straight vessel with thickened out-turned rim (no slip), accordion pleat roulette (CR-4) at the interior and exterior

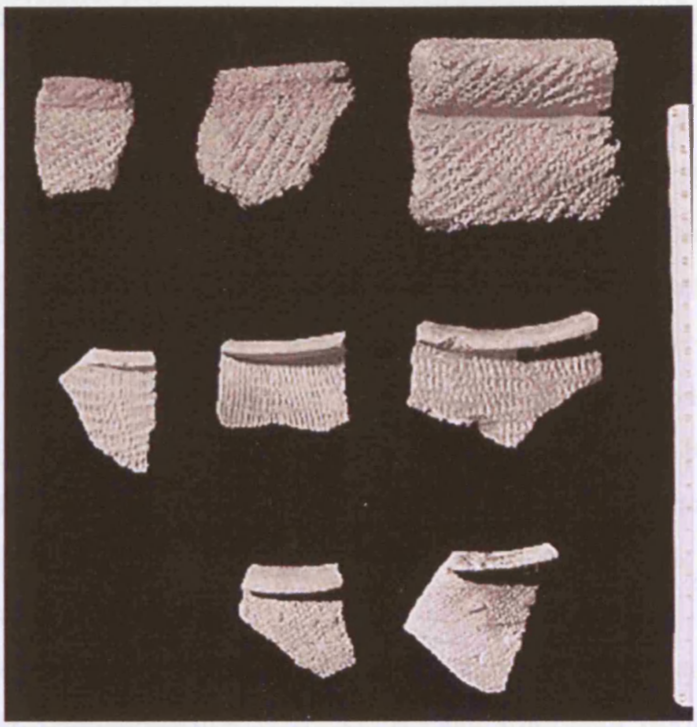


Figure 6.36 Faita Ware, Shoma Horizon I
upper row - thick rimmed vessels with cord roulettes at the interior and exterior; middle row - thin-walled everted rimmed vessel with cord-wrapped cord roulettes; lower row - Delta Ware

The latter three types may also feature red slip. Only few body and rim sherds of the first and second types have been identified in Unit C (>0,5%), which disappear entirely in Horizon II. The majority of the 'Faïta' material is composed of the Delta Ware (53% in Horizon IA, 77% in Horizon IB), which continues as the majority in Horizon II (56%).

The remaining rim sherds of Horizons IA, IB and II have not previously been associated with the 'Faïta' material, though they share certain characteristics such as vessel shape, grog temper, and cord roulettes as dominant means of pottery decoration.

The presence of the Faïta facies at Shoma confirms a cultural connection between the Tichitt Tradition of ca. 2000-800 BC in southeastern Mauritania and the first millennium BC civilisations of the Middle Niger, as has been previously suggested (MacDonald and Schmidt 2004; MacDonald 1996; S. McIntosh 1995; Holl 1985; Munson 1980). As a result, it can be suggested that Dia constituted a 'port of entry' into the Inland Niger Delta for incoming proto-Soninke population groups from the northwest.

The marked reduction of Delta Ware in Horizon II, which by then is characterized by an absence of ledged- and thickened out-turned rims and a majority of plain surfaces instead of cord roulettes and paint decoration, corresponds with the last remnants of the Faïta facies, signalling a rupture in the assemblage. The ceramics of Horizon IV emerge with new attribute clusters, which include a majority of potlids, as well as shallow vessels with inturned rims, plates and carinated vessels. Pottery generally becomes larger in Horizon IV, with increasing diameters and vessel wall thickness. However, grog temper continues to dominate, and the main mode of decoration (cord roulettes) continues, indicating a certain broad technological continuity between these assemblages. Paint however, which is one of the major décor motifs in Horizon I, decreases drastically in Horizon IV, in favour of decorative tools such as comb, stick, stylus and net.

The nature of this 'rupture' between the earlier horizons and Horizon IV remains unclear. Despite the disappearance of Faïta Ware after Horizon II, and the emergence of new vessel shapes and décor types, there is a broad technological continuity (temper remains stable as well as certain modes of decoration such as cord roulettes). As a consequence, it seems as if certain similarities and differences are present within and between the four horizons, which might be interpreted as follows.

The assemblage's technical homogeneity indicates elements of pedagogical continuity, which is usually transmitted from mother to daughter in Mande society and remains conservative over long generations. The continuous presence of vessel and rim shapes, which mostly differ in frequencies throughout Dia's occupational horizons, the use of cord as a primary decorative tool and grog as principal temper attests to ongoing links with the ancient pottery of Shoma, which goes back to the early first millenium BC. Nevertheless, emerging vessel and rim shapes as well as decoration types in the mid to late first millennium AD, which were less common during the earlier periods, might or might not point to changing fashions or incoming groups. Interestingly, visible social boundaries in Dia's pottery remain unclear. It seems that the ceramic evidence does not support the idea of 'ethnic' groupings as being visible in pottery as has been observed in the Inland Niger Delta today (Gallay et al. 1996), which is perhaps a phenomenon of the last few hundred years.

Hence, the question emerges why Dia's different population groups, known from oral traditions, do not appear to be reflected in the ceramic assemblage? The only social parameters might be indicated by the Faïta facies, which can be traced back to the second millennium BC in southeastern Mauritania and the Méma, suggestive of a population who migrated from desiccated basins in the north-west as a result of first millennium BC environmental collapse. The end of technologically sophisticated 'Delta ware' with its fine paste and high-firing may be linked to the partial abandonment of Shoma during Horizon II, which coincides with an environmental degradation in the Middle Niger region, known as the Big Dry (300 BC – AD 300) (McIntosh 2001:152). The Delta Ware sherds identified in Horizon IV (8%) might by then have evolved into a 'prestige' or 'ritual' Ware. Alternatively, they might be viewed as intrusive. However, I favour the former scenario as 15% of Delta Ware from Horizon IV levels have been identified in all of Shoma's excavation units. Moreover, Delta Ware from Horizon IV show different rim shapes and décor types than in Horizons I and II (see Tables 6.7 and 6.11), which provides supplementary evidence that they were not intrusive in the Horizon IV layers.

The continuous presence of vessel and rim shapes as well as certain décor types within Horizon's IV pottery assemblage might be considered in light of the 'imperial' period, which characterised the end of the first millenium and the first half of the second millennium AD. Maybe, there was a wish to conform to a wider identity, manifested by large empires such as Ghana of the Soninke and Mali of the Mande. My second explanation is that pottery constitutes one of the most conservative technologies in West Africa (passed on from mother to daughter over many generations). It has been observed that the process of pottery manufacture is acquired during childhood and within the nuclear family (Gosselain 2001:99), hence before marriage. Due to the strict endogamy, casted potters have had to cross ethnolinguistic boundaries in order to find marriageable partners, which resulted in the cross-linguistic distribution of castes and – importantly – particular technological traditions. Thus, a trans-ethnic caste system might be the root of the homogenization of Mande-area pottery traditions at this time.

However, what I have also noticed is that underneath the overall impression of homogeneity, there is also an enormous variety present. In other words, in spite of this period's diagnostic vessel types, each type shows a staggering variety of motifs, or combination of two or more motif types as well as slightly different rim and vessel shapes, which in Level 3 of my analysis, has not produced many 'diagnostic' clusters. In contrast, one can observe a wide variety of 'small clusters', consisting of less than ten counts, not including the 'types', which are present with only one count. As a result, it can be suggested that Dia's pottery defies typology due to the extreme variability of the assemblage.

Similar observations can be made for Mara's pottery assemblage, which at first sight exhibits an extreme homogeneity throughout its entire occupation. It consists of potlids, shallow plates, restricted bowls with simple rims, shallow vessels with inturned rims, straight and restricted vessels with everted rims and carinated vessels with simple rims. Décor types mostly include cord roulettes (twisted cord and accordion pleat roulettes) and impressions, applied net, paint, and incised motifs (linear dragged comb single and multiple channels). Many of these vessel and décor types resemble the ones identified at Shoma. The use of grog as temper and similar vessel-shaping techniques indicate further connections to the neighbouring site. Thus, it seems that a portion of Shoma's inhabitants, or at least some of its potters, have re-settled at Mara during the second half of the first millennium AD (Horizon III).

In contrast to Shoma, however, Mara has yielded only a handful of Delta Ware sherds, twenty-seven in total (see Tables 6.25 and 6.26), while Shoma continues to exhibit considerable amounts of it in Horizons III and IV (see Table 6.44).

Shoma	**Horizon I**		**Horizon II**		**Horizon III**		**Horizon IV**		**HorizonV**	
	N	%	N	%	N	%	N	%	N	%
Delta Ware	1,371	46	103	16	308	16	458	15	22	2
Other	1,633	54	534	84	1,560	84	2,608	85	1,287	98

Table 6.44 Frequency Distribution of Delta Ware sherds (rims only) from all excavation units at Shoma.

It can thus be suggested that Mara does not seem to have produced any Delta Ware, which might be due to several reasons. Firstly, Delta Ware is characteristic of the most ancient occupational horizons (Horizons I and II), during which Mara was not yet founded. Secondly, it might be postulated that Delta Ware, which decreases considerably in quantity during the later periods (Horizons III to IV), might by then have evolved into a 'prestige' or 'ritual' Ware at Shoma. By Horizon V the fabrication of Delta Ware might have ceased altogether as only twenty-two Delta fabric rim sherds have been identified at Shoma, and may thus be considered to be instrusive. Its lack at Mara might indicate different traditions, thus the presence of a different population group, or at least a different composition of population groups.

Mara's unique signature is based on decorative elements, such as stamping (E1-6) (see Fig.6.20) and organic roulettes (IWT), which are absent at Shoma, as well as the manufacture of relatively thinned-walled unrestricted vessels with inturned rims featuring a variety of décor types (Fig.6.3.26 and 6.26). The latter type is also present at Shoma, in much smaller quantities however, and showing less décor types. These vessels might thus indicate Mara's influence at Shoma.

Mara's pottery assemblage, confirms what has already been illustrated at Shoma, that IND pottery predating the 18th century does not reflect the diversity of ethnic expression amongst modern potters. Thus, it may be inappropriate to compare its homogeneity with the recurring references of population movements in the literature of Dia's oral and written sources.

In conclusion, I would like to suggest that there seems to be a strong continuity between Shoma's and Mara's pottery assemblages, which indicates that the potters of each site might have shared similar identities. This assumption is based on a considerable number of common traits such as vessel and rim shapes, the use of grog alone as temper, the frequent application of red slip and burnish as well as a well-defined suite of decoration types. In addition, it seems as if the same vessel-shaping techniques were used, which is a further indicator of similar population groups, or at least of potters, who might have shared similar identities.

The absence of Delta Ware at Mara might be due to the site's more recent occupation (Horizons III to V), which is also characterized by a marked decrease of Delta Ware at Shoma. It is rather the presence of stamps and organic roulettes, which provide patterns of variation. However, these differences are of a purely decorative nature, and amount to less than 1%. It can thus be suggested that these décor types were Mara's 'special signature', which might have been produced for a population group present at Mara and absent at Shoma.

6.7 Dia's pottery in a regional context

It has already been suggested that the entire upper IND constituted, during AD 900 and 1400, a "culture area" characterized by a uniform style of pottery as well as art, similar settlement patterns, and common funerary rituals (S. McIntosh 1995:360). In this section I shall adopt a regional perspective, relating Dia's data with the ceramic traditions of other Inland Niger Delta sites and beyond.

6.7.1 Dia and Jenne-jeno

Haskell's and the McIntoshs' work at Dia and Jenne-jeno concluded that Shoma's and Mara's occupation and pottery assemblages are synonymous with that of Jenne-jeno (Haskell et al. 1987, S. McIntosh 1995). However, their interpretations of Dia were based on three test-pits, never exceeding 2x2 m, in contrast to our excavations, which consisted of seventeen units, mostly measuring 5x5 m (for a more detailed description see Chapters 4 and 5). The results of our studies have shown that Dia's sequence is not identical to Jenne-jeno, especially in light of its chronology and to a lesser extent in regard to the sites' ceramic assemblages.

Instead of devising chronological phases, which in the case of Jenne-jeno has served to define a chronology, although geographically circumscribed, of the West African Iron Age (S. McIntosh 1995:361), we have opted to establish Dia's chronology by defining site-specific occupational horizons. The latter have merely been distinguished by changes in depositional events and the associated material culture as well as by subsequent radiocarbon dating. The resulting occupational horizons are thus solely applicable to Dia. As a consequence, I propose that neither Dia's occupation or its pottery should be perceived as identical to Jenne-jeno. The sites' dichotomies will be illustrated in the following section.

Haskell and the McIntoshs (Haskell et al. 1987; S. McIntosh 1995) proposed the presence of three distinctive, yet related, time-successive ceramic assemblages (S. McIntosh 1995:361).

Upper IND Fineware Phase (=Phase I/II, 250 BC - AD 350). According to their findings, this phase represents the earliest occupation period known at Jenne-jeno and Dia. Our excavations, however, have established that Dia's occupation goes further back in time, to around 800 BC.

At Jenne-jeno the most diagnostic types consist of cord-rouletted simple open and simple closed vessels with red-slipped rims, defined as "Fineware" or

"Chinaware" (which our project terms "Delta Ware") (Fig.6.37). According to McIntosh et al. Fineware disappears at the end of this phase (AD 350). Our studies, in contrast, have shown that Delta Ware continues in Horizons III and IV (see previous section), only disappearing by the end of Horizon IV (AD 1600). At Jenne-jeno, the early period is also characterised by small numbers of rockered motifs and cord-wrapped stick, which soon disappear. At Dia, however, the former type is absent, while cord-wrapped stick continues into Horizon IV. Another important difference is that we identified considerable quantities of paint (on 21% of rim sherds) for Dia's initial occupation periods (Horizons IA and IB), which seem to be absent in Jenne-jeno's initial occupation.

Upper IND Painted Ware Phase (=Phase III, AD 350 - 850). The application of white and/or black paint in linear or geometric designs characterizes this phase at Jenne-jeno (Fig.6.38). At Dia, however, paint only occurs in insignificant quantities during the beginning of the 1st Millennium AD. At Jenne-jeno the most diagnostic types include simple-rimmed carinated bowls (30%) with painted channelling above the carination and accordion pleat roulettes below (red-slipped rims), simple unrestricted cord-impressed rims with white linear paint (unslipped) and thickened out-turned rims with channelling and paint (red-slipped rims). The latter type usually constitutes dishes and plates.

Our investigations at Shoma have shown that carinated bowls occur only in very small quantities, consisting of 6% in Horizon II and 2% in Horizon IV (percentages refer to Unit C only). At Mara we identified 4% of carinated bowls in Horizon III and 6% in Horizon IV. The thickened, out-turned rimmed vessels, which have been identified as plates at Jenne-jeno, are also present at Mara, but in smaller quantities. In addition, they show different decoration types, often exhibiting a plain red-slipped surface or twisted cord roulettes, single channels, dragged comb or applied net. While paint is the most significant decorative element in Phase III at Jenne-jeno (20-50% of rim sherds), at Mara paint accounts only to 2%. Another important difference to Jenne-jeno is the continuation of Delta Ware at Shoma, which amount to 16% in Horizons II and III and to 15% in Horizon IV (percentages refer to all of Shoma's excavation units).

Upper IND Fine Channeled and Impressed Ware Phase (=Phase IV, AD 850 - 1400). The presence of fine, closely-spaced channelling, and an abundance of geometric impressed decoration, including comb, punctate, and stylus impressions characterize this phase at Jenne-jeno, which have also been identified at Dia (Fig.6.39). However, at Jenne-jeno a distinctive decorative motif is the appliqué of raised-relief zoomorphic or anthropomorphic figures, which is completely absent at Shoma and Mara.

Thickened out-turned rims from shallow dishes and plates remain a significant part of Jenne-jeno's assemblage. New rim forms appear, most of which are related to, or variants of, carinated forms: beaded rims with carination, T-rims and their variants, ledged rims, and inturned acutely carinated rims. At Jenne-jeno carinated bowls show red slip and plastic decoration on the rim and are unslipped with braided twine impressions below the carination. At Mara, they also exhibit red-slipped rims with single or multiple channels and black or/and white paint. They also feature dragged linear comb (in lines and semi-circles), and twisted cord roulettes.

T-rims, which are characteristic of Phase IV at Jenne-jeno, already appear in small quantities in Horizons I and II at Shoma. Also, we have not recorded any of Jenne-jeno's characteristic funerary urns. Their absence thus indicates an important evidence for different funerary practices, which might provide a clue to different population groups present at Dia.

In addition to these phases, the McIntoshs identified a subsequent phase from surface collected material in association with tobacco pipes (post AD 1400 date). Characteristic decoration includes larger versions of the channelling, stamping (arrayed in large triangles and lozenges) and oblique arrays of sawtooth comb impression. Also characteristic is the careless (with drips and splashes) application of red slip in broad zones over a yellowish paste. Our data proposes similar decoration types, which mostly consist of single and multiple channels, linear dragged comb, red washed paint and plain surfaces. Stamping is present in smaller quantities than those noted in the previous study (accounting to less than 1%), and only at Mara.

In conclusion, it can be suggested that Dia's ceramic assemblages should not be viewed as synonymous with Jenne-jeno's pottery. The most important distinction is that Delta Ware disappears by the end of Phase I/II at Jenne-jeno, while it continues at Shoma until the end of Horizon IV (AD 1600). Its abundant quantities in Horizons IA and IB indicate its popularity and suggest that Shoma's potters have kept the Delta Ware tradition alive, which during the later periods might have changed into a "prestige" or "ritual" ware. At Mara, on the other hand, we have not recorded any relevant quantities of Delta Ware (a total of twenty-seven sherds), which indicates an intrusive presence at Mara and that these sherds might have been brought over from the neighbouring site. As a consequence, it seems as if Mara's potters lacked the knowledge of manufacturing Delta Ware. However, Haskell et al. (1987) recorded pockets of Delta Ware pottery from Unit D6 at Mara. As a result, they suggested that Mara was already occupied during Phase I/II. This theory needs confirmation, however as there are no radiocarbon dates for these 'early' layers and because such early layers were not identified by our investigations.

Another type completely absent at Shoma and Mara are Jenne-jeno's 'burial jars' or funerary urns (ten such features were identified), which provide evidence for different funerary practices, possibly indicating the presence of different population groups. No sherds from such jars were encountered and at Shoma a total of 86 inhumations were identified, which suggests that sampling is not the cause for the seeming absence of funerary urns at Dia. At Shoma the dead were mostly buried on their side with flexed legs and arms, the hands covering the face, or, on their back with their hands folded on their pelvis (Bedaux et al. 2001). At Jenne-jeno some of the dead were also buried in shallow pits (four such inhumations were identified) (S. McIntosh 1995). However, their state of preservation was very poor. As a consequence little is known of their orientation and position.

In spite of these dichotomies, there are also a variety of similarities between Jenne-jeno's and Dia's ceramic assemblages, which primarily consist of similar rim shapes, decoration types and the application of red slip. Certain types, however, which might be characteristic of one period at Jenne-jeno (such as painted wares) might constitute a minor type of the same time period at Shoma and Mara. Alternatively, similar vessel shapes might exhibit different décor types. Or, what might have been a diagnostic type of Phase I/II at Jenne-jeno, might be present in all of Dia's occupational horizons. It is therefore the quantitative difference of vessel shapes and décor types, which mostly emphasizes the distinctiveness of each site.

The same, I believe, is true for Dia, which mostly shows quantitative differences rather than qualitative in vessel shapes and décor types, excepting the Faita/Delta ware assemblages of Horizons I to IV. As a result, it remains unclear to which degree the sites were interrelated, and whether similar and/or different population groups were present. Nevertheless, the occurrence of similar vessel shapes and décor types confirms the notion that some kind of affinities existed between Dia and Jenne-jeno, which is also claimed by the oral traditions, stating that Dia's inhabitants founded Jenne-jeno.

Even though I believe that Jenne-jeno and Dia should not be viewed as synonymous in terms of pottery sequence, it seems that the McIntoshs were on the right path in regard to their regional view, proposing that the upper Inland Niger Delta might have constituted a broad culture area, sharing many affinities in material culture, burial practices and settlement patterns. This I will illustrate in the following section.

6.7.2 Comparison of Pottery with Middle Niger Sites and the Niger Bend region

The site of KNT 2, located in the Lower IND or Lakes region, has yielded pottery clearly related to the Upper IND Fine Ware Phase (Raimbault 1991:324-370). They were found in the lowest deposits, which have been dated to the third and fourth centuries AD, and consist of simple open and restricted bowls, exhibiting black and white linear paint designs and accordion pleat roulettes, similar to the early types recognized at Jenne-jeno and Dia (Fig.6.40). However, their paste is markedly different. KNT 2 yields a mixture of organics and grog, which are not fine or high fired (MacDonald pers. com.). These simple open and restricted bowls with paint or cord roulette decors, have also been identified in the earliest Iron Age assemblages from the Middle Senegal valley, the Méma, the Bandiagara escarpment and the Niger Bend near Timbouctou (S. McIntosh 1995:364).

Affinities to Jenne-jeno's painted ware, dated to Phase III, have also been found at KNT 2 in levels dating to AD 400-680 (Raimbault 1991:369, S. McIntosh 1995:366). Their similarities are largely based on common décor types, including channelling, cord roulettes and paint. However, at KNT 2 there is a predominance of everted rims (Fig.6.41), and a paucity of carinated rims and potlids. Organic temper characterizes this assemblage. It is also documented from excavations at the nearby site of Toubel (GMB 1), which has been dated to cal. AD 340-605, and KWZ 1, where it has been found in layers dating to cal. AD 655-1015, and in many of the Lower IND Lakes Region sites. As a result, Raimbault suggested the presence of a "complexe culturel protohistorique de la zone lacustre" (1991:370). At Dia, however, paint décor is most common in the early occupation layers, decreasing in quantity during Horizons II, III and IV, while at KNT 2 paint has been recorded on the majority of the assemblage, ranging between 50 and 73%. At Dia carinated bowls occur only in limited numbers as at KNT 2. The latter's considerable number of everted rimmed ovoid jars are more spheroid in shape at Dia.

The fine channelled and impressed ware phase pottery, known from Jenne-jeno, and dated to cal. AD 900-1400, has been found in abundance in the Jenne-Mopti region of the eastern Upper IND, including Tougéres Doupwil and Galia. Indeed, the latter two sites' pottery also bear many resemblances with Dia's pottery assemblage of this time period, exhibiting (Fig.6.42) concave pot lids, bowls with incurved rims and rounded bases, carinated bowls with rounded bases, hearths with everted rims and three supports in the form of handles, large jars with rounded bases, bowls with everted rims and rounded bases and globular vessels with everted rims (Fig.6.42). The sites' funerary urns are also similar in style to the urns identified at Jenne-jeno, showing braided twine impressions, covered with an inverted pot. Short pottery cylinders, which were probably used as pot rests, and longer cylindrical drainpipes have also been recorded. Modes of decoration include various types of cord roulettes, comb impressions and incisions, paint, stamp, and fingernail impressions. Vessels with raised snake motifs (Bedaux et al. 1978:214) can be associated to similar types found at Jenne-jeno (S. McIntosh 1995:208). The latter site has also been characterised by the use of a new type of fine-toothed comb, which allowed the creation of extremely fine channelling on some of the pottery (S. McIntosh 1995:368), which has also been identified at Toguérés Doupwil and Galia (Bedaux et al. 1978:138).

On the eastern flank of the IND, the pottery of the Tellem period, which is dated to the eleventh through the fourteenth centuries AD, shows few similarities with the Upper IND Fine Channelled and Impressed Ware. Nevertheless, there is a significant evidence of contact between the Bandiagara region and the Upper and Lower IND, which is constituted by the Tellem tripod vessel (Bedaux and Lange 1983). It has been found from Niani (in Guinea) and Korounkouloukaré (near Bamako) (MacDonald 1996) to Fatoma, Jenne-jeno, and El Oualadji (S. MacIntosh 1995). However, we have not identified any Tellem tripod vessels at Dia, which contrasts with its presence at Koumbi Saleh in southeastern Mauritania.

Further downstream, at the Niger Bend, Gao's pottery assemblage shows affinities with ceramic traditions from Timbuktu and Gourma-Rharous and less so with the pottery from the Inland Niger Delta, including the Lakes region. However, the sites of Killi and El-Oualadji, produced the same red-slipped **bottlenecks** and other red-slipped wares, such as small jars and flasks, some bearing geometric patterns of comb decoration, which are identical to those from Gao (Insoll 1996). Indeed, red-slipped vessels have also been found in abundant quantities in all of Dia's occupational horizons. Similar vessel types can also be observed between Gao and the sites of Toguérés Doupwil and Galia, consisting of simple closed vessels, potlids, ledged and beaded everted rims. Other similarities can be delineated with the Jenne-jeno Phase IV and Dia Horizon IV pottery assemblages, which include the use of twine decoration, the presence of bottle necks, pot lids and carinated bowls.

However, at Gao a considerable quantity of pottery has also been identified, distinctively different to the ceramics of the upper IND. It consists of black burnished geometric decorated ware, and undecorated brown and black burnished ware (Insoll 1996:111-2). Moreover, Gao also received considerable amounts of imported glazed pottery from North Africa and Egypt and lustered wares from Spain, Egypt and Ifriqiya (Insoll 2003:245). It can thus be suggested that contact with the IND seems less visible the further downriver we travel.

The surface collected pottery from Ansongo and Bentia has provided various similarities with the ones from Gao, Timbuktu and Gourma-Rharous, and though much less with the pottery known from the Inland Niger Delta (Arazi 1999). Nevertheless, similarities have been identified, particularly in broad categories of decorative motifs. They include twine roulettes, cord wrapped stick roulettes, comb impressions, channelling, red paint and stabbed styles, which are common throughout the Inland Niger Delta. Red-slipped **bottlenecks** and other red slipped wares resemble the ones from Dia, Gao and the Lakes region sites (Killi and El-Oualadji).

Another group of pottery, showing strong affinities with Dia's assemblage, are the Faita ceramics from the Méma. Indeed, the identification of Faita ceramics in Shoma's oldest occupational layers, has led to suggest that Dia's population arrived via the Méma (MacDonald and Schmidt 2004), where the Faita facies has been dated at the site of Kolima Sud Est to 2648 BP, 2722 BP and 2521 BP (Takezawa 2004) (see section 4.3 for a description of Faita ceramics from the Méma and section 6.6 for a description of Faita ceramics at Shoma).

Ceramics from the Akumbu mound complex in the Méma, dated between the 7th century AD and the 14th century AD, have also shown strong affinities with Dia's and Jenne-jeno's pottery (Togola 1993). These similarities include the same decorative techniques, such as slipping, channeling, cord roulette impressions and black and white paint, as well as similar rim and vessel shapes. The latter consist of thickened out-turned rims, carinated vessels, bottles, open dishes and plates, domed potlids, and globular vessels with everted rims (ibid). Despite these affinities, the pottery of the two regions also show some radical differences. In contrast to Dia and Jenne-jeno, comb impressions and comb dragging was relatively rare in the Méma. Moreover, the most common temper in the Méma is organic material (probably chaff), in contrast to Dia, where almost all of the pottery was grog tempered.

In conclusion it can be suggested that Dia's affinities with other Middle Niger pottery traditions are mostly based on broadly similar decoration types and vessel shapes. During the first millennium BC and perhaps until AD 500, Dia might have had a considerable regional influence as its Fineware simple open and restricted bowls with paint decor and cord roulettes (accordion pleat and twisted twine roulettes) have been found over a wide area within the lower and upper Inland Niger Delta. During these earlier periods links might have also been stronger between Dia and Jenne-jeno, exemplified by the presence of Delta Ware and common decorative motifs, such as cord wrapped stick and cord roulettes. According to oral traditions Dia's inhabitants founded Jenne-jeno, which confirms Dia's initial influence on Jenne-jeno. However, this influence seems to have waned in subsequent periods. Frequencies of décor types and vessel/rim shapes become more discordant, which is most clearly illustrated for the period known as the "Upper IND Painted Ware Phase", where Finewares continue at Dia and Painted Wares flourish at Jenne-jeno (S. McIntosh 1995:372). The beginning of the second millennium AD might have witnessed a resurgence of broader commonalities, which is most clearly indicated by the presence of impressed and channelled decoration types, especially at Dia and Jenne-jeno, as well as other IND sites. However, the wide distribution and high frequency of funerary urns from Jenne-jeno up to the Lakes region (see Chapter 4) stands in stark contrast to Shoma and Mara, where none have been identified. This attests to different burial practices, which might indicate the sites' increasing isolation from the rest of the IND.

However, it should be emphasized that all IND sites show very stable pottery traditions since the beginning of the first millennium AD, contrasting strongly with the political and social events that characterized this era. It might thus be suggested that the ceramic evidence is not the most illustrative artefact from which to infer social developments. Moreover, the lack of visibility of ethnic groupings in IND ceramics, which contrasts with today's 'ethnical' pottery traditions, confirms the notion that pottery provides only limited evidence from which to infer the identity of population groups, their regional influences and social resemblances. Thus, it seems imperative to consider other categories of material evidence as well as faunal and archaeobotanical remains to gain a more complete image of Dia's past population groups.

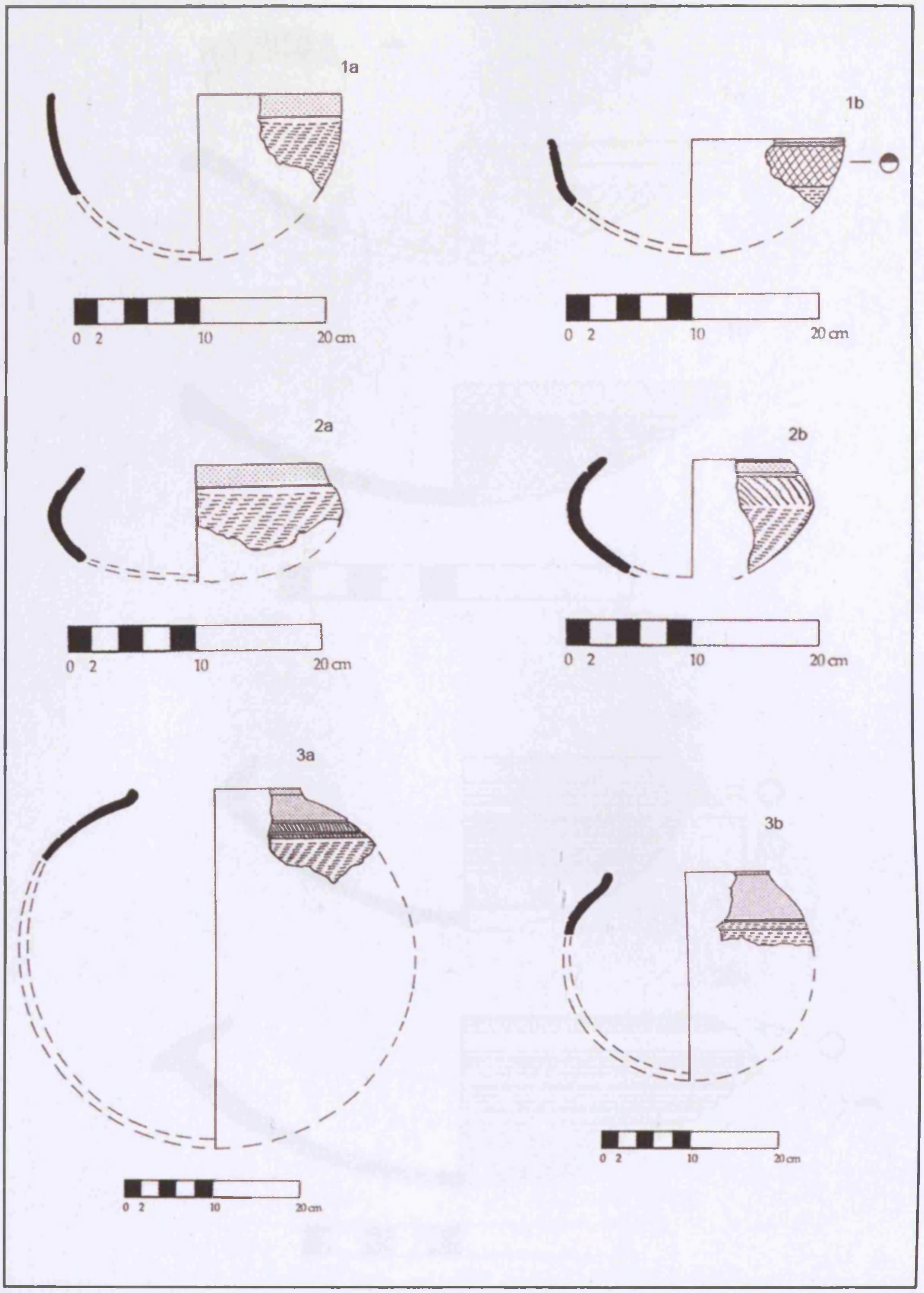


Figure 6.37 Diagnostic Jenne-jeno Phase I/II pottery (after S. McIntosh 1995)
1a - simple unrestricted twine-impressed (CR-6 at Dia) vessels with slipped rims
1b - simple unrestricted vessel with red paint (cross-hatch) and twine impression
2a - simple restricted twine-impressed vessels with slipped rims
2b - simple restricted vessels with incision below slipped rims and twine impression
3a - restricted twine-impressed globular vessels with slipped, slightly everted rims
3b - same as previous type, with additional incision

