

HISTORICAL ARCHAEOLOGY OF THE 19TH - CENTURY
CARAVAN TRADE IN NORTH-EASTERN TANZANIA:
A ZOOARCHAEOLOGICAL PERSPECTIVE

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JANUARY 2012

ABSTRACT

This zooarchaeological study examined animal economies practiced by local communities against the context of the expansion of the caravan trade in eastern Africa during the nineteenth century. Specific objectives were to establish whether: a) animal economies in areas crossed by caravan trade routes were transformed as a result of expanding trade and the demand for supplies; b) new herd management strategies were adopted by local communities to ensure production of surpluses for exchange; and c) the expansion of this trade caused subsistence stress for local communities. The study area is the Lower Pangani River Basin, north-eastern Tanzania.

The three studied riparian island settlements of Ngombezi, Old Korogwe and Kwa Sigi are mentioned in the nineteenth-century European accounts as caravan halts in the Lower Pangani. These were identified through archaeological survey and oral interviews - using the nineteenth-century accounts as a guide to their likely locations. Excavation exposed evidence for human settlements dating to the late seventeenth or early eighteenth centuries AD, and materials recovered include over 30,000 pieces of animal bone, 39,000 potsherds, 4,020 local and imported beads, metal objects, worked bones, remains of flintlock muskets and coins.

The analysis of the faunal remains indicates that domestic livestock, a wide range of wild animals, and locally caught fish, were all being consumed at these settlements. The proportion of wild fauna in the assemblage suggests their significant contribution to the diet. At Ngombezi where the longest dated sequence was revealed, such a consumption pattern of mixing domestic and wild resources is not significantly different from that of the pre-nineteenth-century levels, suggesting that the integration of these settlements into the caravan trade network had limited effects on food procurement strategies and consumption patterns. There is a general lack of evidence that young animals were slaughtered, which would be indicative of consumption pressure on domestic stock, as the majority of domestic stock was slaughtered after reaching maturity age - over 3 years for cattle and over 2 years for sheep and goat. These major findings contradict arguments made by historians that the caravan trade had a transformative effect on communities lying along the main trade routes in the region, though additional research at other sites is needed to strengthen this argument.

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ACKNOWLEDGEMENTS

This PhD study was undertaken as part of the project *Historical Ecologies of East African Landscapes* (HEEAL) based at the University of York, coordinated by Dr Paul Lane and funded by a European Union Marie Curie Excellence Grant (MEXT-CT-2006-042704). An additional financial support for the finalisation of dissertation writing came from the University of Dar es Salaam. I am thankful to all these funding bodies.

I am indebted to the support and advice of my two supervisors. Dr. Paul Lane first singled me out from East Africa to work in his HEEAL project, and deliberately pointed me in the direction of Zooarchaeology since he knew this expertise is currently lacking in Tanzania and East Africa more generally. Paul has provided continual advice and encouragement and without him this thesis would never have been envisaged. He is a true mentor and real friend of Tanzanians and East Africans, at large.

Professor Terry O'Connor has been similarly supportive, and has guided my learning in the field of Zooarchaeology, taking me from 'zero' to 'hero'. He has given me sound theoretical and practical advice over the course of my studies. I am thankful for the time he spared to come to Tanzania to clear up some difficulties that emerged during the identification of animal species. Under the same category, I am also very grateful to members of my Thesis Advisory Panel: Dr. Allan Hall and Dr. Kevin Walsh for their periodical review of my academic progress and their positive comments and criticisms to my work.

My deepest thanks go to Prof. Bertram Mapunda for taking the role as my local advisor. His tireless efforts in advising, critiquing, sharing ideas and experience and encouragement, were superb. I benefited and learned a lot for being close to him since 1999. Remain blessed.

I am also indebted to Mr. Gido Laswai and Mr. Said Killindo, for drawing most of the illustrations appearing in this work. I also forward my special thanks to all UDSM 2008 and 2009 Archaeology students who chose to do their compulsory course Field Archaeology with me at Korogwe for eight weeks, each year. They carefully retrieved a huge amount of data presented in this dissertation. In particular, I would like to thank Mr. J. Mpangarusya, D. Busee, B. Alex and F. Kimario, for volunteering to continue working with me in the field even after the normal periods of the field schools ended.

I appreciate greatly the support I got from my fellows at the University of Dar es Salaam. Specifically, I thank Mr. Elgidius Ichumbaki Bwinabone (Mwana) for accompanying me to Korogwe on my second trip to collect oral information, and for devoting two consecutive nights helping me to assemble the chapters of this dissertation - to meet the submission deadline. I thank Prof. Chami for offering me a working space in his laboratory at Mbezi during data analysis. I appreciate the regular inputs to my work and encouragement from Dr. Pastory Bushozi, Prof. Audax Mabulla, Dr. Fidelis Masao, Dr. Emmanuel Kessy, Dr. Charles Saanane, Mr. Elinaza Mjema, Dr. Amandus Kwekason, Prof. Kasigwa, and Mr. Frank Maselle. All being my fellow staff at the UDSM, they assisted me variably.

Special thanks go to the British Institute in Eastern Africa, the institute's driver Mr. Joseph Mutua and institute's GIS expert Mr. Benson Kimeu, for their various immense contributions during the fieldwork. I would also like to thank Prof. Gabriel Mbassa and Mr. Mwangalimi of Sokoine University of Agriculture in Morogoro, for assisting me with aspects of the faunal analysis. They offered me a working space, allowed me to use their faunal reference collection, and at some point they prepared some fresh reference faunal specimens for me. I acknowledge the support I got from the Department of Antiquities, for granting me a permit to work at the sites of Ngombezi, Old Korogwe and Kwa Sigi. I am grateful to the Antiquities representative during my fieldwork, Mr. Samiu Mbegu, for his various contributions during the fieldwork. He was a hard worker and also entertainer.

I thank very much the organisers of the ICAZ and Pan-SAFA conferences of 2010, for allowing me to present my research findings at the stage I had started the write up. From these conferences, I gathered constructive feedback and comments from the audience to enrich this dissertation. In due regard, I appreciate for the positive and encouraging comments from, among others, Fiona Marshall, Diane Gifford-Gonzalez, Elizabeth Reitz and Sussan De France during the ICAZ conference in Paris, France, as well as from Chap Kusimba, Peter Schmidt, Sarah Croucher, Jeff Fleisher and Stephanie Wynne-Jones, during the SAFA conference in Dakar, Senegal.

While in York, I experienced academic contributions and moral support from HEEAL members and friends. In this regard, I thank Dr. Daryl Stump who gave his comments on several draft chapters of this dissertation tirelessly. He always insisted me to be 'consistent' in academic writing. I appreciate the support I got from Drs. Pauline von Hellermann, Ashley

Coutu (Mama Tembo), Matthias Heckmann and our lovely sister Holly Wright. The social life you shared with me in York took me out of 'home-sickness' and life in York went on very smooth. Similarly, in Tanzania I have been supported closely by friends and relatives to whom I am indebted: Happinos Marufu, Fares John Biginagwa, Simon John and Rev. Fr. Pontian Seliwinga.

My special gratitude goes to my family members: my parents, Mr. and Mrs. Biginagwa who spent their meagre resources to pay for my education; my wife Matride S. Kuyeto who took care of Davis and Susan in Tanzania; and my brother, Dr. Stivin John Biginagwa and his wife Dr. Rosada Kimario, for accompanying my family for the whole period I was abroad.

Finally, I thank all villagers of Ngombezi, Old Korogwe, Kwa Sigi and Msambiazi, for their generosity during all my fieldwork. They were cooperative and offered everything I needed without any fear.

‘Ninawashukuru wote, Asanteni sana, na Mungu awazidishie’

“Whatever is good to know is difficult to learn”

(Greek Proverb)

"...intellectuals have a special contribution to make to the development of our nation, and to Africa. And I am asking that their knowledge, and the greater understanding that they should possess, should be used for the benefit of the society of which we are all members."

Julius Kambarage Nyerere (Freedom and Development), 1973

DECLARATION

This thesis is the result of the author's original work
except where acknowledged or specifically stated in the text.
It has not been submitted for any other degree or examination
at any other university or academic institution.

Thomas John Biginagwa

January 2012.

ABBREVIATIONS

AD	Anno Domini (Years of Christ; also perceived as after the death of Christ)
AMS	Accelerator Mass Spectrometry
BC	Before Christ
BP	Before Present
C14	Carbon Fourteen
CCM	Chama Cha Mapinduzi (Tanzania's Ruling Party)
DP4	The fourth deciduous premolar
EDM	Electronic Distance Measuring Device
HEEAL	<i>Historical Ecologies of East African Landscapes</i>
IUCN	International Union for Conservation of Nature
LSA	Late Stone Age
M1	The first molar tooth
M2	The second molar tooth
M3	The third molar tooth
MSA	Middle Stone Age
MT\$	Maria Theresa Dollar
NGO	Non Government Organisation
OSA	<i>On Site Archaeology</i>
SUA	Sokoine University of Agriculture
TIW	Triangular Incised Ware
TP	Test Pit
UDSM	University of Dar es Salaam
URT	United Republic of Tanzania
VOC	<i>Verenigde Oostindische Compagnie</i> (United East India Company)

CHAPTER 1

INTRODUCTION

1.1 Research Background

This is the first study in East Africa ever to examine animal economies practiced by local communities in the context of the expansion of the ivory and slave caravan trade in the nineteenth century from the perspective of zooarchaeology. The particular geographical focus of the study is the Lower Pangani River Basin, North-eastern Tanzania.

Trade in ivory and slaves expanded drastically across eastern Africa during the nineteenth century (Beachey 1967; Sheriff 1987; Alpers 1992). This was largely in response to efforts to meet the demand for ivory triggered by rapidly expanding industries, including cutlery, comb, piano and billiard-ball manufacturing in North America and Europe, as part of broader changes in leisure activities and patterns of consumption by the growing middle classes (Thorbahn 1979: 32; Flanders 2006: 359-64). Since ivory from East Africa was highly praised for being softer to work compared to ivory sourced from other areas, the East African region began to become a focus of interest as access to the regions raw materials improved with the consolidation of Omani control over the coastal zone in the first half of the century (Koponen 1988: 57). Abdul Sheriff (1987: 1) notes that during this period, Zanzibar (where the Omani court was now based) became essentially a “commercial intermediary between the African interior and the capitalist industrializing west, and it acted also as a conveyer belt transmitting the demands of the latter for African luxuries and key raw materials in exchange for imported manufactured goods”.

Ivory and other key raw materials were collected from the interior by caravans that were organised at the coast. These were mostly financed by Indian merchants residing in Zanzibar, and were led by Arab and Swahili traders, of whom the most infamous was Tippu Tip (Koponen 1988: 73). These large caravans, often numbering over a thousand individuals, travelled to the interior, stopping en route to exchange ready-made western imported manufactured goods such as cotton cloth, glass beads, gunpowder and muskets, brass wire, and other metal objects for ivory and slaves (Koponen 1988: 112-113).

The socio-economic, political and cultural consequences of the expansion of the East African caravan trade were considerable, and several aspects have been the focus of study by historians, anthropologists and ecologists (e.g., Beachey 1967; Kjekshus 1996; Sheriff 1987; Koponen 1988; Kimambo 1991, 1996; Alpers 1992; Håkansson 2004). While these studies give a good indication of the main characteristics of the trade and the major actors, assessments of the actual impacts of the caravan trade as they related to human environments and subsistence strategies are based on imperfect datasets, and as a result have been fiercely contested among scholars, leaving more questions than answers. For instance, Kjekshus (1996: 30-31) is of the view that changes in agricultural production were restricted to contact points (such as caravan halts and slave and ivory extraction sites) and to areas near the coast where urban trading centres were concentrated. Generally, Kjekshus (1996) argues that the ecology and subsistence economy of the majority of the region's indigenous populations were less affected by the caravan trade, and more by population growth. This idea, however, has been strongly challenged by other scholars (e.g., Koponen 1988; Håkansson 2004). For example, Koponen (1988: 361) argues that much of the pre-colonial subsistence economy underwent rapid change during the nineteenth century as a direct result of expanding coastal caravan trade.

More recently, an additional line of argument has emerged which proposes that many of the environmental problems currently facing eastern Africa have their origins in the nineteenth century, especially the growth of trade in ivory and slaves and the resulting intensification in food production this trade is said to have had stimulated (Håkansson 2002, 2004; Håkansson *et al.* 2008). One of the most relevant of these to the current study is that by Thomas Håkansson (2004) on the political ecology of the ivory trade. Specifically, Håkansson argues that the ivory trade “changed the vegetation cover, caused soil erosion, contributed to the intensification of agriculture and the spread of pastoralism, and affected the distribution of populations in the region” (2004: 563).

To elaborate a bit more, Håkansson argues that extermination of elephant populations due to hunting for ivory would have triggered significant changes to the local vegetation pattern, which in turn would have constrained the expansion of pastoral activities (2004). The massive loss of elephants, estimated to have been between 6,000 and 12,000 individuals per annum during the peak period of the trade (e.g., Thorbahn 1979; Milner-Gulland and Beddington 1993) stimulated rapid recovery of woody vegetation, which in turn attracted tsetse flies - the

disease vector for sleeping sickness and trypanosomiasis - and thereby discouraged pastoral activities (Håkansson 2004: 573).

Håkansson notes also that in areas where pastoralism was possible, the ivory trade maintained and spread pastoralism as a popular livelihood because groups did not have to rely on cultivation or hunting, but could instead procure cattle by trading ivory and cattle for food and imported trade goods (2004: 577). Furthermore, he suggests that during the height of the caravan trade between the 1840s and 1890s, new settlements were established “along the perimeters of the hinterlands as outposts to facilitate trade and shipping” (*ibid.*: 563). These hinterland communities, he argues, also intensified agricultural activities in order to produce surplus food for sale to the passing caravans, thereby invading marginal lands – leading to deterioration of soils and vegetation (*ibid.*: 584).

While the arguments by Håkansson are persuasive, they lack details concerning precisely where elephants were hunted at particular times during the nineteenth century (for a recently completed study on this aspect see Coutu 2011); which communities were actively involved in the trade; the subsistence base of the communities located along the main caravan routes. These issues, and a range of other factors concerning prevailing environmental and socio-economic conditions, make some of Håkansson’s claims difficult to assess (Lane 2010). Moreover, it is clear that while historical studies have tapped the extensive body of archival sources and oral histories, the level of detail and specific relevance of the available information becomes far less reliable before c. 1850 AD, and it is here that archaeological work can make an important contribution, by providing additional empirical information and revealing the extent to which the material lives of local populations were actually transformed as a result of the expansion of the trade in ivory.

As a contribution to this ongoing debate, this archaeological study focused on aspects of the subsistence strategies of local communities along one of the main caravan trade routes – namely that which passed through the Pangani River Basin, and often referred to as the ‘Northern Route’ (Beachey 1967). The overall aim was to ascertain whether their food production strategies were affected by the expansion of the trade, by comparing data from three former caravan halts spanning the late eighteenth century to the early twentieth century: a period that encompasses the intensification of the caravan trade, the establishment of European colonial rule in East Africa, and the foundation of a railway system that in many

places superseded the need for large pedestrian caravans. More specifically, the study aimed to evaluate some of the hypotheses forwarded by historians of the region concerning changes in the production strategies adopted by local people, and thus also questions whether the expansion of the caravan trade triggered subsistence stress among the local populace in areas crossed by the trade routes.

1.2 Statement of the Problem

There has been a long history of trade contacts and exchange between the East African coastal settlements and those of the interior, stretching far back over at least two thousand years (Chami 1994, 1999a, 2003; Horton 1996; Horton and Middleton 2000). Although the scale and direction of this trade during the height of the Swahili coastal states has received most attention, there is a considerable scope for the investigation of the impacts of long-distance trade on communities in the interior during other periods of history. For example, the expansion of the trade in ivory, slaves and other commodities from the late eighteenth century reflects closer economic integration between the region and the outside world (particularly Europe, North America and Asia), and has been considered as a primary factor for the development of intensive agriculture in areas crossed by trade routes (Koponen 1988; Giblin 1992; Kjekshus 1996; Håkansson 2004; Prestholdt 2004). In these areas markets also developed and acted as points of interaction between farmers, pastoralists, traders and craft specialists (*ibid.*). In contrast to the amount of research on the Swahili era coastal sites, archaeological study of these later phases of trade between the coast and interior have been limited, but the few studies that have been conducted (e.g., Lane 1993, 2011; Kusimba 2004; Walz 2005, 2010; Wynne-Jones and Croucher 2006) have highlighted the enormous potential for additional research.