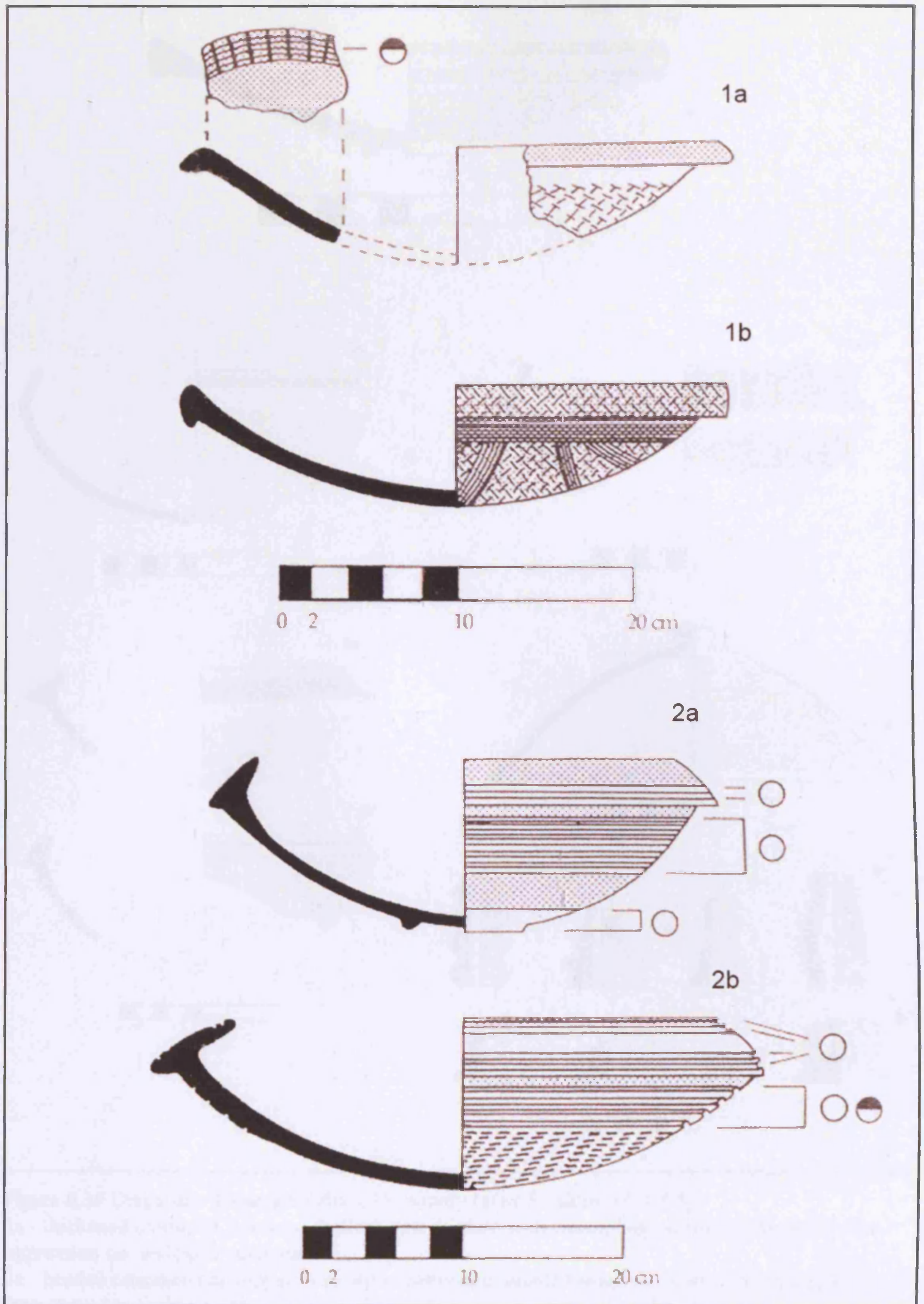


Figure 6.38 Diagnostic Jenne-jeno Phase III pottery (after S. McIntosh 1995)
1a -shallow vessels (dishes or plates) with thickened outturned rims, paint applied over channeling on the interior of the vessel and twine impression on the outside
1b - a variant of the previous type with linear and geometric paint over channeling and twine impressions
2a - simple carinated rim with slipping, channeling and paint (linear white paint) on rim above and below the carination
2b - variant of former type, with added twine impression on unslipped surface

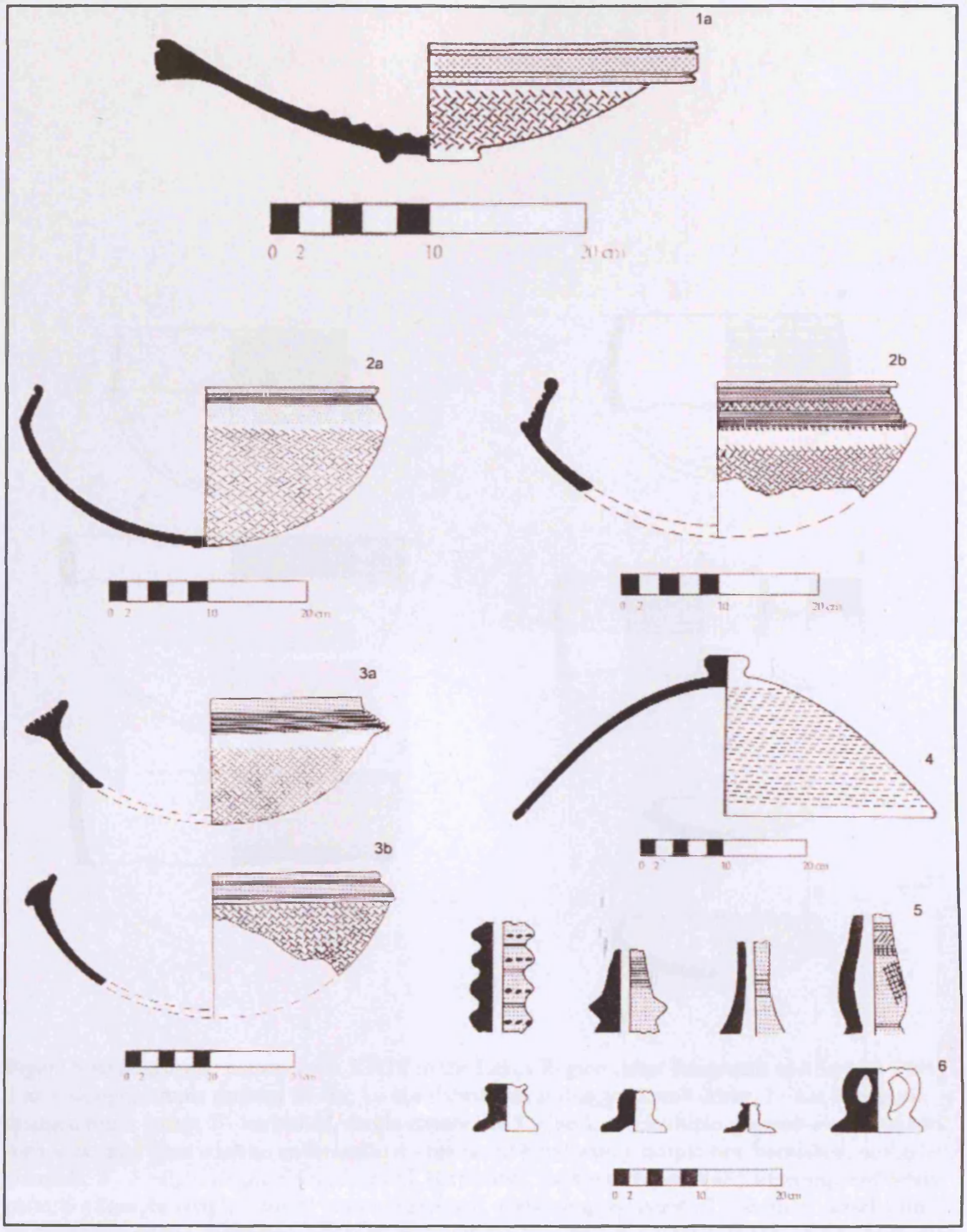


Figure 6.39 Diagnostic Jenne-jeno Phase IV pottery (after S. McIntosh 1995)
1a - thickened outturned rim from shallow dish or plate with channeling on slipped rim and twine impression on unslipped outer surface
2a - beaded carinated red slipped rims with channeling, braided twine decoration on unslipped surface
2b - variant of previous type, with fingernail impression at the carination
3a and 3b - ledged T-rims with identical decorative attributes as type 2b
4 - domed potlids with twine impression on unslipped surface
5 - bottle necks
6 - pedestal pot bases; the far right is an example of the curved tripod legs of Tellem bowls, which have also been identified in Phase III

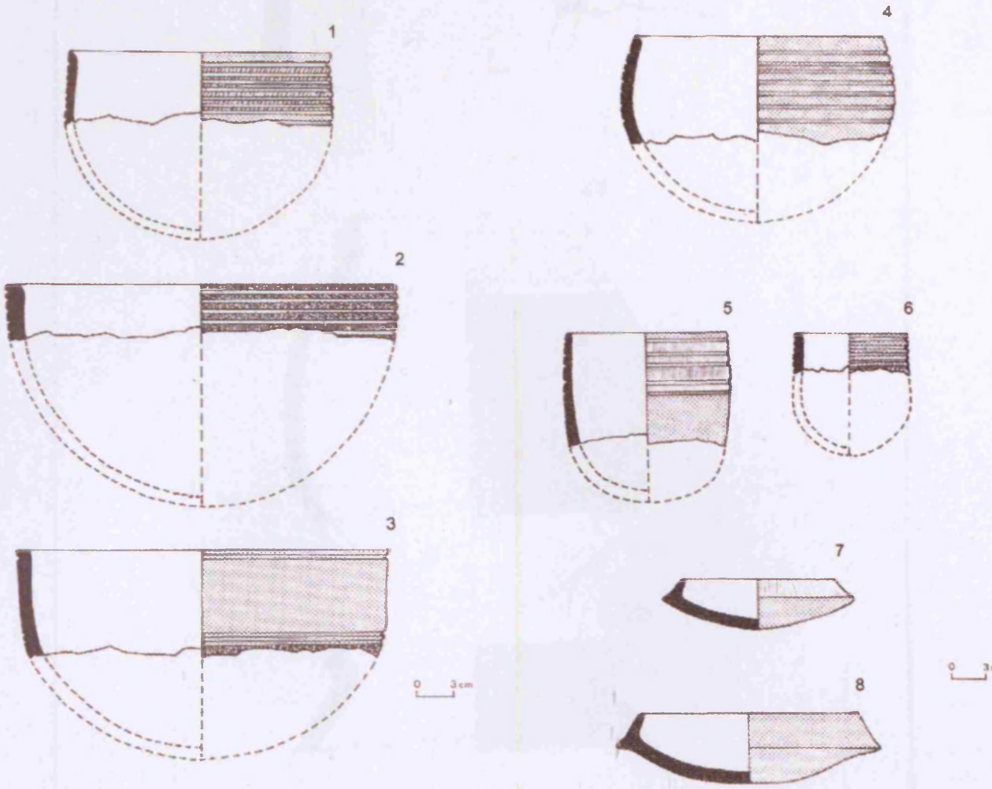


Figure 6.40 Diagnostic pottery from KNT2 in the Lakes Region (after Raimbault and Sanogo 1991) 1 to 3 Straight simple rimmed bowls; 1 - burnished, linear dragged comb décor; 2 - not burnished, dragged linear comb; 3 - burnished, single channel on the neck and multiple channels in the middle with accordion pleat roulette underneath; 4 - restricted bowl with a simple rim, burnished, multiple channels; 5 - Straight simple rimmed vessel, burnished, multiple channels and superimposed white paint; 6 - Straight simple rimmed vessel, burnished, linear dragged comb; 7 - Shallow vessel with acutely inturned rim, burnished, white paint on the lip; 8 - Shallow vessel with ledged rim, burnished, plain surface

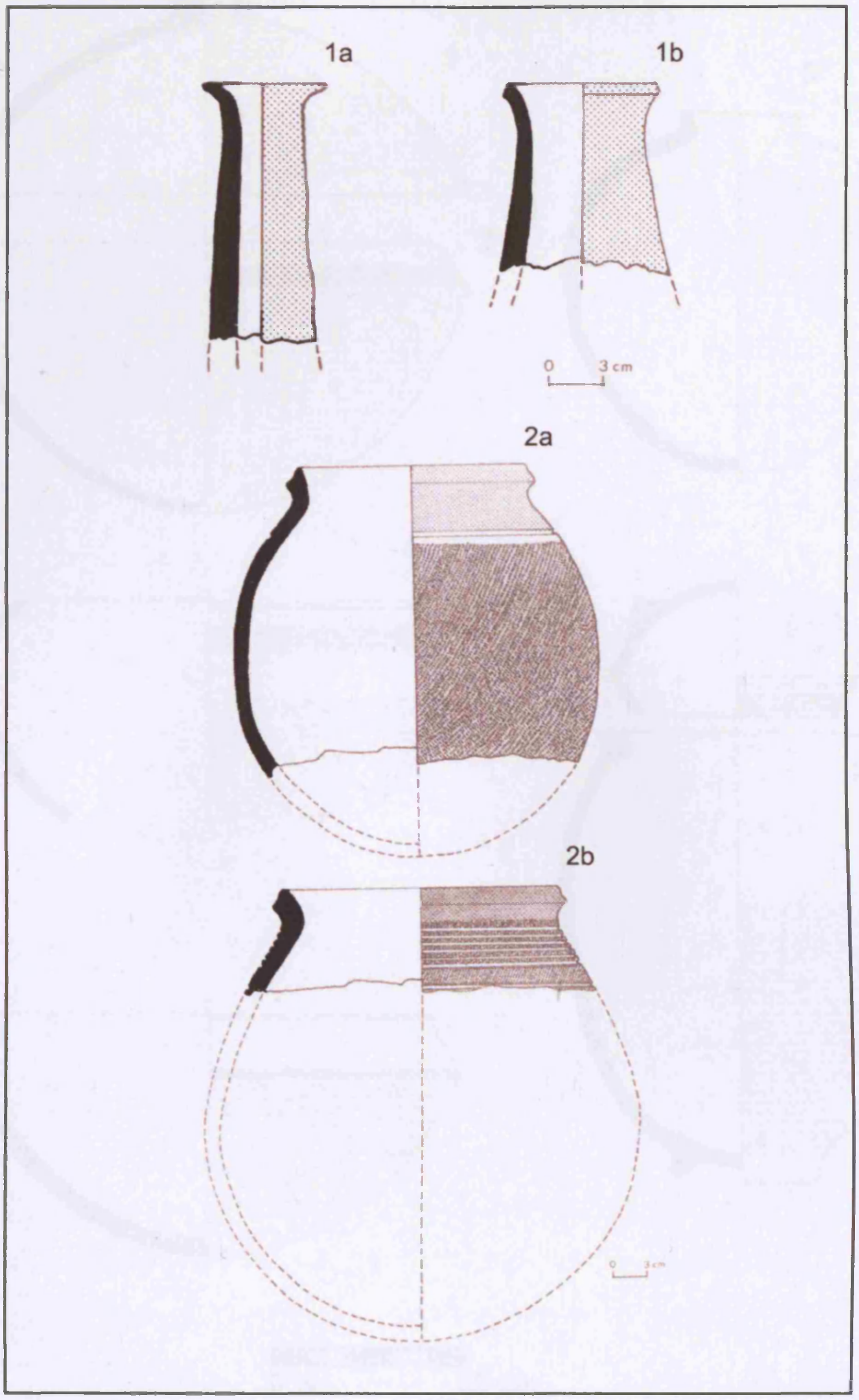


Figure 6.41 Diagnostic pottery from KNT2 (after Raimbault and Sanogo 1991)
1a - red slipped bottleneck with everted rim, 1b - variant of previous type, 2a - globular pots with everted red slipped rims and twine decoration, 2b - same pot type with twine decoration and linear incisions

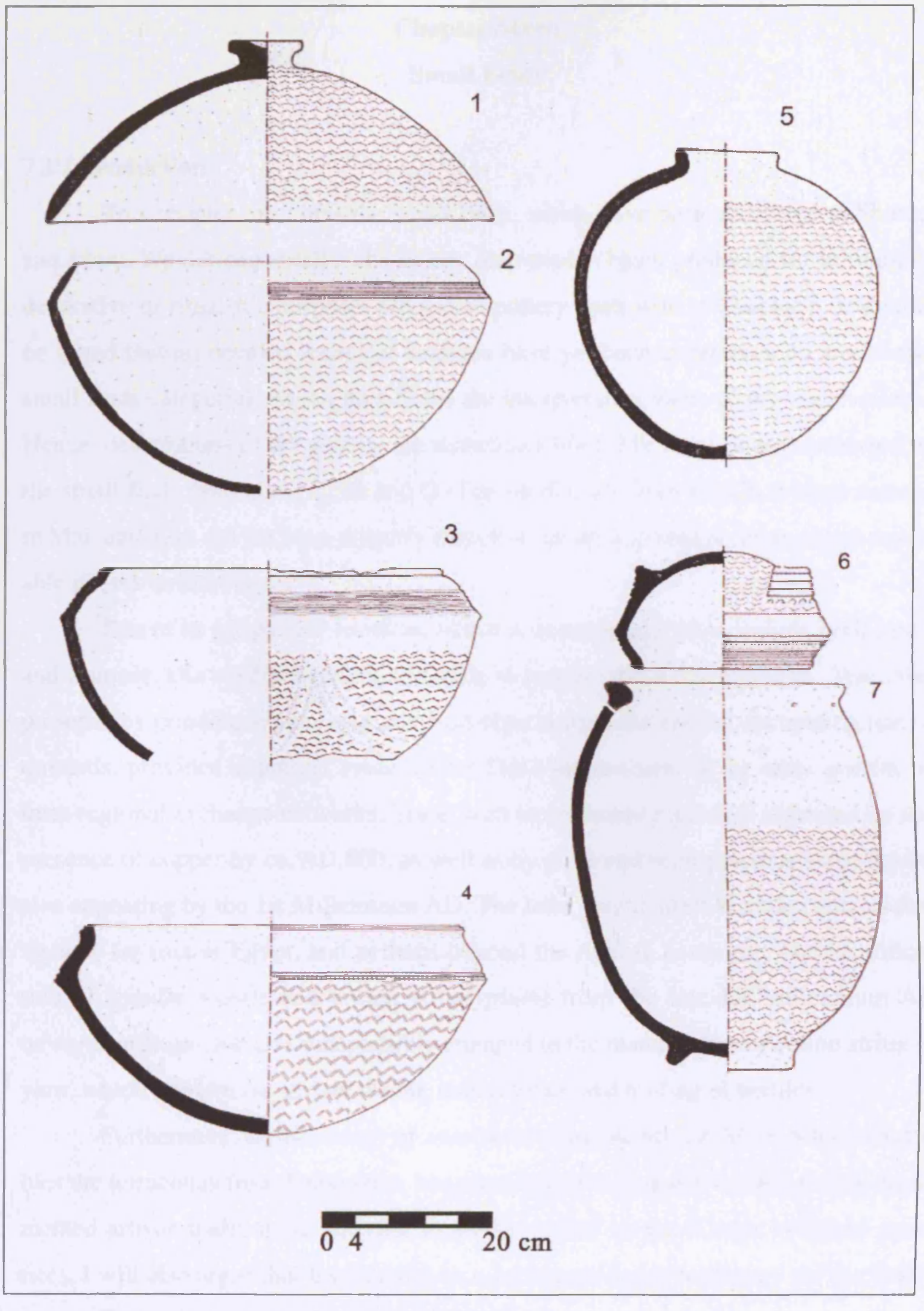


Figure 6.42 Diagnostic pottery types from Toguérés Doupwil and Galia (after Bedaux et al. 1978), which bear the most resemblences to the pottery from Dia and Jenne-jeno
1 - Dome-shaped potlid with accordion pleat roulette
2 to 4 Carinated vessels with linear dragged comb on the lip (Types 2 and 3) or multiple channels (Type 4), accordion pleat roulette (Types 2 to 4) and superimposed geometric incisions (Type 3)
5 - Straight vessel with an everted rim, globualr shape and accordion pleat roulette
6 - Carinated vessel with legs, dragged linear comb on the lip and accordion plear roulette
7 - Funerary urn with everted rim and accordion pleat roulette

Chapter Seven
Small Finds

7.1 Introduction

This chapter examines the small finds, which have been recovered at Shoma and Mara. We defined small finds as any man-made object, produced for utilitarian, decorative or ritualistic purposes other than pottery dealt with in Chapter 6. It should be stated that no detailed technical analyses have yet been undertaken on any of the small finds categories, which thus limits the interpretative value of my observations. Hence, descriptions of the objects are sometimes brief. My focus is also restricted to the small finds from Units C, M and Q (The small finds from Unit S at Mara remain in Mali and have not yet been properly recorded. To my knowledge, there are no available photos or drawings.)

Due to its geographic location, which is in an alluvial plain lacking both stone and iron ore, Dia needed to engage in trade to procure these raw materials. Thus, the presence of grinding stones, slag and iron objects from the earliest occupation layers onwards, provides important evidence for Dia's involvement in the early growth of inter-regional exchange networks. Trade with more distant regions is indicated by the presence of copper by ca. AD 600, as well as by glass and semi-precious stone beads, also appearing by the 1st Millennium AD. The latter might attest to trade contacts that went as far east as Egypt, and perhaps beyond the African continent. The identification of spindle whorls and cotton (*Gossypium*) from the late 1st Millennium AD onwards indicate that Dia was possibly engaged in the manufacture of cotton string or yarn, which might have served for the manufacture and trading of textiles.

Furthermore, the discovery of a terracotta figurine head at Mara, which resembles the terracottas from Jenne-jeno, has provided new evidence for this poorly documented artistic tradition. In addition to the light shed on pre-Islamic religious practices, I will also argue that they should be viewed as relevant testimony for the emergence of complexity in the Middle Niger.

In view of these diverse artefacts and their origins, I will suggest that Dia might not have been as closed to the outside world as oral traditions claim it was. Maybe Dia did not constitute a major commercial centre such as Jenne-jeno, but its strategic location between the Méma and the Inland Niger Delta might have served as a trade axis for interregional exchange and trade networks.

7.2 Ceramic and fired clay artefacts

7.2.1 Spindle whorls

A total of 16 spindle whorls have been identified in Units C, M and Q (Table 7.1). The spindle whorls were found in a variety of contexts, such as living floors, pits, sand layers and wells, mostly dating to Horizon III and IV layers. The spindle whorls are the common black terracotta type found in many other regions of West Africa (Bedaux et al. 1978; Chavane 1985; McIntosh and McIntosh 1980; S. McIntosh 1995). They are present in a wide variety of shapes and sizes, and most are elaborately decorated with incised lines, triangles, circles, and dots (Fig.7.1 to 7.5).

Spindle whorls, used to spin both wool and cotton threads, might indicate a local weaving tradition. Indeed, the identification of approximately 560 whole cotton (***Gossypium sp.***) seeds and 1045 seed fragments indicates that cotton was grown locally and may have been commonly spun using such objects (Fig.7.6). A small number of cotton seeds (n=10) were recovered from Horizon I layers, while the majority came from Horizons III and IV. AMS dating of two seeds (A079 and M099) have provided dates of Cal AD 1403-1469 and Cal AD 1283-1397, suggesting that this cotton was Old World in origin, either *G.* ***arboreum***, probably of the Indian subcontinent, or *G. herbaceum*, of Africa or the Near East (Murray pers. communication).

The penetration of cotton and weaving to sub-Saharan Africa remains a speculative subject. The earliest known cottonseeds and seed hairs come from the Nubian site of Afyeh, which have been dated to 2600-2400 BC (Chowdhury and Buth 1971). These seeds, identified as *Gossypium arboreum* L. var. *soudanense* or *G. herbaceum* L. var. *africanum*, were found in animal dung and appear to represent the use of cotton seeds as animal fodder, rather than the cultivation of cotton for fiber (Zohary and Hopf 2001). Carbonized cotton textiles recovered from a cemetery in Meroë dated to 300 BC–AD 300, and written references to cotton occur from about AD 350 (Griffith and Crowfoot 1934). It is argued that these textiles were possibly made from *G. arboreum* var. *soudanense*, but definitive determination was not possible.

Remarkably well preserved cotton textiles from the Tellem burial caves of the Bandiagara (Mali) have been dated between the 11th -12th century AD (Bedaux 1991). The cotton objects from these caves consist mainly of blankets, tunics, skirts, and head coifs and caps. The different cotton textiles are basically identical in weaving technique, decoration and form, suggesting they were woven by a single group of people. Features found on the pieces however, bear similarities with weavings of various modern groups of central West Africa, further suggesting some level of regional homogeneity (Bolland 1991). Based on the facial morphology of some of the skeletons, it is thought the Tellem may have come to the Bandiagara from further south, perhaps set in motion by the fall of the Ghana empire. Their occupation of the Bandiagara seems to date to the 11th - 15th centuries, but whether the Tellem migrated elsewhere or died out is unknown. It appears rather certain that the Dogon and Tellem are unrelated, though some Tellem individuals may have later assimilated into Dogon groups (Bedaux 1991).

Other textile finds of a hemp-related fibre are known from the 8th century at the settlement mound of Tongo Maaré Diabal in the Gourma region (MacDonald and Handley pers. comm.).

Cotton pollen, 13 disques à cordeler, and 5 spindle whorls were recovered from 11th century levels at Ogo, in the Middle Senegal Valley (Chavane 1985). Disques à cordeler are round and flat perforated ceramic disks, with a diameter between 8 and 16cm, and thickness of about 2cm (ibid.:143). The large central perforations range between 1 and 4 holes, and the smaller lateral perforations number between 4 and 6. There is generally some sort of décor incised on one side of the disk. Disques à cordeler are thought to be used in the manufacture of cordage, perhaps in a manner similar to spindle whorls. These disks are less common outside of the Middle Senegal Valley. Spindle whorls from Ogo resemble the shape, size, and manufacture of those found in Middle Niger Delta sites.

A single charred cottonseed and 22 fragments came from excavations at Gao on the Niger Bend, which have been dated to AD 1399-1445 (Fuller 2000; Insoll, 2000). The cottonseeds were recovered from an ashy deposit found in a ceramic vessel at the base of a refuse pit at the site of Gadei. These finds came from a single flotation sample collected from the site, thus it is likely that other cottonseeds were present in this and other contexts.

Cottonseeds and spindle whorls may serve as proxy evidence for string or yarn production, but there is no archaeological evidence for cotton cloth manufacture at Dia, as weaving materials such as looms and other related equipment were not recovered. Some support for textile production throughout the Sahel and savanna comes from Arabic texts. Islamic chronicles state that in the Sahel, thriving markets existed for cotton cloth and that it was a principal commodity of trade between towns to the north and south, and west to the Atlantic (Brooks, 1993; Curtin, 1975). High quality cotton weavings made by the Malinké for trade in salt during the Mali Empire were traded west to the Senegambia (Curtin 1975). These apparently became so valuable that European traders could more profitably trade in cloth than in gold (Curtin 1975).

7.2.2 Beads

A total of eleven clay beads have been identified from Units C, M and Q (Table 7.2). They are either black or buff-coloured with smooth undecorated surfaces, showing a variety of shapes such as elliptical, round and cylindrical (Fig.7.7 and 7.8). Their diameters range between 0.8 and 2.6cm. They have been found in small numbers in deposits of all horizons. However, they seem to occur in much larger quantities at Shoma as seven clay beads have been recorded from one unit (Unit C), while only four clay beads have been found in two units at Mara (Units M and Q at Mara). These clay beads might have been produced locally.

7.2.3 Figurines

The Inland Niger Delta of Mali once constituted home to one of West Africa's major terracotta traditions. Unfortunately, most of what are known as 'Djenne' or 'Middle Niger' terracottas, are unprovenienced looted specimens in European and American museums and private collections. No formal count exists. Estimates mention, "hundreds, perhaps even thousands" (McIntosh 1996:53). Their acquisition has usually been the result of illicit excavations, which have left the Inland Niger Delta as one of the most heavily looted areas on the African continent. As a consequence it has been virtually impossible to establish their temporal and cultural context.

The discovery of a terracotta figurine head from controlled archaeological excavations at the site of Mara represents together with the corpus of Jenne-jeno statuary (McIntosh and McIntosh 1979:51-53, McIntosh 1989:74-83, McIntosh 1995:214-15) the only examples of Middle Niger terracottas found in archaeological contexts. Despite their modest quantity in relation to the ones from unknown contexts, Jenne-jeno's and Mara's corpus of terracotta statuary represents the most essential collection for placing the art of an urban civilization into a temporal and cultural context. Mara's terracotta figurine head was recovered in Unit Q. It was identified 70 cm below the surface in a secondary depositional context, which in this case refers to a garbage area. We had associated charcoal radiocarbon dated, giving us at least an indication of the time period the object was deposited. The charcoal sample (GX-28751) yielded a date of Cal AD 1280-1400. Hence, the terracotta head must have been deposited some time between the end of the thirteenth and the fourteenth century. Since no associated architectural remains were identified, it seems as if this portion of Mara represented the outer limits of a settlement, functioning for the deposition of ritual goods and domestic rubbish. The layer above, which constitutes Unit Q's most recent occupation, is characterized by a circular mudbrick structure filled with considerable layers of ash and faunal remains, indicating settlement growth during the final stages of habitation.

Mara's figurine head clearly resembles the common definition of the northern Delta style of terracottas (Evrard 1980:290) (Fig.7.9 to 7.11): "A cylindrical cranium, narrow and elongated, while the lower end of the face is flattened along the axis of the chin. The eyes are bulging and start out of the face with a triangular nose, rounded at its extremity. The mouth is composed of double rounded, generally parted lips". According to collectors of these statues, the proportions between the height of the head and the total height of the body are constant, of which the head represents between a third and a fourth of the total height of the statuette (De Grunne 1982:25). Hence, Mara's terracotta figurine might have once measured a total height of 21 to 28cm (the head's actual length measures 7 cm and its width 4 cm).

Jenne-jeno's terracottas have been associated with domestic ritual contexts as they were identified within the wall foundation of houses (R. McIntosh and S. McIntosh 1979; R. McIntosh 1989; S. McIntosh 1995). They include three representations of kneeling statuettes, which consistently date between the eleventh and thirteenth century AD (ibid.). It has been suggested that they were deposited in the course of a ritual directed toward ancestor worship (R. McIntosh and S. McIntosh 1979:52). Ancestral cults supposedly continued to flourish in Djenne as late as the beginning of the 20th century, when Monteil recorded small ancestral 'altars' in the entryway of many houses (1971:136-137). They consisted of a platform, on which was placed a human representation of the revered ancestor to whom sacrifices were made through the medium of the statuette (ibid.). However, one may view Monteil's observations with certain reservations as Djenne was already marked by a fervent adherence to Islam since at least the 14th century, according to numerous historical and oral traditions.

All other Jenne-jeno terracottas were identified in secondary deposition contexts. They include various figurine heads and the famous statuette torso, which have been dated to the superior layers of Phase IV or AD 1300-1400 (McIntosh 1995:221). Their location in the rubbish tip peripheral to the shrinking settlement correlates with the find spot of Mara's figurine head. It has been argued that this period, which is associated with the Mali Empire and a more widespread acceptance of Islam, was characterized by the rejection of ancient beliefs systems (McIntosh 1989:82). As a result, the Middle Niger terracottas, which presumably portray deified royals and ancestors, were removed from their original contexts within house foundations to be deposited in a "desacralized" portion of the settlement.

Ritual objects are usually thought to contain tremendous power. They can either be used as a medium from which to communicate with the spirit world or to which sacrifices are made, such as in the case of an ancestral cult. Hence, it became a widespread custom - historically - to destroy the fetishes' power by burning them (in the case of wooden sculptures). Delafosse records an occurrence in the 1860s when Ba-Lobbo successfully converted the Somono, a non-Muslim fishing population inhabiting the banks of the Niger River (1867, vol. 2:295): "les Somono..., dont beaucoup étaient encore païens, brûlèrent leurs idoles, se convertirent en masse à l'Islam et bâtirent des mosquées...". In this light, it seems reasonable to believe that the Middle Niger terracottas found in rubbish pits might have represented cult objects.

In addition to the Middle Niger terracottas' religious affiliation, I would also like to suggest considering their artistic significance in the context of an urban society. Archaeological investigations of urban developments in the Inland Niger Delta of Mali have shown to provide a scenario unlike the 'classic' picture of urbanism elsewhere. The most prominent example is the IND's apparent lack of monumental architecture and elites (McIntosh 2000). However, it should be stressed that these figurines constitute a rich heritage of an urban population's artistic tradition, which flourished during the end of the first millennium AD until at least the middle of the second millennium.

Units C, M and Q yielded seven other clay fragments of what appear to have also been figurative objects (Table 7.3). They constitute fragments, which resemble a foot, a leg, a torso and a tail, maybe representing fragments of cattle figurines (Fig.7.12). Indeed in the trash pits dating to Horizons III and IV in Units A and B a considerable amount of terracotta cattle figurines and fragments have been identified, of which one example is depicted in Figure 7.13, showing the characteristic pointed legs and smooth elongated body. Humpless cattle figurines have also been identified throughout the sequence at Jenne-jeno (S. McIntosh 1995). Stylistically, these are similar to other cattle figurines found throughout the Sahel from the Late Stone Age into the Iron Age.

7.2.4 Miscellaneous Ceramic Objects

The following individual clay objects have been identified at Shoma and Mara (Table 7.4).

C022/a001 and C043/a001 are ceramic drainage pipes. They are decorated with multiple cord roulettes and red paint (see Fig.5.19). Similar drainage pipes are still in use, usually situated at the top of compound walls directing rainwater to the streets. One (C022/a001) has been found in association with the western wall of Unit C (Horizon IV), while the other has been found in a wall melt context of the same horizon. The presence of drainage pipes is indicative for "Sudanese Style Architecture", characterised by rectangular mudbrick structures and flat roofs, indicating that there may even have been two-storey structures present at Shoma.

C064/a001 is a perforated clay cylinder, which might have been used as a net sinker or net weight (Fig.7.14).

C085/a009 might have functioned as a ceramic pedestal, which could hold a pot with a rounded bottom (see Table 7.4; no illustration available).

C092/a005 is a pottery disc with rounded edges, showing accordion plaited strip roulettes (Fig.7.15). Similar discs have been found in Jenne-jeno (S. McIntosh 1995) and Gao (Insoll 1996), where they have been identified as weights.

One rectangular orange slipped fired brick has also been found in Unit S (Fig.7.16). Unfortunately, its exact provenance remains unknown, as its records have been lost. It is the only fired brick identified on Shoma and Mara. A considerable number of fired bricks have also been identified at Jenne-jeno, mostly dating to Phase IV layers (S. McIntosh 1995). It has been suggested that they were probably used to reinforce areas subject to extreme wear (door sills) or for decorative effects (ibid.).

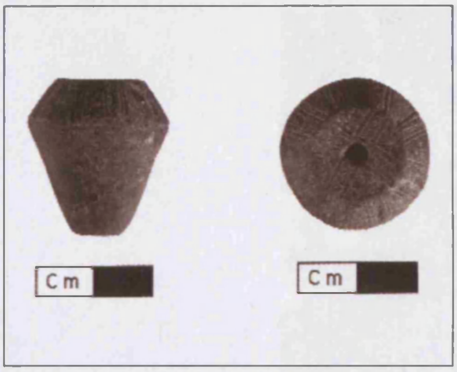


Figure 7.1 Spindlewhorl (C067/a001) with geometric incisions, Unit C, Shoma

Figure 7.2 Spindlewhorl (C054/a001) with geometric incisions, Unit C, Shoma

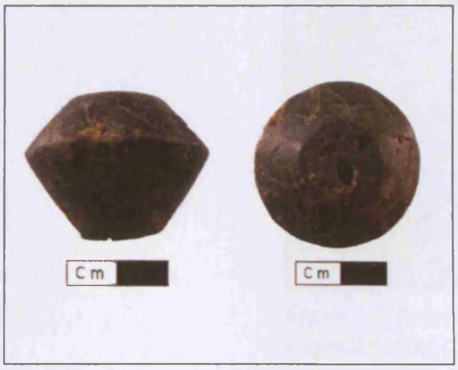


Figure 7.3 Spindlewhorl (C037/a001) with geometric incisions Unit C, Shoma

Figure 7.4 Spindlewhorl (C077/a005) with geometric incisions, Unit C, Shoma

Figure 7.5 Spindlewhorls from Mara (Units M and Q); A - M011/a001, geometric incisions, red paint between the triangles; B - M068/a001, geometric incisions; C -M084/a001, burnished, plain surface; D - M032/a003, geometric incisions, red paint above the parallel lines and in between the triangles (underneath)

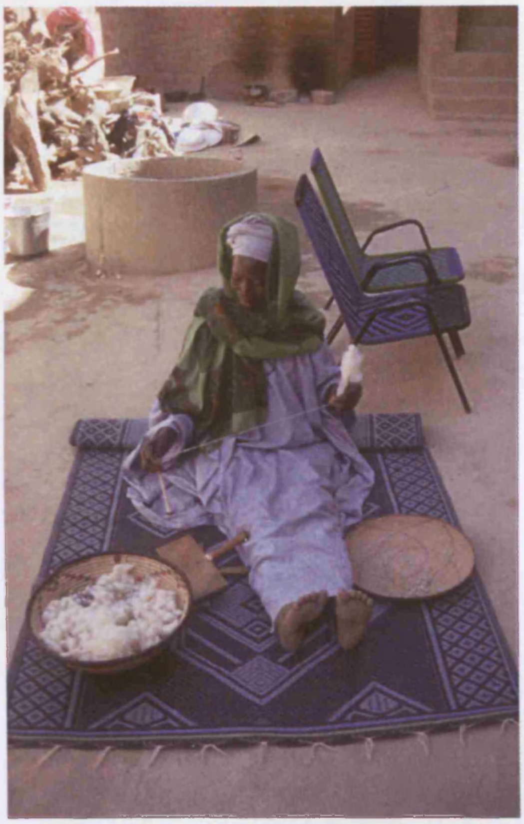


Figure 7.6 Spinning cotton threads with the use of a spindlewhorl (Dia 1999).

Figure 7.7 Clay beads from Unit C, Shoma; from left to right: C072/a001, C098/a003, C098/a001

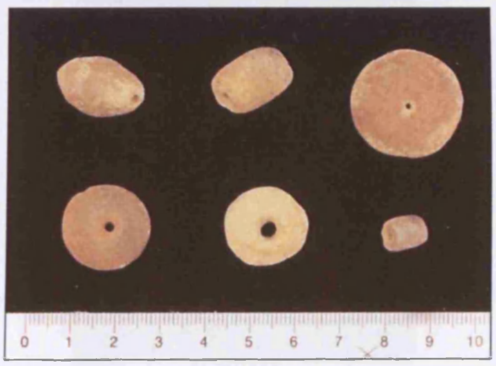


Figure 7.8 Examples of clay beads and their various shapes from other excavation units at Shoma

Figure 7.9 Terracotta figurine head from Unit Q (Q017/a001) at Mara, frontal view

Figure 7.10 Terracotta figurine head from Unit Q at Mara, side-view (left)

Figure 7.11 Terracotta figurine head from Unit Q at Mara, side-view (right), red paint visible

Figure 7.12 Terracotta fragment, torso and three legs (Unit Q, Q034/a001 Mara), probably a cow

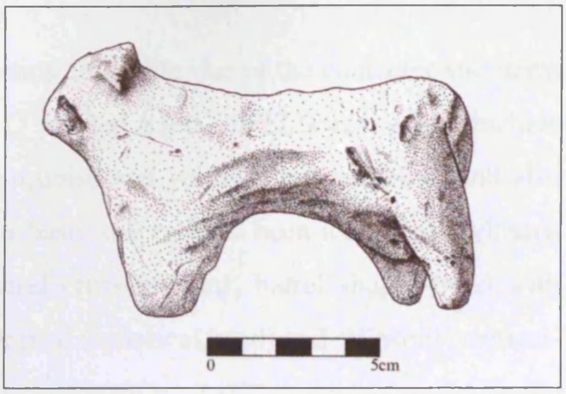


Figure 7.13 Terracotta cow from Shoma, Unit B (Context 044), Horizon IV

Figure 7.13 Terracotta netweight, Unit C (C064/a001), Shoma

Figure 7.14 Pottery disc with rounded edges, Unit C (C092/a005), Shoma

Figure 7.15 Fired mudbrick from Unit S, Mara.

7.3 Glass and Stone Beads

Glass and semi-precious stone beads constitute one of the characteristic items of long distance trade. Units C, M and Q yielded a total of 23 beads, which include monochrome glass (blue, red, green, turquoise and yellow), red carnelian and also quartz (Table 7.5, Fig.7.16 to 7.20). Four basic shapes have been identified: cylindrical (bead with consistently shaped lateral cross-section), barrel shape (bead with curved body and flattened-off ends), spherical (spherical bead) and ellipsoid (vertically flattened spheroid bead).

Chemical analyses, which might offer clues on the provenance of these beads, have yet to be undertaken. Nevertheless, it might be suggested that the monochrome glass beads constitute the so-called "trade wind" beads, which have been found on many sites in sub-Saharan Africa. In West Africa they have been identified on sites such as Koumbi Saleh and Tegdaoust in Mauritania (Berthier 1983, 1997), Gao at the Niger Bend (Insoll 1996, 2000), El Oualadji (Desplagnes 1907) and Jenne-jeno (S. McIntosh 1995) in the IND and Igbo Ukwu in Nigeria (Shaw 1970), where they have mostly been recorded in layers dating to the beginning of the 2nd Millennium AD.

The possible points of origins for "trade wind" beads are as diverse as the Indian sub-continent, Morocco, Egypt, the Near East and Venice, apparently reaching the West African Sahel by the early to mid second millennium AD. However, at Dia three of these glass beads have been found in layers dating to Horizon II (0-500 AD), while two have been found in Horizon III layers, dated between AD 500-1000. At Akumbu A in the Méma and Jenne-jeno, monochrome glass beads have also been found in layers dating to the mid first millennium AD (Togola 1993; S. McIntosh 1995). Furthermore, recent investigations at Kissi in Burkina Faso have revealed hundreds of such glass beads associated with human burials, dating from the early first millennium AD onwards (Magnavita et al. 2002). Hence, the trans-Saharan trade in glass beads might be older than previously believed.

However, the majority of glass beads have been recovered from Horizon IV. One of them (Q013/a001) has been identified as a folded glass bead, showing white "zig-zag" patterns on a black surface (Fig.7.17). Folded glass beads are usually known from the Middle East, whereby the layers of glass are folded over, creating the patterned lumpy bead (Lucciola 2003). These beads have been correlated with the Islamic world (North Africa and the Near East), which had a prospering bead production between the 7th and 14th century (ibid.). Islamic beads developed with distinctive methods of decoration using trailing, feathering and dragging and the folded technique. They bear the influence of Islamic religious dictates and the subsequent use of pattern and stylisation.

The chronology of two beads found in Horizon I, is somewhat disturbing. I have thus interpreted them as intrusive finds. They include a so-called Venetian "eye" bead (C089/a002), showing white, blue and yellow spots on a black surface (Fig.7.18). Venetian eye beads usually date to the middle of the second millennium AD, which stands in stark contrast with the identification of this bead in layers dating between 800-400 BC. The second bead (C064/a005) recovered in Horizon I layers is made of quartz and is of considerable size, measuring 4.2cm in length and 2.7cm in width, weighing 72.0 grams (Fig.7.19). One of our Malian team members thought that it resembled what is locally known as a "Louani", which is used by Peulh women as a hair dĕcor.

Another group of "exotic" imports obtained through long-distance trade connections, are four red carnelian beads (Fig.7.20). The only available source of carnelian, which could have been exploited in West Africa is located in the Sahara, 50 km north of Kidal in the Adrar des Iforas (Gaussen and Gaussen 1988:247). It has been suggested that at Gao carnelian beads were being produced from the aforementioned source (Insoll 1996, 2000; Insoll and Shaw 1997). Nevertheless, there is also a possibility that these beads were imported from Egypt, which is the most cited source for carnelian in Africa. Another major supplier was India, where at production centres such as Cambay, carnelian beads were shipped to Egypt via the Red Sea from where they have been traded as far west as possibly Gao on the Niger Bend (Insoll 2000). All carnelian beads are relatively recent, having been found in Horizon IV layers on Mara in Unit M.

These results have provided further evidence that a trans-Saharan trade in glass beads already existed as early as the beginning of the first millennium AD, and that Dia participated in this trade. Even though Dia might not have constituted one of the historically known trading centres, it seems as if it was actively involved, not only in inter-regional trade but also in long-distance trade. The presence of carnelian beads adds further weight to Dia's involvement in exotic trade items, which might have arrived from distant places as far away as Egypt, or maybe even India.

Figure 7.16 Collection of monochrome glass beads from Unit C, Shoma.

Figure 7.17 Folded glass bead from Unit Q (Q013/001) at Mara.

Figure 7.18 Venetian "eye" bead from Unit C (C089/a002) at Shoma.

Figure 7.19 Quartz bead from Unit C (C064/a005) at Shoma.

Figure 7.20 Carnelian beads from Shoma and Mara.

7.4 Stones

7.4.1 Grinding Stones

Dia's grinding stones and grinders are made of sandstone, of which there are no available sources in the Inland Niger Delta (Mauny 1961; S. McIntosh 1995). Hence, the sandstone must have been imported. The closest sandstone sources are the Boulel ridge in the Méma (Togola 1993) and the Bandiagara Plateau, which is located to the southeast of the Inland Niger Delta. The latter region apparently furnished Jenne-jeno with grinding stones made of sandstone (S. McIntosh 1995:247). However, in the case of Dia's grinding implements it might be possible that the Boulel ridge constituted the original source. Firstly, it is much closer in distance, and secondly, the Méma seems to have constituted one of the cultural corridors from which migration into the Inland Niger Delta was affected during the early Holocene (see Chapter 4). Dia's grinding stones and grinders have been identified in all occupational horizons, indicating that these stones might have already been imported since the inception of settlement in the 8th century BC.

Grinding stones constitute one of the most persistent artefacts in West Africa as they have been in use since the Palaeolithic period. They have primarily served for grinding grains, plants and colorants, including products such as nuts, dates, spices, tobacco, henna, charcoal and medicinal plants as well as pottery. The grinding process usually leaves residues. As a result, the stones are often reserved for the grinding of specific products, and are thus not interchangeable, which has been observed in an ethnoarchaeological investigation on the use of grinding stones in Tichitt, Mauritania (Roux 1985).

In Dia, a considerable number of sandstone fragments have been identified, which have served as grinding stones or grinders (Table 7.6). However, as most of them have been found broken it has been difficult to assign their function as well as to reconstruct their exact shapes and sizes. In Units C, M and Q, only two out of thirty-one fragments might be positively identified as grinding stones (C003/a002, C043/a002), indicated by their considerable sizes and weights (see table 7.6 for measurements).

It has been suggested that C043/a002 might constitute a lower seed-grindstone (Fig.7.21) (Schär pers. comm.). Seed-grindstones usually need large surfaces (with a length and width of at least 40 and 20cm respectively) as grinding cereals is tough work, whereby the entire body is essentially pushed forward, and to stop this movement before the complete extension of the arms, means loosing energy. A second argument is the working surface, which needs to be flat, but always slightly rough (traces of pecking are visible on C043/a002 stone). If the surface should not be flat, the upper grinder would only 'squeeze' part of the grain, and even worse, the movement of the arms would be stopped all the time and much more force would be needed. An unusual feature of C043/a002 is its small width (2.2cm) and the two rounded sides. However, thickness seems more variable than length and width (Schär pers. comm.). Furthermore, as the IND lacks stone, the size and thickness of a stone might be relative to the distance of the raw material, as grinding stones tend to be heavy (Schär 2001). Also, when raw material is rare, artefacts tend to be used longer and to be recycled, which might explain the rounded sides. Thus, the stone might have been primarily used as a grinding stone, and was possibly recycled at a later stage.

Only four complete hand grinders were found (C057/a002, C068/a001, C077/a004, C089/a005), which might be identified as molettes as their relatively small sizes would have allowed grinding with only one hand (Schär 2001). Nevertheless, it remains improbable that these grinders still have their original shapes and sizes, as typological studies have shown that a grinder's morphology changes with the length of time the stone has been in use (ibid.).

In spite of these interpretative difficulties, residues of red ochre have been identified on some of the grinding stone and grinder fragments, indicating that Dia's inhabitants had a tradition of using red colorants such as hematite, which has been corroborated by the identification of a considerable amount of red ochre and its decorative use on Dia's ancient and modern pottery (see also section 7.4.2).

7.4.2 Hematite (Red Ochre)

Several fragments of hematite have been identified, most of them from Shoma, while only one piece has been recovered at Mara (Table 7.7). Hematite has been used as a colorant for producing a red colour (hence it became known as red ochre). At Dia, red ochre has been applied for decorating pots, visible on the ancient ceramics as well as on the modern pots. Red ochre has also been identified at Jenne-jeno (S. McIntosh 1995) and at the Iron Age sites of the Méma (Togola 1993).

As already mentioned in section 7.4.1, traces of red ochre have been identified on several grinding stones and grinders, indicating that it was ground into powder. One fragment of red ochre (C092/a007) showed a flattened and polished surface, implying its use against such a grinder.

7.4.3 Pebbles

Three quartz pebbles have been identified at Dia, of which two have been recovered at Shoma and one at Mara (Table 7.9). These pebbles might have originated from alluvial deposits, and might have functioned as polishing stones.

7.4.4 Axes

One polished axe, C085/a001, has been recovered in Unit C at Shoma from Horizon I (Fig.7.22). It measures 2.9 cm in length, 4.2 cm in height and 1,7 cm in width. It weighs 46.0 grams and is plano-convex in cross-section. The raw material used for the fabrication of this axe might be igneous rock. C085/a001 constitutes the only polished stone axe identified during excavations at Dia. The nearest igneous rock source in Mali lies north of the Lakes region, though the raw materials may have also come from the Monts Manding region in the southwest of Mali.

Figure 7.21 Lower seed grinding stone (C043/a002) from Unit C at Shoma.

Figure 7.22 Polished axe (C085/a001) from Unit C at Shoma.

7.5 Bone Artefacts

Several polished bone artefacts have been found on Shoma and Mara, of which Unit C yielded four specimens (Table 7.10). Unfortunately, their true function has not been identified. They consist of two rectangular plates (C097/a003 and C077/a002), which resemble pendants. However, no perforations have been recorded. There are two curvilinear fragments from the same object (C077/a003), which might have been a bracelet. Finally, there is a teardrop shaped fragment (C092/a006), which could also have been used as jewellery. These objects remain in Mali, and still need to be drawn and photographed.

The other excavation units at Shoma and Mara produced thirteen more polished bone objects. However, I have had no access to see them as they are being stored in the Netherlands and so far I have not received any illustrations or detailed information of them. The only published material are the bone points without barbs, which have been identified in Unit F at Shoma, dating to Horizon I (Bedaux et al. 2001:842). Worked bone objects from Shoma and Mara have been identified in all occupational horizons.

7.6 Cowrie Shells

A total of five cowrie shells have been identified, of which four have been recovered at Shoma (Units A, C, F and H) and one at Mara (Unit M) (Fig.7.23).

Figure 7.23 Cowrie shell (M081/a002) from Unit M at Mara.

Preliminary analysis suggests that the cowrie shells from Shoma are of the *Cypraea moneta* species, while the one from Mara belongs to *Cypraea annulus* (Schmidt pers. communication). They have all been identified in Horizon IV layers, dating between AD 1000-1600.

There are numerous references to trade in cowrie shells and their use in the Western Sudan in the Arabic sources. In the 11th century Al-Bakri mentions that they were imported into the town of Kougha (probably situated downriver from present-day Gao) and that they were much in demand there (Mauny 1961; Levtzion and Hopkins 1981). Al-Bakri, however, does not specify their use. The first reference to the use of the shells as money in West Africa comes in the Masalik al-absar of Al-Umari (14th century) where he states that "all internal business transactions" in the Mali Empire are "in cowries imported by the merchants at a considerable profit" (Levtzion and Hopkins 1981, 2000). Al-Umari also makes a clear statement of how the shells came across the desert. He wrote of merchants travelling from Sijilmasa to the Ghana Empire carrying cargoes of copper, cowries, figs and salt (Levtzion and Hopkins 2000), indicating that shells were coming along the trans-Saharan routes before they came by sea. Ibn Battuta saw them used as money in the Mali Empire. His account is noteworthy as he is the only known person before the age of European participation in the trade to see at first hand the cowries fished in the Maldives and their use as money in West Africa (Hogendorn and Johnson 1986). There is a reference from the 15th century (in the Ta'rikh al-Fattash) to cowries used for payment in the Mali Empire and Leo Africanus saw them used as small change in Timbuktu early in the 16th century (ibid.).

Indeed, most of the identified cowrie shells from archaeological deposits in West Africa have been dated to the beginning of the 2nd Millennium AD. However, the Méma site of Akumbu has yielded cowrie shells, which have been identified in a grave dating to between AD 600-800 (Togola 1993). Moreover, recent investigations at Kissi in Burkina Faso have yielded cowrie shells in a tomb structure, dated to 445-653 cal AD (Magnavita et al. 2002:38). These pre-1st Millennium AD dates indicate that the circulation of cowrie shells in sub-Saharan West Africa might be of much older age than previously suggested. It should also be noted that cowries have been used as ornaments, charms and ritual objects, and played a major part in the export of slaves across the Sahara (Hogendorn and Johnson 1986).

7.7 Metallurgical Remains

7.7.1 Iron Slag

Other than pottery, iron slag has been one of the most common categories of artefacts. Iron slag has been identified in all of Shoma's and Mara's occupational horizons (Table 7.11), which implies that knowledge of iron-working was brought into Dia by the earliest settlers at around 800 BC.

Preliminary investigations of the 1986 season found that at Dia slag remains consisted of smithing and smelting slag. The former were recognized by its lightweight, porous, and cinderlike appearance, while the latter were denser, heavier, and sometimes glassy in appearance (Haskell et al. 1988). The presence of smelting slag indicates that local smiths were not only working iron on site, but were also importing raw ore and reducing it to bloomery iron. Several pieces of smelting slag with fragments of clay attached to them have also been identified, which might indicate the presence of clay furnaces (Fig.7.24). However, in spite of these clay/slag amalgams and the large quantities of slag, no *in situ* furnace remains have been identified on Shoma or on Mara, or in their immediate vicinity.

Figure 7.24 Smelting slag with attached piece of clay (C034/a002), Unit C, Shoma.

As there are no sources of iron ore in the Inland Niger Delta suitable for smelting, Dia as well as the other IND sites must have been involved in an inter-regional trade network, importing iron ore or, more likely, bloomery iron. The only suggestion so far has been relating to Jenne-jeno, where historical documentation mentions that in the nineteenth and twentieth centuries Djenne imported bloomery iron or iron preliminary forged into bars from the Benedougou region near San (S. and R. McIntosh 1993:638; S. McIntosh 1995).

An important discovery has been the identification of slag remains in pre-first millennium AD layers, associated with Faita ceramics, quartz geometric microliths as well as bone points without barbs. The latter tools have not been encountered in subsequent horizons, indicating that Shoma's Horizon I represents the transition from stone to metal (McDonald and Schmidt 2001). Previous investigations at the Late Stone Age site of Kolima-Sud-Est in the Méma have already found direct evidence for associated iron metallurgy. However, so far no absolute date has been available for the Faita facies in the Méma, but the most probable time range has been adjudged to the first millennium BC due to the presence of Faita ceramics from excavated sequences at Kolima-Sud, where they rested above a date of 1420-1230 cal BC (McDonald 1994). As a result, it is safe to state that iron metallurgy was being practised at the beginning of the first millennium BC at the IND's western frontier settlement of Shoma.

7.7.2 Iron Objects

So far no detailed analyses have been carried out on the recovered iron objects as the majority is still being processed in conservation laboratories. Hence, my description will be limited to an inventory list of the material we encountered during excavations in Units C, M and Q (Table 7.12). However, a small number of selected iron objects has already been treated (by students of the Conservation Laboratory at the Institute of Archaeology, UCL) and photographed.

After pottery and iron slag, iron objects have been found in considerable quantities. In Units C, M and Q, a number of fifty-one pieces were recovered (twenty-two pieces were identified in Unit C, eight in Unit M and twenty-one in Unit Q). Table 8.11 provides a list of all objects recovered during excavations. As these buried artefacts have significantly corroded over time, it has usually been impossible to identify their morphology and function upon recovery. Among these, two projectile points have been identified, one ring, three hooks, five nails, two possible fishhooks, four knife blades and one bracelet.

The recovered objects from Unit C, M and Q have been identified from Horizon IB onwards, dated between 400-0 BC, confirming that iron metallurgy was already practised at Dia by the 1st Millennium BC.

The objects, which have already undergone conservation treatment, include a bracelet fragment (Fig.7.25), nails, axes (Fig.7.26) and a fishhook (Fig.7.27).

Figure 7.25 Metal bracelet (B041/a001) from Unit B at Shoma.

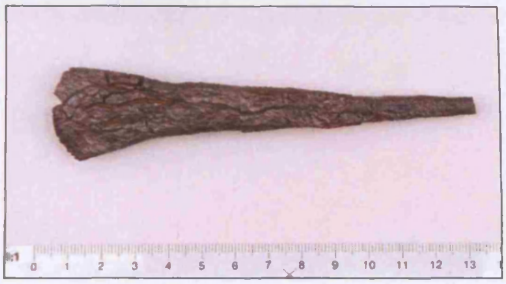


Figure 7.26 Metal axe from Unit B at Shoma.

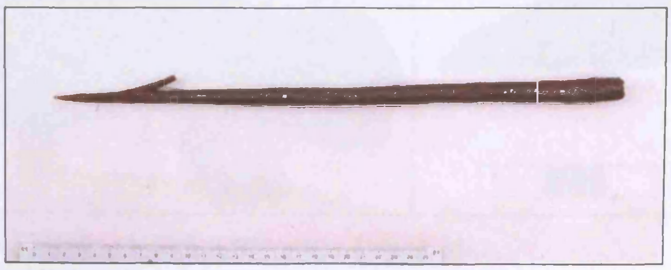


Figure 7.27 Metal harpoon from Unit B at Shoma.

7.7.3 Copper objects

In Units C, M and Q a total of three copper fragments have been found (Table 7.13). C047/a001 and M031/a002 were too corroded and fragmentary to be recognised. Q034/a005, in contrast, shows a beautiful broach or pendant in shape of a chameleon with a missing leg (Fig.7.28). It was probably made of a copper alloy and cast with a mould. No analysis has yet been undertaken to verify the components of the copper alloy, hence the original source of this object remains unknown.

According to Susan McIntosh (1995), the source of the identified copper objects in the IND might not have been from Akjoujt (Mauritania) and Azelik (Niger) as they were no longer in use by the first millennium AD. Alternative sources in Mali include Tessalit, Nioro-du-Sahel, and Sirakoro, in Mauritania east of the Gorgol Noir, and in Burkina Faso at Gaoua, of which most show evidence of ancient mining (S. McIntosh 1995). However, none of these sources have yet been investigated. Moreover, the issue of sourcing is fraught with problems as smiths re-melted and potentially mixed metals from many different sources (ibid.).

The identification of the copper chameleon in Horizon III layers, which have been dated between AD 600-1000, implies that inter-regional trade for Saharan copper existed by the second half of the 1st Millennium AD, thus before the establishment of the trans-Saharan trade. At Jenne-jeno similar evidence has been provided by the identification of copper ornaments in the earliest Phase III deposits dating to the fourth century AD (S. McIntosh 1995).

Figure 7.28 Copper pendant or broach (Q034/a005), Unit Q, Mara.
left - frontal view, right - reverse of the same object

7.8 Conclusions

The small finds identified at Shoma and Mara show a diverse range of artefacts. More importantly they are testimony of the early growth of inter-regional trade networks, in which Dia seems to have been incorporated since the start of its occupational history, which dates back to the 8th century BC. These early trade networks are indicated by the presence of iron slag and stone implements, which do not occur naturally in the Inland Niger Delta.

Nevertheless, no detailed investigations have yet been undertaken to study the origins of these raw materials. Hence, the mechanisms behind these early trade networks remain unclear, and leave room for lots of speculation. In the meantime it might be suggested that similar to Jenne-jeno, the sandstone might have originated from the Boulel ridge in the Méma and that iron ore sources have been known historically from the Benedougou region near San.

The presence of slag remains and iron objects in Horizon I layers, together with quartz geometric microliths and bone points without barbs, which disappear in the subsequent horizons, indicate that Shoma represents the much sought after stone to metal transition, dated to the beginning of the first millennium BC.

Glass beads provide direct evidence that Dia was involved in the trans-Saharan trade, and that this trade appears to date as far back as the beginning of the first millennium AD, due to the presence of these beads in Horizon II layers (dated between AD 0-500). Similar conclusions have been provided by other West African sites, where glass beads were equally present in early first millennium AD layers.

At the beginning of the second millennium AD exotic goods such as carnelian beads arrived at Dia, which might have originated from regions as diverse as the Adrar des Iforas, Egypt or the Indian sub-continent. Promising studies have been carried out, involving UV-LA-ICP-MS analysis of carnelian samples collected from mine workings in Gujurat (Western India), allied with analysis of archaeological samples from Timbuktu, Gao, Fezzan (Egypt), Northern Nigeria and Igbo-Ukwu. Preliminary results indicate that in some instances a matching patterning between the Indian imports and the African samples has been identified (Insoll, Polya & Fraser, 'Source Analysis and the India Africa carnelian bead trade', Paper presented at the 17th Biennal Meeting of the Society of Africanist Archaeologists, Bergen, Norway, 2004). Hence, it seems as if the view beyond Africa, reaching as far as India, to account for the origins of some of the imported trade goods has after all not been exaggerated.

The abundance of cottonseeds and spindle whorls, particularly in Horizon IV layers suggests manufacture of cotton yarn or string, and possibly cloth. The Arabic chronicles mention thriving markets for cotton cloth in the Sahel and that it was a principal commodity of trade between towns to the north and south, and west to the Atlantic (Brooks 1993; Curtin 1975). It is thus possible that Dia might have been involved in the exportation of cotton yarn and possibly cloth.

These findings suggest that Dia was actively involved in inter-regional and long-distance trade. However, due to unknown reasons it has never acquired the same status as other commercial centres such as Djenne and Timbuktu, but due to the presence of exotic goods and its location at the north-western edge of the IND, it might be suggested that Dia might have been part of a north-south and/or east-west trading axis. It is interesting to note that Jenne-jeno has not offered more diverse objects than Dia, except for the presence of gold, which however, is restricted to one gold earring (S. McIntosh 1995). It might thus be suggested that from an archaeological point of view, Dia has provided as much evidence for its involvement in trade as Jenne-jeno. The only difference is that based on the Arabic texts and oral traditions Dia has never had a reputation as a commercial centre unlike Jenne-jeno.

Indeed, Dia's involvement in inter-regional and long-distance trade networks presents a conflicting picture with what is known from oral traditions and written texts, which stress that in contrast of a commercial centre, Dia has been reputed for its adherence to Islam, shying from the presence of foreigners and any possibilities of outside influence, which is illustrated by the claim that it never had a weekly market. As a result, it is even more startling in what ways a site such as Dia might have been involved in inter-regional and long-distance trade networks. However, this issue might be reserved for future investigations, while I will discuss the conflicting images represented by the archaeological data and the oral traditions in the Chapter 9.

Context/ SF Nr.	Horizon	Description	Diam. (max./cm)	Length (cm)	Weight (g)
C002/a001	IV	Round spindle whorl (flattened at one end) Incised geometric decor	2.4	1.7	10.0
C037/a001	IV	Round spindle whorl Incised star shape (only at one end)	3.5	2.9	30.0
C046/a002	IV	Round spindle whorl Incised decor	1.8	1.8	5.0
C054/a001	IV	Hexagonal spindle whorl Incised decor	2.2	1.8	9.0
C067/a001	IV	Round spindle whorl Incised geometric decor	2.5	2.7	15.0
C072/a002	IB	Ovoid spindle whorl Incised decor	2.5	1.8	12.5
C077/a005	IB	Round spindle whorl, stamped decor (circles) and linear incisions	2.4	2.6	14.5
M011/a001	IV	Biconical spindle whorl (flattened ends) Linear grooves, geometric incisions, red paint	2.3	4.4	21.5
M032/a001	IV	Round spindle whorl (flattened at one end) Incised lines and circles	2.5	2.0	14.5
M032/a002	IV	Elliptical spindle whorl (flattened at one end) Linear grooves, red paint	2.4	1.9	12.5
M032 /a003	IV	Elliptical spindle whorl (flattened at one end) Linear and circular incisions	2.5	1.8	14.0
M068/a001	IV	Oblong spindle whorl (convex base) Crosshatch pattern (linear and circular incisions)	1.9	2.8	12.5
M081/a001	IV	Round spindle whorl (flattened at one end) Grooves, linear and circular incisions	2.6	1.8	12.5
M084/a001	IV	Hexagonal spindle whorl, black undecorated clay	2.4	2.2	13.0
M065/a001	III	Broken top of round (?) spindle whorl	2.7	---	9.5
Q004/a001	IV	Hexagonal spindle whorl, black undecorated clay	3.0	2.7	23.0

Table 7.1 Spindle whorls (Units C, M and Q)

Context/ SF Nr.	Horizon	Description	Diam. (max./cm)	Weight (g)	Perforation
C083/a001	IV	Black clay bead (one side possibly broken, appeared smoothened or hollowed out)	1.5	---	straight
C064/a005	IB	Buff-coloured, oval clay bead	1.8	2.5	no perforation
C072/a001	IB	Buff-coloured clay bead Disc shape with concave ends	1.5	---	---
C085/a007	IA	Black, ovoid clay bead	1.7	2.5	straight
C085/a008	IA	Buff-coloured, elliptical clay bead	2.6	10.5	no perforation
C089/a003	IA	Buff-coloured, cylindrical clay bead	1.3	3.0	straight
C098/a001	IA	Buff-coloured cylindrical clay bead	0.8	2.7	straight
M001/a001	IV	Dark-brown, round clay bead	1.2	---	straight
M013/a002	IV	Brown, round clay bead	1.9	2.5	straight
M025/a001	IV	Brown, oval clay bead	1.2	---	straight
Q009/a002	IV	Brown, round clay bead	1.6	4.5	biconic

Table 7.2 Ceramic beads (Units C, M and Q)

Context/SF Nr.	Horizon	Description	Length (max./cm)	Width (cm)	Thickness (cm)	Weight (g)
C046/a001	IV	Clay figurine fragment; possible foot	3.0	1.0	---	3.5
C052/a004	II	Clay figurine fragment; possible cow head	3.0	1.7	---	14.0
Q002/a001	IV	Clay figurine fragment; elongated with convex end	3.9	1.1	---	5.0
Q004/a002	IV	Clay figurine fragment; rectangular	2.5	1.7	---	8.0
Q017/a001	IV	Terracotta figurine head	8.2	4.5	4.2	147.0
Q024/a002	III	Terracotta figurine fragment; possible leg	2.5	---	---	5.0
Q032/a003	III	Terracotta figurine fragment; possible leg	3.6	2.9	2.9	22.0
Q034/a001	III	Terracotta figurine fragment; cow torso	5.9	2.7	2.0	36.5

Table 7.3 Clay figurines (Units C, M and Q)

Context/SF Nr.	Horizon	Description	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)
C022/a001	IV	Ceramic drainage pipe (broken)				---
C043/a001	IV	Ceramic drainage pipe (broken)				---
C056/a001	IV	Ceramic lid, possibly of a pit				---
C084/a001	IV	Ceramic lid, possibly of a pit				---
C064/a001	IB	Fired clay net sinker; cylindrical	5.2	3.0	---	54.0
C085/a009	IA	Ceramic suspending object	5.5	5.2	2.0	68.5
C092/a005	IA	Rounded pottery disc, maybe weight		2.9 (Diam.)	0.6	6.0

Table 7.4 Miscellaneous ceramic objects (Units C, M and Q)

Context/SF Nr.	Horizon	Description	Diam.1	Diam.2	Weight (g)	Perforation
C005/a001	IV	Blue, round glass bead	0.3	0.2	---	straight
C019/a001	IV	Blue, cylindrical glass bead	0.4	0.3	---	straight
C063/a001	IV	Blue, cylindrical glass bead	0.8	0.6	---	biconical
C083/a002	IV	Blue, cylindrical glass bead	0.4	0.2	---	biconical
C055/a002	II	Blue, oblong glass bead	0.6	1.3	---	straight
C068/a002	II	Blue, cylindrical glass bead	0.5	0.5	---	straight
C077/a001	II	Red, cylindrical glass bead	0.7	0.3	---	biconical
C064/a005	IB	Ovoid quartz bead	4.2	2.7	72.0	biconical
C089/a002	IA	Venetian "eye" bead	0.7	0.7	---	straight
M006/a001	IV	Blue, round glass bead	0.7	0.2	---	straight
M009/a001	IV	Conical carnelian bead	1.1	1.8	---	straight
M011/a002	IV	Round carnelian bead	1.2	0.7	---	straight
M013/a001	IV	Conical carnelian bead	0.8	1.2	---	biconical

Table 7.5 Glass and semi-precious stone beads (Units C, M and Q)