One topic that would warrant archaeological investigation is the possible impacts of the caravan trade on the food production systems and agronomies of the communities situated along the main trade routes. Since the caravans had to feed themselves and periodically replenish their food stocks, provisions were typically obtained from local communities situated along the trade routes (see, for example, Beidelman 1960; Beachey 1967; Sheriff 1987; Koponen 1988; Kimambo 1991, 1996; Håkansson 2004; Rockel 2006a, and primary historical sources therein). However, little is known about how local agronomies were affected by this process, and the topic is still widely debated. In an effort to begin to address this, and to demonstrate the potential contributions of archaeology to this topic, this study investigated

evidence relating to animal economies (since these are archaeologically accessible) at three former caravan halts in the Lower Pangani River Basin, North-eastern Tanzania, and in so doing aimed to document whether these were affected by the expansion of the caravan trade during the nineteenth century.

1.3 Objectives of the Study

The main objective of this study was therefore to examine aspects of the animal economies practiced by local communities inhabiting the Lower Pangani River Basin, and to collate sufficient contextual information to discern whether any changes to these economies could be plausibly linked to the expansion of the caravan trade in the nineteenth century. Specific objectives of the study were:

- To recover archaeological evidence from a sample of settlements known to have been involved in the nineteenth-century caravan trade, and particularly sites with good faunal preservation;
- To analyse the faunal remains from these sites, compile taxonomic lists of animal species consumed, and examine evidence for consumption, butchery practices, and the taphonomic factors that may have affected the faunal assemblages;
- To determine herd management strategies and culling practices operated at these sites in order to detect evidence (if any) indicative of intentional surplus production;
- To compare and contrast the material evidence recovered from the sampled sites and place this material in a broader geographical and chronological context.

1.4 Research Approach

This is an historical archaeology study that relies on multiple sources of information, including written and cartographic nineteenth-century European sources, oral sources (notably traditions and histories), and archaeological data encompassing artefactual, structural, stratigraphic and faunal remains, in order to reconstruct the nineteenth-century subsistence economies of a small sample of communities along the northern caravan route. Accordingly, the study employed existing archaeological records and historical accounts to help locate settlements that were believed to have had *direct* contact with trade caravans, because in such areas changes in trading intensity is likely to have had a more immediate effect, making it slightly easier to discern where changes were driven by trade rather than by broader political, economic or

environmental factors. Following preliminary foot surveys guided by historical sources and local informants, detailed excavations were undertaken at three principal locations, permitting an assessment of the nature, date and extent of structural, artefactual and ecofactual data. Artefactual evidence recovered from these settlements was cross-referenced and analysed, whilst oral traditions and histories collected in the study area were employed to aid in interpreting cultural materials and to help explain local practices. However, the study also includes a specific focus on zooarchaeological data in order to address a key sub-hypothesis: did increased involvement with the caravan trade lead to changes in the management of livestock or to changes in meat consumption patterns. Do these changes, for example, reflect increased local wealth, or indicate attempts to produce tradable surpluses of meat or dairy products? The research approach could therefore be described historical archaeology or as historical ecology, since the zooarchaeological component both informs, and is informed by, a range of archaeological, historical and ethnographic data.

1.5 Theoretical Framework

This study formed part of a larger project entitled the *Historical Ecologies of East African Landscapes* (HEEAL), funded by a Marie Curie Excellence Grant awarded by the European Union to the project director Dr Paul Lane, University of York (Lane 2010). For this reason, many of the concepts of *Historical Ecology* were used to provide the overarching theoretical framework for this study. As an interdisciplinary paradigm, historical ecology combines archaeological, palaeoecological, and historical methods to help advance an understanding of modern landscape in terms of their past (McGovern *et al.* 2007). Since it draws on the strengths of social and life sciences, historical ecology has clear advantages for integrating and analysing both the human historical and ecological factors that have shaped a landscape (Balée 2006). For a study such as this, it is vital therefore to consider the historical accounts from humans, the biological accounts from faunas, and the artefacts of the trade itself in order to explore continuities and changes in nineteenth-century subsistence economies against the context of caravan trade expansion.

1.5.1 Historical Ecology: concepts and relevance

The current study operates within the framework of historical ecology in an effort to understand how contemporary landscapes in north-eastern Tanzania were shaped by the changing human-environment interactions before and after the expansion of the caravan trade in the nineteenth century. Historical ecology is concerned with the interactions through time

between societies and environments, and the consequences of these interactions for understanding the formation of contemporary and past cultures, habitats and landscapes (Crumley 1994; Balée 1998). In other words, historical ecologists are concerned with how contemporary landscapes came into being and were shaped by changing human environment interactions (e.g., Johnson *et al.* 2005), with a view to elucidating the nature of past landscapes.

Lane (2010: 299) states that, “the concept of landscape historical ecology has been adopted by many researchers across the spectrum of earth sciences, social sciences and humanities in recent decades as a means of offering both conceptual and practical tools for joining very different kinds of information into an assessment of human-environment interaction”. He further adds that “historical ecologists gather contemporary and antecedent environmental and cultural evidence ... in order to identify key variables and their relationships to one another in a manner that explicitly includes human agency, memory, dwelling and landscape aesthetics, while allowing assessment of how current practices and circumstances are likely to be impacted by changes” (*ibid.*: 303). Regardless of disciplinary background, a historical ecologist considers the landscape and the unique characteristics of place as their units of analysis, rather than ecosystems or some social or cultural unit (Balée 2006: 77).

Lane (2010) observes that some aspects in historical ecology research have their roots in the older anthropological tradition of cultural ecology, with its focus on human adaptation to the environment. He clarifies that this perspective was initially articulated by Julian Steward (1955) and subsequently adopted by human geographers. However, Lane (2010) notes an overlap with the field of political ecology which emphasises the political and economic dimensions to environmental change, ecosystem and natural resources management, and conservation policies. The emphasis placed by political ecologists on the need to examine the power and knowledge structures that inform and shape human-environment interactions also reverberates with some of the concerns within historical ecology (Bryant 1998). Equally, there are some similarities with landscape ecology, as the latter focuses on the spatial patterns of ecological processes such as heterogeneity, scale, and spatial-temporal relations (Naveh and Lieberman 1984; Forman 1995).

Many recent historical ecology studies have drawn on, and benefited from the longer established traditions of environmental and landscape approaches in archaeology, environmental history, historical geography, and even from conservation biology (Balée 2006).

Equally, this type of research is increasingly playing an important role in understanding habitat composition, natural resource distributions and biodiversity patterns (e.g., Swetnam *et al.* 1999; Motzkin and Foster 2002; Eberhardt *et al.* 2003), thereby informing on various issues concerning wildlife and nature conservation, as well as discussions about the restoration of particular habitats and landscape planning (Marcucci 2000).

A fundamental tenet of historical ecology shared by the practitioners of this field is that humans have had an effect on virtually all areas of the globe, from the far Arctic and Antarctic to the tropical rainforest, high mountains and the deep oceans, and not just the more obviously modified landscapes of human settlement, agriculture and industry (Balée 1998). Three other principles follow this: a) the nature, scale and consequences of human modification of different landscapes and seascapes has varied widely over space and time; b) these human interventions need to be considered from a morally neutral perspective, rather than assumed on *a priori* grounds to have been either inherently good or bad; and c) to understand human-environment relationships a holistic approach that treats these as a ‘total phenomenon’ is necessary (Balée 1998: 13-29; Balée 2006: 76).

In tracing the role of human agency in shaping the landscape, there is a need to consider the contributions of macro-economic and political processes. Additionally, because the landscapes are shaped by differential relationships of power and authority, there can be no singular understanding of landscape; instead, multiple and sometimes contradictory perspectives emerge (Balée and Erickson 2006). Thus, while identifying and understanding the specific factors that may have shaped the historical trajectories of a landscape in terms of its human uses and biophysical characteristics, assessing how current practices and circumstances are likely to impact and shape future changes, whether anthropogenic or natural, is equally important (*ibid.*).

In a recent paper, Lane (2010) calls for an historical ecology approach in eastern Africa to focus more on the nineteenth century. This is because many of the events that took place during this period are widely regarded as transformative for the great majority of East African societies, and that many of the effects of these transformations, whether on environments or social groups and economies, still resonate today (*ibid.*: 301). Lane is of the view that a clear understanding of these events in terms of their repercussion, perception and presentation of the agents involved has direct potential benefit for contemporary societies (*ibid.*).

As already highlighted, the nineteenth century witnessed intensive extraction of key raw materials, notably elephant ivory, following the incorporation of pre-existing Indian Ocean and interior trade and exchange networks into the Atlantic world system. In particular, the current project builds on some of the arguments formulated by Thomas Håkansson in his several publications (e.g., 2004, 2007, and 2008) that see environmental problems in eastern Africa as only understandable in reference to how the ecology of human resource use was shaped by wider economic networks and interrelationships on an intercontinental scale. It has already been argued that the integration of East Africa into the capitalist economy in the nineteenth century triggered environmental problems (e.g., Håkansson 2004) through increased food production and massive investment in landesque capital, as well as by the pursuit of short-term strategies of extraction and corresponding degradation of the productive capacity of the land (Håkansson 2004; Håkansson and Widgren 2008).

Although Håkansson has made a strong case linking the expansion of the caravan trade in the nineteenth century and an increased cultivation for food production to meet the caravan demands, he mentions nothing about how animal economies would equally have been transformed or altered to meet the same demand. Therefore, this study uses zooarchaeological techniques to explore the relationships between the expansion of the nineteenth-century caravan trade and the transformation of animal economies in areas crossed by caravan trade routes. In this context, the hypothesised ‘transformation’ may have involved, among other things, the adoption of herd management strategies and culling practices of domestic stock to meet the growing demand for food provisioning arising from larger and more frequent trade caravans.

Additionally, changing patterns over space and time of the utilisation of wild components in the diet might be an indicator that increased demand for meat could not be met – or could not be met quickly or sustainably – by slaughtering animals within existing herds. Equally, changes in species composition may reflect subsistence stress, demonstrating the importance of cross-referencing zooarchaeological data with other evidence of social, economic and environmental change drawn from elsewhere in the historical and archaeological record. It is therefore worth briefly introducing the ways in which zooarchaeological data has been employed to assess changes in subsistence strategies.

1.5.2 Zooarchaeological Indicators of Subsistence Strategies

Archaeologists have long used data indicating the age at which domesticated animals died to provide insights into herd management strategies (Marshall 1990; Reid 1996). Indeed, studies among contemporary pastoralists and agro-pastoralists (e.g., Bishop 1974; Doran *et al.* 1979; Barret 1991) have laid the foundation for interpreting archaeological fauna (for which see Chapter 7 below). Reid (1996: 46), for example, argues that if the principal concern of herd management is for growth (i.e. increasing the herd size), cows are allowed to survive until the end of their reproductive life, whilst all but a few bulls are slaughtered young in order to reduce the risks of bulls competing for food and fighting over access to females; a situation that can cause stress to the cows and offspring (*ibid.*). Thus, under this schema, zooarchaeological assemblages are likely to be dominated by faunal remains displaying the traits of older animals such as worn teeth and fused long bone epiphyses (the latter an indication of age because when the animal has reached full adult size the long bones fuse together).

Similarly, if herd management is for meat production, most cattle, and bulls in particular, are slaughtered just after they have attained their full meat-bearing age (Dahl and Hjort 1976; Meadow and White 1979; Reid 1996). Such practices would therefore be reflected in faunal assemblages by the presence of a range of animal age classes as evidenced by the presence of fused and unfused long bones, as well as by dental material displaying various stages of wear. However, Reid (1996: 52) is of the view that the stages at which bulls are eliminated from herds depend on three main conditions. The first condition is the importance of meat in the diet of the cattle keepers. Here it means that if the herd is being managed primarily for meat production most bulls will be allowed to approach their full meat bearing potential before they are slaughtered. The second condition concerns the ability of the cattle-keeping settlement to consume or advantageously trade meat resources. With regard to this second condition, Reid argues that there is little point in allowing an animal to survive beyond the optimum size if the settlement is small and thus cannot utilise the full meat weight from the animals. The third condition relates to ecological circumstances prevalent at a particular place or time. Reid argues that good access to food and water might make selective culling unnecessary while inadequacy of these might impose an uncontrolled culling of the cattle.

However, in addition to these three factors faunal analysts also need to be aware of other socio-economic, cultural and environmental factors that may complicate the interpretations

outlined above (*ibid.*) such as sumptuary laws or taboos on meat consumption; a commonly cited east African example of which being that several pastoralist groups, notably the Maasai, configure wealth in terms of cattle and hence seldom slaughter large stock.

For the wild fauna, zooarchaeologists have been guided by models derived from *Foraging Theory* to infer changes in subsistence strategies over time and space; this being indicated by changes in prey-abundance indices in the faunal assemblages (e.g., Coddington *et al.* 2010; Zeder, in press). The Prey Choice Model, for example, assumes that hunters will preferentially exploit the largest preys first because these taxa are the ‘most valuable’, and further holds that if valuable preys decrease in availability, foragers will be prompted to target progressively more kinds of ‘less valuable’ (generally smaller) preys in order to maintain a constant level of nutrition (Broughton 1994:501). Thus, Lyman (2003) suggests that the ratio of large to small preys [in the faunal assemblage] will fluctuate over time: decreasing as large preys become less available relative to small preys, and increasing if large preys become more available relative to small preys. However, Broughton (1994: 502) is cautious of the Prey Choice Model, as he argues that hunters may take preys according to frequency of encounter and not necessarily in order of perceived resource value, thus producing faunal assemblages dominated by animals they encounter most frequently. Indeed, this is exactly how Optimal Foraging Model predicts in cases of low frequency of favoured preys.

These caveats aside, the most common means of determining preys rank archaeologically is by body size (Bayham 1979). Theoretically, therefore, changes in the relative sizes of hunted animal species encountered in archaeological sequences can lead to inferences regarding broader economic or environmental conditions: a change from larger to smaller species might therefore be regarded as evidence that higher ranked resources were being encountered less often, thus indicating subsistence stress.

Assuming an absence of sumptuary laws and dietary taboos, therefore, faunal assemblages which have a high quantity of large prey taxa represent a higher level of ‘foraging efficiency’, and thus suggest a relatively plentiful environment when compared to the assemblages with a high quantity of small prey taxa (Broughton 1994:503). Borrowing concepts derived from the ‘Resource Intensification Model’, this is the basic premise for testing ‘resource depression’ in a given zooarchaeological sequence; resource intensification in this formulation being described

as a process by which the economic productivity of a unit of land is increased at the expense of an overall decrease in 'foraging efficiency' (Broughton 1994: 501).

These and other indicators of changes to resource management strategies are thus extremely relevant to the current study, and to historical ecology more generally, because they have the potential to show how a change in the regional trade economy could have a profound effect on the composition of domestic herds or the abundance of local game. Indeed, some indicators of resource stress within the zooarchaeological record might apply equally to both domestic and hunted animals, such as the suggestion that increasing frequencies of long bone flakes reflect a need to maximise nutrients by extracting marrow, perhaps as a result of diminishing herds or of low encounter rates by hunters (e.g., Klein 1984; Burger *et al.* 2005; Marufu 2012). Since the economies under discussion here evidently consumed both hunted and domestic animals, arguments of this kind are potentially highly significant and will thus be explored more fully in Chapter 7 below.

1.6 Expectations of the Study and Test Implications

This study hypothesised that local systems of crop and animal production in areas crossed by the main caravan trade routes would have been transformed due to the expansion of long distance trade in the nineteenth century. Historical studies (e.g., Feierman 1974; Sheriff 1987; Koponen 1988; Kimambo 1991, 1996; Glassman 1995; Rockel 2006a) show that communities in areas crossed by trade routes in the Lower Pangani River Basin were attracted by this trade and became suppliers of basic provisions to the caravans. In this commercial intercourse, locals exchanged mainly foods (i.e. crops and animals) for exotic goods such as beads, cloth, guns, and metal wire, imported into the region via coastal towns such as Zanzibar, Pangani and Bagamoyo. Other locally produced craft goods, such as iron tools and ceramics are also believed to have circulated between different ethnic groups, with exchange often taking place at local markets strategically positioned near or between local polities. In an endeavour to participate in the long distance trade with caravan traders, local communities may thus have intensified their agricultural production in order to generate a surplus for trading purposes.