Context/SF Nr.	Horizon	Description	Diam.1	Diam.2	Weight (g)	Perforation
M015/a001	IV	Round carnelian bead	0.8	0.6	---	straight
M022/a001	IV	Turquoise, round glass (?) bead	0.3	0.3	---	straight
M025/a002	IV	Turquoise, round glass (?) bead	0.6	0.5	---	straight
M031/a001	IV	Round, green glass bead	0.7	0.3	---	straight
M040/a001	IV	Green, cylindrical glass bead	1.2	2.2	4.0	straight
Q006/a001	IV	Clear, square glass bead	0.7	0.8	---	straight
Q009/a002	IV	Blue, cylindrical stone (?) bead	0.8	0.5	---	straight
Q013/a001	IV	Folded glass bead (black & white)	1.8	2.2	10.5	straight
Q025/a002	III	Blue, round glass bead	0.4	0.3	---	straight
Q034/a003	III	Yellow, flat glass bead	0.6	0.2	---	straight

Table 7.5-continued Glass and semi-precious stone beads (Units C, M and Q)

Context/SF Nr.	Horizon	Description	Length (cm)	Height (cm)	Width (cm)	Weight (g)
C003/a002	IV	Grindstone fragment; sandstone	22.0	11.3	5.3	1868
C009/a003	IV	Sandstone fragment; function unknown	5.7	4.5	2.3	60.5
C043/a002	IV	Grindstone fragment; sandstone	13.2	11.1	2.2	---
C057/a001	IV	Grindstone fragment; sandstone	11.5	8.5	3.8	504
C057/a002	IV	Grinding stone; sandstone	7.3	5.8	3.9	281
C057/a003	IV	Grinding stone fragment; sandstone	7.8	4.2	2.7	158
C058/a004	II	Grinding stone fragment; sandstone	8.3	5.2	4.5	287
C061 (no SF Nr.)	II	Grinding stone fragment; sandstone	7.8	5.0	3.6	156
C064/a004	IB	Grindstone fragment; sandstone	6.3	5.3	3.6	143
C068/a001	IB	Grinding stone; sandstone	5.9	6.0	5.0	265
C072/a003	IB	Grinding stone fragment; sandstone	6.4	5.0	4.3	129
C077/a004	IB	Grinding stone; sandstone	8.0	6.1	5.1	335
C079/a001	IA	Grinding stone fragment; sandstone	9.2	8.5	4.4	451
C085/a002	IA	Grinding stone fragment; sandstone	4.0	4.7	3.8	48.0

Table 7.6 Grinding stones and grinders (Units C, M and Q)

Context/SF Nr.	Horizon	Description	Length (cm)	Height (cm)	Width (cm)	Weight (g)
C089/a001	IA	Grindstone fragment; sandstone	7.7	4.9	4.1	175
C089/a004	IA	Grindstone fragment; sandstone	5.6	5.0	3.7	155
C089/a005	IA	Grinding stone; sandstone	4.5	4.2	3.4	103
C089/a007	IA	Grinding stone fragment; sandstone	5.2	4.5	2.3	95.5
C092/a002	IA	Grindstone fragment; sandstone	6.3	4.3	3.0	90.0
C092/a004	IA	Grindstone fragment; sandstone	5.2	4.1	2.9	82.5
C092/a008	IA	Grinding stone fragment; sandstone	7.4	4.4	4.0	171.0
C097/a004	IA	Grindstone fragment; sandstone	3.9	3.2	1.8	27.5
M060/a001	III	Sandstone fragment; maybe grinding stone	6.6	6.0	3.4	133.0
M072/a002	III	Sandstone fragment; maybe grinding stone	3.6	3.5	2.7	46.5
M072/a002	III	Sandstone fragment; maybe grinding stone	7.6	4.3	2.3	71.0
M073/a001	IV	Grinding stone fragment; sandstone	6.2	4.7	2.0	62.5
M079/a001	IV	Grinding stone fragment; sandstone	17.3	8.6	4.5	1068
M079/a002	IV	Grinding stone fragment; sandstone	11.8	8.9	4.8	689.0
Q004/a002	IV	Grinding stone fragment; sandstone	7.6	7.5	2.4	180.0
Q031/a001	III	Grinding stone fragment; sandstone	8.2	5.8	5.0	269.0
Q031/a002	III	Grinding stone fragment; sandstone	3.5	3.0	1.7	18.5

Table 7.6-continued Grinding stones and grindstones (Units C, M and Q)

Context/SF Nr.	Horizon	Description	Length (cm)	Height (cm)	Width (cm)	Weight (gr.)
C058/a002	II	Red Ochre	3.1	2.4	0.9	9.0
C061/a001	II	Red Ochre	2.4	1.8	0.7	3.5
C085/a005	IA	Red Ochre	2.5	2.2	0.9	6.5
C092/a001	IA	Red Ochre	---	---	---	14.5
C092/a007	IA	Red Ochre	3.8	2.8	1.8	27.0
C092/a009	IA	Red Ochre	4.0	4.0	3.2	41.5
Q034/a004	III	Red Ochre	6.8	2.9	2.3	68.5

Table 7.7 Occurrences of hematite (red ochre)

Context/SF Nr.	Horizon	Description	Length (cm)	Height (cm)	Width (cm)	Weight (gr.)
C006/a001	IV	Geometric quartz microlith	1.4	1.2	0.3	<1,0
C009/a002	IV	Geometric quartz microlith	1.1	0.9	0.3	<1,0
C011/a001	IV	Irregular shaped quartz microlith	1.2	1.0	0.3	<1,0
C085/a004	IA	Geometric quartz microlith	1.4	1.0	0.5	<1,0
C092/a003	IA	Irregular shaped quartz microlith	4.7	2.8	2.0	26.5

Table 7.8 Microliths

Context/SF Nr.	Horizon	Description	Length (cm)	Height (cm)	Width (cm)	Weight (gr.)
C085/a003	IA	Pebble; maybe polishing stone	2.3	2.1	1.3	9.0
C085/a006	IA	Pebble; maybe polishing stone	3.0	2.5	1.6	20.0
Q029/a002	III	Pebble; maybe polishing stone	3.5	1.8	1.8	12.5

Table 7.9 Pebbles used as polishing stones

Context/SF Nr.	Horizon	Description	Length (cm)	Height (cm)	Width (cm)	Weight (gr.)
C097/a003	IV	Polished bone plate; no perforation	3.5	0.8	0.6	<1
C077/a002	IB	Polished bone plate; no perforation	1.4	0.7	---	<1
C077/a003	IB	Polished bone; two curvilinear fragments	2.8	0.7	---	1.5
C092/a006	IA	Polished bone; teardrop shape	2.0	1.3	0.8	<1

Table 7.10 Polished bone artefacts

Context	Weight	Counts	Horizon
C002	67,09	10	IV
C003	1049	+/- 20	IV
C004	169	3	IV
C005	79	1	IV
C006	1409	7	IV
C009	939	+/- 13	IV
C010	309	+/-9	IV
C013	209	1	IV
C015	12,59	4	IV
C016	33,09	6	IV
C021	17,59	1	IV
C022	63,59	1	IV
C023	28,59	1	IV
C025	19,09	1	IV
C026	14,59	2	IV
C033	15,59	1	IV
C034	22,09	1	IV
C038	48,59	1	IV
C043	11,49	1	IV
C045	19,59	1	IV
C046	70,59	2	IV
C047	53,09	4	IV
C049	3,59	1	IV
C050	86,59	1	IV
C052	66,59	10	II
C052	24,09	1	II
C055	95,09	7	II
C053	22,59	1	IV
C056	3,59	1	IV
C060	14,09	4	IV

Table 7.11 Slag pieces

Context	Weight	Counts	Horizon
C061	48,59	5	II
C063	44,09	6	IV
C064	77	9	IB
C067	58,68	5	IV
C068	51,09	3	IB
C077	67	5	IB
C076	119	6	IV
C077	19	1	IB
C079	34,09	2	IA
C085	49,09	2	IA
C087	6,09	1	IV
C090	13,09	3	IV
M024	107	2	IV
M057	9	2	IV
M065	11,5	2	IV
M064	4,5	1	IV
M010	37	1	IV
M088	7,5	1	IV

Table 7.11-continued, Slag pieces

Context/SF Nr.	Horizon	Description	Length (cm)	Height (cm)	Width (cm)	Weight (gr.)
C003/a001	IV	Arrow head	2.9	1.5	0.5	3.0
C009/a001	IV	Small amorphous fragments; not measured	---	---	---	<1
C023/a001	IV	Oblong iron fragment; function unknown	1.9	0.6	---	<1
C023/a002	IV	Possible iron ring	1.7 (diam.)	---	0.7	<1
C034/a002	IV	Amorphous iron fragment; function unknown	4.8	2.9	4.1	33.5
C042/a001	IV	Iron object; possibly hook	2.9	0.5	---	2.0
C047/a002	IV	Amorphous iron fragment; function unknown	1.2	1.1	0.8	<1
C048/a001	IV	Iron fragment; possibly blade	3.3	0.7 (diam.)	---	2.0
C051/a001	IV	Oblong iron object, broken into three pieces	7.0	0.8 (diam.)	---	7.0
C065/a001	IV	Possible iron bracelet; broken into two pieces	4.1	1.2	0.6	5.0
C065/a002	IV	Amorphous iron fragment; function unknown	5.3	2.2	1.3	11.5
C067/a002	IV	Amorphous iron nodule; function unknown	3.0	1.4	1.9	7.0
C076/a001	IV	Several broken iron pieces; largest is measured	3.5	1.4	1.3	8.5
C076/a002	IV	Iron fragment; possibly blade	1.2	0.6	0.3	<1
C088/a001	IV	Amorphous iron fragment; function unknown	3.0	1.7	0.8	---
C052/a001	II	Oblong iron fragment; function unknown	3.0	0.8 (diam.)	---	4.5
C052/a002	II	Possible arrow head	2.8	0.8 (diam.)	---	3.0
C052/a003	II	Curvilinear piece with two indentations on top; Function unknown	3.5	1.1	0.6	3.5
C055/a001	II	Amorphous iron nodule; function unknown	1.7	1.6	1.3	3.0
C058/a001	II	Amorphous iron fragment; function unknown	5.4	4.7	1.5	47.5
C058/a003	II	Oblong iron fragment; encrusted with sand	6.0	0.9 (diam.)	---	7.5
C061/a002	II	Amorphous iron fragment; function unknown	1.4	1.3	0.7	2.5
C064/a003	IB	Possible iron hook; broken into two pieces	3.1	1.8	0.9 (diam.)	3.5
M001/a002	IV	Amorphous iron fragment; function unknown	3.7	1.2	0.8	4.5
M001/a003	IV	Amorphous iron fragment; function unknown	4.2	1.4	1.1	7.5
M040/a002	IV	Oblong iron fragment; possibly nail	5.8	0.3 (diam.)	---	5.5
M040/a003	IV	Oblong iron fragment; possibly nail	4.9	0.6 (diam.)	---	14.0
M049/a001	IV	Very fragmented iron object; no measurements	---	---	---	21.5

Table 7.12 Iron Objects (Units C, M and Q)

Context/SF Nr.	Horizon	Description	Length (cm)	Height (cm)	Width (cm)	Weight (gr.)
M086/a001	IV	Oblong iron fragment; function unknown	4.4	0.9 (diam.)	---	6.0
M095/a001	IV	Amorphous iron fragment; function unknown	5.5	2.5	1.0	15.5
M109/a001	IV	Amorphous iron fragment; function unknown	10.0	0.9 (diam.)	---	22.0
Q008/a001	IV	Oblong iron object; possibly nail	9.5	0.9 (diam.)	---	17.0
Q008/a002	IV	Oblong iron object; possibly fish hook	7.5	0.9 (diam.)	---	11.5
Q014/a001	IV	Oblong iron fragment; possibly fish hook	9.2	1.1 (diam.)	---	9.0
Q014/a002	IV	Curvilinear iron fragment; possibly bracelet	3.9	0.5 (diam.)	---	2.0
Q018/a001	IV	Amorphous iron fragment; function unknown	5.5	1.1 (diam.)	---	8.5
Q023/a001	III	Amorphous iron fragment; function unknown	6.0	1.4 (diam.)	---	5.5
Q024/a001	III	Oblong iron object; function unknown	7.2	0.8 (diam.)	---	5.5
Q025/a001	III	Oblong iron fragment; possibly nail	5.8	1.0 (diam.)	---	6.0
Q027/a001	III	Oblong iron object; possibly blade	8.8	1.7 (diam.)	---	24.0
Q028/a001	III	Amorphous iron fragment; function unknown	7.3	2.0	1.5	43.5
Q029/a001	III	Oblong iron object; function unknown	10.5	0.9 (diam.)	---	10.5
Q031/a001	III	Possible iron nail or hook	4.1	0.8 (diam.)	---	3.5
Q031/a002	III	Possible metal knife	9.2	3.9	1.3	41.5
Q032/a002	III	Amorphous iron fragment; function unknown	8.3	1.6 (diam.)	---	23.5
Q033/a001	III	Oblong iron fragment; possibly nail	7.2	1.0 (diam.)	---	9.0
Q034/a001	III	Amorphous iron fragment; function unknown	15.0	3.3	2.4 (diam.)	103.0
Q034/a002	III	Amorphous iron fragment; function unknown	5.8	1.4	1.1 (diam.)	7.5
Q034/a006	III	Amorphous iron fragment; function unknown	5.0	1.8	1.1 (diam.)	9.0
Q036/a001	III	Amorphous iron fragment; function unknown	4.3	1.7	0.8	9.5
Q038/a001	III	Broken fragment; spherical	---	---	---	8.5

Table 7.12-continued, Iron objects (Units C, M and Q)

Context/SF Nr.	Horizon	Description	Length (cm)	Height (cm)	Width (cm)	Weight (gr.)
C047/a001	IV	Copper fragment; broken into several pieces 0.2	0.3	---	---	
M031/a002	IV	Amorphous copper fragment; function unknown	1.3	0.4 (diam.)	---	---
Q034/a005	III	Copper pendant; chameleon	6.7	2.7	0.3	12.5

Table 7.13 Copper objects (Units C, M and Q)

Chapter Eight
Faunal and Archaeobotanical Remains

8.1 Introduction

Many of the IND's population groups have been practising specialized subsistence economies, which has contributed to the equation of subsistence economy with ethnicity (see Gallais' 1984 *Homme du Sahel*, in which he divides his sections into: "Ethnicité et milieux naturels, les Bozo pêcheurs du marécage et des rives; ... les Nono riziculteurs; Les Peul et le pâturage du bourgou", etc.). However, it should also be acknowledged that this straightforward equation might be too simplistic, especially in light of recent notions on identity, which consider it as a dynamic, contested, and multi-layered phenomenon (Amselle 1990). Furthermore, climatic oscillations between arid and humid periods might have played an important role in the adaptation of different subsistence economies, which might have also contributed to the formation of new identities and/or the appropriation of other identities (see Chapter Two).

In spite of these complex issues, the faunal and archaeobotanical remains constitute an important data set for reconstructing Shoma's and Mara's occupational histories. Also, even though it seems risky to link this data to the identity of Dia's ancient inhabitants, it will provide us with further indices of stability and/or change, which might offer valuable insights into social transformations that would otherwise remain hidden by other data sets.

8.2 Faunal Analysis

The faunal analysis of the Dia material was undertaken by Kate Manning and Kevin C. MacDonald from University College London (Manning 2002, 2003; Manning and MacDonald in press.).

Following preliminary interpretations, which were based on the animal remains from only one excavation unit (Unit F) at Shoma, it has been suggested that a system of economic symbiosis, between highly developed pastoral and fishing components, characterised the early economy of the site (MacDonald in Bedaux et al. 2001; Manning 2002).

In light of subsequent analysis, the validity of these initial interpretations has been reconsidered due to access to the excavated material from Units A, B, C, D, F, and G from Shoma, with only Unit S providing material from Mara (the rest of Mara's faunal remains were lost in transit) (Manning 2003). These seven units yielded in total more than 37 kg of animal bone, spanning all occupational horizons.

Total weights recorded for both mammalian and fish remains demonstrate that Horizons I and IV supplied the bulk of Dia's faunal assemblage, contributing over 95% of the fish remains, and more than 89% of all mammalian remains, which may be the result of reduced occupation at the site during other periods, or changes in the nature of human occupation at the areas sampled during those periods. Interestingly, contrasting patterns are visible between Horizons I and IV that may be significant. During Horizon I there is clear dominance of mammal bone, contributing a ratio of 7:1 against the total weight of fish. By Horizon IV, this ratio drops to 3:1, with fish remains increasing dramatically in both quantity and diversity.

Differences can be observed in the spatial distribution of basic weights. These begin with a strong concentration of remains (both mammalian and fish) in Unit F (Shoma) during Horizon I. By Horizon IV, following occupation of Mara, the distribution of mammal and fish bone seems to diverge quite noticeably between the two sites, with over 75% of the mammalian remains coming from Unit S on Mara, and 98% of the fish fauna from this period represented in Units A and B on the mound of Shoma.

Cattle provided an essential resource in Dia's earliest occupation (Horizon I), dominating other mammalian fauna by more than 50% (Fig.8.1). However, the general ubiquity of remains, which is most strongly indicated from the Unit F material, does not appear to follow a general trend as in fact of all the cattle remains associated with Horizon I, more than 90% are from Unit F. It has thus been suggested that Unit F represented an area of primary production where carcasses were being prepared for consumption, which is indicated by over 1/3 of the sample displaying evidence of butchery marks. Alternatively, Unit F might have constituted a midden context.

In Horizon II very little faunal material and no evidence of domestic animals has been identified, except for two 'large' bone remains in Units A and B (see Fig.8.1).

Meanwhile in Horizon III only a single cattle metacarpal has been identified from Unit B. This almost complete lack of any faunal remains at Shoma might have resulted from a shift of permanent to seasonal occupation in Horizon II. On Mara too, no evidence of domestic animals has been identified from its first occupational horizon (Horizon III).

This apparent lack of fauna is replaced by a dramatic increase in the representation of all animal species in Horizon IV, during which the importance of cattle seems to fall quite significantly in respect to the other species present, indicating a decreasing reliance on cattle for meat by the 2nd millennium AD.

Osteometric analysis of the cattle remains suggests a marked shift in the size of cattle, as well as possible changes in the morphological character of the samples. In Horizon I the cattle remains are broadly analogous to the 'middle-sized' assemblage of Kolima-Sud (Méma region, ca. 1000 BC), demonstrating quite a discrete range of values, which may be suggestive of a restricted breeding population. By Horizon IV on the other hand, a significant downward shift in mean size, combined with a dramatic increase in the range of metric values suggests that the cattle population at this time were considerably more diverse.

In addition to cattle, both dwarf and non-dwarf ovicaprines are represented in relative abundance by this time, contributing 12% of the assemblage. It has been possible to identify both sheep and goat remains at the site, although due to the fragmentary nature of the remains, and the rarity of clear diagnostics all the remains have been grouped analytically under the heading of ovicaprine.

Equids constitute a further important group in Horizon IV (see Fig.8.1). While the Dia equid remains were too fragmentary to allow measurement, a general correlation between them and other West African archaeological equid specimens was possible, suggesting the presence of domestic horse (*Equus caballus*), as opposed to wild ass or donkey (*Equus asinus*) by at least the 11th Century AD. At both Jenné Jeno (c. 850-1200 AD), and Akumbu (AD 600-1000), domestic horse is present by at least the end of the 1st millennium AD, and although some people have argued for an earlier presence of ***E. caballus***, south of the Sahara, the remains from Dia seem to support the notion of a late 1st millennium AD introduction of domestic horse into Sub-Saharan West Africa (cf. MacDonald and MacDonald 2000).

As with preceding phases of occupation, a few wild bovids and mammals are present, including kob, warthog, hippo and wild cats, indicating a persistent, yet somewhat opportunistic or peripheral hunting strategy (see Fig.8.1).

Although calculations of relative frequency have suggested an increasingly diverse economy in Horizon IV, a potential bias has been imposed from Unit S on Mara as almost half of the total remains derive from a single context, S042. As already mentioned in Chapter Five, **S042's** function remains highly speculative. It consisted of horizontally lying pottery, bone and slag remains, covering an area of at least 16

m^2. At first, I proposed that context 042 might have constituted a midden area. However, due to the even distribution of the material, I have also considered the possibility of some form of fetish behaviour or 'elusive' cult practice. The latter hypothesis might be substantiated by the presence of 84% of the total canid assemblage in this context.

Osteometric analysis of the canid remains revealed that the majority constituted modern jackal (*C. adustus and C. aureus*) (see Fig.8.1). Furthermore the body part distribution of the canid remains differed from the ones of ovicaprids and cattle in this context. The latter's evidence of cut marks and charring suggests they were being used primarily in a subsistence sense. Although a relatively high proportion of the canid remains retained cut marks of some kind (c. 20% of the total sub-assemblage) the complete absence of charred remains may suggest that most were not cooked, but rather butchered for their hides.

Bird and reptile remains are scarce from the 1998-2002 Dia excavations when contrasted with the Jenné-jeno assemblage (MacDonald 1989, 1995a) (see Fig.8.1). Indeed, more bird and reptile remains were recovered from Haskell et al's (1986) test-pit at Mara, than have been found in all subsequent excavations at Dia. There is little clear temporal patterning in the occurrence of aquatic reptile and bird remains from the 1998-2002 Dia excavations. For example, crocodile, ducks and geese occur in relatively equal numbers in Horizons I and IV, with their near absence in other periods likely due to small faunal samples. However, if combined with the 1986 samples, it may be possible to infer an increase in wildfowl exploitation in Horizons IV and V. It is probable that most aquatic birds and reptiles were taken as occasional adjuncts to fishing subsistence at the site, given the close contextual connection between waterfowl and fish remains at the site. *Varanus niloticus* (the Nile monitor), on the other hand, may have been a more terrestrial exploitation. Its remains are concentrated at Shoma, Unit A in Horizon IV. These lizards appear to have been roasted, judging from burning patterns on the remains.

Terrestrial fowl display a very distinctive temporal distribution, occurring only in Horizons IV and V (see Fig.8.1). This is probably linked to the first millennium AD introduction to West Africa of chicken and, the potentially subsequent, local domestication of guineafowl (MacDonald 1992, 1995). Of the two taxa, only the chicken is definitely present, with morphologically and metrically diagnostic remains present in Unit S, contexts 042 (Horizon IV) and 030 (Horizon V). Thus, chicken first appears at Dia around AD 1000 but, given the near absence of faunal samples from the early first millennium AD, this does not preclude their presence during the earlier phases, contemporary with the first chickens at Jenné-jeno (ca. AD 400). The absence of terrestrial fowl in Horizon I is suggestive, in that it seems to indicate little or no exploitation of wild guineafowl before the arrival of domestic chicken in the area.

Fish remains constitute the other major component of this assemblage, highlighting several important issues on the nature of fishing techniques (see Fig.8.1). Increasing diversity of fish species, together with declining frequencies of deep-water species seems to indicate a greater reliance on more localized resources, such as the inundated floodplains, where at certain times of the year genera such as clariidae and tilapiini can be found in abundance. During Horizon I, the relatively large size of the ***Lates Niloticus*** remains, combined with a seemingly low diversity index may suggest methods of fishing which targeted specific species, such as line fishing, or harpooning, whilst the increase of floodplain species, and a greater diversity index in Horizon IV, may represent a shift towards less targeted fishing techniques, such as net or trap fishing. However, it can only be speculated whether these changes in fishing techniques reflect cultural choices, or alternatively are a reflection of environmental decline, which is manifested by a general trend of desiccation beginning around the 2nd Millennium AD and which continues to this day (Haskell et al. 1988).

A further observation regarding Dia's fish assemblage and more specifically its role within the total assemblage, is that fish are continuously represented at Shoma, demonstrating a spatial shift from Unit F in Horizon I to Units A and B in Horizon IV. Mammal remains, in contrast, constituted the majority in Horizon I at Shoma, while they became the dominant taxa in Horizon IV at Mara. This separation in the mammal and fish faunas coincides with the end of the 'Big Dry' and the permanent reoccupation of Shoma and Mara, which might have resulted in the arrival of newcomers and thus a new economic structure.

	Horizon I			Horizon II			Horizon III			Horizon IV			Horizon V		
	NISP	Pi	Pi^2	NISP	Pi	Pi^2	NISP	Pi	Pi^2	NISP	Pi	Pi^2	NISP	Pi	Pi^2
Bos sp?	120	0.201	0.040538714	0	-	0	1	0.083	0.006944444	109	0.049	0.002397743	17	0.246	0.060701533
Ovi Cap?	54	0.091	0.00820909	0	-	0	1	0.083	0.006944444	48	0.022	0.000464978	7	0.101	0.010291955
Canis aureus/adustus	0	-	0	0	-	0	0	-	0	7	0.003	9.88885E-06	0	-	0
indet Canis sp.	1	0.002	2.81519E-06	0	-	0	1	0.083	0.006944444	48	0.022	0.000464978	3	0.043	0.001890359
Equus sp?	0	-	0	0	-	0	0	-	0	24	0.011	0.000116244	2	0.029	0.00084016
Felis sp?	0	-	0	1	0.0105	0.000110803	0	-	0	0	-	0	0	-	0
Croco sp?	2	0.003	1.12608E-05	0	-	0	0	-	0	2	0.001	8.07253E-07	0	-	0
Pha aet.	0	-	0	0	-	0	0	-	0	2	0.001	8.07253E-07	0	-	0
Kob kob	0	-	0	0	-	0	0	-	0	1	0.0004	2.01813E-07	1	0.014	0.00021004
Kobus ellipsiprymnus	5	0.008	7.03797E-05	2	0.0211	0.000443213	0	-	0	1	0.0004	2.01813E-07	0	-	0
Tragelaphus spekei	0	-	0	0	-	0	0	-	0	0	-	0	1	0.014	0.00021004
Alcelaphini cf. buselaphus	0	-	0	0	-	0	0	-	0	2	0.001	8.07253E-07	0	-	0
Damaliscus lunatus	1	0.002	2.81519E-06	0	-	0	0	-	0	1	0.0004	2.01813E-07	0	-	0
Hippotragus equinus	1	0.002	2.81519E-06	0	-	0	0	-	0	0	-	0	0	-	0
Syncerus caffer	1	0.002	2.81519E-06	0	-	0	0	-	0	3	0.001	1.81632E-06	0	-	0
Hippopotamus sp.	0	-	0	0	-	0	0	-	0	1	0.0004	2.01813E-07	0	-	0
Panthera sp?	1	0.002	2.81519E-06	0	-	0	0	-	0	0	-	0	0	-	0
Clariidae	143	0.240	0.05756779	23	0.242	0.058614958	4	0.333	0.111111111	747	0.336	0.112613611	9	0.130	0.017013233
Bagriidae	97	0.163	0.026488109	25	0.263	0.069252078	2	0.1667	0.027777778	341	0.153	0.023467047	4	0.058	0.003360639
Synodontis	74	0.124	0.015415972	13	0.1368	0.018725762	2	0.1667	0.027777778	170	0.076	0.005832403	6	0.087	0.007561437
Lates	51	0.086	0.007322305	6	0.0632	0.00398892	1	0.083	0.006944444	126	0.057	0.003203987	2	0.029	0.00084016
Tilapia	34	0.057	0.003254358	22	0.2316	0.053628809	0	-	0	480	0.216	0.046497773	16	0.232	0.053770216
Other	11	0.018	0.000340638	3	0.0316	0.0632	0	-	0	113	0.051	0.002576953	1	0.014	0.00021004
TOTAL	596		0.159232692	95		0.267922438	12		0.197777777	2226		0.197650652	69		0.156899811
	Diversity index = 6.28			Diversity index =3.73			Diversity index = 5.14			Diversity index = 5.06			Diversity index = 6.37		

Diversity index = $1/\Sigma(Pi^2)$, where Pi represents the proportion of individuals attributable to species *i* from a given total sample

Figure 8.1a Reciprocal of Simpson's index, based on NISP for all faunal remains at Dia (Manning 2003).

	Horizon I			Horizon II			Horizon III			Horizon IV			Horizon V		
	NISP	Pi	Pi^2	NISP	Pi	Pi	NISP	Pi	Pi^2	NISP	Pi	Pi^2	NISP	Pi	Pi^2
Clariidae	136	0.324582339	0.105353695	19	0.204301075	0.041738929	4	0.400	0.16	693	0.3502	0.122623831	5	0.2500	0.0625
Clarias sp	5	0.011933174	0.000142401	1	0.0108	0.00011562	0	-	0	19	0.0096	9.21755E-05	1	0.0500	0.0025
cf. Clarias sp?	1	0.002386635	5.69603E-06	1	0.0108	0.00011562	0	-	0	17	0.0086	7.37881E-05	1	0.0500	0.0025
Heterobranchus sp?	0	-	0	0	-	0	0	-	0	4	0.0020	4.08534E-06	0	-	0
cf. Heterobranchus sp?	1	0.002386635	5.69603E-06	2	0.0215	0.000462481	0	-	0	2	0.0010	1.02134E-06	0	-	0
Bagriidae	26	0.062052506	0.003850513	4	0.0430	0.001849925	1	0.100	0.01	120	0.0606	0.003676808	1	0.0500	0.0025
Bagrus sp?	19	0.045346062	0.002056265	1	0.0108	0.00011562	0	-	0	23	0.0116	0.000135072	2	0.1000	0.01
Clarotes sp?	8	0.019093079	0.000364546	3	0.0323	0.001040583	1	0.100	0.01	22	0.0111	0.000123582	1	0.0500	0.0025
Chrysicthyus sp?	3	0.007159905	5.12642E-05	1	0.0108	0.00011562	0	-	0	16	0.0081	6.53655E-05	0	-	0
Auchenoglanis sp?	41	0.097852029	0.00957502	16	0.1720	0.029598798	0	-	0	158	0.0798	0.006374154	0	-	0
Lates	52	0.124105012	0.015402054	6	0.0645	0.004162331	1	0.100	0.01	136	0.0687	0.004722655	1	0.0500	0.0025
Tilapiini	34	0.081145585	0.006584608	22	0.2366	0.055980227	0	-	0	473	0.2390	0.057125589	5	0.2500	0.0625
Synodontis	81	0.193317422	0.037371626	14	0.1505	0.022661579	3	0.300	0.09	182	0.0920	0.008457679	2	0.1000	0.01
Gymnarchus sp?	4	0.009546539	9.11364E-05	0	-	0	0	-	0	5	0.0025	6.38335E-06	0	-	0
Mormyridae sp.	1	0.002386635	5.69603E-06	0	-	0	0	-	0	3	0.0015	2.298E-06	0	-	0
Arius Gigas	0	-	0	0	-	0	0	-	0	3	0.0015	2.298E-06	0	-	0
Alestes sp?	0	-	0	0	-	0	0	-	0	1	0.0005	2.55334E-07	0	-	0
Tetraodon sp?	0	-	0	0	-	0	0	-	0	2	0.0010	1.02134E-06	0	-	0
Hydrocynus sp?	3	0.007159905	5.12642E-05	1	0.0108	0.00011562	0	-	0	4	0.0020	4.08534E-06	1	0.0500	0.0025
Polypterus sp?	4	0.009546539	9.11364E-05	2	0.0215	0.000462481	0	-	0	95	0.0480	0.002304388	0	-	0
cf Heterotis sp?	0	-	0	0	-	0	0	-	0	1	0.0005	2.55334E-07	0	-	0
TOTAL	419		0.181002614	93		0.158515435	10		0.28	1979		0.20579679	20		0.16
	DIVERSITY INDEX = 5.5247			DIVERSITY INDEX = 6.308			DIVERSITY INDEX = 3.57			DIVERSITY INDEX = 4.86			DIVERSITY INDEX = 6.25		

Diversity index = $1/\Sigma(Pi^2)$, where Pi represents the proportion of individuals attributable to species i from a given total sample

Figure 8.1b Reciprocal of Simpson's index, based on NISP for all faunal remains (Manning 2003).

8.3 Botanical Analysis

The analysis of the archaeological plant remains from Dia was carried out by Shawn Murray, a doctoral student from the Department of Anthropology, University of Wisconsin-Madison (Murray 2004, in press). The following description is a summary of Murray's project reports.

Recovery of archaeobotanical materials at Shoma and Mara took place during the first three excavation seasons (1998-2001). These samples, consisting of 133 ***in situ*** handpicked samples and 515 flotation samples (totalling 3503 litres of sediment), were processed and examined for charred plant remains. Both sample types were collected from a wide range of contexts, such as midden or other trash deposits, ashy layers, hearths, pits and floors. In Units A, B, F and M all contexts (excluding mudbrick walls, human burials, and otherwise highly disturbed deposits) were sampled to better understand plant deposition through time and space. Flotation samples (typically 6-12 litres in volume) were collected from other excavation units only when middens, ashy layers, or pits were encountered, or when Horizon I levels were reached. The flotation samples were processed by simple bucket flotation, using clean water and a 0.33 mm mesh screen.

Approximately 6063 charred botanical items were recovered from Shoma and Mara. This diverse plant assemblage consists of 69 taxa, comprising domesticated and wild grasses, sedges, tree and shrub fruits, and other herbaceous plants. In general, African rice (*Oryza spp.*) and pearl millet (*Pennsisetum americanum*) were the most commonly recovered cultivated grasses, and Acroceras amplectens, Sacciolepis, and Paspalum orbiculare were the most frequent wild grasses. Tree and shrub fruits, mainly cotton (*Gossypium*), Vitex, Grewia, and jujube *(Ziziphus)* were the most common group overall, though it was suggested that this may have resulted from preservation biases towards dense fruit walls and hard seed coats. Sedges and herbaceous plants were recovered in low numbers, of which Rhyncospora was the most commonly recovered sedge, while *Trianthema pentandra* and *T. portulacastrum* comprised the majority of herbaceous plants.

Horizon I (800 BC–AD 0)

Horizon I is marked by the extensive use of African rice. African rice grains comprise about 41% of all plant remains from this horizon, and were present in more than 33% of the flotation samples. Accelerator Mass Spectrometer (AMS) dates confirmed their presence from the earliest occupation at Dia.

Several studies have shown that grain dimension (length, width, thickness) in wild and domestic rice species overlaps extensively, and that length is greater in the wild species. This suggests that unlike the domestication process in many other cereals, African rice domestication apparently did not involve selection for larger grains (Murray 2004). Moreover, Katayama has found that ratios of these dimensions (length/width, length/thickness, width/thickness) show differences between Asian (*Oryza sativa*) and African species (*O. glaberrima* and *O. barthii, O. longistaminata*) (ibid.). In spite of the variabilities, it has been acknowledged that these ratios point to an evolutionary trend towards thicker grains in *O. glaberrima* and *O. barthii*, compared to Asian and other wild African species. Hence, by comparing ratios of *O. glaberrima* and *O. barthii*, these species have been distinguished by the manner in which volume becomes larger: *O. glaberrima* adds to overall volume by increasing thickness, while *O. barthii* increases volume more through length (ibid.) (Fig.8.2).

Figure 8.2 Spikelets and naked grains of Oryza glaberrima and O. barthii (Murray 2004).

Hence, in an attempt to identify the archaeological rice grains from Dia to wild or domestic species, Murray has focused on measuring and comparing the ratios of the ancient grains with modern African rice. Only whole, undistorted ancient grains were measured (n = 134), as were modern dehulled grains of *Oryza glaberrima* (n=91) and *O. barthii* (n=68) obtained from Niger, Nigeria, and Mali by the International Rice Research Institute. Figure 8.3 shows ratios of length/width and length/thickness of the modern species and the ancient grains from Dia and Jenné-jeno. On comparison of these ratios, it was found that the majority of ancient grains more closely resemble the modern domestic African rice (*O. glaberrima*) than they resemble the wild species. Moreover, the ancient grains show little change in size through time (Fig.8.4). This lack of change supports the idea that rice at Dia was fully domesticated from the earliest occupation, as some change in size or shape should be evident if it had undergone *in situ* domestication, or if early rice at Dia was wild and domestic rice was introduced during later occupation.

However, Murray also found that a few grains resemble those of wild species, which is expected as today wild grains grow along the margins of domesticated fields, and are harvested with the domestic grains and sold at the markets for consumption. The other major plant remains in this horizon are wild tree and shrub fruits, which accounted for about 36% of the charred remains, and occurred in 37% of samples. The hard inner fruit pits, or stones, of Vitex (probably *V. doniana* or *V. simplicifolia*) represent the most frequently recovered fruit. Vitex generally ripens in March, and its edible fruit pulp is used in making beverages, molasses, and sweetmeats. Nine whole stones of *Grewia cf. bicolor* were also recovered, along with 8 stone fragments. Like Vitex, the pulp of *Grewia bicolor* fruit is edible and sweet, and fermentable into an alcoholic drink. Baobab (*Adansonia digitata*) and jujube (*Ziziphus sp.*) were present in comparatively small amounts.

The only other domesticate recovered in Horizon I was pearl millet (*Pennisetum americanum*), but it was present in low numbers (n=2).

Horizon II (AD 0–500)

Horizon II is distinguished by the continued abundance of domesticated African rice, and tree and shrub fruits, and by an increase in wild grass seeds. African rice accounted for 49% of charred remains from this horizon, all of which came from midden contexts in Units A and B. Wild grass seeds comprised 12% of all remains, an increase from Horizon I, in which they accounted for 4% of botanical material. Of the wild grasses, *Acroceras amplectens* and *Sacciolepsis* were the dominant taxa. The former is a common species in West Africa, particularly in marshes or shallow water. It is known as a weed in rice fields, and as a good fodder for cattle and horses. *Sacciolepsis* also grows in wet places.

16% of Horizon II remains consisted of tree and shrub fruits, indicating a significant decrease from Horizon I, which included *Adansonia digitata*, *Grewia* cf. *bicolor*, *Vitex*, *Ziziphus*, and *Tephrosia* (an herbaceous plant growing in open places).

Horizon III (AD 500–1000)

Horizon III is characterised by a decrease from Horizon II in the presence of African rice and wild grass grains, and an increase in tree and shrub fruits. African rice decreased to 23% of all remains, and occurred primarily in a midden context in Unit B. Pearl millet was also identified from midden contexts in both Units A and B, though it continued to appear in low numbers (n=7). Wild grass grains decrease from Horizon II to 7% of remains, with *Sacciolepis* present as the most common of the identified grasses. Tree and shrub fruits comprise 53% of Horizon III remains, a dramatic increase from Horizon II. The majority of remains (70%) are attributable to fragments of unknown fruit, while stones of *Grewia bicolor*, *Vitex*, and *Ziziphus*, and possibly intrusive *Gossypium* seeds, represent the remaining 30%.

Horizon IV (AD 1000–1600)

Horizon IV on Shoma and Mara has produced striking changes in the archaeological presence of plants. First, African rice continues to decrease in presence compared to previous periods, though it still comprises about 16% of all remains. A new appearance of other domestic grasses is signalled by the presence of pearl millet, sorghum (*Sorghum bicolor*), and bread wheat (*Triticum sp.*), which account for 24% of the domestic grasses or 5% of all Horizon IV finds. Particularly interesting is the difference between Shoma and Mara in the relative quantities of these cereals. At Mara, pearl millet, sorghum and bread wheat account for 44% of domestic grains, indicating an intriguing shift in staple grains, while at Shoma these taxa comprise only 8%.

Wild grass grains increase in abundance to 16%, but more importantly, the diversity of species more than doubles from Horizon III. *Sacciolepis* remains the most common species (38% of wild grasses), but wild *Pennisetum* and *Acroceras amplectens* also occur frequently (9% and 7% respectively). In addition, various other wild grasses, such as *Andropogon*, *Brachiaria*, *Digitaria*, *Eleusine indica*, *Panicum*, *Paspalum orbiculare*, and *Setaria*, occur in low numbers. Many of these species prefer swampy conditions, and are used for human consumption and as fodder.

The percentage of tree and shrub fruits falls to 41% of finds in Horizon IV, but diversity increases. The most numerous species by far is cotton (*Gossypium*), with 536 whole seeds and 980 fragments. AMS dating of two seeds (A079 and M099) provided dates of Cal AD 1403-1469 and Cal AD 1283-1397, respectively. Due to these pre-Columbian dates, it has been suggested that this cotton was Old World in origin, either *G. arboreum*, probably of the Indian subcontinent, or *G. herbaceum*, of Africa or the Near East.

Other taxa present include *Grewia* cf. *bicolor*, *Vitex*, *Ziziphus*, and *Sclerocarya birrea*, a species not previously encountered that produces an edible apricot or mango-like fruit, high in water and fiber.

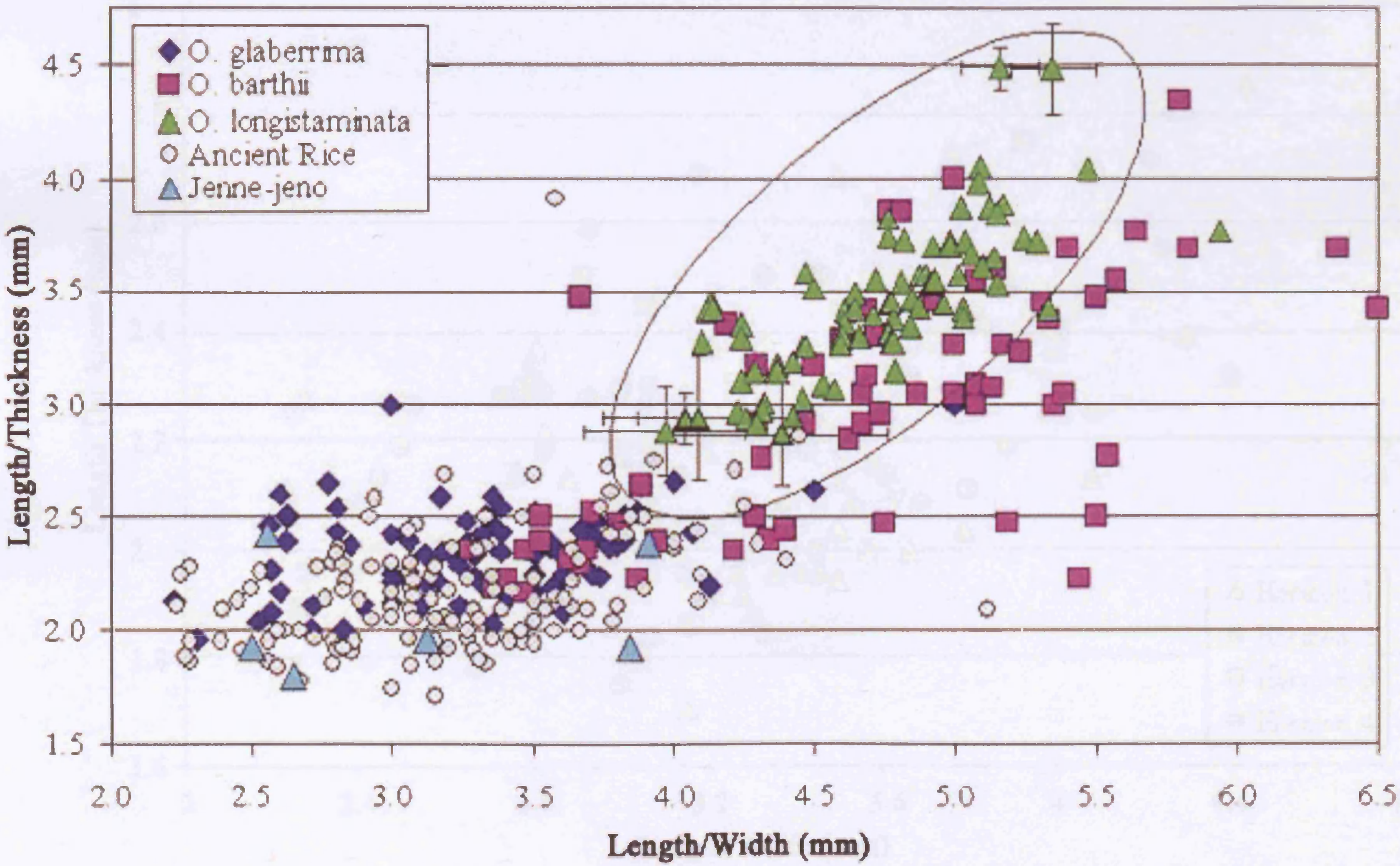


Figure 8.3 Scatterplot of modern and ancient African rice. Note: the Jenne-jeno samples date Phase I/II to Phase IV (250BC-AD1400) (Murray 2004).

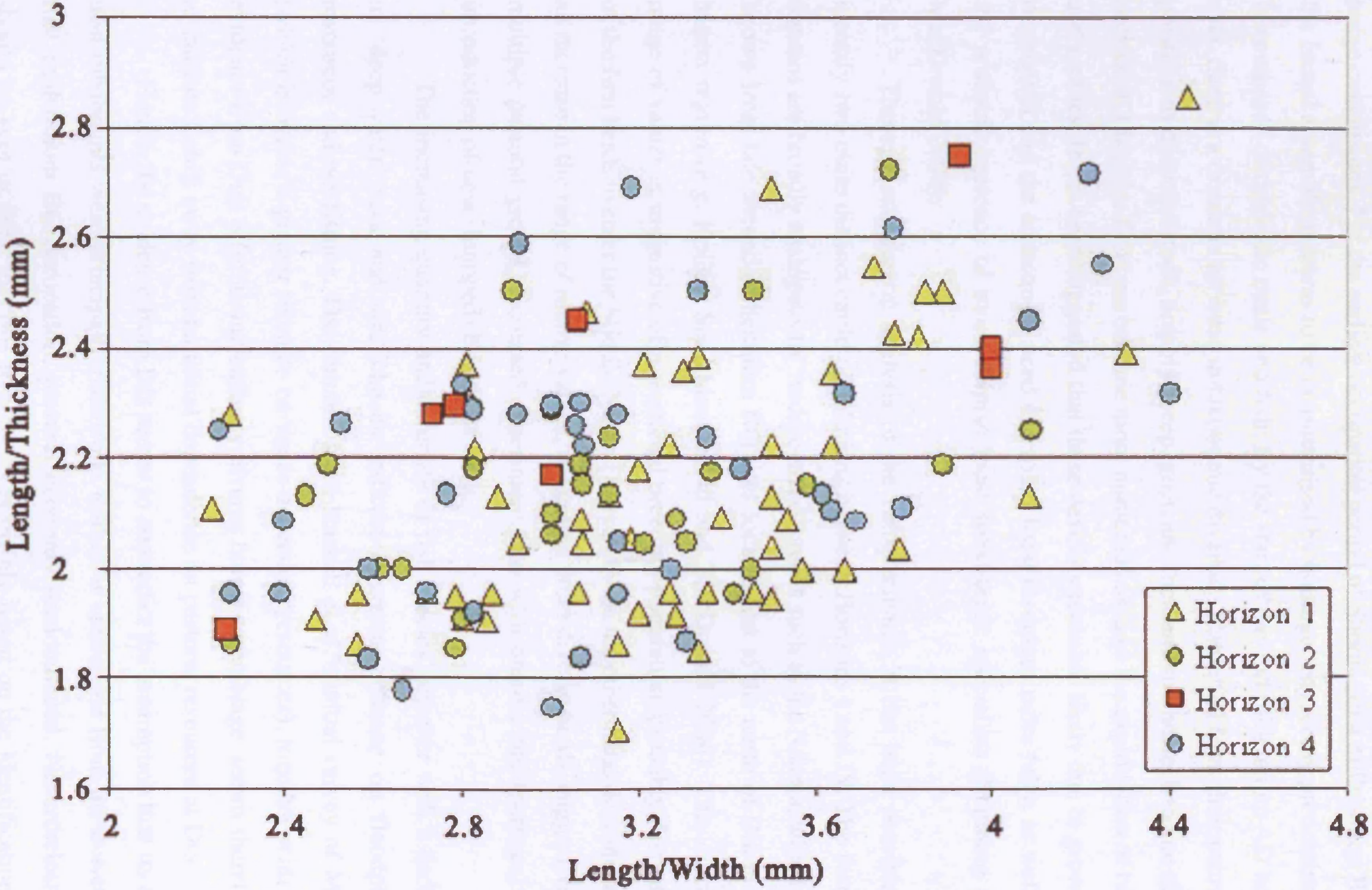


Figure 8.4 Scatterplot of the ancient African rice grains from Dia. (Horizon 1 = 800-400 BC - AD 0; Horizon 2 = AD 0-500; Horizon 3 = AD 500-1000; Horizon 4 = AD 1000-1600) (Murray 2004).

8.4 Discussion

Concerning Dia's faunal evidence, I would like to suggest the following tentative conclusions. For the earliest occupation period of Shoma (first millennium BC), the faunal assemblage seems to be characterised by homogeneity, being predominantly composed of domestic cattle and fish. By the start of the 2nd millennium AD however, there is a dramatic increase in taxonomic diversity. Cattle fall from their primary position, as other livestock, notably sheep, goat, and the domestic horse, become more prevalent. Likewise fish taxa become more numerous as does the exploitation of birds and reptiles. It has been suggested that these developments are likely due to growing population and the consequent need to exploit local resources more fully, as well as the probable presence of more diverse local subsistence specialists (Manning and MacDonald 2004).

Through osteometric analysis of the cattle remains, it has been possible to identify two quite distinct cattle populations between Horizons I and IV. The former remains are broadly analogous to 'middle-sized' breeds such as the Ndama, which are known from late second millennium BC sites located just to the north of Dia in the Méma region (e.g. Kolima Sud, MacDonald and MacDonald 2000). This discrete range of values is suggestive of a restricted breeding population, probably derivative of the first herds to enter the Middle Niger. Horizon IV on the other hand demonstrates an increase in the range of metric values, indicating more diverse herds, suggestive of multiple pastoral groups, increased experimentation with breeds, and (perhaps) the introduction of new (humped) breeds of cattle.

The increasing quantity and diversity of fish species, together with a decline in 'deep-water' taxa and size classes indicate a greater reliance on floodplain resources and net fishing. The remains from Haskell et al.'s initial survey of Mara (which indicates a greater reliance on water-dependent resources), together with the evidence from Unit S for an increasingly diverse faunal assemblage, seems therefore to indicate a shift away from an initial dependence on pastoral resources at Dia.

Hence, the evidence from Dia seems to contradict the assumption that its earliest inhabitants were principally fisherfolk. Rather, it seems that from the outset of first millennium BC occupation, pastoral economy predominated. Nevertheless, it should be kept in mind that this hypothesis is mainly based on the identification of what might have constituted a single butchering or midden area (Unit F). Thus, the dominant presence of a pastoral economy during the first millennium BC should be viewed with caution. Significant faunal spectrum changes in Horizon IV, after the amelioration of the 300 BC – AD 300 Dry Phase, indicate new subsistence techniques at Dia, notably on the mound of Mara. These would appear to indicate a new regional economic structure, with more domestic species imported from abroad and distinct pastoral and fishing economies.

It is however worth considering these propositions within the framework of the aforementioned sampling issues, as both Units F and S, which together contribute over 90% of the assemblage, do not guarantee representative samples. Further sampling issues are illustrated by the preliminary investigation of the faunal remains from the 1986 survey and excavations at Dia. In this MacDonald notes an extensive exploitation of aquatic resources (fish and reptiles) from Horizons IV/V (Unit D6) on Mara (Unpub. Undergraduate thesis 1989), while Unit S, which is located to the northwest of Unit D6, produced almost no fish remains (less than 80g in total). This inconsistency has been further aggravated by the loss of the faunal material from Units M and Q at Mara. In light of such contradictions, it is essential that further comparative material is eventually unearthed for these hypotheses to be tested and for the true nature of Middle Niger economies over the past 3000 years to be fully appreciated.

As to the archaebotanical evidence, metric study of the ancient rice from Dia has shown that African rice was fully domesticated by initial occupation of the site, and that rice farming was an important part of the early food economy. Similar conclusions have been drawn for Jenne-jeno, where African rice has also been present in the oldest levels, dating to 250 BC (McIntosh and McIntosh 1988). It seems that African rice did not undergo genetic transformation at Dia, which supports the idea that rice was fully domesticated from the earliest occupation, as some change in size or shape would be evident if it had undergone *in-situ* domestication.

Many researchers (Clark 1976; Harlan 1971, 1995; Harris 1976; Portères 1970; Shaw 1976) consider the IND a primary centre for African rice domestication, although evidence for the time and location of its domestication is still lacking. Portères (1976: 442-443) defined the IND as an original centre of rice diversification as he recognized in modern domestic varieties genetically dominant traits (large, thick and rigid panicles, spikelets loosely attached to pedicels, and red pigmentation) as analogous to traits in the IND. Varieties with recessive characters were more similar to those in the Sene-Gambia and Guinea, suggesting that African rice more likely derived from the former area than the latter. However, radiocarbon dating of the Sene-

Gambian sites revealed their first millennium AD age, invalidating Portères' chronology for rice domestication. Other evidence of early African rice use includes numerous grains of what appears to be *O. longistaminata*, recovered from Gajiganna and Kursakata in northeast Nigeria, dating 1800 BC to AD 400 (Klee and Zach 1999).

Rice cultivation is usually associated with the Soninke-speaking Marka (Nono) ethnic group, who according to oral traditions were the second population group to inhabit the Dia region, after initial occupation by the Bozo fisherfolk (Sakai 1990). Hence, the identification of rice in Dia's first occupation layers, contrasts with what is known from the oral traditions.

Indeed, the faunal and archaeobotanical evidence indicate that Dia's initial occupants were characterised by a composite economy, primarily practising rice cultivation, pastoralism and the exploitation of 'deep-water' aquatic resources. Hence, the archaeological record could imply that Dia was settled either by several population groups from diverse origins, with each group practising a specialised economy or by a single, economically diverse group. Indeed, data from the neighbouring Méma region have yielded some evidence of the latter scenario for the first millennium BC.

In the Méma archaeological investigations have revealed contemporary intermixing of Kobadi (dated between 4000 and 3000 BP) and Ndondi Tossokel (dated to around 3500 BP) artefacts at many sites (MacDonald 1994, 1999). The Kobadi tradition has been interpreted to have been of an entirely fisher-hunter-gatherer economic orientation, while the Ndondi Tossokel tradition has been interpreted as an agro-pastoral community (see Chapter 4), whereby each tradition possesses a distinctive ceramic assemblage. It has been suggested that there was interaction and exchange between the two entities, and perhaps some eventual form of symbiosis. Evidence for the latter process has now been found at the site of Kolima Sud Est, where the remains of fish, domesticated cattle and cultivated fonio (*digitaria exilis*) have been identified (Takezawa 2004). The site has been dated between 2722 and 2521 BP (ibid.). It might thus be suggested that Kolima Sud Est represents a symbiosis of agro-pastoral groups and fisherfolk due to the presence of a single ceramic tradition, defined as the Faita facies. However, Kolima Sud Est has also provided a new puzzle, especially pertaining to the presence of fonio, as this cereal has not been previously identified in the Méma or the Upper IND, including Dia. It has rather been the presence of African rice, pearl millet and sorghum, which have been known in these regions.

Notwithstanding the intriguing presence of fonio, it might be suggested that

Kolima Sud Est fits into one of the proposed schemes for pastoral economies, which has been described by MacDonald (1999:335) as follows,

> *Segmented or agropastoral economies* – where herding and cultivation or gathering is practised by two discrete social segments of one self-sufficient ethnic group (via either caste, age, or gender division). Here it is assumed that herd sizes exceed that which can be carried by one locality. Thus, one segment of society undertakes a seasonal round with the cattle, spending only part of the years with the more localized cultivating or gathering segment.
>
> Archaeological assumption based on ethnographic analogies: a (probable) single tradition of material culture with a distribution in varied ecological zones, having both ephemeral campsites (shallow and/or small) and seasonal aggregations (large settlements).

In the case of Kolima Sud Est this scenario even looks more complex as not only two but three social segments co-existed, including in addition to pastoralists and cultivators, also fisherfolk. Similar circumstances might be proposed for Shoma, where discrete social segments of cultivators, pastoralists and fisherfolk co-existed, constituting one self-sufficient population group, having a single pottery tradition.

In light of the dynamic aspect of group identities it should however be emphasized that these segmented societies could also have split into various distinct groups as much as they might have witnessed processes of symbiosis. These processes might have been witnessed during times of climatic stress, during which large settlements might have been abandoned to live more mobile life-styles. In the case of Dia, similar processes could have been witnessed during Horizon II, which is characterised by the lack of mammalian remains on Shoma, while cultivators seem to have persisted due to the continuing presence of African rice. These mechanisms may be compared to political systems, which in the course of history might have oscillated between centralized and segmentary structures.

Coming back to Dia's archaeobotanical remains, it has been shown that this composite trend of subsistence economies continues until the early second millennium AD (Horizon IV), when an even greater diversity of species occurs. While African rice decreases in presence (16% of all remains), other domestic grasses such as pearl millet, sorghum and bread wheat gain in importance. The relative quantities of these cereals at Mara indicate an intriguing shift in staple grains at the site.

The bread wheat grains might have arrived at Dia via one of the major Saharan trade towns such as Awdaghust or Sijilmasa, where according to various medieval Arabic travellers, wheat was cultivated (Lewicki 1974). Al-Bakri (see Levtzion and Hopkins 1981:68) described that "wheat is grown there (Awdaghust), by digging with hoes (*fa's*), and it is watered with buckets (*dawl*). Only the kings and the rich eat wheat there; the rest of the people eat sorghum (*dhura*)." It has been suggested that wheat might have also entered Dia from the east, as the Zaghawa peoples of Lake Chad apparently acquired it from Warglan in Algeria around the 12th century AD (Lewicki 1974:40). By the 16th-19th centuries, wheat was cultivated among other places, in the Ahaggar, in the Inland Niger Delta near Timbuktu and Gao, and further south into Nigeria (Blench 1997; Lewicki 1974). As there is no evidence to suggest that it was growing near ancient Dia (a total of four grains have been identified), the grains might have arrived either by trade or as a gift (Murray, pers. communication).

Indeed the increase of the diversity in species during the second millennium AD indicates that Dia might have been part of a regional and long-distance trade network, supplying a state economy with its economic produce. The relatively abundant presence of cotton, which seems to have been grown locally, confirms this hypothesis as cotton and textiles were an imported trade item in the trans-Saharan trade. Oral traditions mention that Soninke warriors demanded tribute from the earliest people of Dia, "attaching them to the cords of Mande" (Fay 1997:167). Hence, Dia might have been drawn into the second millennium consolidation of the Mali Empire, serving as a base for economic produce and war economy with successive waves of incoming groups and warriors passing through the area in times of 'imperial' extension and contraction (ibid.).

Later incoming groups probably correlate with the Peulh, who are believed to have entered the Macina around the 14th century AD (Fay 1997). The cattle remains of Horizon IV might corroborate this view due to an increase in the range of metric values, indicating more diverse herds, multiple pastoral groups, increased experimentation with breeds, and (maybe) the introduction of new breeds of cattle.

As a result, it can be concluded that for Dia's early occupation the archaeobotanical and faunal evidence diverge quite heavily from the oral traditions, while the evidence from the late 2nd Millennium AD is less contradictory. A more detailed analysis between these data sets will follow in Chapter 9.

Chapter Nine
Comparative Analysis: History and Archaeology

9.1 Introduction

The principal aim of this chapter, which also represents the focal point of my investigation, is to carry out a comparative analysis between Dia's historical sources and the archaeological data we recovered. I decided to structure this analysis by broad themes, which include, Origins and Population Movements, Subsistence Economy, Urbanism, Trade and Islam. In my view they represent the most pertinent issues in Dia's history. The reason to structure my analysis by themes is firstly, to avoid repetition and secondly, to avoid treating the archaeological data as chronological rectifying device in the quest of a single historical narrative. Instead, my main pursuit is to document an alternative view, which might elucidate the social mechanisms that have been silenced by certain aspects of Dia's history. At the end of this chapter, I will argue that the institutionalisation of Islam has been the most influential factor in obliterating certain episodes of Dia's past, and that archaeology constitutes an effective tool to invigorate these silences.

9.2 Origins and Population Movements

According to oral traditions (see Chapter 3), Dia's genesis is intricately linked to the origins of the Bozo fisherfolk, who have been described as the IND's first inhabitants. They are mostly depicted as an autochthonous group. There is also mention of a second population group, who are described as hunters. Due to their Soninke *jamuw* (family name), which is Tomota, this second population group has been linked to the Nono (or proto-Soninke). The latter are either depicted as an autochthonous group, who co-habited the region with the Bozo, or alternatively, as an incoming group of Soninke origin. Once the Bozo and the Nono of oral tradition had formed an alliance, they supposedly settled on Mara. These events have mostly been linked to sometime before the Ghana Empire, thus to the early first millennium AD (Fage 1995; Levtzion 1973, 1985; Lewicki 1974; Munson 1980).

However, the most astonishing element of Dia's modern oral traditions is that there are no mentions of Shoma. Our archaeological investigations revealed that Shoma's initial occupation dates as far back as the beginning of the first millennium BC, which might explain the fact that it has disappeared from Dia's collective memory. Yet, our studies have shown that Shoma's history is intricately linked to Mara, as both sites have been occupied contemporaneously from ca. AD 600 to ca. 1850. Is it possible that different population groups inhabited Shoma? Or was Shoma Mara's ancestral site whose memory has been effaced for political or ideological reasons? Indeed, why does no one remember its city wall, whose remains are still visible at the site's northern edges? In section 9.4, I will argue that this lack of memory is connected to Shoma's pre-Islamic past, which covered a substantial period of around 1700 years (from 800 BC to AD 900). The 'lack of memory' pertaining to its occupation period covering the second millennium AD might have possibly been due to its defiance of Islam until its institutionalisation by the Dina in the 19th century.

As regards Dia's original population group, which mostly refers to the Bozo fisherfolk, the archaeological record has provided a contrasting image to the pristine setting of the oral sources. In fact, the archaeobotanical and faunal evidence have shown that Dia's first inhabitants were characterised by a composite economy, practising rice cultivation, pastoralism and the exploitation of aquatic resources. If one were to apply ethnographic analogies of the IND (see Chapter 2), which have illustrated that these diverse economies demand specialised knowledge and life-styles (Gallais 1967, 1984), it could be argued that from the onset diverse socio-economic groups co-habited at Dia, or alternatively, a single, economically diverse population group, with one pottery tradition.

Indeed, Shoma's ceramic assemblages indicate that Dia was not settled by an autochthonous population group as it appears to be a derivative from the Faita facies of the Tichitt tradition, which is known from the Tichitt-Walata civilisation in south-eastern Mauritania (Munson 1980) and the Malian Méma region just to the north of Dia (McDonald 1994, 1996) (see Chapter 6). Hence, the presence of the Faita facies at Shoma has finally confirmed the long-standing hypothesis - a cultural connection between the Tichitt Tradition of ca. 2000 - 800 BC and the first millennium BC civilisations of the Inland Niger Delta. Dia might have therefore been settled by incoming population groups from the northwest. Interestingly, Dieterlen (1959) has collected one version, which states that the Bozo and Nono migrated from Walata in Mauritania, and founded Dia at the end of the Ghana Empire (see Chapter 3).

In effect, previous archaeological investigations have tentatively hypothesised an equation of proto-Bozo fisherfolk with the Kobadi tradition in the Méma, dating between 4000 and 3000 BP (MacDonald 1998; MacDonald and van Neer 1994). The

Kobadi folk practised an aquatic subsistence lifestyle, comprising deep-water fishing, aquatic game hunting and the exploitation of freshwater bivalves (MacDonald 1994, 1996; MacDonald and van Neer 1994; Raimbault and Dutour 1989). Two distinctive sherds of the Kobadi tradition have been identified in the earliest levels at Shoma. The Nono (or proto-Soninke), often referred to as Dia's second population group, have been tentatively equated with the agro-pastoral Ndondi Tossokel facies (Tichitt Tradition) of the Méma region, which has been dated to 3084±73 BP at the site of Kolima Sud (MacDonald 1998; MacDonald and Van Neer 1994). At some point between ca. 3000 and 2000 BP both the Kobadi and Ndondi Tossokel material culture were to be replaced by the Faita facies of the Tichitt tradition from southeastern Mauritania (MacDonald 1994, 1996, 1998).

The question is whether the Kobadi and Ndondi Tossokel traditions merged into one, which is indicated by Faita's material homogeneity, or whether Faita's material homogeneity masks economic diversity within a greater corporate identity? The key to this question might be provided by Shoma's composite economy, as well as by recent anthropological research, which has acknowledged the fluid and dynamic aspects of identities. With regard to ethnic groups, it has been argued that they comprise systems, oscillating between segmented and inclusive structures, undergoing phases of expansion and contraction (Amselle 1990). This notion would thus assign the Faita tradition as an inclusive, and the Kobadi and Ndondi Tossokel traditions as segmented systems, the latter implying socio-economic specialisation. Influencing factors, which might contribute to the oscillation of these systems, include environmental amelioration/degradation, inter-regional and long-distance trade, invasions, population movements, intermarriage and political transformations. According to these notions, questions of origins would thus be avoided as they arbitrarily isolate microelements at the centre of a socio-historical continuum (Amselle 1990:161).

In the case of Dia, it can thus be suggested that a composite group, consisting of a heterogeneous fusion of specialists, arrived at the western frontier of the IND from the Méma region. This fusion of specialists might once have constituted segmented groups, which is attested by the Kobadi fisherfolk and by the Ndondi Tossokel agro-pasturalists of the Méma. At a later stage they oscillated into an inclusive tradition, which might be represented by the emergence of the Faita tradition. The latter carried the imprints of Tichitt-Walata, which has known a political unit in the form of complex societies (Holl 1985). Hence, upon arriving at Dia, these imprints might have rekindled, giving rise to a proto-urban society at Shoma. The above scenario has become known as the Soninke Diaspora, or perhaps more accurately as the Proto-Soninke diaspora, since the process continued well into the first millennium AD (MacDonald 1994, 1998; S. McIntosh 1981; Munson 1980).

Dia's history is in fact continuously characterised by various streams of newcomers, who have either remained in place or have migrated further to the southeast and -west. Indeed, Dia's oral traditions represent the archetype of first settlers/conquerors, which has taken the form of a hierarchy of lineages and thus the exercise of power (see Chapter 3). This ideology places the first settlers, the landowners and ritualists, in opposition to the conquerors, holders of power. This division has been interpreted as a category of local or regional political thought, which Amselle (1990:37) summed up as follows:

> First settlers and conquerors are entirely necessary, since the exercise of power throughout the Sudano-Sahelian area rests on an alliance between the people of power and the people of the earth. Real, genuine power - the power of the savanna bushland outside the villages - is actually considered to belong to the people of the earth, who are also the masters of ritual. In oral tradition, the first settlers are always described as devils, creatures with long hair, people with powerful charms; and access to their haunted villages is described as very dangerous. The terms may change; these people of the earth may have been the ancient wielders of power. Regardless, it is the relationship between people of power and people of the earth, and the permanence of this division, that must be taken into account.

Fay's (1997) work in the Macina has provided another hypothesis concerning first-comers and late settlers, whereby newcomers repeatedly usurp power creating a situation whereby 'the first are last'. Fay places at the top of the pyramid the authority of the Arbe (Peulh), which is followed by the Mossi, the Malinke and Bozo after that, and lastly their vassals (ibid.), that is each ethnic group's power is in inverse order to its antiquity in the region. In the case of Dia, a slightly different version might be suggested. However, instead of using ethnic labels, I prefer to use lineage names. The following hierarchical pyramid can thus be suggested for Dia. At the top are the Koreissis (put in place by the Dina authority under Sekou Amadou; it has been said that the Koreissis are of Moorish origin, but it has also been suggested that they are Peulh (Seydou Camara, pers.com. with K. MacDonald)), which is followed by the Traore (formerly the Diawara, who were warriors of Soninke origin), the Tomota (Marka (Soninke) traders and cultivators), the Kwanta (Bozo fisherfolk), and lastly the Somono/*numu* (blacksmiths and potters).

However, it has been argued that the notion of first settlers and conquerors represents an archetype, which can "only function as such because the conditions for its creation have been forgotten" (Amselle 1990:37). It seems as if this lineage hierarchy derives from a complex and fluctuating relation of forces, which might have been transmitted during what has been called the imperial period (R. McIntosh 1998) as the oral traditions place most of these population movements at the time of the Empires of Ghana and Mali.