It follows from this hypothesis, therefore, that the production of tradable surpluses may have been accomplished through the adoption (or internal development) of new herd management and farming techniques. The study also hypothesised that these new forms of production strategies would have triggered changes in land use and settlement patterns oriented towards a

more market-driven economy. Given the assumption that the expansion of the caravan trade had an impact on the diets and levels of nutrition among local populations, such changes would have left physical traces in the archaeological record, such as shifts in the exploitation of different animal species, and changing ratios of wild to domestic animals in the diet. Accordingly, the archaeological work conducted as part of this project sought to provide a range of spatial and temporal datasets suitable for testing these possible scenarios. More specifically, the archaeological data sought to unravel the following:

- i. Evidence of exotic material culture such as imported beads, ceramics, glass, brass wire, gun-flints, and possibly cloth. The variations in the density, quality and quantity of such materials would have been an indicator of the extent of the participation of local communities in the caravan trade. With this in mind, one would hypothesize that settlements which are named in the historical sources as caravan trading stations might have increasingly higher densities and a wider range of imported goods over time as their involvement in the trade intensified.
- ii. Changing patterns in animal production and exploitation. For instance, the relative abundance of various animal resources (both domestic and wild) retrieved from the archaeological deposits and their changing composition over time, or between sites, could provide information about intentional surplus production and/or changes in consumption patterns. Studies of the mortality profiles of livestock were thus a useful way of providing an indication of production strategies. Furthermore, determining the consumption status of animals at the sites selected for study could enlighten us about whether these animals were primarily herded at these settlements or whether they were acquired from other pastoral communities. Collectively, these and related trends in wild species exploitation (especially shifts in foraging) can also provide an indication of local diets and, in an approximate way, prevailing levels of nutrition (although the latter can be more effectively examined through bioarchaeological studies of human skeletal remains).
- iii. Relative and absolute dates from different sites along and adjacent to the selected caravan routes were sought. The dating of sites was crucial for arguments regarding the antiquity of the studied settlements, and was central to determining when the inflow of exotic material culture into the study area began. The dating strategy thus relied on a variety of approaches. Most important were references to the individual

sites in published and archival sources compiled in the nineteenth century. These were supplemented by relative dates extrapolated by studying the evolution of material culture, such as local pottery in the study area, and from the stylistic and typological dating of European imports – mainly glass trade beads. The radiocarbon method was used to date a few carefully selected charcoal samples, in an effort to provide further absolute dates for particular archaeological contexts.

- iv. Changes in settlement locations, layout and/or building components could be indicators of the influences arising from an engagement in caravan trade related activities. For example, the historical sources suggest that there was intensification in raiding and warfare resulting from the growth of the caravan trade in many areas of East Africa, especially where the routes crossed. It was possible, therefore, to hypothesize that this could be reflected archaeologically in the form of the introduction of defensive structures (e.g., wooden palisades, earthen bank and ditches, stone walling), the presence of (or an increase in) weaponry, especially imported types such as flintlock muskets; and even changes in settlement location to more defensible places (e.g., forests, islands and cliff-tops). Other changes in the layout, location and/or structures might relate more to trading activities, such as the creation of formal market places, the expansion or addition of storage facilities and the movement of settlements closer to the routes - as a strategy developed by local people to take advantage of arising trade opportunities.

1.7 Selection of the Study Area

This study was conducted on material recovered from three abandoned island settlements namely Ngombezi, Old Korogwe and Kwa Sigi. These are all located on the Pangani River in Korogwe District, North-eastern Tanzania (Chapter 3). There were two key reasons for selecting this area for study. First, the Pangani River Basin was one of major research areas already identified as having potential for addressing the goals of the HEEAL project, of which this study formed a part. Second, although limited, previous archaeological research by Lane (1992, 1993), had already located at least one site, Ngombezi, that seemed likely from surface evidence to have well preserved faunal remains and deep archaeological stratigraphy, thus making it a suitable place to at least begin the project. The site is also mentioned briefly in some nineteenth century sources as having served as a caravan halt (see Chapter 3), and these

same sources indicate the presence of other caravan halts in the general vicinity, thus raising the possibility that further archaeological survey might also relocate these.

1.8 Dissertation Organisation

Chapter 2 reviews the available literature relating to the nineteenth century caravan trade, and discusses key concepts and theoretical issues relevant to informing this study. The chapter begins by outlining the theoretical dimensions of the research by defining the term historical archaeology, discussing the origin and practices of this sub-discipline, and illustrating research trends in historical archaeology across the world. It will be shown in Chapter 2 that the practice of what is called historical archaeology in Africa (other than the southern tip of the continent) is a recent development and the relevance of this concept in Africa has shortcomings, especially with regard to chronological problems in its application and the usage of the term when discussing the archaeology of societies whose history is kept orally and not in texts.

The chapter also reviews current knowledge of the development of trade and contacts between East Africa and other parts of the world over approximately the last two thousand years. However, particular attention is directed to debates concerning the consequences of the nineteenth-century caravan trade in East Africa in order to highlight that although this represented the most recent phase of these contacts and is better documented in written and oral sources, many gaps in these records remain. Some of these could be filled by appropriate archaeological research, as is attempted here. The chapter goes on to discuss the potential contributions that can be made by zooarchaeology in historical ecology studies; and finally, a summary of the chapter follows.

Chapter 3 describes the characteristics of the study area as a whole. First, it defines the location and geographical boundaries of the Pangani River Basin in general, as well as the location and administrative boundaries of the Korogwe District where the three study sites of Ngombezi, Old Korogwe and Kwa Sigi, are found. The chapter then details the district's geographic characteristics such as physical resources like drainage systems, vegetation, geology and soil, as well as aspects of current demography, economic activities and resources utilisation. The chapter also reviews previous archaeological research in the study area and wider region, limiting itself to those which are most relevant to the current study. The final section of the

chapter summarises nineteenth-century accounts of the study area on various aspects related to the broader topic under study.

Chapter 4 describes the field methods used and the results of this field work. The stratigraphy, features, structural evidence, and cultural materials obtained from each excavation unit and site, are described and compared. Oral traditions and histories collected during the fieldwork are also briefly introduced in this chapter. Dating evidence relating to the sites are also presented and interpreted. Generally, it is demonstrated in this chapter that the material evidence retrieved from all three sites is of the same general type and date, although there are variations between the sites in the densities of material recovered.

Understandings about the community of people who occupied the island settlements on the Pangani River and the level of their involvement in the nineteenth-century caravan trade requires that inferences be made from the artefactual evidence collected from the study sites. Consequently, Chapter 5 presents the analysis of all artefactual evidence recovered from the excavations. The main categories discussed are the ceramics, the local and imported beads, and various miscellaneous artefact types that all occurred in low densities such as cowry shells, metal objects, worked bones and clay pipes. This material is also placed in a broader local and regional comparative perspective. It is shown in Chapter 5 that locally produced ceramics dominated the pottery assemblage, while a variety of glass beads form the bulk of the imported trade items. The chapter ends with a short discussion of the implications of these findings, which is further developed in Chapter 7.

As a zooarchaeological study, the analysis and interpretation of the large assemblages of faunal remains recovered from the three excavated sites formed the primary focus of this study. These data were very important for assessing whether the expansion of the nineteenth-century caravan trade transformed animal economies at these sites. Chapter 6, therefore, presents the results of the faunal analysis, beginning with the general compositions of the faunal assemblages and their distributions as well as taxonomic representations for each site. Particular attention is given to the identified domestic fauna from which aspects such as taxonomic composition, age profiles and body parts representation (the last two for cattle and sheep/goat) are unveiled. Likewise, the taxonomic composition of the wild species is also presented in an effort to assess their dietary contribution to the communities that once

occupied the sites of Ngombezi, Old Korogwe and Kwa Sigi. The chapter ends with a discussion of taphonomic considerations and a summary of the main findings.

The final chapter of this thesis, Chapter 7, reviews the data and results presented in Chapters 4, 5, and 6, and also offers the main conclusions reached by this study. The chapter begins by revisiting the practice of the historical archaeology at the Lower Pangani River Basin experienced by this study. Second, the discussion focuses on the archaeological evidence from the studied settlements that is indicative of the nature of their involvement in the nineteenth-century caravan trade. The third section turns to consider the faunal evidence, and focuses on the range of species consumed and the inferences that can be drawn from this material regarding the relative importance of wild to domestic species, and their overall contribution to local diets. Possible reasons for the high frequency of some animal species compared to others are also discussed with reference to the results from similar zooarchaeological studies undertaken elsewhere in East Africa. The fourth section of the chapter discusses issues pertaining to herd management strategies and culling practices operated by the Waruvu inhabitants of the studied island settlements. This is followed by an overall summary and conclusions in the fifth section. Finally, the limitations of the study and proposed areas for future research work are outlined in the final section.

CHAPTER 2

CONCEPTUAL AND SUBSTANTIVE FRAMEWORKS

2.1 Introduction

This chapter presents a review of literature on various topics pertinent to this study. It begins with a review of different perspectives as to what constitutes 'historical archaeology' and its sources. The section aims to illustrate, using case studies, how themes in historical archaeology have changed over time and within different academic traditions since the inception of this sub-discipline in North America, and its later application in other parts of the world. The section ends with a summary of the direction of the current study within the framework of historical archaeology.

Thereafter the chapter reviews trade contacts between East Africa and the outside world to demonstrate the antiquity of these connections. Four phases of such trade contacts are briefly presented, covering the pre-Islamic, Islamic, and Portuguese eras, and the period leading up to the nineteenth century. Generally, it is shown that the export of ivory, slaves and other products from East Africa, and the importation of luxury goods such as glass beads, ceramics, glass ware and metal artefacts, has a very long history throughout these periods, commencing at least as early as the last few centuries BC.

In section three, the nineteenth century caravan trade of East Africa is specifically explored. Since this is a very broad topic, a sample of issues are selected and presented, including: key players in the trade; sources of ivory; the organisation of the trade; local people's consumption patterns; and possible consequences of the trade itself. Particular attention is given to discussing the consequences of the expansion of the caravan trade in the nineteenth century since it is from the alleged consequences that the current research problem is derived. The fourth section sets to demonstrate the relevance of zooarchaeology in historical ecology studies with reference to selected case studies. The last section entails a general summary of key issues presented in the chapter.

2.2 Historical Archaeology: Definitions and Contrasting Approaches

2.2.1 Conceptual Issues

Historical archaeology emerged as a distinct sub-discipline in North America in the mid-twentieth century (Deetz 1977; Orser 1996). Initially, historical archaeology focused primarily on the study of the archaeological remains of buildings, artefacts and settlements associated with European colonisation, for which period documentary sources were available (Lane 2007: 1). Since its inception, a key feature in the practice of historical archaeology has been the attempt to marry written sources with material traces of human activities, and critically assess these against one another (*ibid.*). However, as the discipline continued to grow and expand geographically, there has been a sense of dissatisfaction amongst scholars regarding definitions and subject matter, as well as with some of the methods and practices of historical archaeology, especially when working outside North America. In due regard, several definitions and perceptions of historical archaeology have been presented, reviewed and refined: a situation that prompted Hall and Silliman to argue that “historical archaeology means different things to different people” (2006: 1).

Schuyler (1970: 84) offered one of the earliest definitions of historical archaeology. This was quite a restricted definition, limiting the term historical archaeology to the study of historical sites, which he defined as the material manifestations of the expansion of European culture into the non-European world, starting in the fifteenth century and ending with industrialisation or the present, depending on local conditions. In contrast, Deetz (1977: 5, 1991: 1) viewed historical archaeology as the archaeology of the global spread of European societies since the fifteenth century, and their subsequent impact on indigenous people in all parts of the world. He clearly specifies that historical archaeology studies the time periods and events for which written sources are available, and thus, societies that have developed a literate tradition (*ibid.*).

Other scholars (e.g., Deagan 1991; Hall 1993) have maintained this attention on European expansion and exploration from the fifteenth century onwards, but Orser (1996: 27) has built on this, arguing that while the concept should refer to events and processes beginning around 1492 (when Columbus reached the Americas), the analytical focus is essentially on the emergence of the modern world – as manifest by such things as the rise of Eurocentrism, global colonialism and capitalism rather than on the presence of textual sources or the arrival of Europeans.

It is worth mentioning that the outlined definitions have attracted several scholarly reviews (with reference to Africa e.g., Reid and Lane 2004; Pikirayi 2006; Schmidt 2006; Connah 2007) that have highlighted some of the flaws that need to be addressed, especially if the concept of historical archaeology is to be adopted and function usefully in non-Western environments. One of the most commonly highlighted weaknesses of these definitions is the presupposed main theme of focus in historical archaeology studies: the spread of European culture, practices and peoples to other parts of the world (Kinahan 2000; Reid and Lane 2004). In due regard, these definitions have been labelled 'Eurocentric' since they tend to exclude other research areas of significant interest to non-European communities (Schmidt 2006: 4). Consequently, researchers have often prioritised European sources and perspectives, thereby ignoring local responses to the spread of European colonialism (Kinahan 2000: 6; see also a similar discussion with reference to North America, e.g., Lightfoot *et al.* 1998; Silliman 2005).

These definitions have also been criticised from a methodological point of view, for considering the presence of written records as central to the practice of historical archaeology. Such a perception implies an absence of historical processes and events in the non-Western/non-literate world prior to the advent of a literary tradition (Connah 2007). This would rule out extended periods of the past as it was typically the case for much of sub-Saharan Africa, as in many other parts of the world, that literacy appeared relatively recently (Reid and Lane 2004: 7). The definitions initially developed by North American scholars such as Deetz and Schuyler also fail to recognise the existence of other non-Western written texts that existed in other parts of the world well before European expansion. In Africa, for example, these written texts include ancient Egyptian, Arabic, Chinese and Amharic texts; all of which recorded the history of indigenous Africans, in some cases even before the advent of Western literacy (Reid and Lane 2004). In summary then, it can be said that non-European communities did not have to wait until the arrival of Western writing traditions to start making their history.

Reid and Lane (2004: 8) are of the view that although Orser's definition (the study of the emergence of the modern world) has been credited for being more flexible - in as much as it allows researchers to investigate various themes in a comparative perspective, especially with the onset of what Orser calls 'modernity' - his concept of modernity needs to be questioned. This is mainly because it is difficult to set a date for the start of modernity or identify

distinguishing features as ‘modern’ or ‘pre-modern’. Likewise, Schmidt (2006: 4) sees this definition as being just as Eurocentric as those of Deetz (1977) and Schuyler (1970).

Additionally, there is the problem of temporal limits emanating from these definitions, most of which see the date for historical archaeology as beginning only with the onset of European expansion into other parts of the world. This seems to imply that there cannot be anything termed as historical archaeology prior to the late fifteenth century (Reid and Lane 2004). On the contrary, as shall be shown in subsequent sections of this chapter, there have been several studies, particularly along the coast of East Africa (e.g., Chami 1994, 1998; Chami *et al.* 2004; Horton 1996), that have extended beyond this temporal boundary and can still be referred to as historical archaeology studies owing to their use of both textual and material sources (Robertshaw 2004).

Responding to these debates over definition, Lane (2007: 4) argues that regardless of which definition(s) is preferred, historical archaeology should seek to integrate and interrogate archaeological sources (such as artefactual, ecofactual, structural and architectural remains and their contextual, spatial and temporal associations and characteristics) with other any non-archaeological sources that can broadly be defined as ‘historical’; the latter of which includes various types of written texts and documents (such as formal histories; unpublished archival records; personal letters and newspaper accounts), pictorial and cartographic materials (such as drawings, maps, and photographs), different forms of orally-transmitted information (such as myths, oral traditions, praise songs, king lists, interview responses and personal memories) and information gleaned from historical linguistic analyses.

Some Africanist archaeologists (e.g., Pikirayi 1993, 2006; Wesler 1998; Reid and Lane 2004; Kinahan 2000; Schmidt 2006) thus find it more helpful to define historical archaeology on the basis of the methods used rather than the period and subject of study. This view was advanced by Pikirayi (1993: 36) who gave a working definition of the sub-discipline as: “the study of sites which can be interpreted with the aid of historical sources such as written documents, oral traditions and historically datable artefacts”. This implies that in historical archaeological studies, the material record tests the subjective, and always slanted written (or oral) record, to reveal changes within communities who have not necessarily been represented in recorded history (*ibid.*).