Yet after the earliest occupation period at Shoma, the pottery assemblages of the later occupation periods (Horizons II to V) have not yielded clear indications of the population movements known from the oral sources. Indeed, Shoma and Mara provide ceramic sequences, which remain highly variable but technologically homogeneous throughout the first and second millennium AD (see Chapter 6). There are few indicators, which might or might not point to changing fashions or incoming groups, consisting of emerging vessel and rim shapes (abundant potlids, as well as shallow vessels with inturned rims, plates and carinated vessels) as well as decoration tools (paint decreases drastically in favour of decorative tools such as comb, stick, stylus and net). However, these emerging attributes were already present in the first millennium BC, only in fewer quantities. Visible social boundaries in Dia's ceramic assemblages remain thus obscure, which indicates that the idea of 'ethnic' groupings as being visible in the modern pottery of the IND (Gallay et al. 1996) might be a relatively recent phenomenon.

Indeed, Dia's pottery shows a staggering amount of variation. In other words, in spite of Horizons' II and IV diagnostic vessel types, each of this type shows a wide variety of motifs, or combination of two or more motif types as well as slightly different rim and vessel shapes, which has resulted in relatively small numbers of diagnostic clusters (see Level 3 of my pottery analysis). As a result, it seems as if these variations defy traditional typology. Firstly, only a small number of diagnostic types have been identified and secondly, they are associated with a wide spectrum of sub-types or single occurrences of distinctive types. Hence, Shoma and Mara have produced similar but not identical ceramic assemblages, which is supported by the absence of Delta Ware at Mara (except for a handful of intrusive sherds) while it continues its presence in Horizons II and IV at Shoma. Thus, the lack of Delta Ware at Mara might indicate that a different group of people or at least potters settled at the site.

However, the technologically stable character of Dia's pottery and continuous trends in décor motifs, which have almost been present for three millennia, indicate a certain **aspect** of conformity, which might have resulted from the emergence of polities such as kingdoms and empires. Furthermore, the conservative aspect of pottery production, which is usually handed down over many generations, might have also resulted in stylistic conformities, which may have been transmitted as recently as the colonial era. In fact, it has been hypothesised that Dia's and the IND's stable pottery assemblages reflect cultural affinities, which have been shared throughout the northern Mande region (S. McIntosh 1995). These similarities are also attested in linguistic borrowings and common themes in myths and religion, indicating an aspect of cohesiveness between various social groups that may have only been disarticulated as late as the 19th century, culminating for instance in the ethnic visibility of pottery manufacture. Is it possible that the colonial administration, which disarticulated existing social groups to define impermeable societies, might have indirectly contributed to the ethnic visibility of modern pottery production? At this point this reflection might be solely considered as a hypothetical question, which might be considered in future studies.

The MAESAO project (Mission Archéologique & Ethnoarchéologique Suisse en Afrique de l'Ouest), on the other hand, has yielded considerable evidence for continuous past and current pottery traditions (Gallay et al. 1990; Gallay et al. 1996; Mayor et al. 2005). The ethnic visibility of pottery manufacture has been documented at the site of Hamdallahi, the capital of the Fulani Empire in the Macina, located between the limits of the Inland Niger Delta and the Bandiagara massif. Hamdallahi was occupied from 1820/21 to 1864. According to Gallay et al. (1996), its pottery resemble the contemporary ceramic traditions of the Fulani, Somono, Dogon and Bobo potters. Investigations of Dogon plateau ceramics from the sites of Promontoire and Dangandouloun, which have been dated to the 7-13th century AD, and actual ceramic traditions seen in the Dogon Country have shown nearly no resemblance (Mayor et al. 2005). Instead the majority of ceramics show analogies with the forming technique and the decoration tools used today by blacksmith potters linked to the

Bobo (ibid.). However, the presence of these décor types (which include various cord roulette décors and mat impressions) over the last millennium west of the Bobo living zone (the Mande heartland) remains unexplained. Indeed, the attempt to link ancient pottery décor types with ethnolinguistic groups remains a difficult task due to the relatively scarce archaeological data and the sparse application of ethnoarchaeological studies on archaeological material.

9.3 Subsistence Economy

Shoma's depositional evidence indicates that the period between ca. 0 to 500 AD (Horizon II) was an era of renewed mobility, which is attested by layers of windblown sand in all of Shoma's excavation units (see Chapter 5) and a complete lack of faunal remains (see Chapter 8). However, the residues of domesticated African rice, tree and shrub fruits, and wild grass seeds have been identified in Horizon II layers, which together with ash layers and shallow pits indicate that the site was not completely abandoned. Shoma seems to have witnessed a slow process of permanent reoccupation between AD 500 and 1000, which coincides with Mara's initial occupation period dated to ca. AD 600. However, it was not until the start of the second millennium AD (Horizon IV) that both sites reached their territorial peak, indicated by standing rectangular mudbrick walls in all excavation units.

This period - Horizon IV - has also witnessed striking changes in plant and animal remains, which indicate shifting exploitations of subsistence resources. African rice decrease compared to previous periods, whilst there is a new appearance of other domestic grasses, consisting of pearl millet and sorghum (*Sorghum bicolor*). At Shoma these taxa comprise only 8%, in contrast to Mara where they account for 44% of domestic grains. This intriguing shift in staple grains may indicate the arrival of newcomers, who according to oral traditions might have been of Mande origins. The presence of bread wheat grains (*Triticum sp.*) on the other hand indicate long-distance trade, which may have arrived via Awdaghust or Sijilmasa, where according to various medieval Arabic travellers, wheat was cultivated (Lewicki 1974). There is also a significant presence of cotton (*Gossypium*), especially at Mara, suggesting that it was grown locally. These shifts in plant resources, which are especially prevalent at Mara, might thus indicate the arrival of new population groups. However, it remains difficult to identify their affiliation as this period was characterised by various waves of population movements.

Likewise to the botanical evidence, the faunal remains of Horizon IV show an augmentation in species diversity. Livestock demonstrate an increase in size range, which indicates more diverse herds, suggestive of multiple pastoral groups, increased experimentation with breeds, and (perhaps) the introduction of new (humped) breeds of cattle. These data might be correlated with the first waves of Peulh penetrating the Inland Niger Delta of Mali, which according to Fay (1997) started around the 14th century AD.

The increasing quantity and diversity of fish species, together with a decline in 'deep-water' taxa and size classes indicate a greater reliance on floodplain resources and net fishing. These changes in fishing techniques might be correlated with gradual environmental degradation, which has characterised most of the second millennium AD (see Chapter 2). Alternatively, it might be argued that these 'opportunistic' fishing techniques signal the arrival of a new group, which might be associated with the Somono.

As previously mentioned (see Chapter 2), the Somono are an occupational group, often described as boatmen and fisherfolk. However, in contrast to the Bozo, they do not posses ritual suzerainty over the waters (Conrad 2001). The Somono have been associated with the Bamana state of Segu, which is dated between the 17th to the mid-19th century (Roberts 1987:69) and have been described as *nyamakalaw*, which is attested by women craft specialists in Djenne, who identify themselves as Somono/*numu* (LaViolette 1995). At Dia potters also identify themselves as Somono and as an endogamous group of the *numu*. But as Susan McIntosh has commented for Djenne, it remains unclear which groups have contributed in the past to the ethnic potting style and technique observed among the Somono/*numu* potters of today (Conrad 2001). The same can be said for Dia. However, the evidence of a shift in fishing techniques in Horizon IV layers, which demanded less expertise than deep-water fishing, might constitute the evidence for a Somono presence at Dia, which could date as far back as the start of the second millennium AD. Thus, Somono origins might go much further back in time than the Bamana state of Segu.

The archaeobotanical and faunal remains thus indicate that a composite trend of subsistence economies characterises Dia's earliest occupation until the beginning of the second millennium AD (Horizon IV), when an even greater diversity of species occurs. As a result, it can be argued that economic specialization in the IND might have its roots in 'deep-time' prehistory, whereby heterogeneous specialist groups cooccupied the IND's settlement mounds in response to the uncertainty of the delta's flood regime and rainfall pattern, providing a wide range of fallback options in face of environmental unpredictability. These groups might have oscillated between more inclusive and socio-economically diverse systems, which in the case of Dia are represented by seasonal (Horizons II and III) and permanent (Horizons I, IV and V) occupations.

However, it remains unclear how to correlate the archaeological data with the ethnic labels known from oral sources. It would be imprudent to simply project current definitions of ethnic groups into Africa's pre-colonial past, especially for deep-time periods such as the first millennium BC. Social groups certainly have witnessed phases of ruptures and acculturation, as well as the creation of new identities. As a result, many scholars, including myself, have resorted in using "proto-" to designate links to modern social groups, even though these resemblances might be restricted to chains of tradition rather than genetics or economy.

Coming back to the issue of equating occupational specialisation with ethnicity, it has been shown that the exploitation of aquatic resources, agriculture and pastoralism demand intricate knowledge and life-styles (Gallais 1967, 1984). It might thus be postulated that these highly adaptable exploitation habits might have indeed contributed to the formation of group identities. Nevertheless, our studies as well as previous investigations have shown that composite elements of these economies can be found on a single site. It can thus be suggested that these occupational specialists have a long history of cohabitation, whether on a seasonal or permanent basis, which might have resulted from the unpredictability of the IND's climate and flood regime. However, it should be kept in mind that identities are highly amorphous and that the IND's unpredictable climate might have allowed the crossover to a different economic strategy. Thus social groups might have witnessed periods of acculturation, or alternatively they might have split into sub-groups. The latter might have practised similar economic strategies as neighbouring groups but may have considered themselves different due to their lineage and/or origin.

9.4 Urbanism

"Middle Niger urbanism does not conform comfortably with the expectations of urban archaeologists elsewhere around the globe" (R. McIntosh 2000:19). This conclusion has resulted from investigations of early towns in four of the six basins of the Middle Niger, including Djenne in the Upper Delta (S. and R. McIntosh 1980), the Niger Bend near Timbuktu (S. and R. McIntosh 1986), the Macina near Dia (Haskell and S. and R. McIntosh 1988), and the Méma (Togola 1996). These studies have shown that the phenomenon known as site clustering, which has already been present at the early centuries of the present era, has evolved into fully urban clusters by the end of the first millennium AD.

This process has been best understood in the Djenne vicinity where 25 satellite sites cluster within 1 kilometre of the 33 ha principal site of Jenne-jeno (R. McIntosh 1983). In all, 65 sites have been identified, which cluster within a 4-kilometre radius. It has been shown that occupation of these separate habitation mounds appears to have been simultaneous and continuous throughout at least the later part of the first millennium, which was followed by widespread settlement abandonment and consolidation of the population on a few mounds during the first few centuries of the second millennium AD (end of Phase IV).

Indeed, Jenne-jeno reached its maximum extent of 33 ha by AD 900, which coincided with a peak of site density in the region. It has thus been suggested that these developments could be best understood in a context of indigenous urban process fuelled by the growth of interregional trade. The most significant aspect of these results was the proposition that complex social and economic organisation not only arose much earlier in the IND than commonly believed but also emerged in response to local rather than externally driven processes (the latter processes refer to the trans-Saharan trade and North African traders, which until these investigations were believed to have been the catalyst for the emergence of complexity, including urbanism, in sub-Saharan West Africa) (R. and S. McIntosh 1981, 1984, 1993; S. McIntosh 1981; R. McIntosh 1983, 1991, 1993, 1998).

It has been argued that the Middle Niger urban clusters provided a variety of services and manufacturers to a wider hinterland, and that they were home to a large, heterogeneous population (R. and S. McIntosh 1984). Due to a lack of grave good hierarchy and monumental architecture, it has been suggested that these clustered settlements were organised horizontally, in other words they constituted a heterarchy, with multiple overlapping and competing agencies of resistance to centralization (R. McIntosh 1998, 2000).

Heterarchy challenges the notion that social complexity must be founded on the coincidence of economic, political, and religious hierarchies (ibid.). Crumley

(1987), the first to express the concept of heterarchy in archaeology, has argued that social structures can be heterarchical, where "each element is either unranked relative to other elements or possesses the potential for being ranked in a number of different ways" (Crumley 1987:158). It thus seems reasonable that the concept of heterarchy has been adopted to explain the IND's urban clusters devoid of any readily visible elites and public monuments. It has been suggested that the inhabitants of these urban clusters were,

> segmented communities of specialists or distinct corporate groups that voluntarily come together to take advantage of the services of others and a larger market for their products, but that make a demonstrable effort to preserve their separate identity by strategies of physical distinctiveness. The clustered city was a stable solution to ... life within a rich environment, but one marked by rain and flood regimes of ... high variability... We suggest that the solution hit upon by the inhabitants to combat unpredictability was to develop increasingly specialised artisan and subsistence producers linked into a generalised economy. (R. and S. McIntosh 2003:111).

In other words, on the basis of surface artefacts and features, it has been suggested that the majority of sites show a strong tendency towards exclusivity of one (or, exceptionally, two) artisanal or occupation constellation (R. McIntosh 1993:183). This pattern seems to correspond to the later tendency towards separation of specialists visible in a large region of West Africa (Conrad and Frank 1995). However, this argument remains a contentious hypothesis due to several reasons. Firstly, as previously mentioned, this hypothesis is solely based on surface artefacts, which might or might not represent the entire material sequence or internal lay-out of a tell site. Secondly, the separation of specialists has not been observed at other urban clusters, such as in the Méma (Togola 1996) and in Bentia/Koukiya south of the Niger Bend (Arazi 1999). Thirdly, a new generation of scholars have shown that this argument is difficult to substantiate thoroughly due to the difficulty of controlling the full range of materials and the activities they represent within deeply stratified component sites of every urban cluster (La Violette and Fleisher 2005). Moreover, the McIntoshs' notion of heterarchy stands in stark contrast to the oral traditions and written accounts of the medieval empires of Ghana, Mali and Songhay, which were supposedly ruled by kings of great power and wealth (Bovill 1968; Delafosse 1912; Levtzion 1973). However, it might be suggested that the concept of heterarchy might have functioned on a local level, such as around the trading towns of the IND, existing within the territorial extent of the greater medieval empires.

What then about Dia? According to oral traditions, Dia constitutes one of the oldest cities in West Africa (Fay 1997; Sakai 1990), older than the much better known cities of Djenne and Timbuktu. Indeed, our archaeological investigations have revealed that Dia may date back to 850 BC, which pre-dates Djenne by almost five centuries. However, at which period did the urban status of Dia develop? The following illustration will demonstrate that in contrast to Jenne-jeno, Dia and its hinterland might not have witnessed a progressive development. Instead it might have oscillated between complex and segmented systems, which are echoed in Dia's oral traditions (see Chapter 1, section 1.3).

As already mentioned, Dia's oldest habitation layer, which has been defined as Horizon I, was identified at Shoma, dating to ca. 800 BC. Almost all excavation units (except for one) have revealed Horizon I layers, which indicates that Shoma's initial occupation might have already covered a considerable area of around 19 ha. However, no traces of architecture have been identified, except for beaten mud surfaces and burnt clay lumps. The latter might have constituted mud wall fragments. It has thus been suggested that grass huts as well as piled mud houses were present at Shoma's oldest habitation (Bedaux et al. 2001).

The subsequent period, Horizon II, dated between 0 and 500 AD, was characterised by thick layers of wind blown sand, which included ashy concentrations and refuse pits. Hence, the permanent habitation site of Horizon I might have witnessed large-scale abandonment, and a transformation of life-style to greater mobility, which partly coincided with the 'Big Dry' (300 BC to AD 300).

Horizon III at Shoma, dated between AD 500 and 1000, has been characterised by a slow process of reoccupation, indicated by wall melt and wall collapse and a beaten mud surface. Shoma also served as a cemetery during this period, which extended into Horizon V. This period also constitutes Mara's initial occupation, which might have been on a seasonal basis, consisting of ephemeral structures such as grass huts as no mud structures were identified.

It was only during the subsequent period, in Horizon IV dated between AD 1000 and 1600, that Shoma reached its territorial peak covering around 49 ha. Traces of rectilinear mud architecture made of loaf-shaped and rectangular mud bricks were identified as well as the remains of a city wall. Mara might have also grown into a permanent settlement as similar architectural remains were identified (except for a city wall).

During Horizon V, dated between AD 1600 and 1900, Shoma and Mara might have witnessed renewed contraction, as these layers were not identified in all excavation units. However, traces of rectilinear mud houses indicate that both sites were still inhabited on a permanent basis until they were finally abandoned around the 19th century.

Haskell and the McIntoshs (1988) conducted an archaeological survey within a 4 km radius around Dia. 42 sites were identified, of which 21 sites were surface recorded. Haskell et al. identified six site clusters, of which 76% provided "Phase I/II" pottery. "Phase III" material was represented at 86%, while "Phase IV" pottery were present at only 38%. Phase V occupation was found on a handful of large widely separated sites. I would like to consider their survey results in relation to our findings at Shoma and Mara.

In contrast to Jenne-jeno, which at its inception constituted a seasonal village, Shoma's initial occupation period was characterised by permanent occupation, measuring around 19 ha, possibly featuring piled mud architecture. Fifteen of the surveyed sites (76%) seem to have been inhabited during this period, providing evidence for relatively dense population numbers. Their site sizes vary from 0.6 ha (Sites IV1 and IV8) to 7 ha (Site LIe). Thus, following in Mabogunje's (1968) footsteps, who in his study of urbanisation in Nigeria set out three 'limiting conditions' for the rise of urban centres, I would like to suggest that Dia and its hinterland might have already witnessed incipient urbanism from the start of the first millennium BC.

In fact, Mabogunje's conditions, which he regards as crucial for the rise of urban centres, include (1968:35):

> 1. A surplus of food production with which to feed a class of specialists, whose activities are now withdrawn from agriculture;
>
> 2. For this surplus to be made available to the group of specialists, there must be a small group of people who are able to exercise some power over the group of food producers;
>
> 3. For the work of the specialists to be facilitated and their needs for

raw materials satisfied, there must be a class of traders and merchants.

The archaechaeological evidence at Dia for Horizons IA and IB suggests that by the beginning of the first millennium BC, there were already specialised farmers, cultivating domesticated African rice, a group of fishermen, as well as a group of pastoralists. Moreover, there also seem to have been a number of specialsed craftspeople present, such as potters, and probably blacksmiths. The following section on trade will illustrate that there might also have been a class of 'merchants' present, who were involved in the procurement of raw materials necessary to produce grindstones and metal implements. Thus, in spite of its relatively small size, Shoma's 'pioneering' years already provide ample evidence for the necessary conditions to give rise to an urban centre.

The subsequent period, the first half of the first millennium AD, witnessed large-scale abandonment from Shoma, which partly coincided with the 'Big Dry'. However, it seems that a large portion of Shoma's satellite sites (eighteen sites or 86%) remained occupied, exhibiting site sizes ranging between 0.6 ha to 7 ha (Haskell et al. 1988). Jenne-jeno, in contrast, had grown to a permanent village of daubed pole-and-mat houses, occupying 25 ha by AD 400 (S. McIntosh and R. McIntosh 1993). By the second half of the first millennium AD, Shoma witnessed a slow process of reoccupation, coinciding with Mara's initial occupation, which might have only been on a seasonal basis. Occupation of the hinterland sites remained stable at 86%. Dia's data stands in stark contrast to Jenne-jeno, which by AD 900 had reached its territorial peak (33 ha) and was characterised by round, coursed mud houses and a city wall. By then, site density in the Djenne vicinity had reached its maximum.

It was in the following period that Shoma and Mara witnessed considerable population growth, reaching their greatest physical extent between AD 1000 and 1600. Shoma might have extended over 49 ha and Mara over 28 ha. Both sites yielded rectangular mudbrick structures. By then both sites can be truly called urban. However, in contrast to Djenne, only eight (or 38%) of the surveyed sites were occupied during this period, implying that Dia's hinterland population might have moved to the principal sites of Shoma and Mara.

From then onwards, Jenne-jeno started to grow smaller until its abandonment in the 14th century, whereas occupation continued at Shoma and Mara until the 19th century. Shoma's city wall might have been built during this period. However, the last three hundred years have witnessed renewed contraction at the latter sites, which coincided with large-scale abandonment of its hinterland (only two sites remained occupied), implying the foundation of a new settlement at Dia's modern location.

It has been postulated that Dia's shifting occupation between the first millennium BC and first millennium AD was due to the improvement of climate and rains after the 'Big Dry' (AD 300) (R. McIntosh 1998:171). The deep basin inundation increased in height and length of season, which had beneficial effects at Jenne-jeno, but devastating in the Macina. Higher floods and a greater bedload of sand might have strangled the marigots, along which most settlements were installed. Thus, climatic improvement might have transformed the Macina's floodplain hydrology from a network of distributaries to a single bed-incising channel, the Diaka. Without the network of marigots, less land was available for rice cultivation and boats could not be carried any longer to the far corners of the Niger floodplain, which according to R. McIntosh resulted in Dia's loss of economic power to Jenne-jeno (ibid.). However, the installation of the Dina might have also contributed to these **resettlement** processes.

An interesting aspect of Dia's occupational history is that it did not grow progressively as Jenne-jeno. Instead, Dia portrays an oscillating cultural landscape, which was characterised by incipient urbanism at Shoma in the first millennium BC, which shifted to seasonal occupation during the first millennium AD, followed by the rise of true urbanism during the first half of the second millennium AD, until Shoma and Mara witnessed renewed contraction, which may have been caused by the settlement foundation at Dia's modern location.

The causes of these oscillating processes may be due to its location at a frontier at the westernmost edge of the Inland Niger Delta, which constituted a crossroad for incoming groups from the north and maybe from the west. These groups might have stayed on or might have sought better opportunities in the delta's deep basins. Indeed, oral traditions claim that many of Dia's inhabitants moved on to found other trading centres such as Jenne-jeno and Sansanding (Sakai 1990). Another influencing factor might have been the changes in flood regimes, which strangled the distributary systems of Dia from AD 300 onwards, reducing arable land for rice cultivation as well as the possibility to easily reach the Niger floodplain. However, it seems that the start of the second millennium AD constituted a period of renewed opportunities, which might have resulted from Dia's incorporation into the spheres of the medieval empires. In spite of Dia's contested status as a trading centre, overshadowed by Jenne-jeno, its frontier location might have been of great importance for passing caravans and/or the distribution of mercantile goods between northern and southern reaches.

However, the most important result of our findings is that as early as the first millennium BC, Dia might have already undergone processes of incipient urbanism. Its territorial extent might have been comparably small to later urban centres, but all prerequisites were there: permanent architecture, iron metallurgy, inter-regional trade, a composite economy consisting of cultivated rice, pastoralism and fishing, as well as fifteen satellite sites ocuppied in a 4 km radius. Indeed, Dia's incipient population groups, most probably arriving from south-eastern Mauritania, might have carried the insignia of Tichitt-Walata. The latter underwent a long-term process of settlement expansion, lasting from ca. 4000 – 2000 B.P., which was dominated by the regional centre of Dakhlet el Atrous I, which by then already measured 92 ha in size (Holl 1993:129). Hence, upon arriving in the Inland Niger Delta, Dia and its hinterland might have seemed a favourable location to congregate in relatively large numbers, settle on a permanent basis for the exploitation of its different ecozones. Indeed, Dia might not conform to traditional notions of urban settlements, but it provides us with further food for thought in revising the ethnocentric notions on urban communities and our expectations that urban developments in sub-Saharan West Africa only extend to the first millennium AD.

9.5 Trade

Dia does not seem to have shared the same status as a commercial centre such as Jenne-jeno and Timbuktu. Indeed, the historical sources provide only few mentions in reference to trade.

As already mentioned in Chapter 3, Ibn Battuta's written chronicle mentions the place-names of Zaghari, which he describes as a "big village inhabited by traders of the Sudan called Wanjarata". Zaghari was producing 'anli' or millet, destined for Iwalatan (Walata). Wanjarata traders from the Sudan have been identified with the Diakhanké (Jakhanke), and the Dyula (Dioula, Jula, Wangara). The Diakhanké have been described as a clerical group (Sanneh 1989), or alternatively as long-distance traders (Curtin 1971). The Dyula were, more clearly, specialist traders credited with founding Djenne, and eventually dispersing south and southeast towards the forests and gold fields of the Black Volta (Curtin 1971; Fage 1995; Levtzion 1973). The commerce of both the Diakhanké, and the Dyula included cotton textiles, gold, and kola

(Brooks 1993; Curtin 1971). The oral sources, however, emphasise the impossibility of installing a regional market at Dia, which the marabouts declared as a profane act, and so far has never succeeded.

However, our archaeological findings have provided some indisputable evidence for participation in inter-regional and even long-distance trade, which is evidenced by metals, beads and stone. In addition, Dia might have served as a producer of agricultural surplus such as rice, millet, and **sorghum**, which might have been traded into less fertile regions. Cotton and maybe textiles might have provided an important trade item for the trans-Saharan trade.

Iron slag has been identified in all of Shoma's and Mara's occupational horizons, implying that knowledge of iron-working was brought into Dia by the earliest settlers at around 800 BC. According to Haskell et al. 1988, Dia's slag remains consisted of smithing and smelting slag, of which more than two thirds of the recovered slag was smelting slag, indicating that local smiths were not only working iron on site, but were also importing raw ore and reducing it to bloomery iron. Several pieces of slag with fragments of clay attached to them have also been identified, which might possibly indicate the presence of clay furnaces.

However, no *in situ* furnace remains have been identified on either Shoma or Mara, or in their immediate vicinity. Unfortunately, no analyses have yet been undertaken on Dia's slag remains, making it impossible to deduce any information on how iron technology changed through time at the site. The presence of smithing slag, however, suggests the long-term installation of smiths, which at Jenne-jeno occurred between terminal Phase III through Phase IV (S. McIntosh 1995). These smiths might have settled in specific quartiers, which has been evidenced at Toguéré Doupwil, where considerable amounts of large slag pieces as well as tuyères were observed to be concentrated in certain sectors (Bedaux et al. 1978:144). Similar findings have been revealed from the Lakes region around Tonka, Diré and Soumpi (Raimbault and Sanogo 1991), the Méma (MacDonald 1994; Togola 1993) and the Gao region (Arazi 1999). The Méma and Gao region yielded a number of furnaces clustered on the edge of habitation sites in low-lying localities. Investigations in the ferruginous Boulel Ridge of the Méma have concluded that smithing might have been carried out within the habitation mounds and that reduction took place outside the mounds or on its outskirts (MacDoanld 1994; Togola 1993).

The lack of furnaces at Dia might also be due to the seasonal movement of itinerant smiths, which has been documented in modern Djenne (La Violette 1987:206-215). The use of a fire pit for forging over the course of a single seasonal visit would oxidize the soil but leave much less in the way of visible debris, which could explain the presence of slag lacking other forge debris.

It has been pointed out that historically its southerly neighbour, the Benedougou region was an important source of iron for Jenne-jeno (S. and R. McIntosh 1980:19). It has also been suggested that source areas would have shifted through time in response to changes in the regional political scene, which is indicated by Caillié's descriptions of how the movement of goods into and through the IND was disrupted by Fulani-Bambara hostilities at the time of his visit in 1828 (S. McIntosh 1995:381).

An important discovery has been the identification of slag remains in pre-first millennium AD layers, associated with Faita ceramics, quartz geometric microliths as well as bone points without barbs. The latter tools have not been encountered in subsequent horizons, indicating that Shoma's Horizon I represents the transition from stone to metal (MacDonald and Schmidt 2004). Previous investigations at the Late Stone Age site of Kolima-Sud-Est in the Méma have already found direct evidence for associated iron metallurgy (MacDonald 1994). Radiocarbon dates, which have recently become available from Kolima-Sud-Est, have all been calibrated to the beginning of the first millennium BC (Takezawa 2004). As a result, it is safe to state that iron metallurgy was being practised at the beginning of the first millennium BC at the IND's western frontier settlement of Shoma.

In contrast to south-western Mauritania and the region of Agadez in Niger, where copper ore was mined and smelted by the 5th century BC (Tylecote 1982), Dia yielded its earliest copper finds from Horizon III layers (500 AD) onwards. Jenne-jeno has yielded copper ornaments in the earliest Phase III deposits dating to the fourth century AD (S. and R. McIntosh 1980; S. McIntosh 1995). However, so far it remains uncertain from which sources Dia's copper objects might have come from.

It has been suggested that the copper did not come from the sources at Akjoujt (Mauritania) and Azelik (Niger) as they were no longer in use by the first millennium AD (S. McIntosh 1995). Alternative sources in Mali include Tessalit, Nioro-du-Sahel, and Sirakoro, in Mauritania east of the Gorgol Noir, and in Burkina Faso at Gaoua, of which most show evidence of ancient mining (ibid.). However, none of these sources have yet been investigated. Moreover, there is the issue of sourcing which is fraught with problems as smiths re-melted and potentially mixed metals from many different sources (ibid.).

The presence of sandstone grinders constitute another finds category, which point to inter-regional trade contacts as there are no available stone sources within the Inland Niger Delta floodplain. As already mentioned in Chapter 7, the closest sandstone sources are the Boulel ridge in the Méma (Togola 1993) and the Bandiagara Plateau, which is located to the southeast of the Inland Niger Delta. The latter region apparently furnished Jenne-jeno with grinding stones made of sandstone (S. McIntosh 1995:247). However, I suggested (in Chapter 7) that Dia's grinding implements might have been imported from the Boulel ridge due to its closer distance to Dia. Furthermore, our studies suggest that Dia's first settlers have penetrated the Macina from the Méma, which as a result makes it more reasonable that the sandstone arrived via a northwestern direction.

Glass beads, which have mostly been identified in second millennium AD layers, have also been recorded in Horizons II and III, giving testimony to an early Berber-organized trade from the Sahara (Magnavita et al. 2003). These beads, which consist of monochrome glass, might be identified with the so-called "trade wind" beads. At Akumbu A in the Méma and Jenne-jeno, monochrome glass beads have also been found in layers dating to the mid first millennium AD (Togola 1993; S. McIntosh 1995). Furthermore, recent investigations at Kissi in Burkina Faso have revealed hundreds of such glass beads associated with human burials, dating from the early first millennium AD onwards (Magnavita et al. 2002). Thus, these finds provide evidence that the trans-Saharan trade in glass beads might be older than previously believed.

Another group of foreign imports obtained through long-distance trade, are carnelian beads. These, however, were only found in Horizon IV layers. The only available source of carnelian, which could have been exploited in West Africa, is located in the Sahara, north of Kidal in the Adrar des Iforas (Gaussen and Gaussen 1988:247). It has been suggested that at Gao carnelian beads were being imported from Egypt, the only other source of carnelian in Africa (Insoll 1996; Insoll and Shaw 1997). Alternatively, they might have originated from Cambay in Gujerat, Western India, finding their way into the western Sahel via the Red Sea and Egypt (Insoll 2004:102).

Dia's location along a major tributary of the Niger River and within the broader sphere of the medieval West African empires and several trans-Saharan trade routes, likely led to a wide range of local and regional exchanges of plant resources. Like Ghana, the infrastructure of Mali, and later Songhay, depended on the agricultural products of its population, which was gained through taxation (Levtzion 1973). These products consisted mainly of millet, sorghum, rice, and fonio, but also of cloth from textile industries centered in places such as Timbuktu and Djenne (ibid.). Indeed, Dia might have been traded agricultural products, such as African rice, pearl millet, and sorghum. The latter two taxa have particularly augmented in quantity during Horizon IV and account for 40% of domestic grains at Mara, in contrast to Shoma, where they comprise only 8% (Murray 2004). Thus, it appears that this intriguing shift and augmentation in staple grains at Mara might have served for exportation to neighbouring regions, which is attested in Ibn Battuta's chronicle, in which he wrote that Zaghari/Dia was producing 'anli' or millet, destined for Iwalatan (Walata) (Levtzion and Hopkins 2000:287). The gradual decrease of African rice from Horizon I (41%) to Horizon IV (16%) layers might also have resulted from the amelioration of the IND's flood regime after AD 300 during which Dia's distributary systems were strangled to give way to a single bed-incising channel, the Diaka. Thus, without the network of distributaries, less land might have been available for rice cultivation.

The abundance of cottonseeds and spindle whorls, particularly in Horizon IV layers suggests manufacture of cotton thread, and possibly cloth (Murray in press.). The identified cottonseeds at Dia might have belonged to the Old World species, *Gossypium arboreum* or *G. herbaceum*, due to AMS dating of two seeds. Gallais (1967:553) wrote of cotton growing on the mounds of Mara and Shoma in the late 1950's, thus it seems possible that it was grown at Dia in the past. Monteil (1927) also indicates that cotton can be produced with irrigation in the Middle Niger Delta, whereas in the south of Mali it is dry land cultivated. As a result, Dia's cottonseeds and spindle whorls may serve as proxy evidence for string or yarn production, but there is no archaeological evidence for cotton cloth manufacture at Dia, as weaving materials such as looms and other related equipment were not recovered.

The Arabic chronicles mention thriving markets for cotton cloth in the Sahel and that it was a principal commodity of trade between towns to the north and south, and west to the Atlantic (Brooks 1993; Curtin 1975). Indeed, Shawn Murray, who studied Dia's archaeobotanical remains has found intriguing parallels between the Arabic sources and the presence of cotton at Dia. She proposes the following interpretations, which are largely based on a presence of Diakhanké merchant-clerics at Dia

(Murray in press).

Curtin (1975) mentions the Diakhanké's involvement in the cloth trade. Interestingly, the Diakhanké claim to have originated from Dia, which after Sanneh (1972) may simply refer to the locality in which the Diakhanké developed as a clerical group, suggesting that they came to Dia from the west, and that they probably had some familiarity with the states of Tekrur and Silla (Senegal). This is where al-Bakri wrote that cotton cloth production was underway by the 11th century (Levtzion and Hopkins 2000:77-78). Hence, if the Diakhanké were merchant-clerics, as suggested by Curtin (1975), they may have gained familiarity with textile production through their association with these coastal polities.

Salvaing (1983) places the arrival of the Diakhanké in Dia sometime between the 9th and 13th centuries. Around 1350 AD, Ibn Battuta wrote that large groups of Soninké came to Diakha (the region of Dia) after the fall of Mali, signifying that possibly there was more than a single diaspora of Diakhanké into or out of Dia (Sanneh 1972). These latter dates coincide with the occurrence of cottonseeds and spindle whorls from Shoma and Mara, which might mean that it was later Diakhanké merchants that brought cloth production to the region. It is certainly also possible that cotton textile production at Dia was not associated with Diakhanké, or furthermore, that the cotton seeds recovered from this site do not represent the manufacture of cloth.

However, Murray has shown that in spite of the incomplete chronology and historical incongruities, the archaeological recovery of cottonseeds and spindle whorls at Dia provides an additional resource for understanding textile trade and the movement of people in the Middle Niger Delta.