Pikirayi goes on to discuss historical sources that can be used in historical archaeology, and broadly categorises them into what he calls ‘external’ and ‘internal’ sources (2006: 230-32). He argues that external sources are those produced by “outsiders as direct observers, transcribers (for the case of Africa), and copiers of verbal accounts provided by various visitors to foreign lands” (*ibid.*). Thus, the published first hand accounts by Europeans in Africa since c. 1500 AD, onwards fall within this group of external sources. Internal sources include a range of historical sources produced by different African societies, such as “oral tradition and histories, myths and personal anecdotes transcribed by professional historians and anthropologists” (*ibid.*: 232).

Elsewhere, Wesler (1998) offered a similar synthesis, arguing that historical archaeology draws from two sources of data - archaeological and historical - the latter being literary or oral. According to Wesler, the defining factor of historical archaeology is the existence of two practically independent data sets, which may be compared, contrasted, and utilised as sources of hypotheses drawn from one and testable against the other. This allows for a more rounded view of societies under study, and for more rigorous testing of generalising formulations. Thus, Wesler proposes that “historical archaeology comprises the archaeology of literate societies, of societies observed by a literate society, and of societies that keep their historical consciousness by other means such as oral traditions” (*ibid.*:3).

In the light of these observations, the current study is designed within the Africanist perception of historical archaeology as outlined above, and has made use of both archaeological and historical data sets (the latter comprising documentary and oral sources), to explore the consequences of the expansion of the nineteenth-century caravan trade in East Africa on communities situated along one of the main caravan trade routes. The next section provides an overview of research trends in historical archaeology studies across the globe and their relevance to the current thesis.

2.2.2 Research Trends in Historical Archaeology

As already pointed out, the initial focus of historical archaeology studies was on the investigation of physical evidence through contemporary information, notably written documents. Initially, this was specifically in North America, and later in Australia and South Africa, where efforts were directed to preserving evidence of colonial traces such as buildings and other colonial sites (Little 2007: 25). This initial concern of historical archaeology may

have left a lasting mark on the nature of the sub-discipline, although the focus of studies and theoretical approaches used have continued to change slowly over a period of time (Kinahan 2000: 6), as the following brief survey aims to demonstrate.

In North America, where the sub-discipline was born, the main focus of studies in historical archaeology has been on artefacts and sites that have significant traces of European colonisation by countries such as Britain, Spain, France and Holland, over the last five hundred years (Deetz 1996: 6). The key feature of these studies was the interplay between colonial documents and material culture; with these documents heavily relied upon for locating and describing sites, as well as in interpreting archaeological finds related to colonial occupations (*ibid.*). An interesting example illustrating this point comes from an excavation at Yeardley and Martin's Hundred near Jamestown (Deetz 1996: 52), which uncovered the first English colonial settlements comprising several dwelling houses, a fortified compound, and defensive redoubts. Through the use of written documents, archaeologists were able to confirm that the outlined features were similar to those of English settlements in Ulster.

In the second half of the nineteenth century, historical archaeologists in North America extended their interest and started to deal with sites that were once occupied by political dignitaries, aiming at promoting them in order to encourage heritage tourism in these areas (Little 2007: 25). Extensive documentary research in archives served historical archaeologists in locating, restoring, preserving, interpreting and presenting the history of these elite places. This included the work to preserve George Washington's home in Virginia, the work undertaken by the Mount Vernon Ladies Association (*ibid.*), and excavations at the Standish house site where John Alden, Henry Davis Thoreau and Benjamin Franklin lived (Deetz 1996: 41).

The preservation movements in the United States grew dynamically, leading to several developments, including gazetting various archaeologically significant areas. Early examples included the acquisition in 1850 by the state of New York of Hasbrouck House in Newburgh, which had served as Washington's headquarters (the first ever historic property to be actively conserved by any state in the US), and the designation of his home at Mount Vernon (Virginia) as a Historic Site in 1858 (Murtagh 1988). By the end of the nineteenth century, historic Native American sites were also being accorded protection, a process begun by President Benjamin Harrison in 1892 with the scheduling of Casa Grande Ruins in Arizona (*ibid.*). A few years later, the first national Antiquities Act was passed in 1906, followed by the Historic Sites Act in

1935, and then the National Historic Preservation Act of 1966 (Little 2007: 26). These few examples from North America illustrate how the conceptualisation of the sub-discipline from the beginning influenced not only the subject matter, but also its practices, particularly in terms of methodology.

In Europe, archaeologists remained, according to Connah (2007: 37), largely “oblivious” to the concept of historical archaeology; the reason for this being partly due to the fact that they had already invented the opposite concept of ‘prehistory’ in the nineteenth century (Daniel 1963). Moreover, because historical archaeology was initially defined as the archaeology of European expansion into the non-European world, the concept lacked relevance in the European context, regardless of the fact that even European countries were also colonised many times (Connah 2007). Instead, following the demise of many industries (especially in Britain) from 1960s onwards, interest emerged in studying them; hence the field of ‘industrial archaeology’ was born (Hudson 1963). Due in part to inherent difficulties in the practice of industrial archaeology, British archaeologists developed a new sub-discipline known as ‘post-medieval archaeology’, although the same field is nowadays increasingly referred to as historical archaeology, the term in international usage (Connah 2007).

Like North American historical archaeology, post-medieval archaeology deals with the study of the material past over the last five hundred years, the time period that marks the defining moment of English history following the Battle of Bosworth in 1485 (Bennett 1985). Similar to the practice of historical archaeology in North America, post-medieval archaeologists, particularly in Britain, marry together the existing rich historical records and archaeological sources to study the effects of social and political changes over the last five hundred years (Courtney 2009). According to Connah, in the rest of Europe things were not much different; the Germans for instance, developed what they called ‘Neuzeit Archäologie’, literally meaning ‘the archaeology of modern times’ (2007: 37).

Connah argues that the concept and practice of historical archaeology was quickly adopted in Australia and New Zealand in a manner similar to Canada and South Africa because English speakers had expanded their colonisation of these areas over several centuries (2007:37). As in North America, the idea was the same: to study the impact of European expansions. The Society for Historical Archaeology was established in Australia in the 1970s, and in the early 1990s it was re-named the Australasian Society for Historical Archaeology in recognition that

Australians and New Zealanders had much in common to share in this field (*ibid.*). Consequently, the *Journal of Historical Archaeology* was first published in 1983 (Connah 1988: 2).

Historical archaeologists in Australia and New Zealand have been investigating the experience of the colonisers, and this stemmed in part from their fear of offending Aboriginal Australians (Connah 1988: 155). Consequently, research focused more on imported artefacts and colonial sites such as shipwrecks, buildings, mining and industrial sites, as well as the ways in which landscapes had altered due to colonial occupation within the past two hundred years (*ibid.*). Initial focus was on mainstream settler society; however, for the last few decades studies have emerged which explore the contribution of convicts to modern Australia (Connah 1988; Kinahan 2000). This has been prompted by the lack of documents describing this perspective, and also inspired by a wide range of material evidence which details convicts' activities (Connah 1988: 50-62).

Recently, research interests in Australia and New Zealand have expanded to include topics such as indigenous responses to European contact using a combination of sources such as material records, oral accounts and archives (Kinahan 2000: 8). Davison (1977) was one of the first to investigate a contact situation through her work at the Manga Manda settlement at Phillip Creek in the Northern Territory (cited in Connah 1988). In this particular research, the material records helped her to revise the assumption that traditional skills had been lost as a result of social dislocation. This is because artefacts obtained from excavation at Lake Condah Aboriginal Mission reflected the process of acculturation (Connah 1988: 156).

Kinahan (2000) notes that historical archaeology studies in Australia and New Zealand have recently diverged from a particularistic framework by releasing more general papers aimed at explaining culture change and social transformation. For example, Head and Fullagar (1997 cited in Kinahan 2000: 8) studied the contact between Aborigines and pastoral settlers in the Northern Territory, and especially examined rock art, stone tools, and use of plants and fire to isolate characters of social formation that are resilient or flexible to change. This study gained valuable insight into what is called 'the Aboriginal Australian world view' which explains characteristics of modern Aboriginal culture, and also provided perspectives on the region's prehistoric records (*ibid.*). Elsewhere, the Melbourne School in Australia has recently developed a new approach called 'narrative of places' in which the excavation results are presented in the form of an evocative narrative, based on the material remains (Karskens

1999). The emphasis under this approach has been to stress that historical archaeology must mesh the more particular to the general and the local to the global (*ibid.*).

Scholars have noted that historical archaeology is a better established sub-discipline in South Africa than on the rest of the continent (Schrire 1988; Hall 1993; Kinahan 2000; Reid and Lane 2004; Connah 2007). This is mainly because after the discipline became well established in North America and Australia, several research projects in the southern tip of Africa became more conscious of the potential for investigating what was already defined as a suitable subject of inquiry (Kinahan 2000: 9). This situation could also be due to the reason that the South African apartheid governments were happier to fund research on the archaeology of European settlers. The earlier occurrence of European colonisation of the southern tip of the continent commencing in the sixteenth century may explain why the sub-discipline gained its prominence, and has led to the launch of projects to investigate various aspects of colonial identity in the region, including remains of imported artefacts, colonial architecture and the layout of settlements (Hall 1993). This undertaking has been made possible through the use of colonial documents that had already been compiled since the colonial occupation for many of the relevant sites (Hall 1993, 2000; Lyon and Papadopolos 2002).

Historical archaeology gained its prominence in South Africa in the 1980s following the establishment of the Historical Archaeology Research Unit at the University of Cape Town. The research unit aimed to carry out rescue excavations in several parts of Cape Town in advance of various building projects (Hall 1993: 181). The wealth of documentary sources has helped archaeologists to locate sites and to complement material records in their research (Kinahan 2000: 9) These documentary sources include: maps, sketches, paintings, travellers' accounts, letters, journals, diaries, missionary and colonial government archives; business tax and probate records and trade directories (e.g., **Figure 2.1**), all of which were produced in the course of the exploration and subsequent colonisation of the region (*ibid.*).

Schrire's excavation at Oudepost I, with the aim of understanding the nature and impact of interaction at the 'frontier' (e.g., Schrire 1988; Schrire *et al.* 1993), has been regarded as the defining moment for the emergence of historical archaeology in South Africa (Connah n.d.). Historical records show that the site was established in 1669 by the Dutch East India Company (VOC), with the site serving as anchorage for ships sailing to and from the East Indies, and as a base for VOC personnel trading with the local Khoikhoi for fresh meat

(Schrire 1993). Excavations unearthed structures that revealed the architectural design and building alignments together with domestic refuse and artefacts similar to the ones indicated in the historical records (*ibid.*). According to Hall (1993: 184) this excavation contributed to understanding, among other things, the consignment of everyday objects from the port cities of the Netherlands to the company warehouses in the Cape (South Africa), and then onwards to the furthest reaches of the Dutch commercial enterprise (Schrire *et al.* 1993).

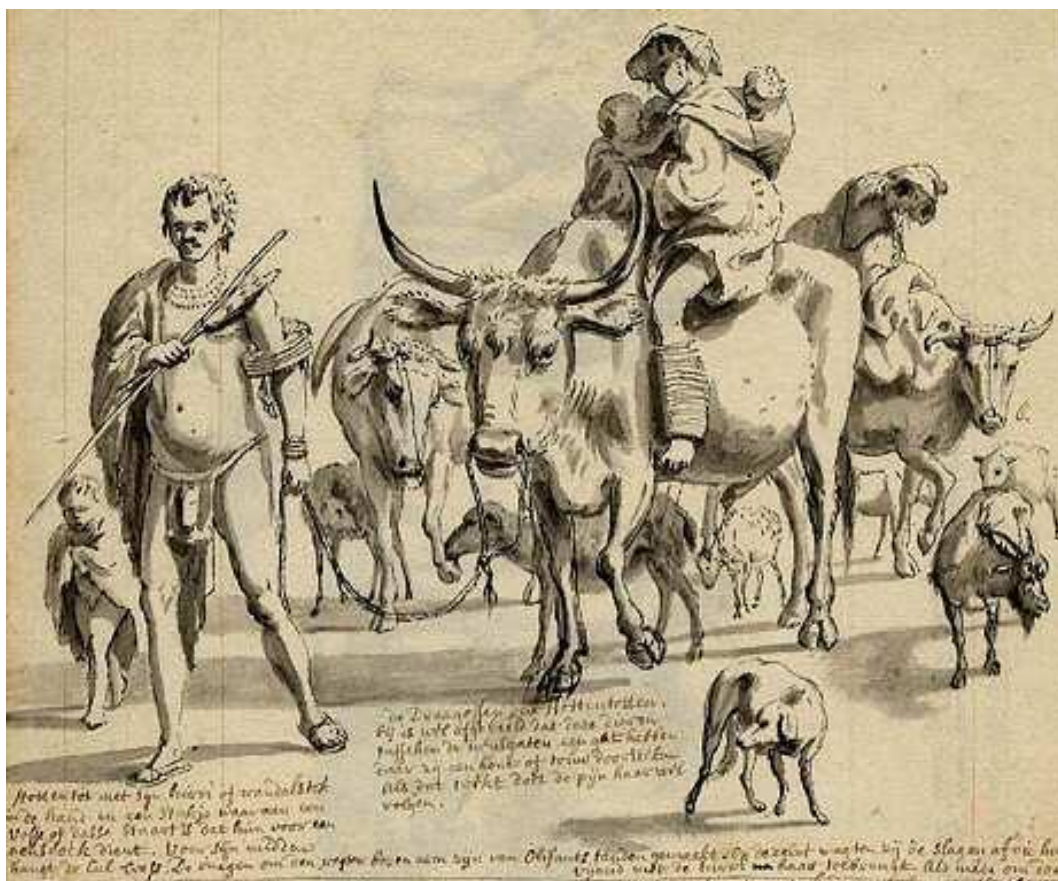


Figure 2.1: Khoi Khoi family on the move, southern Cape, late 17th or early 18th century, unknown Dutch artist (Source: Smith 1993: 19, Figure 24).

Contrary to documentary records showing that VOC ships and outposts were provisioned with domestic cattle and sheep, the excavation at Oudepost I revealed the presence of large numbers of wild faunal remains - suggesting that occupants of the outpost did not merely trade for meat with local Khoikhoi - were also actively engaged in hunting (Schrire *et al.* 1993). To Schrire, this suggests that the site occupants engaged were also invaders into the wild food base which served as a substitute food resource for the Khoikhoi and the mainstay of the local San hunter-gatherers (Schrire *et al.* 1993). This repeated action across the frontier zone led to the Khoikhoi becoming deposed, while some colonialists became pastoralists (*ibid.*).

In the rest of Africa, much of the work in African history and archaeology can be regarded as historical archaeology on the basis of sources and methods that have been traditionally used creatively (Kinahan 2002). Such practices can be traced back to the early twentieth century, long before historical archaeology became well established as a sub-discipline (Kinahan 2000: 8). For example, scholars interested in the Portuguese voyages of discovery made use of rich Portuguese documents together with archaeological techniques to search for the remains of stone pillars with crosses (*padroes*) that early Portuguese navigators left at various points on the African coasts to symbolise claims of sovereignty (Axelson 1956).

A detailed publication by Freeman-Grenville (1962) of the select documents relating to the East coast of Africa dating from the first century to the early nineteenth made the principal writings about the coast more accessible to archaeologists working in this region. However, James Kirkman and Neville Chittick were the first researchers in East Africa to introduce the term historical archaeology, with reference to their works on the coastal Islamic sites (Kirkman 1957; Chittick 1974). Their work, however, was similarly constrained by an over reliance on written historical documents in making interpretations and arriving at conclusions. Kirkman and Chittick also paid more attention to coastal monumental ruins such as forts, castles and major historical towns, rather than on the less obvious archaeological remains, thereby prioritising the sites that they assumed were associated with outsiders. Kirkman (1959) for example, associated the entire stone towns of the Swahili coast of East Africa with the Arab 'invaders' he believed once settled along the coast of East Africa. Likewise, Chittick's excavations at Kilwa (1974) and Manda (1984) relied heavily on the Kilwa chronicle to inform his research, and he continued to associate the origins of Swahili coastal complexities with Arab immigrants (Chittick 1974, 1984).

In Zimbabwe, Pikirayi's (2001) work on the origin and decline of southern Zambezian states was successful largely because various historical sources - both written and non-written - were carefully integrated. For example, he consulted the earliest written sources about the region as compiled by Muslim traders and Portuguese visitors, including sailing manuals (e.g., by Ibn Madjin 1475 -1489), accounts of Portuguese voyages and battles (1575 -1699), as well as several maps of the region (*ibid.*). All these documents were invaluable in writing the settlement history of his study area from the sixteenth century onwards. In addition, he consulted non-written sources such as oral traditions, verbal testimonies and reported statements; these proving invaluable in defining the genealogies of ruling families and in identifying the origins

of - and changes to - ruling dynastic groups. Traditional histories also helped in tracing patterns of past movements of people in the area, while local legends supplied information about features on the landscape, perceived cultural traits and customs, and political and social institutions (*ibid.*).

In West Africa, Insoll (2004) notes that until recently archaeological research of historic periods in the region has been driven by what he calls 'city-centric approaches', with the Arabic documents, particularly from North Africa, being heavily relied upon in making interpretations. Insoll cites an example about the alleged role of the Almoravids in the spread of Islam in West Africa. This historical model asserts that the movements of Almoravids were responsible for the conversion of the Ghana Empire to Islam in the mid-eleventh century. This argument was developed based on the Arabic documents, including the writings of Ibn Khaldun (AD 1406), who is said to have recorded the Almoravids conquering Ghana, imposing tribute, and converting many people to Islam (Insoll 2004: 168). This idea, however, has been refuted (e.g., Conrad and Fisher 1982, 1983) on the grounds that limited archaeological evidence is available to support the argument.

Vansina (1965) observed that as oral history developed as an academic discipline in Africa from the 1960s onwards, it became an integral and important tool in writing histories of African people (see for example, Feierman 1974; Beachey 1967). Consequently, archaeologists working in Africa (e.g., Schmidt 1978, 1983; Stahl 1994; Mapunda 1995; Reid *et al.* 1997; La Violette 2004) also adopted this source in a range of contexts. Oral information, for example, has assisted in the location and interpretation of important archaeological sites and materials (e.g., Mapunda 1995), as well as aiding in the understanding of potting techniques and functional categories (e.g., Lane 1991, 1992; Wynne-Jones and Mapunda 2008), and in explanations of iron production and the symbolism attached to it (e.g., Schmidt 1981; Mapunda 1995).

Working in the interlacustrine region in East Africa, Schmidt (1978) brought together archaeological methods and oral traditions to explain the development and flux of African Iron Age culture from its earliest beginnings to contemporary times in Buhaya, Tanzania. Through oral traditions, Schmidt explored several aspects of culture, ranging from the economic systems of iron working and agriculture, to mythology and local spirit mediums, in order to inform archaeological interpretations (*ibid.*). Indeed, he found that the Bahaya's

conceptualisations of the past related to the patterns and distribution of material remains left by Iron Age peoples during the last 2500 years. Furthermore, Haya oral traditions were a reliable source for locating sites and describing the patterned distribution of archaeological remains of iron smelting on the landscape (Schmidt 1978). Schmidt concludes that oral tradition, as a source in historical archaeology, is well suited to the study of sedentary communities that have displayed significant continuity in their settlements (*ibid.*).

Similarly, Mapunda (1995) has demonstrated the value of oral tradition and ethnography in his research on iron-smelting practices and symbolism in the southern highlands along the shore of Lake Tanganyika in Tanzania. The two sources played an invaluable role in identifying and locating smelting sites, as well as remains of bowl-furnaces (*Katukutu*) that are, in most cases, invisible on the ground.

More recently, the incorporation of oral traditions and ethnographic information in historical archaeology studies in Africa gone even further by helping to challenging some of the 'received wisdom', much of which originates in the colonial period, about the impacts of African subsistence strategies on the environment. The study by Lane and his colleagues on soil erosion in the Haubi basin, north central Tanzania, for example, aimed at delineating the link between soil erosion, iron smelting and human settlement in the area (Lane *et al.* 2001; see also Mapunda 2003; Lane 2009). Earlier colonial and some post-colonial narratives had pointed to local iron smelting practices in the region as the main cause of soil erosion, assuming that this practice involved the mass harvesting of fuel wood that led to deforestation (for a review of soil erosion in this area, see Christianson 1981). Contrary to this idea, oral traditions and ethnographic data collected by Mapunda, coupled with metallurgical analysis of iron smelting remains, revealed that the smelting technology practiced in the area was fuel efficient and was unlikely to be the primary cause of deforestation, since smelters used only three to four tree species of hardwoods for charcoal and these made up only a fraction of local forests that existed prior to soil erosion (2003).

In summary, then, case studies from across the globe show that in regions where European colonialism was experienced historical archaeology initially focussed on the investigation of material traces of European expansion and primarily employed colonial documentary evidence. This was the case particularly for North America, Australia and New Zealand, as well as in the southern tip of Africa. It has been shown too that in some regions, especially in Australia and

South Africa, the focus shifted slowly over time to include research topics that also cover indigenous societies, particularly in explaining the various ways in which these local communities responded to colonial expansion.

For the rest of Africa, two main features emerged in regard to the practice of historical archaeology. Initially, the focus was, again, in areas where material evidence such as built structures was visible - referred to as a 'city-centric approach' by Insoll (2004). However, contrary to the focus on the post-medieval period that characterised early historical archaeology elsewhere in the world, African historical archaeology often consulted older written sources such as Greco-Roman and Arab documents, and includes early exponents of the inclusion of oral sources in archaeological research. The current study thus aims to build on this tradition, and employed a range of documentary and oral sources to help locate sites and aid in the interpretation and dating of archaeological remains. In so doing the project aims to help challenge some of the biased information ('received wisdom') generated from colonial libraries.

2.3 East African Trade Contacts with the Outside World

Trade contact between East Africa and other parts of the world is not a recent phenomenon (Beachey 1967: 276). It can be traced as far back as the first millennium BC, and has been reported in various Greco-Roman documents as well as in Arab, Chinese and Portuguese travellers' reports (for a compiled some of these see Freeman-Grenville 1962). Furthermore, archaeological works along the coast of East Africa (e.g., Kirkman 1957; Chittick 1974; Horton 1987, 1996; Chami 1994, 1999a; Kusimba 1999; Horton and Middleton 2000; La Violette and Fleisher 2005) have yielded material evidence that also contributes more knowledge, and thus supplements documentary information concerning the nature and scale of these trade contacts.

Two Greco-Roman documents, the *Periplus of the Erythrean Sea* (~AD 100) and *Ptolemy's Geography* (~AD 150) are the earliest sources describing the situation prior to the seventh century (Freeman-Grenville 1962). The *Periplus* mentions a trade route all the way from the Mediterranean region southward along what is now the Somali coast, to the East African coast (which is named in the text as *Azania*). The *Periplus* mentions Rhapta (named after its sewn boats) as the mainland market located somewhere along coast of East Africa (Casson 1989). At this market, traders from overseas met locals and exchanged goods (Horton and Middleton

2000: 36). The slightly later text, *Ptolemy's Geography* claims this large market town of Rhapta had acquired the status of a metropolis (*Metropolis Barbaricus*) (Freeman-Grenville 1962: 4).

The writings of the Greek merchant Cosmas Indicopleustes (A.D 547) also mention Rhapta as having been a supplier of ivory, rhinoceros horn, tortoise and nautilus shell, and coconut oil (Freeman-Grenville 1962). Horton and Middleton (2000: 33) are of the view that it is possible other commodities were also exchanged but the translation of the Greek words for these remain unclear. The imports during this time comprised iron implements such as lances, small axes, swords, and awls; small glass vessels of many kinds; glass stones [probably beads]; wine and grain (Freeman-Grenville 1962).

Although Rhapta has not yet been located archaeologically, excavations at various sites along the coast of East Africa have yielded numerous archaeological materials that date back to the first few centuries BC. These include human settlements, local and imported pottery as well as Roman glass beads recovered at Ras Hafun in northern Somalia (Chittick 1976), and Roman beads from the Early Iron Working horizon (100-200AD) at Limbo in the Rufiji Delta, central coast of Tanzania (Chami 1999b). Currently, the shared view among archaeologists regarding the peopling of Rhapta (e.g., Chami 1999a; Horton and Middleton 2000) is that the dominant inhabitants of this city were not foreign merchants but agricultural Bantu-speaking people who produced iron and fully participated in the trans-oceanic trade.

Of special interest for this study is that a number of scholarly works (e.g., Allen 1949; Baxter 1944; Dato 1970) have suggested the possibility that the location of Rhapta lies at the mouth of the Pangani River. Meanwhile, archaeologists who have worked in north eastern Tanzania such as Soper (1967), Schmidt and Karoma (1987), Schmidt (1988, 1989), Walz (2005, 2010) have located some Early Iron Age (EIA) and Middle Iron Age (MIA) sites in the eastern and western parts of Usambara: indicating a thriving iron industry prior to the second millennium AD. It is further argued that population growth and expanding regional trade in both natural and human made goods saw these mountain-based communities practising agriculture and iron smelting that consequently led to deforestation (Schmidt 1989).

Thus, if *Rhapta* was located on the mouth of the Pangani River, it would seem likely that this alleged ancient trading city would have established trade connections with the hinterland mountain communities in the Usambaras. However, survey and test excavations by Gramly

(1981) failed to locate any evidence that might suggest the presence of an early first millennium AD 'metropolis', and the main occupation of the settlement appears to have been much later during the classic Swahili era, between the fifteenth and seventeenth/eighteenth century.

Walz's recently completed archaeological research around Pangani Bay and nearby areas recovered lithic artefacts (made from quartz, chert, and petrified wood), daub, local ceramics, slag, shell and glass beads, glass sherds, foreign ceramics and a piece of ivory (2010). Walz reconstructs a settlement history of the area based on the materials he recovered, arguing that Pangani Bay has been inhabited since the Early Stone Age, based on the recovery of stone tools made from quartz river cobbles (*ibid.*: 141). By the Later Stone Age, hunter-gatherer activity was more widespread, as suggested by the distribution of characteristic stone tool types including scrapers and backed crescents found southwest of Bweni. Walz also indicates that the first iron-using, farming population around Pangani Bay continued to utilise stone technologies even after their transition to agriculture, for example at Muhembo (*ibid.*: 142). He further argues that by AD 600-1000, iron-using farming communities with Triangular Incised Ware (TIW) pottery had emerged and settled along the Pangani River, and that this group interacted with the groups in the interior as evidenced by the presence at these settlements of Maore Ware and Group B pottery, which are believed to have originating in the interior.

Swahili settlements, marked by stone structures built from coral, such as at Muhembo, emerged between AD 1250 and 1550, and the residents of these settlements produced a range of ceramics, non-glass beads and iron tools. As elsewhere on the East African coast, they also had access to Asian ceramics and glass beads (Walz 2010: 144). Finally, Post-Swahili settlements emerged in Pangani Bay from about AD 1750 and continued to be occupied up to the early twentieth century (*ibid.*: 147). Walz notes that the majority of these settlements are small in size, and contain a mix of local ceramics (mainly carinated bowls and fewer necked jars), marine shellfish assemblages of mud whelk and oyster, net weights (for fishing), iron spears/arrow tips, and clay pipes. According to Walz, at several of these sites locally produced materials occur together with imported European artefacts such as bottle glass, drawn and moulded glass beads, German and British coins, bullets and a variety of European ceramics (*ibid.*). Despite concerted surveys, Walz's recent work (2010) has not revealed evidence for a large metropolis city matching the ancient descriptions of Rhapta at Pangani.

The Islamic period (~ seventh to fourteenth century) witnessed some changes in the Indian Ocean trade. During this time some slaves from East Africa were exported to Iraq where they served in a military capacity, and some worked in the saltpetre mines of the Lower Euphrates and on canal digging related to the draining of the southern marshes (Sheriff 1987: 13; Lane 2011: 287). The writings by al-Jahiz (9th century) mention Qanbalu and Lanjuya (referring to the islands of Zanzibar and Pemba) as the main sources of slaves (Sheriff 1987; **Figure 2.2**).

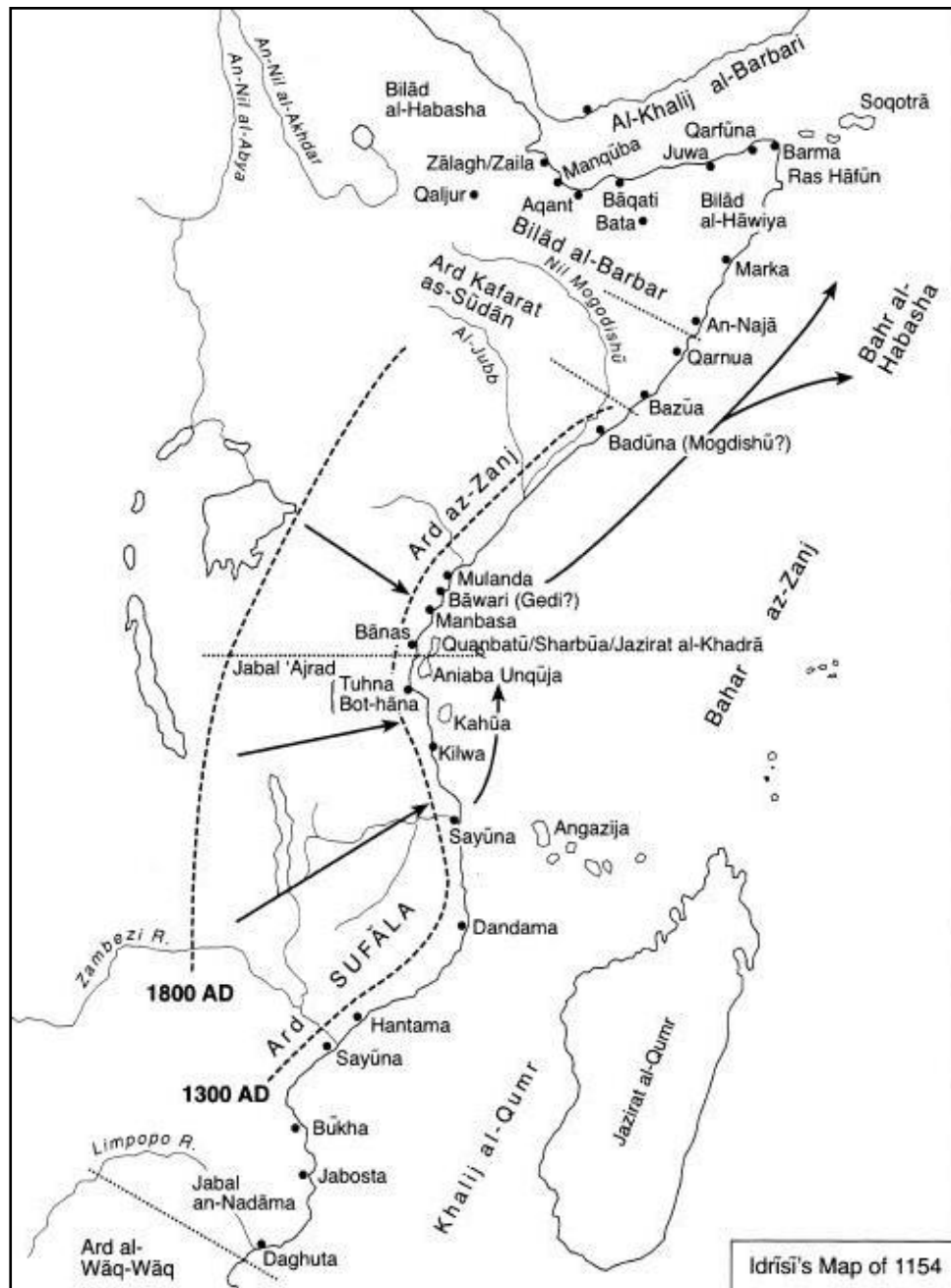


Figure 2.2: Map of eastern Africa, showing routes of the slave trade during Islamic period (Source: Alexander 2001: 53 Figure 3).

Al-Ma'sudi reported the continuing export of ivory from the land of *Zanj* (East Africa) in the early 10th century, most of which was carried to Oman and then sent to India and China where it was used for making dagger handles and sword scabbards (Beachey 1967: 269). Gold from Sofala (a seaport located further South of Kilwa in what is now Mozambique) as well as tortoise shells and mangrove poles from the coast of East Africa were also in demand in the Gulf during this period (Horton and Middleton 2000). Archaeological evidence of trade during this period includes imported pottery and Sasanian Islamic wares, painted stone wares, and Kilwa gold coins of the fourteenth century, resembling those of the Rasulids in Yemen (Horton and Middleton 2000: 81). Similar types of coins have also been found at Great Zimbabwe and are said to have been spread during the time when Kilwa (**Figure 2.3**) controlled the gold trade from Sofala (*ibid.*).