This illustration of imported goods and trade items suggests that Dia had an active role – if not a central role - in inter-regional and long-distance trade. It might even be suggested that Dia has yielded similar evidence for trade as Jenne-jeno, with the exception of gold. However, the evidence of Jenne-jeno's involvement in the gold trade is limited to a single item, consisting of a gold earring (S. McIntosh 1995). Thus, from an archaeological point of view, Jenne-jeno has not provided any evidence for more intense trading activities than Dia. In fact, Jenne-jeno's status as a trading centre relies on the historical manuscripts, which mention its primary importance as a trading êntrepot. Dia, in contrast, has never received similar mention, which might be due to its reputation as a spiritual centre. As a result, Dia's early adoption of a syncretic form of Islam might have been favoured by the Arab chroniclers than its role in commerce. However, the following section will indicate that Dia's early adoption of Islam might have been exaggerated in that one section of its population might have continued practising non-Islamic rituals as late as the 19th century.

9.6 Islam

I have already pointed out elsewhere that in contrast to the idea of Islam's ancient tradition and consolidating power, the majority of Dia's population probably practised a syncretic form of Islam until at least the region's subjugation by the theocratic State of the Dina in the 19th century (Arazi 2002). Indeed, the Arab chroniclers have provided considerable insight into Sudanic conduct, whereby populations as well as rulers, while notionally Islamic continued many traditional religious practices and/or customs, which have often been frowned upon by the Muslim visitors from North Africa. The following is an excerpt from Ibn Battuta, describing two Islamic festivals – 'id al-adha' and 'id al-fitr - held at the royal court of Mali (Levtzion 1973:193),

> The people come out, dressed in their best white clothes, to the place of prayer, which is close to the palace of the Sultan. The Sultan came mounted ...with the *qadi*, the *khatib* (preacher), and the *fuquha* (jurists) in front of him, calling '*la illaha illa llah*' (There is no God but Allah), and '*allahu akbar*' ('Allah is great')...
>
> ...On the two festivals following the afternoon prayer the Sultan sits on the *bembe* (dais). The sword-bearers come with their wonderful arms ..., four *amirs* stand behind him ...while the army officers, the *qadi* and the preacher sit according to the custom. Then Dugha the linguist comes in with his four wifes and about a hundred slave girls ...Dugha sits down on a chair prepared for him, and plays an instrument made of reed with gourds underneath. He sings a song praising the king, an account of his wars and deeds. The women and the slave girls sing together with him, and play on bows ...Dugha performs this ceremony every Friday following the afternoon prayer.

...After Dugha had completed his play, the poets, called *dyula*, plural *dyali*, entered dressed in a masked-figure made of feathers, carrying a wooden mask with a red beak, as if they were birds. They stood in front of the king in this ridiculous form and recited their poems. It was explained to me that their poem was a kind of sermon telling the Sultan that among the kings who had occupied that dais (before him) was so-and-so whose praiseworthy deeds were such-and-such, and another whose deeds were so-and-so. Now (addressing the king) you should do good that will be remembered for posterity ...I have been told that this was an old custom, which had been current among them before (they adopted) Islam, and they persisted in it.

This passage from Ibn Battuta's observations provides ample evidence of how Islam had to accommodate traditional ceremonies and rituals, as it was precisely these rituals that strengthened and upheld the legitimacy of the kingship (ibid.).

As I already mentioned in Chapter 3, Ibn Battuta's writings have also served to corroborate Dia's ancient reputation as an Islamic centre. Furthermore, several versions of Dia's oral traditions associate Mara's foundation with the arrival of marabouts (Sakai 1990). They are religious diviners and clerics, advisers and peacemakers, and arrived into sub-Saharan Africa via the commercial caravans from North Africa to propagate Islam (Levtzion 2000:68). Mommersteeg on his studies of marabouts in Djenne, writes the following (1998:120),

Marabouts teach how to follow God and they know how to ask God, which refers to the two kinds of knowledge marabouts possess. A distinction is made between the so-called 'public' knowledge and 'secret' knowledge. Public knowledge is associated with the praxis of education at the Koranic schools and secret knowledge is applied in 'maraboutage', the complex of magico-religious practices of which amulet protection and divination are the most significant. Marabouts employ the words of the Koran, and if employed properly, the inherent powers of these words can be used for all kinds of purposes. Dissolved in a potion of 'holy water' or written in an amulet, the powers ascribed to Koranic words can be applied for different curative, protective or causative purposes. In West Africa, the legitimacy of amulets is a matter of debate, as elsewhere in the Islamic world. According to orthodox opinions, magical practices corrupt the Islamic religion. The true believer has to refrain from them. However, when amulets are defined as 'requests of God', justification for them can be found in the Koran and in the sayings of the Prophet. Thus the activities of the marabouts in this field acquire a religious basis.

Indeed, Dia has been known as one of West Africa's maraboutic centres, which Marty (1920, T. 2:165) described as follows, "La caractéristique des marabouts de Dia, c'est leur penchant vers la magie islamique. La ville a toujours passé pour le grand centre de fabrication des amulettes de la moyenne vallée du Niger". Thus, it appears that these religious diviners and clerics might have contributed to the obliteration of Dia's pre-Islamic past, whereby oral traditions mostly serve to emphasise a pro-Islamic version of Dia's history.

However, our investigations have shown that non-Islamic traditions were being practised at Dia until at least the 19th century. The principal evidence for this argument comes from Shoma's cemetery, of which a total of ninety-three inhumations were excavated, consisting of forty-one surface burials and fifty-two individuals in Units A, B, C, E, G, K and N (Zeitoun et al. 2004). Nine types of inhumations have been recorded, of which the majority were buried on their side with flexed legs and arms, the hands covering the face, or, on their back with their hands folded on their pelvis (ibid.). These positions clearly indicate non-Islamic funerary ritual, and have been dated to Horizons III and IV. Indeed, a total of sixty-one non-Islamic burials were recorded. Burials have also been identified on the site surface, dating between the 18th or 19th century. Thirty-two of them showed individuals lying on the right side, looking eastwards, with their legs in semiflexion and both arms stretched out or one resting on the abdomen (ibid.), which has been described as an Islamic-type burial (Sanogo 1994).

Further evidence for non-Islamic activities is Mara's terracotta figurine head (see Chapter 5 for a detailed description). The reason it constitutes tentative evidence for non-Islamic traditions is due to the fact that we do not know much about the rituals, religion, and belief system in which these statues functioned since dates and contexts are known for just a fraction of the terracottas claimed to have a Middle Niger provenance. This art apparently flourished at about the time Islam penetrated the Sahel. Hence, it has been suggested that they might represent a reaction of traditionalists against an intrusive, exclusionary religion that would prohibit the veneration of ancestors (McIntosh 1996:49). Indeed the domestic ritual context of two incomplete statues, which were found within the wall foundation of a house in Jenne-jeno, dated to the 11th century, supports the notion of non-Islamic religious practices in the Inland Delta at the start of the second millennium AD. However, between the 13th and 16th century they start to appear in secondary deposition contexts, such as Mara's terracotta head and three similar pieces from Jenne-jeno (McIntosh 1995:214), which implies the final rejection of this art form during the period of the Mali Empire.

However, numerous terracottas from unknown contexts, of which a series of 240 thermo-luminescence dates have been taken, generated a consensus among the art historians that these objects dated largely from the fifteenth through to the eighteenth centuries (McIntosh 1996:46). If one were to consider these dates, it appears that the Inland Delta **terracotta** tradition continued roughly until the advent of the jihads. In addition, we know from historical sources that despite the Malian rulers' conversion to Islam, representational art continued to exist (Levtzion 1973; Levtzion and Hopkins 1982).

Indeed, historians (see for example Bravmann 1974; Sanneh 1997; Trimingham 1962) have demonstrated that the adoption of Islam in West Africa has been a complex process, characterized by alternating waves of conversion and by a wide range of compromises between doctrine and local customs and institutions. As I already mentioned, many Arabic manuscripts contain considerable evidence, which indicate that sub-Saharan Africa often ignored the teachings and tenets of the essential Islamic texts, not only during non-revolutionary periods of Islamic expansion but also during periods dominated by jihad (18th and 19th centuries). In light of this evidence, it can be concluded that Dia's ancestral population might have also practised a syncretic form of Islam.

It also needs to be acknowledged that sub-Saharan Africa's historiography has considerably altered due to the strong influence of Islam. Since at least the beginning of the 19th century, the Middle Niger region witnessed the institutionalization of Islam on such a rigorous scale that it became preferential to obliterate any memories pertaining to non-Islamic traditions. In Dia, Islamic adherence has been especially vigorous as its population favours the memory of its Muslim ancestors, despite the fact that our archaeological investigations have revealed that non-Islamic practices were carried out as recently as the 18th or 19th century.

9.7 Concluions

Comparing Dia's historical sources with the archaeological data we recovered, has provided considerable evidence that certain episodes of Dia's past have been obliterated by the historical sources. Indeed, it has been shown that archaeology constitutes a powerful tool to invigorate these silences, as our investigations have illustrated,

1. the importance of Shoma, which has been forgotten by the modern versions of oral traditions;

2. that Dia was settled by incoming population groups from the northwest;

3. specialised production systems, which have given rise to incipient urbanism at the beginning of the first millennium BC;

4. inter-regional (Horizons I-IV) and long-distance trade (Horizons II-IV) networks, comparable to Jenne-jeno's involvement in trade;

5. non-Islamic practises, which were carried out until the 18th or 19th century, demonstrating that in spite of its reputation as an Islamic centre, Dia also seems to have been characterised by a 'traditional opposition'.

I believe that the institutionalisation of Islam has been the most influential factor in obliterating these episodes. To begin with, since the Koureisi's introduction as village chiefs (see Chapter 3), there seems to have happened a break with earlier traditions. Thus, the time period before the Dina (19th century) might have been characterised by syncretic practices, which had enough room for the recognition of a pre-Islamic past and the continuation of non-Islamic activities. The latter refers to the loss of Shoma's historical significance in modern Dia.

Secondly, Dia also seems of relatively minor importance in the historical sources written by North Africans, who mostly refer to its reputation as an Islamic centre. Hence, in the historical discourse most weight has been put on one aspect, which as a consequence has overshadowed any other historical developments in the region.

I would like to propose to consider the archaeological data as a supplementary stage for exposing different versions of Dia's occupational history, which so far have remained overshadowed by the historical sources. Indeed, these results should be viewed as a challenge to the contribution of employing different data sources and the crucial role archaeology plays in elucidating important developments in the history of sub-Saharan Africa.

Chapter 10
Conclusion

10.1 Data Synthesis

The previous chapter has illustrated the ways in which archaeology has contributed to recover sections of Dia's history, which so far have remained silent or simply uninvestigated. Indeed, our studies have shown the enormous potential of the archaeological discipline in the recovery and reconstruction of past life-ways.

The occupational history of Dia has confirmed that the first settlers of the Macina penetrated this section of the Inland Niger Delta from the northwest, the region known as the Méma. These settlers appear to have originated from Dhar Tichitt-Walata, as the earliest pottery at Shoma has been identified as a derivative of the Faita facies from the Méma (MacDonald and Schmidt 2004). The latter is derivative of the Ndondi Tossokel facies, which itself is derivative from the Chebka/Arriane Phase at Tichitt (MacDonald 1994). Previous studies in the Méma already hypothesised the transitional LSA/Iron Age aspect of the Faita facies, due to putative evidence of agriculture, mudwall architecture and associated iron smelting sites. Recent excavations at Kolima Sud Est have finally provided absolute dates for Faita tradition sites in the Méma, which can now be safely dated to the first millennium BC (Takezawa 2004). Shoma has yielded similar evidence. Its earliest deposits, dated to 800 BC, have not only yielded evidence for agriculture but also, more importantly, the presence of domesticated African rice (*Oryza glaberrima*). The association of a pastoralist economy with the Faita facies has also been confirmed, as well as the assimilation of fisherfolk, previously known as Kobadi. The same layers have also provided evidence for permanent mudwall architecture, indicated by beaten mud surfaces and burnt clay lumps, as well as associated iron metallurgy. However, no analyses have yet been undertaken on Dia's iron remains, which limit any more detailed interpretations of metallurgical on-site activities.

In the previous chapter I have argued that Shoma's earliest occupation might carry the insignia of potential urbanism, which in reference to the Tichitt-Oualata's "chiefdom" might have resurfaced upon penetrating the Macina. Indeed, recent anthropological investigations have recognized the oscillating character of social and political mechanisms, which can fluctuate between segmented systems to centralised ones and back again. Hence, it appears that the migrants from Tichitt-Oualata might have witnessed a period of segmented social organisation whilst penetrating the Méma (indicated by the Kobadi and Ndondi Tossokel traditions), which resumed a more complex organisation upon arriving in the Macina.

Jenne-jeno, which has become the most cited reference for the emergence of urbanism in sub-Saharan West Africa, has been imperative for subsequent studies, as it has shown that settlements could be defined as urban **inspite** of lacking social stratification and public monuments. As a result, it appears that Shoma now constitutes the earliest example of a potentially urban settlement, dating to the first millennium BC. It reflects Trigger's (1972:577) definition of, "Towns are settlements with a diverse population engaged in providing specialized services and manufacturers to a broader hinterland". Indeed, Shoma's population was diverse, consisting of occupational specialists including farmers, pastoralists and fisherfolk. The manufacture of iron metallurgy was practised as well as pottery manufacture on a considerable scale. This early town probably measured not more than 19 ha. However, a survey in Dia's vicinity has shown that its hinterland was already densely settled during the first millennium BC, resonating the urban clusters known from the first millennium AD. Thus, all prerequisites deemed necessary for an urban landscape have already been in the making in the Macina during the first millennium BC. Inter-regional trade contacts with neighbouring regions had to be maintained to procure important raw material such as iron ore and stone. The former might have been brought in from the Benedougou region and the latter from the Boulel ridge in the Méma, which might have been exchanged for African rice and (dried?) fish.

Shoma, however, has not presented us with a similar developmental scheme as Jenne-jeno, which grew progressively from a seasonal village into an urban centre. Instead, it seems to have witnessed fluctuating processes. After an initial period of 'urbanisation', Shoma contracted into a seasonal settlement, between AD 0-500, which was followed by a slow process of renewed growth until AD 1000, before reaching its 'urban peak' between AD 1000-1600. After that, Shoma might have witnessed a slow process of resettlement, maybe to the location of modern Dia, which ultimately led to complete site abandonment around the 19th century. Mara, on the other hand, might have undergone similar processes as Jenne-jeno, gradually growing from a seasonal village by the second half of the first millennium AD into a fully-fledged town by the beginning of the second millennium AD.

One of my central research issues has been to illustrate patterns of stability and/or change in the ceramic assemblages, and whether they key into asserted population movements known from oral traditions. The outcome has proven to be positive for the first millennium BC, but negative for the two subsequent millennia, during which Shoma and Mara have shown incredibly stable ceramic assemblages. As mentioned above, Shoma's ceramics of Horizon I and to some extent also Horizon's II, appear to be derivative from the Faita facies of the Tichitt tradition, indicating that Dia's first settlers arrived from the Méma. A 'rupture' between Horizons II and IV is indicated by the emergence of new attribute clusters, including potlids, shallow vessels with inturned rims, plates and carinated vessels. Pottery generally becomes larger, with increasing diameters and vessel wall thickness. However, grog temper continues to dominate as well as the main modes of decoration, which include accordion pleat and twisted cord roulettes, indicating certain aspects of technological continuity over time and space. Paint, in contrast, decreases drastically in favour of decorative tools such as comb, stick, stylus and net. Thus, it appears that certain similarities and differences are present within and between the four horizons.

In fact, Inland Niger ceramics of this period signal large-scale interaction between the region's various pottery producing populations. Indeed, previous archaeological investigations, which have already noted a 'northern Mande style of pottery', shared throughout the Upper Inland Niger Delta, have produced similar but not identical assemblages in which Dia's pottery appears to fit in as well. It can thus be suggested that this period was characterised by large-scale interactions between the potters themselves and their clients. Similar to today, weekly markets, must have constituted the main opportunities which allowed the exchange of ideas and trends that might have been picked up and/or were re-defined in a more local context. Moreover, the oral traditions correlate this period with the expansion of the Malinke from the southwest, which culminated in the Mali Empire. Then, from around the 14th century, the first arrivals of the Peulh from western regions took place.

The former events might have actually contributed in the development of a northern Malinke style of pottery in order to conform to a wider identity, manifested by large empires and kingdoms such as Ghana of the Soninke and Mali of the Mande. Dia was supposedly integrated into these empires, which might have resulted into a continuous tradition of pottery manufacture. Moreover, ethnoarchaeological studies have shown that pottery manufacture tends to be one of the most conservative technologies in West Africa, which is usually transmitted from mother to daughter over many generations. It has been observed that this process is acquired during childhood and within the nuclear family (Gosselain 2001), hence before marriage. Due to the strict endogamy of casted potters, they have tended to cross linguistic boundaries in order to find marriageable partners, which might have resulted in the cross-linguistic distribution of castes and that of particular technological traditions. These observations correlate with the actuality that archaeological distributions of ceramics have frequently been shown to occur over much larger territories than ethnic units that anthropologists study in the present (MacEachern 1998). As a result, I have argued that ethnic expression in pottery manufacture seems to be a relatively recent phenomenon, which might have developed in the IND as late as the 19th century.

The faunal and botanical evidence, in contrast, have provided a great species diversity for the second millennium AD, which could suggest the presence of multiple social groups due to the fact that in the Inland Niger Delta occupational specialisation appears to have be an important cultural marker, offering insights into notions of group identity. Historically and ethnographically the exploitation of aquatic resources has been associated with the Bozo, the cultivation of rice with the Marka (formerly Nono), and a pastoral economy with the Peulh. These occupational specialists are also reproduced in the oral traditions, which refer to the first-comers as the Bozo and the second arrivals as the Marka.

However, in addition to the complex issue of using modern social groups as analogies for prehistoric populations, the archaeological evidence indicates that prehistoric societies might have been composed of two or more discrete social segments (practising specialised subsistence economies) in one self-sufficient population group. Also in times of environmental stress, occupations could have shifted, by which fisherfolk might have taken up farming or vice-versa. It thus appears unreasonable to make a straightforward equation of 'distinctive population groups practising distinctive economies' as it has been recognised that diversification may have made prehistoric populations less vulnerable to the effects of climatic stress (Van Neer 2002). The question, which remains unresolved, is if these composite economies reflected corporate identities, and at which time they disarticulated to form distinctive social groups.

An informative aspect of Dia's oral traditions has been the application of lineage names, which run parallel to the use of ethnic labels in the reconstruction of first arrivals and conquerors. In fact, Dia's oral traditions provide recurring references to the arrival of newcomers and how they have tended to take over the power structures from older population groups, which resonates the classic expression of lineage hierarchies. These processes have resulted in the opposition between the lineages of the first settlers and the dynasties of conquerors, the holders of political power. Applying these notions at Dia, the following lineage hierarchy can be suggested. At the top are the Koreissis (put in place by the Dina authority under Sekou Amadou), which is followed by the Traore (formerly the Diawara, who were warriors of Soninke origin), the Tomota (Marka traders and cultivators), the Kwanta (Bozo fisherfolk), and lastly the Somono/numu (blacksmiths and potters). However, it needs to be acknowledged that this reconstruction diverges from archaeological practise, and that the usefulness of this hierarchical pyramid might be understood in light of ritual and political holders of power, issues that archaeology may never recover.

This brings me to my next observation, which is on the effectiveness of applying trans-disciplinary data sets for the reconstruction of Africa's past. Indeed, I believe that this investigation has shown the potential of including historical sources in archaeological investigations, which might add a dynamic aspect to the material culture evidence. Indeed, West African archaeology often lacks the physical evidence of monuments, hierarchical structures and religion, which has resulted in masking 'bigger' issues such as belief systems, less materially visible power structures and political processes. Thus, the application of historical sources might be effective in encouraging the search of similar processes.

However, it may also be argued that oral traditions and written sources have served as a political tool to justify present power structures and notions of Africa's past. In the case of sub-Saharan West Africa, these include the Great Empires, important trading centres such as Jenne-jeno and Timbuktu, the trans-Saharan trade and the arrival of Islam, which have become the protagonists of an 'official' history in the aftermath of independence, which has left many other issues, often less glorious and wealthy, uninvestigated. Dia thus serves as a promising alternative to these official histories.

10.2 Future Perspectives

Even though our studies have revealed new and important results for the Inland Niger Delta's occupational history, much more work is needed to understand certain social and technological processes, which so far have remained elusive or uninvestigated. In the case of Dia, I believe that the potential of the results which can be generated from the pottery and the iron remains, would merit more investigation. Recent ethnoarchaeological studies of entire pottery manufacturing processes have shown that vessel-shaping techniques are particularly indicative of investigating issues of social identity. However, it has been recognized that fundamental problems persist in reconstructing these manufacturing processes in the archaeological record, which is largely due to an absence of a coherent collection of experimental and ethnographic data to which archaeological pottery may be compared (Livingston Smith 2001). Moreover, more detailed descriptions are needed for archaeologists to identify these manufacturing processes. In the case of Dia, ethnoarchaeological investigations of the pottery manufacturing processes have been undertaken by the Université Libre de Bruxelles, which will be illustrated in the forthcoming Dia monograph (Bedaux, Schmidt and Sanogo in press). However, so far no comparative study on Dia's ancient and modern pottery manufacturing techniques has been undertaken, which could be an interesting future research topic. Indeed, Dia's archaeological material is currently being stored at the Musée National du Mali, and constitutes a promising reference collection available for further research.

Dia's iron remains have as yet remained uninvestigated. The fact that slag and iron objects have been identified in Horizon I layers, thus representing one of the earliest evidence for iron metallurgy in West Africa, makes it even more imperative to study this material. Source-side Analysis needs to be carried out on the slag remains to establish from where the ore was imported. It would also be essential to make a more detailed analysis on whether Dia's slag remains are the results of smithing or on-site smelting activities, even though Haskell et al. (1987) have already suggested that the majority of Dia's slag is the result of smithing. It could also be useful to analyse the slag remains from neighbouring sites to establish if smelting might have been carried out at the satellite sites. Indeed, much needs to be learned on how iron technology changed through time at Dia and its vicinity.

The remarkable absence of furnaces and tuyères at Shoma and Mara highlights the difficulties of excavating the Middle Niger's massive tell sites, which remains a complex issue in the methodology of archaeological investigations. In the case of Dia, we have chosen to excavate mostly 5x5 m units (a total of fourteen units have been excavated at Shoma, and only three units at Mara), which in itself has been a challenging undertaking as so far many investigations have been limited to smaller and fewer excavation units (see Haskell et al. 1988). In the case of our project, we excavated every unit until sterile soil was reached, which was very time-consuming (one team, which consisted of at least one archaeologist and five workmen, could not expose more than one 5x5 m unit per field season).

However, I believe that in certain instances we could have also stopped before reaching sterile soil. For example, one of the project's major research objectives has been to study the architectural layout of an urban site. After our initial field season it became clear that the preservation of architectural remains was restricted to Horizons IV and V layers. Hence, it would have been interesting to plan a large-scale exposure, such as for example opening an area measuring 20x20 m, which could have served for recording entire compounds and structures, without having to excavate until sterile soil, especially once the site's occupation history has been established.

Another difficulty is that large funds and much time are needed to survey and excavate reasonable portions of the Middle Niger's massive tell sites. In comparison to other world areas, African archaeology has still a lot to catch up with, which might be the result of Africa's slowly emerging understanding of its archaeological importance due to centuries of prejudice. Indeed, considering the miniscule portion excavated from West African tell sites, which often does not amount to more than 1%, our interpretations could be viewed as absurd in light of the representative sample. However, as partial of a picture we are so far able to reconstruct, it should be recognized how much potential these sites have to reveal many more hidden histories.

To remain with the issue of future perspectives, I also believe that it is necessary to include more indigenous knowledge and thought into academic discussions of archaeological theory and method. For instance, the issue of identity and ethnicity has mostly been shaped by a western discourse, which has often failed to represent more indigenous values and notions on this subject matter. As a result, identity, especially in regions like Africa, continues to be illustrated from western anthropological points of view, which often categorizes people into population groups, which might not resonate with the people's own understanding of these matters. The notion of 'ethnicity' might be the most pertinent example as many people in Africa might consider other identity 'markers' more relevant than their ethnic affiliation, such as lineage, age and occupation. It would also be interesting to investigate the circumstances under which identities change or adapt, in order to expose the wide spectrum and fluid character of social groups.

I would like to end my thesis with the hope to share the results of our investigations with the inahbitants of Dia, as the presence of our scientific team has sometimes created situations of conflict, especially with the discovery of burials, which became the cause of concern and rumours for Dia's population. Our cordial relations started to deteriorate at this point, providing testimony to the inherent conflicts between scientific interests and the beliefs and traditions of a community, which culminated with the **refusal** of the elders to grant us permission to place one excavation unit in the modern town. This antagonism seems to have resulted from the wish to preserve ancestral objects, which apparently have been buried in various locations in Dia. Their loss would signify a loss of identity. In Africa this situation has been particularly pressing, after the continent has been looted systematically for several centuries, while independence only turned it to a specialized activity, carried out clandestinely. Hence, we should not underestimate how we as archaeologists might be perceived. We are surely aware of all the contributions our discipline has to offer. On the other hand, a community might not gain as much as we do from scientific investigations. Hence, if archaeologists want to actively respond to these problems, then we should acknowledge the necessity to work in closer cooperation and in active participation with the inhabitants of local towns and villages, to consider their interests as much as they have had to consider ours. For instance, by allowing us to work on their land, we in turn could be more actively engaged in the dissemination of our working methods, interests, and ultimately in the results of our investigations. This would foster more dialogue, which could yield interesting results of archaeological approaches and 'local' knowledge, and it would also give our discipline more relevance to modern communities, whose history we attempt to study. Indeed, I believe that the archaeological discipline needs to free itself from its context of 'academic specialists' and should also be recognized as an effective tool for cultural sustainability between the past and present.

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Appendix A

Stratigraphy and Features

Table A1. Description of excavated contexts and features, Unit C, Shoma

Table A2. Description of excavated contexts and features, Mara

Table A2.1 Unit M

Table A2.2 Unit Q

Table A2.3 Unit S

Table A1: Description of excavated contexts and features: Unit C, Shoma[1]

Contexts 001, 002, 003:

These contexts consisted of a very compact, rain-leached soil covering the entire unit. Pottery, slag and faunal remains were identified as well as a spindle whorl (C002/a001) and a metal arrowhead (C003/a001). Underneath Context 003 the first traces of the western mud wall became visible. 1.47-1.70 m BD.

Context 004:

Context 004 represented the fill of the western structure, consisting of semi-compact light loam, yielding pottery and slag. 1.68-1.87 m BD.

Contexts 005, 008, 017, 021:

These contexts were located at the south-eastern quadrant of the unit, yielding a semi-compact light loam with pottery, slag and charcoal. One glass bead was found (C005/a001). At the bottom of Context 017, the first traces of the eastern mud wall became visible. 1.68-2.16 m BD.

Contexts 006, 011, 019:

These layers constituted the central portion of the unit, consisting of compact light loam, yielding pottery, slag, faunal remains, charcoal, one microlith (C006/a001) and a glass bead (C019/a001). 1.65-2.03 m BD.

Contexts 007, 022:

This was a mudbrick wall in the western portion of the unit, which emerged from the south-western corner and the northern profile. We were able to identify it due to its plaster linings, which marked its outer limits. Only few mudbricks have been found, measuring 30 cm in length and 16 cm in width. The wall seems to have been preserved to a height of two courses. It might have constituted a compound wall, rather than an actual house wall, as the interior was filled with debris (see Contexts C012 and 018) usually associated with courtyard areas, a drainage pipe (C022/a001) was found in associated with it the wall. 1.67-2.12 m BD.

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[1] All measurements are indicated as BD, Below Datum, which stood at a height of 1.17 m.

Context 009:

This context was defined due to its high concentration of pot sherds and slag remains, which contrasted to its neighbouring area. The soil consisted of a compact loam, which yielded some charcoal. One metal fragment (C009/a001), a microlith (C009/a002) and a grinding stone (C009/a003) were also identified. 1.82-1.91 m BD.

Context 010:

This context yielded an unusual concentration of pottery in contrast to its surrounding area, and lesser amounts of slag, and charcoal. 1.78-1.87 m BD.

Contexts 012, 018:

This layer was located at the 'inside' of the western wall, which at that height yielded an interior partition. Thus, Context 012 demarcated the area south of the partition wall. It consisted of a semi-compact loam, with an abundant quantity of rice chaff, and pottery. 1.80-2.04 m BD.

Contexts 013, 016:

Context 013 was located to the north of the partition wall, inside the western wall. Soil consistency was very loose, and yielded loamy sand with abundant ash, pottery and faunal remains. It might thus have constituted a deflated midden, serving for the disposal of ash and broken artefacts. 1.85-2.06 m BD.

Context 014:

This might have been a partition wall (yielding only one course of badly preserved mudbricks), which was connected to the western wall, dividing its interior into Contexts 012 and 013. It measured 1.40 m in length and might have continued underneath the western profile. 1.85-1.98 m BD.

Context 015:

This was a compact loamy sand layer, located next to Context 013 at the north-western corner of the unit. It yielded pottery, slag and faunal remains. 1.81-1.96 m BD.

Context 020:

This context was located underneath Contexts 012 and 018, yielding a badly preserved living surface. However, it did not exhibit the usual beaten mud surface. Instead, it might have been a surface that formed naturally, as is visible in the narrow streets of modern Dia or on rooftops, which can be accessed. Artefacts were quite rare and restricted to pottery. 1.98-2.05 m BD.

Contexts 023, 025, 030, 034, 037:

These layers were located underneath the living surface and the deflated midden in the interior of the western wall, consisting of a loose, sandy fill. Lots of charcoal and ash were identified, but relatively small amounts of finds, consisting of pottery, slag and faunal remains. Small finds included a small (unidentifiable) terracotta fragment (C034/a001), an amalgam of slag and pottery (C034/a002) and a spindle whorl (C037/a001). These layers might have represented the accumulation of domestic debris. 2.02-2.29 m BD.

Context 024:

This context was located at the 'inside' of the western wall, right next to the (western) profile. It consisted of a compact light loam, yielding mudbrick fragments and rice chaff. The latter indicate the remains of wall collapse or building debris. 2.03-2.19 m BD.

Contexts 026, 032:

Context 026 constituted the central portion of the unit, which at this level was characterised by a compact layer of sand with few finds. 1.97-2.24 m BD.

Context 027:

This was a concentration of pottery in the unit's south-central portion. The pottery, however, consisted of very small fragments, which were not useful for analysis. 1.98-2.05 m BD.

Contexts 028, 035:

This constituted the first construction phase of the western mudbrick wall. It was situated at the same angle as the later wall, but one width removed towards the centre, thus enlarging the 'inside' area. It yielded two courses of mudbricks. 1.95-2.22 m BD.

Contexts 029, 036:

This constituted a mudbrick wall, which ran along the eastern portion of the unit. It was cut by the southern and eastern profiles. The wall yielded two courses of mudbricks, pottery fragments, which were used as building material as well as rice chaff. It seemed to have functioned in associated with the first construction phase of the western wall. 2.01-2.24 m BD.

Context 031:

This was the 'inside' area of the eastern wall, yielding a semi-compact light loam with abundant pottery, charcoal and rice chaff, representing domestic activity. Charcoal sample, C031/001, was radiocarbon dated (see Table 5.1). 2.05-2.24 m BD.

Contexts 033, 038:

These layers were located 'outside' the western wall, consisting of a compact light loam, which appeared to represent mud wall collapse from the western wall. Few brick fragments, pottery and slag were also identified. 2.10-2.29 m BD.

Context 039:

This context was located underneath Context 031 (at the south-eastern corner of the unit) and yielded friable sand, with inclusions of charcoal and rice chaff. Finds included pottery as well as a broken drainage pipe, which might have come from Contexts 029 and 036 (eastern wall). 2.22-2.33 m BD.

Contexts 040, 041, 046:

Contexts 040 and 041 consisted of semi-compact sand, located next to Context 039, covering the entire length of the unit. Context 038 constituted the western limit of the sand. The sand layers yielded ashy spots with few artefactual remains (pottery and faunal remains). The lowest layer, Context 046, provided considerable amounts of charcoal. One spindle whorl (C046/a002) and an unidentifiable terracotta fragment (C046/a002) were identified. 2.18-2.43 m BD.

Contexts 042, 051:

This feature might have represented a pit, next to the northern profile. It had a shallow depth (29 cm) and a diameter of 90 cm. It was filled with ash, sand and powdered charcoal. Substantial amounts of fish bones were identified, and pot sherds. The pit might have functioned as an oven for fuming fish, which usually consist of a circular mud structure and a sub-terranean pit (see Fig.5.46). 2.24-2.53 m BD.

Contexts 043, 049:

These layers, which were located underneath Context 031, appeared to represent accumulation of very compact wall melt, yielding few material remains (pottery and slag), rice chaff and charcoal. A grinding plate (C043/a002), which was sunk vertically in the ground, was also identified. 2.29-2.57 m BD.

Contexts 044, 045, 050, 053, 056, 060, 063, 067:

These layers were located at the western portion of the unit, and continued underneath the western profile. They appeared to represent the fill above two pits. The latter, when they were dug, created a sort of a ditch in the surface, which was filled up by Contexts 044, 045, etc. (see Fig.5.13). They yielded a mixture of semi-compact and loose layers of loamy sand, with abundant quantities of ash, charcoal, faunal remains, brick fragments, pottery and slag. One glass bead was identified (C063/a001), a metal fragment (C067/a002) and a spindle whorl (C067/a001). 2.26-2.85 m BD.

Context 047:

Underneath context 038 was located Context 047, which consisted of compact sand underneath what seemed to have been a naturally formed surface (2 cm thick). In spite of its location at a greater depth (20 cm) than the mudbrick walls, it might be suggested that Context 047 constituted a possible remnant of a passageway or street, which characterised the area between the mudbrick walls. Pottery and faunal remains were identified, as well as a copper (C047/a001) and metal fragment (C047/a007). One charcoal sample (C047/C001) was dated from these layers (see Table 5.1). 2.22-2.42 m BD.