Figure 2.3: An early Portuguese depiction of the island of Kilwa in the 15th century (Source: Braun and Hogenberg, *Civitates Orbis Terrarum I*, 1572). Downloaded from: http://historic.cities.huji.ac.il/tanzania/kilwa/map/braun_hogenberg_I_53_3.html

Historians (e.g., Mathew 1963; Beachey 1967; Sheriff 1987) have painted the Portuguese period in East Africa (AD 1498 – 1750) as the most destructive era as far as the Indian Ocean trade and contacts are concerned. As the Portuguese were eager to control trade along the East African coast, they set new treaties in their own favour; imposed annual tributes on traders, and attacked and plundered whenever agreements were not fulfilled (Horton and Middleton 2000: 84). These factors significantly disturbed pre-existing trade relations, as some traders decided to divert their trade routes to avoid the Portuguese. As a consequence of this, several coastal city states began to decline, and continued to do so until the Portuguese were driven out in the mid-seventeenth century after the collaboration between the Swahili city states and the Omani ruling dynasty (Beachey 1967; Sheriff 1987). Rebuilding of the city states and the re-opening of trade routes in the interior was not easy - but became possible - as the Yao and Nyamwezi were now encouraged to bring ivory and slaves to the coast (*ibid.*). Archaeologically, a few forts and garrisons in major coastal towns such as Mombasa (Kirkman 1959) and Kilwa (Chittick 1974) remain the only visible evidence of the presence of Portuguese in East Africa. Indeed, these monumental structures along the coast have attracted several archaeological investigations, as have some of the Omani period forts (e.g., Pradines 2004).

During the period leading up to the nineteenth century, major developments occurred in East Africa, Europe and America, and these affected the Indian Ocean trade system to a great extent. As already mentioned, after driving away the Portuguese, the Omani Arabs started to revive trade networks with the interior and rebuilt the coastal city states of Zanzibar, Kilwa and Mombasa (Kimambo 1996: 87). The same period witnessed the Sultan of Oman, Seyyid Said, making Zanzibar the base for his commercial empire and an international hub for trade with other parts of world, notably America and Europe (Koponen 1988: 59-64). Coincidentally, the great industrial revolution was being experienced in Western Europe and North America, and saw the emergence of a new elite class who expressed their social status through the use of expensive, luxury items, including those made from ivory (Beachey 1967; Sheriff 1987). As a consequence, ivory came to be in high demand in the industrialised world, and was sought for the production of items such as piano keys, billiard balls, cutlery handles, hair combs and other carvings (Beachey 1967); east African ivory being particularly sought after in Europe and America because it was soft and ideal for carving, as well as being less expensive than that from South-east Asia (Beachey 1967: 269). Thus, as access to the interior

was once more opened up during the nineteenth century, East Africa became the foremost source of ivory in the world (*ibid.*).

Furthermore, by the 1730s a labour force was needed to work in the French sugar plantations on Mauritius and Reunion, and as a consequence trade in slaves gained momentum (Koponen 1988: 57). The same trade was further intensified in the 1840s following the opening of sugar and clove plantations along the coast of East Africa by Arab settlers and members of the Swahili elites (Glassman 1991, 1995; Copper 1997; Lane 2011). In later periods, trade in ivory fuelled slave raiding since the chief ivory traders also needed slaves alongside professional porters to carry the ivory from the interior to the coast. Therefore, practice of raiding villages in order to seek slaves intensified (Kusimba 2004: 65; Håkansson 2004: 571). Thus, what is clearly seen in the nineteenth century is the emergence of the slave trade as an appendage to the ivory trade. This issue is discussed further in the next section that covers the nineteenth-century period, which is the main focus of the current study.

2.4 Nineteenth Century East African Slave and Ivory Trade

The nineteenth century trade in slaves and ivory is far better documented than any other period of trade contacts between East Africa and the rest of the world. In part, this is due to the availability of primary sources, notably nineteenth-century European accounts by, among others, missionaries, explorers, travellers and traders. Some of them witnessed this trade directly when they journeyed into the East African interior, while others recorded oral histories from the locals who participated directly or witnessed these historic events. There are also several secondary publications (e.g., Beidelman 1960; Beachey 1967; Sheriff 1987; Alpers 1975, 1992; Koponen 1988; Kimambo 1996; Håkansson 2004; Rockel 2006a&b) that cover this historical period of East Africa, focusing on various topics from a wide range of scholarly perspectives. Archaeologically, little has been done concerning this topic despite the fact that some scholars (e.g., Koponen 1988; Håkansson 2004) have pointed out information gaps that cannot be filled through historical sources and techniques and thus require an archaeological contribution. This sub-section presents a general summary of aspects of the trade before discussing the documented consequences of the trade, since it was these that helped formulate the research problem of the current study.

One of the major topics that have captured scholarly attention with regard to the nineteenth-century east African caravan trade is the encounter between the European powers and east

African groups (Beachey 1967; Alpers 1975, 1992; Sheriff 1987; Gilbert 2002). A point of interest has been to understand key players of the caravan trade, i.e. those who were responsible for further opening up the east African interior and the subsequent colonisation of the region. A picture emerging from several historical works, however, suggests that east African groups like the Swahili, Omani colonists and Indian traders from the coast, as well as the Yao, Nyamwezi, Kamba and Zigua from the interior, played major roles in preparing conditions for a capitalist economy to emerge even prior to the nineteenth century. Indeed, some have argued that up to AD 1800 individuals from the interior had already initiated and controlled virtually all the trade to the coast, and only after AD 1800 did people from the coast then begin to organise trade caravans into the interior (Kimambo 1996: 87; Gilbert 2002: 24).

Alpers' (1970, 1975) work on the southern Swahili coast, for example, demonstrates how groups such as the Yao, who were well-situated subsistence-wise, took advantage of the coastal demands for ivory and later slaves. Unlike more specialised agricultural or hunter-gathering groups in the region, the Yao could afford for their men to engage in the caravan trade during dry seasons. Their involvement in the caravan trade was thus an extension of the previous regional system of exchanging items such as iron products, salt and foodstuffs that had long existed prior to the nineteenth century. The Yao became specialised ivory porters in the nineteenth century because they had already acquired this experience a long time before. Moreover, since the Uyao area had been a prime source of slaves for sugar plantations on the Mascarenes prior to the nineteenth century, demonstrating that the later trade in slaves to coastal areas was not a new phenomenon (Alpers 1970, 1975).

Rockel (2006b, 2009) and Sheriff (1987) discuss a similar situation in central Tanzania, specifically among the Nyamwezi (**Figure 2.4**). As the Nyamwezi were already situated in the centre of a regional exchange system, they developed a mixed subsistence strategy that could afford to lose male labour during the dry season for long distance trade. They became porters as the only alternative way of earning cash income to satisfy their desire for imports which had already developed into social necessities (Sheriff 1987: 182). It appears that initially portage was carried out only during the long dry season, but with increasing wages (for example, from 6 to 9 Marie Theresa Dollars (MT\$) in the early days to MT\$ 20 in the 1870s) portage attracted a large number of Nyamwezi who turned this activity from being only part of their economic life to a full-time activity, creating in essence a class of professional porters; referred to locally as *Pagazi* (Rockel 2009; also see **Figure 2.5**). This caused a massive shift of labour

away from other productive activities such as agriculture. Rockel argues that caravans were not simply male affairs but that women and children often accompanied porters and served as cooks and companions (*ibid.*). Rockel notes, too, that groups like the Nyamwezi were at the forefront of capitalist development as part of new 'labour cultures' emerging around capitalist projects. These 'cultures' therefore shaped new urban experiences along interior caravan routes, spread commodity culture, and shaped East Africa's engagement with the global capitalist system (Rockel 2006a).



Figure 2.4: Nyamwezi porters resting in coconut palm grove, near Bagamoyo
(Source: Le Roy 1894, Plate 20)

Kimambo's work in north-eastern Tanzania paints a similar picture. Regional markets - in which traders from communities of different ecological niches (such as the mountains and plain dwellers) met to exchange goods such as iron implements, salt, foodstuff and livestock - had already developed in the interior prior to the nineteenth century (1996: 84-87). According to Kimambo, the consequences of these regional markets include: i) the development of standards of exchange; ii) items exchanged over a large area (for example, iron and salt) became commodities; and iii) some groups of people, for example, the Kamba and the Zigua, emerged as specialised traders (*ibid.*: 85). Thus, Kimambo (1996: 88-89) is of the view that the outlined conditions were enough to lay down the foundation for the caravan trade to emerge

in the nineteenth century, whereby for example, the Kamba became middlemen in the ivory trade with Kilimanjaro, while the Zigua, competing with their Shambaa neighbours, successfully transformed themselves into effective controllers of the trade on the lowlands of the Pangani Basin.



Figure 2.5: Nyamwezi '*pagaz*' or ivory porter (Source: Burton 1860, Vol. 1, pp. 342)

In parallel fashion, Steinhart's (2000) research on the Kamba in Kenya articulates how the Kamba took advantage of coastal demands for ivory by specialising in elephant hunting and caravan portering. Steinhart (2000) argues that Kamba hunting practices were used as a model for later Swahili, Omani and foreign trader expeditions. All of these cases seem to challenge older models of capitalist integration by emphasising that it was innovative groups in the interior that initiated the caravan trade to supply the coastal demands. Only in the mid-nineteenth century did coastal traders (Omani, Indian, Swahili, and European) begin to finance their own caravans into the interior, relegating African porters and caravan organisers to a marginalised status as hired labour (Frank 1969; Alpers 1975).

Historians have long presented the slave trade as an appendage to the ivory trade (Beachey 1967; Alpers 1970, 1975). However, slavery and the slave trade had existed long before the nineteenth century, and so should be understood within the indigenous context. Lane (2011: 288), for example, summarises recent work on various neglected archives, including Arabic,

Portuguese and French documents that indicate that the scale of slave trade over the second-millennium AD was larger than previously thought. As cited in Lane (2011: 288), Vernet (2003) shows that there is substantial documentary evidence indicating that from at least AD 1500 Swahili merchants were active agents in the trade, with perhaps as many as 2000-4000 slaves being exported from Madagascar to Lamu archipelago and from there re-exported to the Persian Gulf and Arabia.

Internally, slavery was a mechanism by which men could acquire social status by accumulating non-kin dependants who eventually could be incorporated into kin networks (Giblin 1992). With the advent of Europeans and coastal plantation agriculture from the seventeenth to nineteenth century slavery became more extreme and slave labour was increasingly commoditised (Sheriff 1987: 70-71). The trade in ivory may have also fuelled slave raids when the chief ivory traders needed additional porters to carry the ivory from the interior to the coast, and thus raided villages for slave labour to accomplish this task (Kusimba 2004: 65; Håkansson 2004: 571). This, in turn, resulted in more overt slave resistance, increased escape and the establishment of fortified maroon communities (Glassman 1995; Wilson 2007).

The ivory trade also fuelled the procurement of slaves in order to fulfil the subsistence demands of the caravan trade. Maddox (1996: 48) discusses how chiefs in Ugogo, Tanzania, used ivory to buy slaves. While this practice might not have been on a large scale, it is indeed an indication of local leaders taking advantage of the caravan trade in order to increase labour forces, since increased labour meant that food production could be increased to produce surpluses for exchange with the passing caravans. This is also the reason why the initial trade routes did not venture as far into the interior, as it was easier to maintain a caravan closer to the coast, with more well-known resources within trade networks (*ibid.*).

Another topic of interest amongst scholars has been the sourcing of ivory in East Africa, the reason for the interest being to reconstruct the effects of ivory trade on the ecology (e.g., Håkansson 2004). Historians like Beachey (1967) hypothesised that coastal elephant populations supported the pre-nineteenth-century ivory trade. However, Thorbahn's (1979) archaeological modelling in the 1970s suggested that coastal elephant populations could not have been the main source of ivory prior to the nineteenth century. If they had been, then there would no longer have been many remaining in the coastal region by the nineteenth century, whereas several mid-nineteenth century sources indicate that elephants were still

common in coastal areas (*ibid.*). This then, suggests sourcing for ivory in the interior (and not just along the immediate coastal hinterland) must have been happening long before the intensification in the nineteenth century (Thorbahn 1979: 127 & 284).

Based on Thorbahn's model, Håkansson (2004) is of the view that whereas in the 1840s there were still plenty of elephants in several areas in the immediate coastal hinterland, the effects of the integration of East Africa into the capitalist world system resulted in their rapid decline thereafter. He demonstrates how coastal ivory became increasingly expensive as groups became integrated into the capitalist commodity system, pushing the ivory frontier further inland with time. Håkansson also argues, from ecological studies of their effects on vegetation as mixed browsers (e.g. **Figure 2.6**), that elephants had been maintaining savannah grasslands in East Africa (a favourable landscape for pastoralism) for thousand of years. The increased exploitation of elephants in the nineteenth century, however, led to increased scrub forest growth and created ideal conditions for the spread of tsetse fly, a condition that discouraged pastoralism.



Figure 2.6: A forest devastated by herds of elephants in Uganda (Photo: Carl Akley c.1906). Source: National Geographic Society Photo Stock ID 602736. Downloaded from: <http://www.nationalgeographicstock.com/ngsimages/explore/explorecomp.jsf?xsys=SE&id=602736>

Historians have recently also begun to examine East African consumerism during the era of the caravan trade of the nineteenth century. Primary sources (e.g., Burton and Speke 1858; Krapf 1860) as well as secondary sources (e.g., Prestholdt 2004; 2008; Pallaver 2007) indicate that cloth, glass beads and metal wire were among the main imports into East Africa during this period. The majority of the provisions for the caravans starting from the East African coast for the interior were met through exchange of these items for local produce. Other items of trade, though less common, included muskets and gunpowder, musical boxes, hats, and sugar (*ibid.*). Some of these items were used to make gifts to local chiefs residing along the caravan routes (Prestholdt 2004). Cloth, glass beads and brass-wire were primarily used as a means of exchange and payment during the caravan journeys and in the market centres of the interior.

Cloth was highly valued as a commodity for acquiring the goods of long-distance trade and was also widely requested to pay the tributes imposed by local chiefs on passing caravans (Pallaver 2007). Three main varieties of cloth were available in East Africa during the nineteenth century. Until the 1860s, the most requested cloth was a kind of unbleached cotton produced in Salem Massachusetts, in the USA; known in East Africa as *merikani* or *merikani* (literally ‘American’). A second type was indigo dyed cotton from India called *kaniki*, which was acquired cheaper than the American cloth (e.g., Sisson 1984), and was sometimes rejected by some populations of the interior (*ibid.*: 21). Thin grey shirting, produced in England, entered the market after the 1860s and was called *satini* (Prestholdt 2004). In the 1880s, it was much in vogue along the caravan roads and because of its lesser quality it was cheaper than the *merikani* and *kaniki*. Historians (e.g., Prestholdt 2004; Pallaver 2007) argue that the American textiles dominated the East African market until the US Civil War (1861-65) when cotton supplies to Salem were cut off, and hence the east African market began to be flooded with Indian-made cloth produced in Bombay. From the 1860s onwards, the Indian produced cloth took the place of the American cloth in the east African trade networks (Sheriff 1987: 135; Prestholdt 2004: 773-776; Pallaver 2007: 21).

After cloth, glass beads were the second most sought after items in East Africa during the nineteenth century (Pallaver 2007: 21). These were largely demanded in the interior, particularly along the main caravan roads. Traders travelling from the coast to the interior had to buy beads from the Banyan traders in Zanzibar where, according to Burton, glass beads were imported “yearly by the ton” (1859: 454). Glass beads were used to discharge different

types of obligations, including paying taxes along the route; paying the caravan personnel; buying different types of goods such as foodstuffs; and in some regions for buying ivory and slaves (Pallaver 2007: 23). Different types of glass beads (e.g. **Figure 2.7**) were in use during the nineteenth century. The most requested ones were *same same* or *sami sami* beads that were made of red coral; white beads, popularly known as *merikani* (named after unbleached American cotton cloth because of the colour resemblance); *gulabi* beads made of pink porcelain; black beads called *bubu*; the *sungomaji* white and blue beads; and a variety called *sofi*, generally Venetian cylindrical beads in different colours (Harding 1962; Karklin 1992; Pallaver 2007).