Context 048:

This context is located at the western portion of the unit and surrounds Contexts 044 and 045. It consisted of loose, loamy sand, and yielded concentrations of charcoal (but no ash). Few artefactual remains were identified, including pottery and faunal remains. One metal fragment (C048/a001) was also found. 2.22-2.48 m BD.

Contexts 052, 055, 058, 061:

These contexts appeared to represent layers of abandonment, consisting of semi-compact sand, which covered the entire unit, except for the south-eastern (wall melt) and western portions (Contexts 044, 045, etc.), and the small pit in the north (Contexts 042, 051). These sand layers yielded few material remains, which included pottery, slag and faunal remains. Seven metal fragments (C052/a001, C052/a002, C052/a003, C055/a001, C058/a001, C058/a003, C061/a002), one terracotta fragment (C052/a004), one glass bead (C055/a002), red ochre (C058/a002, C061/a001) and a (lower) grinding stone (C058/a004) were also identified. Due to the presence of material remains (as well as charcoal and ash), it might be suggested that these layers witnessed a contraction of Shoma. Thus, ephemeral structures and a seasonal life-style might have characterised this period. 2.32-3.02 m BD.

Contexts 054, 057:

This is the continuation of the wall melt layers (Contexts 043 and 049). However, at this height, Contexts 054 and 057 are located right next to the eastern profile (in contrast to Contexts 043 and 049, which were located at the south-eastern corner). These layers consisted of a compact light loam, yielding pottery, one spindle whorl (C053/a001), and three lower grinding stones (C057/a001,a002 and a003). 2.51-2.86 m BD.

Contexts 059, 062, 065, 069:

Underneath Contexts 054, and 057 (in the south-east), were located Contexts 059, 062, etc. These layers yielded a mixture of loose (in the north) and compact (in the south) light loam, yielding substantial amounts of ash, pottery, some charcoal and rice chaff. Underneath these contexts, two pits were recorded (see Contexts 073, 074, etc.), which as a consequence suggests that these layers constituted domestic debris. Two metal fragments (C065/a001 and C065/a002) were found. 2.80-3.49 m BD.

Contexts 064, 068, 072, 077:

Underneath the sand layers (see Contexts 052, 055, etc.), there were layers of a compact light loam, which appeared to represent slow accumulation from wall melt and domestic activity. Considerable amounts of Delta Ware were found in these layers, as well as slag and some charcoal. Small finds included a net weight (C064/a001), a pottery disc with rounded edges (C064/a002) (see for an example Fig.7.14), a metal hook (C064/a003), three (lower) grinding stones (C064/a004, C068/a001, C077/a004), a quartz bead (C064/a005, see Fig.7.19), two glass beads (C068/a002, C077/a003), a terracotta bead (C072/a001), two spindle whorls (C072/a003, C077/a005) and two worked bone objects (C077/a001, C077/a002). One charcoal sample (C077/C001) was dated from these layers. 2.96-3.17 m BD.

Context 066:

This context yielded the lower limbs of a human burial, of which the remainder seemed to have been hidden underneath the eastern profile. Its lower limbs were lying in a flexed position, indicating that the skeleton's position might have been oriented in an east-west position. 3.10-3.22 m BD.

Contexts 070, 076, 084, 086, 087:

These contexts constituted the fill of the northern pit, located at the western profile (underneath Contexts 044, 045, 050, etc.), yielding a mixture of loose light loam and sand. In its lower layers phosphoric soil, with a pale olive green colour, was also recorded. Considerable amounts of charcoal were found, but few material remains (restricted to pottery). The sand and charcoal might indicate that this pit might have been used for roasting condiments (for instance, these days pits are dug for roasting shea-nuts). Two metal fragments (C076/a001, C076/a002) were also found. 3.35-3.92 m BD.

Contexts 071, 075, 078, 083, 088, 090, 094, 100:

These contexts constituted the fill of the southern pit, located at the western profile (underneath Contexts 044, 045, 050, etc.), yielding a mixture of loose light loam and ash. This pit was characterised by few material remains, which included pottery and faunal remains. Two glass beads were also identified (C083/a001, C083/a002). It might have had the same function as the previous feature. 2.33-4.31 m BD

Contexts 073, 081, 082, 091, 095:

Underneath Contexts 059, 062 etc. (at the eastern profile), two pits were identified, of which these layers constituted the fill of the pit to the north, consisting of loose loamy sand with abundant ash, rice chaff and charcoal. The lower layers exhibited phosphoric soil. Few artefactual remains were recorded, including pottery and faunal remains, as well as a cowrie shell (C091/a001). Due to the presence of organic material, it can be suggested that this pit might have been used for storage (or alternatively as a latrine). 3.45-4.19 m BD.

Contexts 074, 080:

These layers constituted the fill of the southern pit (underneath Contexts 059, 062, etc.), yielding the same kind of loose light loam as its counterpart to the north, with inclusions of ash. In its deeper layers (Context 080) phosphoric soil was recorded, which was pale olive (5Y6/4) in colour, and large amounts of ash and charcoal. Large-sized pottery was found in this pit as well as considerable amounts of faunal remains. It might have also functioned as a storage pit. 3.45-3.75 m BD.

Contexts 079, 085, 089, 092, 096:

These layers were located underneath Contexts 064, 068, 072, etc., covering the entire unit, except for the eastern and western pits. The soil consisted of a friable, semi-compact loamy clay, which appeared to represent slow accumulation of wall melt and domestic debris. Patches of burnt earth were also identified The pottery provided less Delta Ware than in the previous layers, and small quantities of faunal remains were also found. Considerable amounts of small finds were also recorded, including seven fragments of (lower) grinding stones (C079/a001, C085/a002, C089/a004, a005, a007, a008, C092/a008) were identified, a stone axe (C085/a001) (see Fig.7.22), two pebbles (C085/a003, C085/a006) (which might have been used for polishing pottery), five smaller than fist-sized stones (C089/a001, C089/a006, C092/a002, C092/a004, C092/a007), a broken end of a microlith (C085/a004), red ochre (C085/a005, C092/a001, C092/a009), three terracotta beads (C085/a007, C085/a008, C089/a003), the 'Venetian' eye-bead (C089/a002), a metal fragment (C088/a001), a pottery disc (C092/a005). 3.54-3.69 m BD.

Context 093:

This context represented a living surface, which covered more than half of the unit (except for the pits at the eastern and western profiles and a separate context in the north-western quadrant, C096). The living surface exposed patches of burnt earth. Otherwise it exhibited a smooth layer of applied mud. Few material remains were identified (pottery and faunal remains), and one smaller than fist-sized stone (C093/a001). 4.02-4.15 m BD.

Context 096:

This context consisted of a friable, but compact loamy clay, located next to the living surface. It might have resulted from structural collapse. Considerable amounts of charcoal were identified, which might have come from palm wood (due to the fibrous pattern), indicating the presence of wood for construction purposes (such as roof beams or poles; the latter serve for reinforcing piled mud walls). 4.05-4.14 m BD.

Context 097:

This layer was located underneath Contexts 093 and 096, covering the entire unit (except for the eastern and western pits). It consisted of compact loam, with inclusions of sand and considerable amounts of charcoal, which might be interpreted as debris accumulation. Two smaller than fist-sized stones (C097/a001, C097/a002) were identified. 4.04-4.21 m BD.

Context 098:

Similar to Context 093, this layer appeared to represent a living surface, exhibiting patches of burnt earth and otherwise a smooth layer of applied mud. Finds included pottery, mostly lying in a horizontal position, faunal remains and a terracotta bead (C098/a001). Considerable amounts of charcoal were also identified, which showed the same fibrous 'palm wood' patterns as in Context 096. 4.11-4.30 m BD.

Contexts 099, 101:

The upper layers of this context were located next to the eastern profile, and consisted of a compact loamy clay, with inclusions of rust-like organic material. Except for a handful of pot sherds, no other artefacts were recorded. The lower layers extended to cover the entire unit, except for the north-eastern quadrant, yielding few bones in addition to pottery. 4.13-4.44 m BD.

Context 102:

This context covered the north-eastern quadrant of the unit, exhibiting a compact mixture of sand and loamy clay. The soil appeared nearly sterile, yielding few pot sherds. 4.22-4.45 m BD.

Context 103:

These layers covered the eastern half of the unit, exhibiting a compact loamy clay with white, organic inclusions. The latter might have constituted sulphur, providing testimony for alluvial processes. Artefacts were limited, consisting of few pot sherds and faunal remains. 4.44-4.57 m BD.

Context 104:

This context, which covered the western portion of the unit, differed from Context 103 in that it was more yellowish in colour. Few pot sherds were identified, and some charcoal. 4.36-4.54 m BD.

Contexts 105, 107:

This context covered the entire unit. It consisted of a compact loamy clay with considerable amounts of charcoal. Few pot sherds and faunal remains were also identified. One charcoal sample was dated from Context 105, which can be associated to the living surface that was found underneath (see Context 106). 4.57-4.76 m BD.

Context 106:

This appeared to be the oldest living surface, which was located in the unit's southern portion. It was very well preserved and exhibited a pink to light reddish brown colour. Two post-holes were also identified, which measured 7 cm in depth and 15 to 20 cm in diameter. Both post-holes were lined with which appeared to be the same beaten mud as the living surface. Few pot-sherds were found on the surface. 4.61-4.77 m BD.

Contexts 108, 109:

These layers represented sterile floodplain soil, exhibiting a loamy clay. In its upper layers, two pottery sherds were found. 4.68-4.95 m BD.

Table A2: Description of excavated contexts and features: Units, M, Q and S, Mara

Table A2.1: Unit M, Mara[2]

Contexts 001, 011, 012, 021, 027:

These surface layers consisted of a semi-compact light clay, which covered the entire unit, except for the surface features of Unit M. Considerable amounts of charcoal were recovered as well as artefacts, including pottery, bones, a clay bead (M001/a001), two metal fragments (M001/a002, M001/a003), a carnelian bead (M011/a002), a spindle whorl (M011/a001) and a smaller than fist-sized stone (M027/a001). 1.30-1.73 m BD.

Contexts 002, 026:

This feature, which was located at the western portion of the unit, appeared to have been a pit. It had an irregular shape, and measured 56 cm in depth. Its fill consisted of ash, fish bones, and charcoal. It might thus have served as an oven for fuming fish. Pot sherds were also identified, as well as mudbrick fragments in its lowest layers. 1.35-1.83 m BD.

Context 003:

This context was located next to the hearth (see Context 019) in the north-western corner. It yielded considerable quantities of rice chaff, which were mixed into a semi-compact loamy clay. The context appeared to represent domestic activity, as it was located inside a mudbrick structure. In addition to rice chaff, there was pottery. 1.44-1.53 m BD.

Context 004:

Context 004 represented mud wall collapse and melt from the circular mud structure in the south-western corner. Pottery was present in small numbers. 1.30-1.50 m BD.

[2] All measurements are indicated as BD, Below Datum, which stood at a height of 1.13 m.

Context 005:

This context consisted of a compact light loam, and represented wall collapse from the mud wall in the south-eastern corner of the unit. Pottery was present in small numbers. 1.36-1.51 m BD.

Context 006:

This context appeared to represent the fill of a cooking hearth (located in the north western corner), yielding ash, few pot sherds, but no bones. 1.35- 1.51 m BD.

Context 007:

This was the fill of the round mud structure in the south-western corner. It consisted of semi-compact light clay, yielding mudbrick fragments (which might have fallen from the structure) and considerable quantities of rice chaff. Pottery was found in small numbers. 1.27-1.78 m BD.

Contexts 008, 063:

Underneath Context 007, came Context 008, which in contrast to its predecessor exhibited a loose, ashy fill, with a continuous presence of rice chaff. Charcoal was also identified, as well as pottery. 1.71-2.36 m BD.

Contexts 009, 014, 020:

These layers appeared to represent mud wall collapse from the wall in the south-eastern portion, which filled the area between the wall and the eastern profile. It consisted of a compact light loam, providing small amounts of pottery, and one carnelian bead (M009/a001). The lower layers (Context 020) yielded considerable amounts of charcoal. 1.37-1.72 m BD.

Context 010:

This feature was located in the south-western corner of the unit, and might have represented a rice silo. It consisted of a circular mud structure, measuring 85 cm in height, with a diameter of 92 cm. Only few mudbricks have been identified in the construction. As a consequence it seemed to have been a piled mud wall structure. It might have function as a rice silo, due to the abundant quantities of rice chaff identified in the fill of the structure. 1.26-2.14 m BD.

Contexts 013, 028:

This feature was a mud wall, which ran along a steep slope between the southern and eastern profiles. No mudbricks were identified, which indicates that it might have been a piled mud wall. However, the plastering of its surfaces was visible, indicating the outer limits of the wall. Pottery might have been used as building material. One carnelian bead (M013/a001), and one clay bead (M013/a002) were found. 1.36-1.68 m BD.

Context 015:

This context was located at the inside of the north structure (next to Context 003) and consisted of a compact light loam with patches of sand. 1.49-1.68 m BD.

Context 016:

This feature represented a beaten mud surface at the inside of the north structure (underneath Context 003) with patches of burnt earth. Abundant quantities of charcoal have been identified, and pottery. 1.46-1.63 m BD.

Contexts 017:

This feature represented a rectangular mudbrick structure in the northern portion of the unit. Two of its walls were visible (south- and east walls) in the unit, which yielded loaf-shaped mudbricks. It yielded one course of bricks. Pottery was found, which might have served as building material. 1.45-1.64 m BD.

Context 019:

This feature represented a circular hearth made out of mud. It was located at the south-western corner of the rectangular mudbrick structure. It measured 16 cm in height, and had an interior diameter of 20 cm. 1.34-1.51 m BD.

Context 022, 025:

These layers constituted the interior of the rectangular mudbrick structure, which consisted of a compact light clay, yielding abundant quantities of charcoal. Material remains included pottery, two glass beads (M022/a001, M025/a002) and a clay bead (M025/a001). The lower layers (Context 025) also yielded ash, sand, rice chaff and faunal remains. 1.59-1.85 m BD.

Context 024:

This context was located outside the rectangular mudbrick structure, next to its eastern wall. It consisted of loamy clay with patches of burnt earth, abundant quantities of rice chaff and ash. In addition to pottery, an intact potlid (M024/a001) was found and slag. 1.65-1.79 m BD.

Contexts 029, 039, 046, 048:

This feature constituted the first construction phase of the rectangular mudbrick wall, exhibiting slightly different angles in comparison to Context 017 (parts of its west wall were visible). Four courses of bricks were identified. Pottery was included as building material. 1.57-2.09 m BD.

Contexts 030, 034, 035, 036:

These layers consisted of a compact loamy clay, covering all areas in between Unit M's various features, and might have represented domestic debris. Substantial quantities of rice chaff as well as charcoal were also identified. Finds consisted of pottery and faunal remains. 1.68-1.89 m BD.

Context 031:

This context represented the most recent living surface, which was associated with the earlier construction phase of the south-eastern wall (see Contexts 038, 047). It consisted of a beaten mud surface with patches of burnt earth. In addition to pottery, one glass bead (M031/a001) and one copper fragment (M031/a002) were found. 1.65-1.76 m BD.

Context 032:

This context was located underneath Context 031, and represented an older living surface. In contrast to Context 031, large quantities of charcoal were identified as well as pottery and small finds. The latter consisted of three spindle whorls (M032/a001, a002, a003). 1.71-1.94 m BD.

Contexts 033, 041:

These contexts were located outside the rectangular mudbrick structure, exhibiting laminated sand layers. Ash and charcoal were also identified, as well as pottery and faunal remains. 1.74-2.01 m BD.

Contexts 037, 040:

These contexts were located inside the rectangular mudbrick structure and consisted of compact sand, indicating the structure's abandonment during this period. Finds were limited to pottery. Context 040 yielded abundant quantities of charcoal and rice chaff. One glass bead (M040/a001) and a metal fragment (M040/a0022) were found. 1.73-2.01 m BD.

Contexts 038, 047:

This feature was the first construction phase of the south-eastern mud wall, showing a less steeper angle than the later wall construction (Contexts 013, 028). Few loaf-shaped mudbricks were identified, indicating that the wall's construction was made with bricks. 1.72-2.03 m BD.

Contexts 042, 049, 052, 053, 054, 056:

These layers were located underneath Contexts 030, 034, 035, etc. At this depth, they consisted of compact sand, exhibiting some ashy patches. Considerable amounts of charcoal were identified in its upper layers. Finds consisted of pottery and one metal fragment (M049/a001). These contexts signal a break from permanent occupation, and might thus represent a more mobile life-style. 1.81-2.26 m BD.

Context 043:

This feature was located between the silo and the rectangular mudbrick structure. It featured an irregular-shaped shallow pit (15 cm deep), yielding ash and charcoal.1.91-2.06 m BD.

Context 044:

This feature was the oldest living surface associated with the south-eastern wall. It consisted of a beaten mud surface, yellowish brown in colour (10YR5/4) with pink patches. Finds were recorded in limited quantities and were restricted to pottery. Some charcoal was also identified. 1.80-1.98 m BD.

Contexts 045, 051, 058, 061, 068, 074, 080, 086, 093, 100, 104, 110:

This feature might have constituted a pit. It was located between the southern profile and the south-eastern mudbrick wall. It exhibited a circular shape with a diameter of 80 cm. The pit's fill consisted of a compact light loam, yielding abundant quantities of rice chaff, and ash. Faunal remains were identified in contexts M068 – M086. It might thus be suggested that this pit served for the storage of condiments such as rice. A spindle whorl (M068/a001), a drainage pipe (M074/a001) and a metal fragment (M086/a001) were found. 1.86-3.68 m BD.

Context 050:

This was a concentration of rice chaff in association with the storage pit. No other finds were recorded. 2.05-2.12 m BD.

Context 057, 062, 069, 076, 081, 096, 101, 105, 109:

This feature appeared to represent a well. It exhibited a circular shape with a diameter of around 90 cm. Its fill consisted of compact loamy clay. Finds included slag, faunal remains and pottery. Rice chaff was also identified. Small finds included a spindle whorl (M081/a001), a cowrie shell (M081/a002), a cornelian bead (M105/a001) and a metal fragment (M109/a001). 2.08-4.45 m BD.

Context 059:

This context consisted of a mixture of sand and light loam. It was located at the southern portion of Unit M. It also yielded considerable quantities of rice chaff, ash and charcoal. Finds consisted of pottery and faunal remains. One smaller than fist-sized stone (M059/a001) was also found. 2.07-2.21 m BD.

Contexts 060, 065, 072:

In comparison to the above sand layers (see Contexts 042, 049, 052, etc.), these sand layers were looser in consistency and yielded a limited amount of finds (pottery). Three smaller than fist-sized stones (M060/a001, M072/a001, M072/a002) and one spindle whorl (M065/a001) were also identified. It can thus been suggested that these layer indicate a phase of abandonment. 2.11-2.52 m BD.

Contexts 064, 067, 075, 079, 087, 088, 091, 099, 103, 106, 108:

These layers consisted of a semi-compact loamy clay, and might have represented a deflated trash midden due to its heterogeneous content and irregular shape. Considerable quantities of sand, rice chaff, charcoal, slag, and pottery were also identified, including brick fragments. 2.22-3.53 m BD.

Contexts 066, 073, 084, 090, 098:

These contexts constituted a pit underneath the 'rice-silo' in the south-west. Its fill consisted of substantial amounts of charcoal, phosphoric soil, ash in various colours, and large pottery sherds. No rice was identified in these layers, contrasting with the fill of the 'rice-silo'. A smaller than fist-sized stone (M073/a001), one intact pot lid (M073/a002) and a spindle whorl (M084/a001) have been identified. 2.35-3.09 m BD.

Contexts 070, 077, 082:

This feature appeared to represent a pit. It was circular in shape with a 30 cm diameter. Its fill consisted of phosphoric soil and ash. Rice chaff was found in its uppermost layers. One piece of red ochre (M077/a001) was identified. 2.34-2.71 m BD.

Context 071:

This context, which consisted of a very compact loamy clay, was nearly sterile, yielding only a handful of pot sherds. 2.34-2.51 m BD.

Contexts 078, 083, 089, 097:

These layers yielded a mixture of nearly sterile compact clay and sand. The only material present was pottery. 2.48-3.05 m BD.

Contexts 085, 092:

This feature represented a pit, which was located underneath the northern portion of the deflated midden (next to the western profile). It measured 62 cm in diameter. Its fill consisted of semi-compact loamy clay, ash and phosphoric soil. The only material culture present was pottery. 2.73-2.97 m BD.

Contexts 094, 095, 102, 107:

These contexts constituted sterile soil, yielding only one, maybe intrusive, metal fragment (M095/a001) in Context 095. 2.85-3.41 m BD.

Table A2.2 Unit Q, Mara[3]

Context 001:

This was the topsoil, which covered the area outside of the round structure. It consisted of a semi-compact light loam with patches of ash and considerable quantities of charcoal. Finds included pottery, faunal remains and slag. 1.43-1.72 m BD.

Contexts 002, 006:

These layers constituted the fill inside the circular mudbrick structure, consisting of a mixture of ash and semi-compact loamy clay. Considerable quantities of pottery and faunal remains were identified, as well as a terracotta figurine fragment (Q002/a001) and a glass bead (Q006/a001). 1.41-1.75 m BD.

Context 003:

This feature represented a circular mudbrick wall, which was preserved to one course of loaf-shaped mudbricks. Finds were limited to pottery. The function of this round structure remains unknown. It might have possibly been used for habitation, storage or cooking. 1.41-1.62 m BD.

Contexts 004, 008, 011:

This context might have represented a deflated trash midden due to its loose and heterogeneous fill, which included pottery, faunal remains, ash, charcoal and rice chaff. Small finds consisted of two metal fragments (Q008/a001, Q008/a002). 1.59-1.96 m BD.

Contexts 005, 010, 012, 013, 015:

These layers consisted of a compact light loam and might have represented domestic debris and wall melt. There were also traces of ash, charcoal and sand. There was a considerable quantity of pottery present as well as rice chaff. Faunal remains were limted to Context 012. Small finds included a folded glass bead (Q013/a001). 1.60-2.08 m BD.

[3] All measurements are indicated as BD, Below Datum, which stood at a height of 1.40 m.

Context 007:

This context was located underneath the circular mudbrick structure, yielding traces of phosphoric soil, ash and abundant quantities of charcoal. Pottery and bones were also identified. 1.57-1.75 m BD.

Contexts 014, 017:

This context might have represented a garbage area as it yielded a loose fill of a dark olive brown soil looking like 'garden soil'. Considerable quantities of fish bones and other faunal remains were identified, as well as charcoal and pottery. Small finds included two metal fragments (Q014/aa01 and Q014/a002) and Mara's terracotta figurine head (Q017/a001). 1.92-2.25 m BD.

Context 016:

This context represented a mixture of wall melt and the dark-brown 'humus-like' soil from Contexts 014 and 017. Pottery, bones and one lower grinding stone (Q016/a001) were identified. 1.93-2.10 m BD.

Contexts 018, 020:

These contexts represented another layer of compact wall melt, however, yielding much greater quantities of artefacts than in the previous wall melt layers, Finds included pottery, bones, slag, and a metal fragment (Q018/a001). 2.06-2.40 m BD.

Context 019:

The identification of this context was based exclusively on its black contours that formed a circle. Its fill, which resembled the neighbouring area, consisted of a semi-compact light loam. Considerable amounts of pottery were identified and two bone fragments. The function of this context remains unknown. 2.24-2.39 m BD.

Context 021:

This context might have represented the remains of a mud wall with associated wall melt. It consisted of a semi-compact light loam, dark yellowish brown in colour. Due to its irregular shape and bad preservation no individual mudbricks could be identified. Thus, its exact orientation remains unknown. 2.23-2.41 m BD.

Context 022:

This context appeared to represent a surface of some sort. It yielded horizontally lying pot sherds, which covered the southernmost are of Unit Q. However, the individual sherds were measuring less than a 50 pence coin in size. One of our collaborators from Dia suggested that this surface might have represented a pavement, which are usually constructed during the rainy season in order to stabilize the ground surface. 2.24-2.40 m BD.

Contexts 023-032:

These layers yielded the same dark-brown 'humus-like' soil as in Contexts 014 and 017, which became very humid from Context 029 onwards. Considerable quantities of charcoal were identified. Finds included pottery, brick fragments, and bones. Contexts 031 and 032 yielded considerable amounts of nearly intact pots. Small finds consisted of metal (Q023/a001, Q024/a001, Q025/a001, Q027/a001, Q029/a001, Q032/a002) and terracotta fragments (Q024/a002, Q032/a003), a glass bead (Q025/a002). 2.34-3.18 m BD.

Contexts 033-035:

These layers exhibited a mixture of a semi-compact light loam and the 'humus-like' soil from Contexts 023-032. Considerable quantities of artefacts were present, consisting of pottery, bones and slag. Small finds included metal fragments (Q033/a00, Q034/a001, Q034/a002, Q034/a006), a glass bead (Q034/a003), red ochre (Q034/a004) and a copper pendant in shape of a chameleon (Q034/a005). 3.14-3.56 m BD.

Contexts 036-038:

These contexts were the last cultural layers before sterile soil was reached, and consisted of a compact loam with less material remains (pottery, bones and slag) than in previous layers. 3.55-3.69 m BD.

Context 039:

This context, which consisted of a compact loam, signalled the end of our excavations, as no more artefacts were encountered. 3.63-3.80 m BD.

Table A2.3 Unit S, Mara[4]

Context 001:

This context consisted of wall melt and fallen bricks, which might have resulted from the collapse of a mudbrick structure. The consistency of the soil was thus very compact. Finds included pottery and faunal remains. 1.09-1.25 m BD.

Context 002:

This was a circular pit, located in the western half of the room collapse. Its fill consisted of a compact loam with considerable amounts of rice chaff and charcoal. Pottery was also present. This feature might have functioned as a storage pit. 1.21-1.45 m BD.

Context 003:

This appeared to represent a platform area, built of mud, upon which we identified the room collapse (Context 001). It consisted of a compact loamy clay, which yielded pottery, bones and slag. 1.20-1.47 m BD.

Contexts 004, 028, 034, 046:

These layers consisted of a friable loam, and constituted the fill of a circular mud structure in the north-eastern portion of Unit S, which might have served as an oven for fuming fish (see Fig. 5.45 and 5.46). Finds included pottery, charcoal and fish bones. 1.47-2.08 m BD.

Context 005:

This context, which appeared to represent domestic debris, was located between the platform area (Context 003) and a rectangular mud wall (Context 017). It consisted of a friable loam, which yielded considerable amounts of faunal remains, pottery, slag and brick fragments. 1.40-1.65 m BD.

[4] All measurements are indicated as BD, Below Datum, which stood at a height of 1.20 m.

Contexts 006, 019, 027, 033:

This was the fill of Pit 1, which was located at the south-western corner of the unit. It measured 50 cm in depth and 94 cm in diameter, and consisted of a friable loamy clay with considerable amounts of ash and rice chaff. Pottery was also identified. The pit might have functioned for roasting vegetables. Alternatively it might have been used for storage. Small finds were limited to one terracotta fragment (S033/a001). 1.45-1.94 m BD.

Context 007:

This context appeared to represent wall melt, which covered the south-eastern quadrant of the unit, consisting of a compact loamy clay. Few brick fragments were identified as well as pottery and slag. Small finds included one metal fragment (S007/a001). 1.43-1.66 m BD.

Contexts 008, 021:

This feature appeared to represent the remains of an oven for fuming fish as it showed the remains of a circular mudbrick structure at its southern half (see Fig.5.44). It measured 62 cm in diameter, and reached a depth of 30 cm. Artefacts were found in small quantities, consisting of bones, slag and pottery. 1.43-1.75 m BD.

Contexts 009, 030:

This was a circular pit, measuring 88 cm in diameter and 38 cm in depth. Similar to the neighbouring pits, it might have served for the fuming of fish or alternatively for storage or roasting. Traces of ash were identified and few artefacts (one piece of slag and pottery). 1.45-1.81 m BD.

Context 010:

This context was surface soil, yielding a mixture of sand and loamy clay. No artefacts were identified. 1.50-1.65 m BD.

Context 011:

This context was very similar to Context 010, however, more compact in consistency. Pottery and charcoal were also present. 1.48-1.67 m BD.

Context 012:

This was the surface soil, which covered the area in between the pit features. It consisted of compact loamy clay and yielded considerable amounts of pottery, and bones. Small finds included a terracotta fragment (S012/a001). 1.48-1.61 m BD.

Contexts 013, 022:

This was a circular pit measuring 84 cm in diameter and 17 cm in depth. Its fill consisted of a semi-compact loamy clay, which yielded only few material remains. Traces of charcoal and rice chaff were also identified. The exact function of this feature remains unclear. It might have served as an oven for fuming fish or alternatively it might have served for storage. 1.45-1.68 m BD.

Contexts 016, 026, 041, 056:

This was a mud wall, which divided the unit into an eastern and western portion. Only one mudbrick was identified in the course of excavations. It measured 60 cm in width, which indicates that it must have had a considerable height. Hence, it is possible that this wall might have constituted a compound wall. 1.44-2.28 m BD.

Context 017:

This was another mud wall, which was rectangular in shape. It seems to have been built out of mudbricks as we were able to identify few brick fragments. The wall was only preserved to one course of mudbricks, which yielded pottery, faunal remains and slag. 1.43-1.67 m BD.

Context 018:

This context constituted the remains of the fish-fuming oven in the north-east of Unit S. It exhibited a circular mud wall (60 cm in diameter) with an opening in the south (25 cm). The latter might have served for placing wooden logs, which in the course of burning could produce sufficient heat to fume the fish. 1.47-1.61 m BD.

Contexts 020, 029, 037, 045, 049, 055, 061, 062, 065:

These layers constituted wall melt, which might have resulted from the collapse of the north-south running wall (Contexts 016, 026, etc.). The soil was a compact loamy clay, light brownish grey in colour. Few material remains were identified, consisting of pottery and slag. 1.62-2.58 m BD.

Contexts 023, 025, 031:

These contexts covered the area to the west of the north-south running wall and consisted of a friable loamy clay. Abundant quantities of material culture were identified, which included pottery, bones and slag. Small finds included a polished bone object (S023/a001), which might have served as a pendant, and a fragment of red ochre (S023/a002). 1.58-1.83 m BD.

Context 024:

This was a band of white ash and clay, parallel of the north-south running wall. It yielded pottery and faunal remains. 1.58-1.76 m BD.

Contexts 035, 051, 057, 066, 071, 088, 091, 098, 100:

This appeared to represent a well, which was cut by the eastern profile of the unit. It had a diameter of 90 cm and reached a depth of two meters. Its fill consisted of compact loamy clay, which yielded few finds, mostly pottery. From Context 071 onwards the soil turned into a heavy clay. Small finds included five spindle whorls (S098/a001, S100/a001, S100/a002, S100/a004, S100/a005), a piece of red ochre (S100/a001), a metal fragment (S100/a006) and a polishing stone (S100/a007). Nearly intact potlids were also identified in Context 100. 1.91-3.61 m BD.

Context 036:

This was a deflated garbage area, located in the south of the unit. Its heterogeneous fill had a loose consistency and included charcoal, pottery, bones and slag. 1.79-1.95 m BD.

Context 038:

This was another deflated garbage area, located in the north of the unit, which was filled with substantial amounts of faunal remains. There was pottery and charcoal present. One copper fragment (S038/a001) was also identified. 1.78-1.96 m BD.

Context 039:

This context was located at the south-eastern corner of the unit. It yielded the same 'humus-like' soil as we had already identified in Unit Q. Finds were restricted to pottery. 1.90-2.04 m BD.

Context 040:

This was a habitation surface, which appeared underneath the 'humus' layer. It consisted of dark greyish brown beaten mud, yielding considerable amounts of charcoal and rice chaff. Pottery and slag were also identified. 2.03-2.06 m BD.

Contexts 042, 044:

Contexts 036 and 038 continued as Context 042, which by then covered the entire area to the west of the north-south running wall. It consisted of a friable loamy clay, which was covered with horizontally-lying pot sherds, faunal remains and slag, that were deposited in at least three distinctive layers. Due to the even deposition of these large amounts of artefacts I believed at first that it might have been a 'ritual' surface of some sort. However, I decided that it could have also represented a deflated trash midden. Small finds included two metal fragments (S042/a001, S042/a002), a smaller than fist-sized stone (S042/a003) and a terracotta fragment (S042/a004). 1.79-2.19 m BD.

Contexts 047, 052, 059, 069, 073:

These layers were located underneath the deflated trash midden in the western half of the unit. They consisted of a friable loamy clay with silty spots, which were light yellowish brown in colour. There were not many finds present, which included pottery, faunal remains and slag. One metal fragment (S047/a001) was also identified. 1.95- 2.68 m BD.

Context 048:

This was another habitation surface, which yielded many patches of burnt earth, rice chaff and charcoal. Pottery and bones were also identified. 2.01-2.20 m BD.

Contexts 050, 054, 060, 070, 072, 074:

These clay layers were characterised by their 'neat' surface-like appearance with silty spots, resembling sterile soil. However, artefacts were still present, in small numbers though (pottery, slag and faunal remains). 2.06-2.71 m BD.

Contexts 053, 058, 064, 078, 082, 090, 092, 097:

These contexts yielded more layers of the same 'humus-like' soil as in Unit Q. They were situated in the same location as Context 039, and were quite poor in material culture (pottery only). Fish bones were also identified as well as charcoal. Small finds consisted of one terracotta fragment (S058/a001). The deeper layers (Contexts 058, 064) became increasingly moist. 2.13-3.15 m BD.

Contexts 067, 075, 077, 081, 089, 095:

The soil consistency of this context resembled the wall melt layers from above (Contexts 020, 029, 037). However, at this depth considerable amounts of material culture were found (pottery, slag and bones) as well as charcoal (in Contexts 075 and 081 twelve samples were taken respectively). 2.45-3.11 m BD.

Contexts 068, 079, 093, 099:

These contexts occupied the north-eastern corner of the unit. They exhibited a mixture of laminated sand and light clay, with pottery and (fish) bones. 2.39-3.17 m BD.

Contexts 076, 080, 083, 084, 085, 086, 087:

These layers appeared to represent sterile soil, which consisted of a mixture of a light loamy clay and sand. Artefacts were still present but in very low numbers. They might have been intrusive from the above layers. 2.65-2.96 m BD.

Contexts 094, 095, 096, 101:

These layers consisted of heavy clay with ferrogeneous inclusions, which were nearly sterile. The only material culture present, were pot sherds. 2.92-3.53 m BD.