Used for making jewellery in the interior, brass and copper wire were similarly important articles in the nineteenth-century east African trade (Pretholdt 2004: 765). Imported mainly from North America and later from Britain, the value of brass and copper wires was influenced by many factors, including width, shape, lengths of coil, packaging and weight (*ibid.*). These wires were imported in pieces of standard sizes, in coils of nine to twelve inches in diameter with each coil consisting of either ten or twenty rings, wrapped in brown paper to prevent oxidation (*ibid.*: 765). Such was the value of this brass and copper wire that in some of the interior markets, such as in Ujiji, coil bracelets and other jewellery made from it were enough to buy slaves and ivory (Pallaver 2007: 22).

Researchers on this topic have shown that the value and demand for imported items changed very quickly, signifying a rapid change in local 'tastes' in the interior. Pretholdt (2004: 761) for example, argues that coastal traders, as well as manufacturing firms in North America and Europe, had to learn the market and adapt to rapid changes in local tastes. A failure to learn quickly as to what was required in the interior could lead to significant losses, as unwanted commodities would simply not be purchased (see also Burton 1859: 262). In due regard, several measures were taken to overcome this problem: one way was for the caravan leaders to carry various sizes, shapes and colours that were reported to be in style in a particular locale (Pretholdt 2004: 761). To be in a position of understanding these demands, the caravan leaders had to know the language and fashion exigencies of all the peoples with whom they wanted to trade, or through whose territory they simply wished to travel (*ibid.*). Failure to possess this knowledge could lead to an unsuccessful trade journey.

The other option for traders was to re-design these items into desirable forms, styles and quantity (Prestholdt 2004). This task was undertaken either at the point of manufacturer, within east African centres of trade, or on the caravan trails before these goods could be exchanged in local markets (Prestholdt 2004). For example, before entering Maasai country the Teleki expedition had to rethread beads in lengths of twenty one or twenty two inches, as beads would not be accepted in the area unless they were in this form (Prestholdt 2004: 766). That was also the case in Unyanyembe where coastal artisans purchased English broadcloth and tailored it into the *kizibao* (short coastal style coat) sought by wealthy men (*ibid.*: 45). In the same area, brass and iron wire was remade before it was sold to consumers: local artisans fashioned imported wire into armlets, leg bracelets, bells, necklace beads, and rings, as well as inlays for gunstocks and knife hilts. Therefore, the lesson gained here is that although imported cloth, beads, and brass wire were thought to have been considered as finished goods, in the case of East Africa these goods can be considered as partially manufactured because they often had to be radically redesigned as the local markets dictated.



Figure 2.7: 19th century Venetian trade beads in white, single colours and variegated glass. Source: Victoria and Albert Museum, Museum no. 4554-1901. Downloaded from: <http://www.vam.ac.uk/content/articles/t/trade-beads/>

2.4.1 Consequences of the Nineteenth Century Caravan Trade in East Africa

Scholars across the disciplines have discussed in detail the consequences of the expansion and consolidation of the nineteenth-century caravan trade. Some of these consequences deserve discussion in this review. These include: the emergence of well-defined caravan trade routes; the appearance of markets and provisioning centres along the main trade routes; possible changes in local production strategies and settlement patterns; social and political turmoil; and environmental impacts of the trade.

2.4.1.1 Emergence of Well-defined Trade Routes in the Interior

It appears that prior to the nineteenth century, long-distance trade was conducted on a small scale - mostly in the form of trading expeditions. These expeditions involved the exchange of foodstuffs and other products between communities of different ecological zones (Kimambo 1996: 81). It was not, however, until the nineteenth century that chains of well-defined trade routes that linked the interior areas of East Africa and the coast appeared (Sheriff 1987; Koponen 1988; Rockel 2006a&b; also see **Figure 2.8**). The caravans travelled along these routes buying and exchanging commodities. In East Africa, there were three major routes during the nineteenth century: the northern route (of which the Pangani corridor was a part), the central route, and the southern route (Sheriff 1987; Koponen 1988). Each was divided into several sub-routes that extended to serve further interior areas of East Africa.

The central route was regarded as the main trade route in East Africa and commenced at the coastal towns of Bagamoyo, Saadani, and Mbwamaji (Beidelman 1960: 16; Sheriff 1987: 191; Rockel 2006b: XVII). From these terminals the route proceeded into the interior through the mountain chains of Nguu and Uluguru to Ukaguru of the present day Morogoro region, passing through Mamboya and Mpwapwa to Ugogoland in central Tanzania. From Ugogo it proceeded to Unyamwezi and further to the north-west in the Great Lakes region (*ibid.*). The Nyamwezi porters from north-central Tanzania as well as Arab and Swahili traders from the coast turned out to be key players along this route (Rockel 2006b). According to Stanley (1872 cited in Sheriff 1987), by the 1890s, about 80,000 to 100,000 people organised in caravans travelled this route each year between the coast and the interior.

The northern route, also known as the Pangani corridor, had three terminuses along the coast, namely Mombasa, Tanga and Pangani (Sheriff 1987; Koponen 1988; Kimambo 1996). The Pangani corridor served as a major outlet for commodities from the hinterland areas, ran along

the Ruvu/Pangani River and beyond as far as Kilimanjaro and Lake Victoria, and had branches going farther north to Taita-Taveta (crossing what is now the Kenya-Tanzania border) and Lake Baringo. Judging from the amount of ivory transported through this path in the 1880s, Håkansson *et al.* (2008: 372) estimates 10,000 persons would have passed along this route annually.

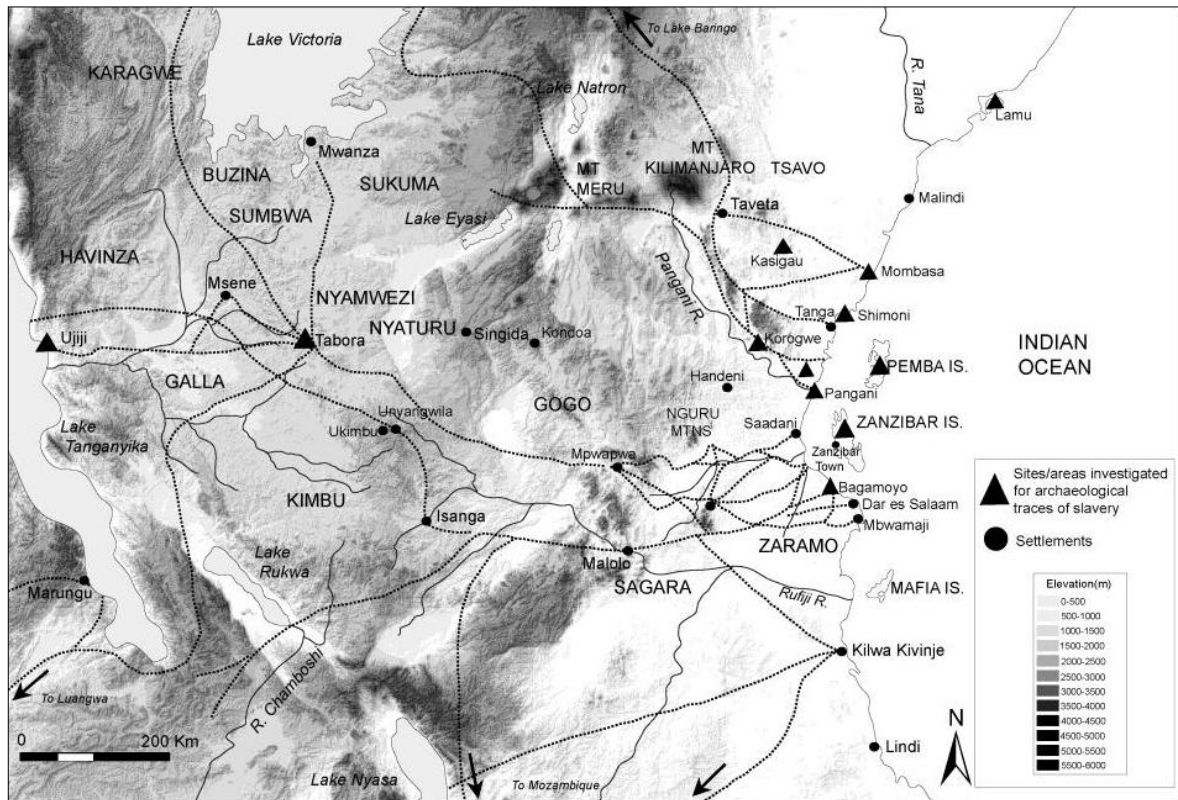


Figure 2.8: Location of the main nineteenth-century caravan routes in East Africa (based Koponen 1988). All of the study sites are located close to Korogwe, on the northern route (Source: Lane 2011: 285, Figure 13.1).

Because slaves from the interior of Kilwa were brought to the coast and shipped to the Mascarenes to work in Dutch and French sugar plantations (Sheriff 1987), the trade routes for the region of the southern hinterland developed well before the nineteenth century. In the nineteenth century, several of these routes terminated at Kilwa, Lindi, Mikindani and Ibo (the last terminus located in northern Mozambique). The southern route thus passed through Ungindo, Umatumbi, Uyao and beyond, to the eastern shore of Lake Nyasa. The same route also served to collect ivory and slaves from deeper within the interior, as far as Kazembe and Katanga, Lake Mweru and Bangweulu (Sheriff 1987; Koponen 1988). For the southern route,

the Yao, the Makonde and the Ngindo from the interior as well as the Arab and Swahili traders from the coast were the key players (Sheriff 1987: 160).

2.4.1.2 Appearance of Markets and Provisioning Centres along the Routes

Expansion of the caravan trade caused the emergence of markets and provisioning centres along the trade routes. These areas became points of interaction for exchange between farmers, pastoralists, traders and craft specialists (Sheriff 1987: 172; Koponen 1988: 117; Kjekshus 1996: 115; Kimambo 1996: 91; Håkansson 2004: 563). Local communities situated along these trade routes were able to exchange their produce for coastal goods, notably cloth, beads and metal objects. Examples of such markets and provisioning centres include those that appeared at Mamboya, Mpwapwa and Kondoia in the Ugogo area, where it is estimated that between the 1850s and 1880s about 80,000 persons passed annually to obtain grain and other basic needs (e.g., Beidelman 1960: 12), in exchange for beads, cloth, iron implements and guns; all these imported through the coastal towns. The Pangani corridor provides a similar picture, where several markets and provisioning centres also appeared. These include Mazinde, where chief Semboja had his commercial centre (Feierman 1974: 144); Kwa Seungo near Korogwe (Sheriff 1987: 172); Gonja, Kihurio, Kisiwani, Hedaru, Makanya, Mwembe and Same in and around the Pare Mountains (Kimambo 1996: 92); Taveta near the Taita Hills (Kjekshus 1996: 115), and Amboni near Tanga (Burton and Speke 1858: 199).

Some of these routes were selected to pass through villages where provisions were available and sold cheaply. For example, in describing the Pangani route that passed along the Ruvu/Pangani River, Farler (1882: 731) noted that this route was preferred partly due to availability of water and plentiful food. Generally, it can be said that new trading opportunities were opened during this period through the creation of markets and provisioning centres along the routes. It has been hypothesised that the appearance of markets triggered changes to local production strategies, particularly for the communities situated along the route, with a view to producing surplus food for sale to the passing caravans (Håkansson 2004).

2.4.1.3 Alteration of Local Production Strategies

While travelling to and from the interior the caravans had to be fed and their food stocks periodically replenished (e.g. **Figure 2.9**). The supply of foodstuff to the passing caravans thus became a special undertaking by agriculturalists situated in areas along the trade routes. This was the primary way local people could acquire coastal goods that had already acquired a

special value in the community (Håkansson 2004). One example of areas where agricultural production is reported to have been intensified is the Ugogo area, central Tanzania. It is reported that by the second half of the nineteenth century the production of grain reached 1,090,909 kilograms annually, and this surplus was being sold to passing caravans, in exchange for approximately 80,000 *doti* of cloth per year (Håkansson 2004: 585 citing Sisson 1985: 189). Such agricultural practices would have invaded marginal areas, and when coupled with keeping large numbers of cattle it may have caused environmental degradation (Christianson 1981; Sisson 1984 cited in Håkansson 2004: 584). Although Burton noted the prevalence of drought and infertile soil in the Ugogo area, he described the area as “the most populous and best cultivated country” (1859: 140), and that sorghum and maize were grown in this poor infertile land, and were sold to the passing caravans that had to replenish their stock before the long march towards the western ‘wilderness’ (*ibid.*).

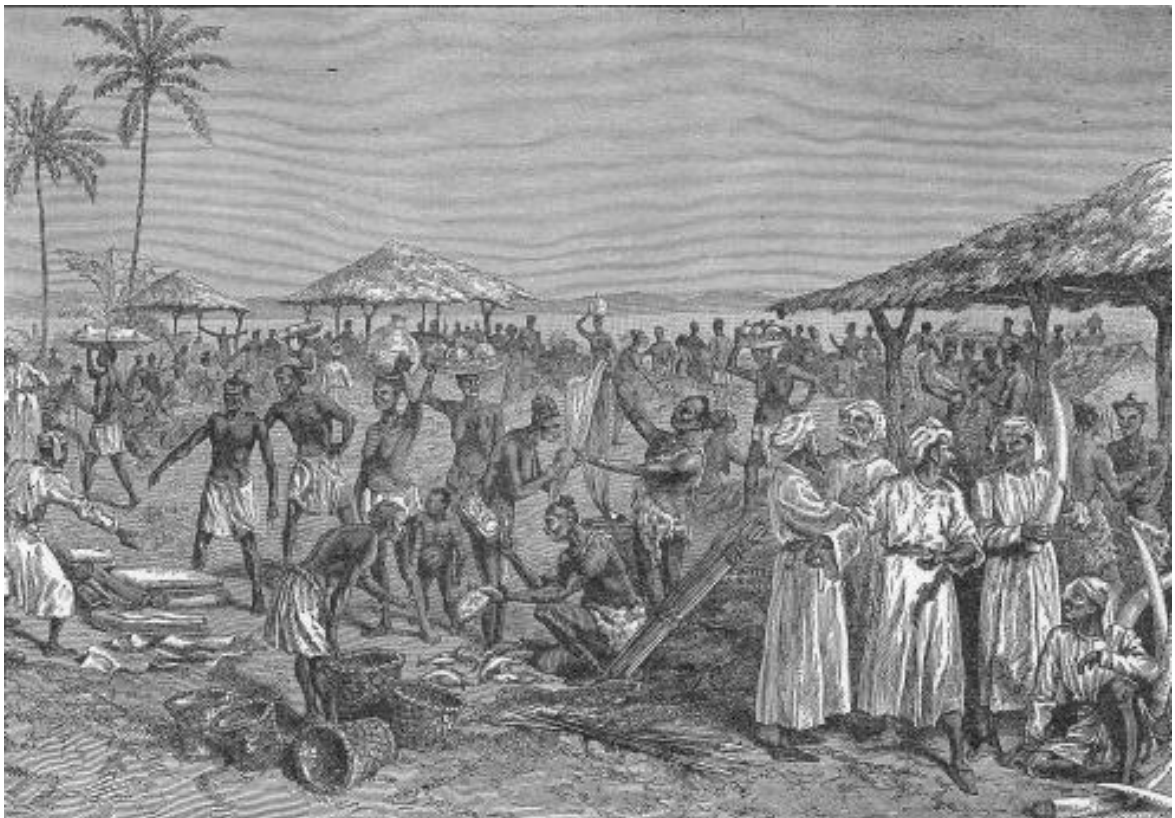


Figure 2.9: Market scene in Ujiji, c. 1878. Source: Buel 1890: 129. Downloaded from: <http://www.erbzine.com/mag18/1878.html>

A similar argument regarding agricultural intensification in the nineteenth century is presented by Håkansson and Widgren (2008: 3) for the Pangani Basin. Noting that a minimum of 400 metric tons of agricultural produce would be needed annually to feed the reported sizes and frequencies of caravans, Håkansson and Widgren suggest that this demand prompted agricultural intensification in areas adjacent to the trade route; an hypothesis that would help explain why irrigation systems developed in areas that already receive high rainfalls such as on Kilimanjaro and in the highland areas of North Pare, South Pare, and Usambara (see also Håkansson 2003: 28-29) . Håkansson is of the view that because the nineteenth-century population densities in these regions were low, and that these areas received a good amount of reliable rainfall, irrigation systems emerged largely as a consequence of the need to intensify agricultural production so as to generate surpluses to meet the commercial opportunities arising from the passing caravans (*ibid.*). Thus, it may be argued that the expansion of the caravan trade would have triggered agricultural intensification, which led to increased cultivation acreage, and thus, expansion onto marginal land that eventually resulted in land degradation in some areas of East Africa.

2.4.1.4 Realignment of Human Settlements

Some settlements were realigned in the course of tapping trading opportunities that arose from the expanding caravan trade. For example, Kimambo (1996) presents a case for the Wapare of north-eastern Tanzania. He notes that the Wapare who habitually resided on the hills started to migrate and occupy the southern foothills from the nineteenth century because they wanted to access more open land to grow maize for sale to the passing caravans (*ibid.*: 80). During this period, the ruling elite, having acquired plenty of land, gained more power because they were able to lease some of their lands to maize growers, and also controlled water supplies from the hills that were needed for irrigating maize fields on the foothills (e.g., Maghimbi 1994: 30).

Christopher Conte also presents a case of how the expansion of the caravan trade in the nineteenth century altered local people's subsistence strategies and settlement patterns (1996). He asserts that Wambugu pastoralists, who inhabited the Western Usambara Mountains prior to the nineteenth century, had good trading relations with their neighbours the Wasambaa agriculturalists, from whom they acquired foodstuff through exchanging their cattle and other cattle products (Conte 1996: 103). However, the expansion of the caravan trade in the nineteenth century opened up more trading opportunities following the creation of several markets in the lowland areas, such as at Mazindi in the interior as well as at the coastal towns

of Tanga, Pangani and Saadani. Because of this, the Washambaa agriculturalists turned to selling their produce at these emerging markets, leaving the Wambugu pastoralists starving, as they could no longer obtain foodstuff from the Washambaa (*ibid.*). Consequently, this situation forced the Wambugu to learn how to cultivate, and encouraged them to migrate and occupy lowland areas where they could sustain their livelihood (*ibid.*: 106).

2.4.1.5 Socio-political Turmoil

It has already been discussed above that trade in ivory and slaves were inseparable (e.g., Sheriff 1987: 176; Koponen 1988: 55; Kimambo 1996: 93). This view is supported by multiple nineteenth-century sources (e.g., Wakefield 1870; Farler 1879; Elton 1874) which record major slave trading centres along the east African coast at Lindi, Kilwa, Bagamoyo, Saadani, Pangani, Tanga, Mombasa and Malindi. These centres were linked to the interior through several routes along which slaves were acquired and moved (Lane 2011). Although Slaves were sometimes obtained by raids organised directly by Arab and Swahili traders, slave raiding more commonly took place between neighbouring communities (e.g., Austen 1988), and thus served to create or exacerbate hostilities in the interior. Thus, for the great majority of inhabitants of the interior, the expansion of the trade had profound socio-political consequences.

The foremost of these was the increasingly widespread appearance of firearms in East Africa. These fuelled social unrest, especially in the interior areas where slaves were most commonly obtained (Feierman 1974; Kimambo 1996). Arab and Swahili traders from the coast supplied firearms to the local chiefs in the interior in order to facilitate the capture of slaves. Violence and destruction seem to have been common: the explorers Burton and Speke (1858: 204), for instance, reported seeing in February 1857 a number of burnt and abandoned villages along the banks of the Lower Pangani, and report that the Zigua were “burning and murdering, kidnapping and selling in all directions”.

Charles New (1875), another European observer who journeyed to East Africa, reported a similar situation, comparing what he saw himself with what was observed by Dr. Krapf almost twenty years earlier:

“Evidences of more flourishing days, large populations and considerable possessions in herds and flocks, met you everywhere - in vacant villages, in wildernesses that once were plantations, and in broad, well-made paths, judiciously carried round instead of over the mountains, now wholly neglected and altogether impassable .War has had not a little to do in

producing this result. But, to go further, the supposed advantages of war have been its perpetuation. No doubt love of victory and love of power are elements in this case; but love of money – greed of gain has not been a minor consideration. Well, in almost every battle some will be taken prisoners, and the existence of slavery upon the coast makes these a valuable acquisition”.

(New, C. 1875: 419)

Increased raiding led to many villages and settlements being fortified with wooden stockades and/or hidden away in dense bush, as was the case at the village of Ng’ambo in the Lower Pangani (Johnston 1879: 550). Elsewhere in the mountain areas, along with the use of wooden palisades and similar defensive features, another response to the increased violence was the construction of underground bolt-holes in the Pare Mountains and on the slopes of Kilimanjaro (Fosbrooke and Sassoon 1965; Clark 2009). Some of these appear to have been modified from caves, while others were entirely artificially constructed (Lane 2011).



Figure 2.10: British naval officers and men crossing the bar to rescue abandoned slaves from a sinking dhow (Sullivan 1873: Frontispiece)

Furthermore, the acquisition of firearms became a determining factor for political strength and stability amongst local chiefs and rulers. Through firearms they could access and control trading opportunities brought by the passing caravans (Kimambo 1969; Feierman 1974). Kimambo (1996: 89) documents this among the Zigua chiefs in the Pangani valley who became successful in controlling the caravan trade in the lowlands, from which they continued

to acquire more guns and used them to threaten each other. In the Lower Pangani, for example, there was a significant restructuring of political authority that led to the emergence of a new category of chiefs and leaders, some of whom had originally been of low status and in some cases even fugitive slaves (Willis 1990; Glassman 1995: 47). These individuals sought to gain legitimacy through turning established institutions - such as clan or rain magic – to their advantage (Lane 2011: 295).

Competition for the acquisition of firearms was intense. Feierman (1974: 140-1) notes that when the Shambaa Chief Kimweri ya Nyumbai's father died (possibly around 1815), guns of any kind were still unknown in the Pangani region; however, by 1852 when the missionary Krapf visited Chief Kimweri he found him competing with the neighbouring chiefs in buying firearms, and by then he had about 400 guns while one of the Zigua chiefs [not mentioned] already had 600 (Feierman 1974:140-1). Additionally, Lamphear's (2001, cited by Lane 2011) archival research, as yet unpublished, shows that gunpowder and flintlock muskets imported in the region rose dramatically between 1840 (c. 2000 flintlocks and c.12 tons of gunpowder) and the mid-1860s (c. 26,000 and c. 22,650 tons, respectively).

2.4.1.6 Environmental impact

As briefly summarised in the introduction and touched upon in the current chapter, the intensification of the ivory trade has been argued to have had profound impacts on east African environments, both directly – as in the conjectured change to ecosystems caused by the removal of large numbers of elephants (e.g. Håkansson 2004: 561) – and indirectly, as with the suggestion that attempts to supply caravans with provisions may have led to agricultural intensification (e.g. Håkansson 2003: 28-29). These arguments need not be repeated in detail here, but it is worth reiterating that aspects of these conjectured scenarios should be testable archaeologically. It should be stressed too, that although Håkansson's model of environmental change is presented on a grand scale, both these effects are well attested historically at more local levels. Anderson (e.g., 2006), for example, argues cogently that the opportunities to profit from provisioning caravans led to the massive expansion of the formerly small-scale irrigation system at Baringo, Kenya, between approximately 1890 and 1920, whilst intensive elephant hunting in the mid-nineteenth century transformed the environment around Unyamwezi, Tanzania, to such an extent that landscape described by Burton as 'rolling parkland' in 1860 was overgrown with scrub and Miombo woodland towards the end of the 1880s (1860:3).

Whether or not the environmental impact of elephant hunting was sufficient to move the tsetse belt and discourage pastoralism remains a moot point (for which see Håkansson 2004: 572). Nevertheless, there is historical evidence to suggest that some pastoral communities used ivory as a cache of wealth to obtain cattle and cloth, including the Maasai, Samburu, Dorobo, Il-Chamus, Oroma, and Kitui Kamba in Kenya (*ibid.*: 578), and it is thus possible that this allowed the accumulation of very large herds that may have led to resource degradation and soil erosion in some locations, as has been suggested around Lake Baringo, Kenya (*ibid.*: 583). Similarly, whilst it may be true that attempts to provide provisions for caravans by combining cattle-keeping with settled agriculture led to environmental degradation around Ugogo (Håkansson 2004; Håkansson and Widgren 2008), the same is not true in North Pare where the onset of accelerated soil erosion predates the intensification of the ivory trade by several centuries (see Heckmann 2012).

Given the existence of several knowledge gaps in these areas, some of the hypothesised consequences of the expansion of the nineteenth-century caravan trade in East Africa form the main focus of the *Historical Ecologies of East African Landscapes* (HEEAL) project, which was set up to reconstruct the changing cultural, economic and environmental landscapes in East Africa since the period of European expansion, from c. 500 years ago (Lane 2010). Operating within the framework of historical ecology, the HEEAL project involved several disciplines to attain the stated main goal. Specifically, the HEEAL project aimed to establish the extent to which agricultural intensification and an expansion of pastoralism did occur as a direct result of the expansion of the caravan trade, and what impacts this trade had on human societies, wildlife populations and vegetation patterns.

Being one of the HEEAL sub-projects, the current study was thus specifically designed to generate an understanding of the nature of subsistence strategies prior to, and after the expansion of European demands for East African commodities during the nineteenth century. Specifically, this study utilises zooarchaeological techniques to establish: the animal species (both domestic and wild) that were being consumed at certain caravan trade halts; herd management and hunting strategies operated by communities situated along the main caravan trade routes; and evidence of subsistence stress (if any) among local communities caused by expanding caravan trade in the region. The following section outlines the contribution of zooarchaeological approaches in historical ecology studies.

2.5. Zooarchaeology and Historical Ecology

From its formative stages onwards, zooarchaeology has sought to reconstruct aspects of past social practice and behaviour through the study of faunal remains. However, it was only from the mid-twentieth century that zooarchaeological studies started to focus on ecological and environmental issues, as a result of the influence of cultural ecology on the 'New Archaeology' (Landon, 2005). More recently still, the potential contributions of zooarchaeology to broadening understanding of the historical factors that have shaped modern environments has begun to receive increased scholarly attention, and in the past decade zooarchaeology has begun to experience a paradigm shift, whereby scholars are moving beyond mere dietary reconstruction to broader studies of the environmental consequences of the past human action (Redman, 1999). A call to embrace environmental issues is succinctly summarized by both Landon (2005) and Stahl (2008):

“It is possible to take a ‘historical ecological’ (after Crumley, 1993) approach that focuses on the diachronic interrelationships among the environment, technological systems, and social systems, embedded in a model of culture that includes active individuals in groups with potentially conflicting interests.”

(Landon 2005: 25-26)

“Zooarchaeologists should focus on the study of past human landscapes, explore dynamic disturbances and the human maintenance of habitat mosaics, record the infrastructure of intensive agriculture, and understand the indigenous logic of past biodiversity management. When archaeologists engage human sites and landscapes in the buried record, they are engaging historical ecology.”

(Stahl 2008: 6)

Both authors demonstrate that several issues can be investigated through this approach, including the consequences of the spread of different alien species of plants, animals and diseases on a massive scale following European exploration and subsequent colonisation of several parts of the world. Landon (2005: 26) argues that the spread of these species had differential consequences for specific populations. For example, he notes that in areas where colonial outposts were established the environment was often radically changed and that this set a foundation for future settlement and growth patterns. He further notes that European colonial expansion into interior areas, for example in the American West, often triggered conflict with indigenous peoples and the institution of new subsistence, economic, and

resource-use patterns, and as industrialisation increased, the rate and scale of resource exploitation significantly altered human-land interactions (*ibid.*: 26). All these historical phenomena set societies at a global level on the path towards our current environmental predicament.

One of the key premises of historical ecology (Balée 2006) is that if current environmental problems are to be resolved, we must first understand their origins, and it is to this goal that more zooarchaeologists are turning their attention, as the following selected examples illustrate. Before discussing these however, it is worth mentioning that some bias in terms of the spatial coverage of these studies is evident. Specifically, most are restricted to regions where there has been a long tradition of practicing 'historical archaeology', such as the Americas, Australia and the southern tip of Africa. Nonetheless, in the context of the discussion presented here, such projects are at least indicative of current trends within the subfield of zooarchaeology.

Susan de France (2003), for instance, has noted that many enduring features of modern Andean subsistence practices and diet had their origins in the colonial era. She analysed faunal remains from Potosi in the central Andes, and found that following the development of silver ore mining centres from the late sixteenth century, the Spanish attempted to introduce various European domestic fauna to the region. Her faunal analysis indicates that over a period of time animals from outside America, especially medium-sized caprines and chickens, became dietary staples in the region while dependence on wild resources declined (*ibid.*: 118). In particular, the Spanish encouraged the adoption of European species with a view to ensuring sustainable production of food to feed the growing population at the mining centres (*ibid.*: 123). However, around the high elevation mining centres these species did not fair well because domesticates were not adapted to the anoxic conditions. Instead, the Spanish had to relocate plants and animals of Old World origin to lower elevations. This encouraged entrepreneurs in the lowlands to intensify their farming methods so as to take advantage of the opportunities to export food resources to the mining centres.

A similar picture has been observed in the south-western United States, where introduced Eurasian domesticates had diverse impacts among Native American populations (Pavao-Zuckerman and LaMotta 2007). Analysis of faunal remains from the site of San Augustin de Tucson, for instance, revealed a major dietary shift among Native Americans, from an almost

complete reliance on hunted wild fauna in the 1760s to total dependence on domesticated livestock (cattle, sheep and goat) by the nineteenth century. Although the initial intention of the Spanish behind the introduction of European domesticates was to produce food that could support the Spanish military, missionary and civilian populations, Pavao-Zuckerman and LaMotta argue that the rapid adoption of animal husbandry by Native Americans was facilitated by an expanding European market economy. As in the Andes, they note that the rapidly growing human populations at colonial mining centres influenced and encouraged the Native Americans to adopt animal husbandry as a primary subsistence base.

Domestic animals from San Augustin de Tucson ensured not only constant meat supply but also offered secondary products that were in high demand at the mining centres, including hides (for containers) and tallow (for candles). Pavao-Zuckermann and LaMotta (2007: 2) argue that the shift towards managing large herds to meet the level of demand would have demanded intensive labour and types of infrastructure that were previously unknown in North America. As cited by Pavao-Zuckermann and LaMotta (2007: 2), Jordan (1993) is of the view that such practices required a shift in the way in which previously hunting and agricultural lands were used. He further argues that livestock keeping would have altered the landscapes, often negatively affecting vegetation cover, soil properties, and stream flow (*ibid.*).

Spielmann and his colleagues (2009) made use of zooarchaeological data to explore the different ways labour allocation and subsistence activities and diet among Pueblo residents changed following Spanish missionary activities in their area. They note in particular that as the Pueblo residents were increasingly required to devote their labour to maintaining the mission, including herding the mission's livestock, they were left with much less time for their own farming activities, which in turn reduced agricultural productivity in Pueblo villages (*ibid.*: 105-106). Faunal analysis also revealed a reduction in the proportion of wild animals, which Spielmann et al. argue can be attributed to direct monitoring of residents by the Spanish priests, a situation that would have restricted the area over which residents could move for hunting and gathering. Additionally, access to the meat of domestic stock would have possibly reduced the need for hunting large game.

Lyman (2006: 14) is of the view that palaeozoological [the same as zooarchaeological] data may help to reveal the long-term history of how different taxa responded to varying levels of predation and environmental change. This information is helpful in initiating efforts to

supplement their gene pool. Palaeozoological taxonomic abundance is the most useful ordinal scale and is best considered relative to the abundances of other taxa. Testing a population can also go hand in hand with looking for other evidence such as alteration in the demography of the kill, which in turn, can be related to increasing sophistication of hunting technology and increasing human population (Driver 2008). Thus, palaeozoological data can help to monitor spatial and temporal trends, which provide a series of benchmarks to conservation biologists (Lyman 2006: 15).

Archaeological deposits from San Miguel Island in California, for example, showed that over the past 1,100 years coastal inhabitants deposited bones and shells of >150 species, some of which are extinct today. The fish assemblage suggests that fishing increased in importance as human population grew and technology improved. Furthermore, species composition in the assemblage suggests that, by about 1,500 years ago, fisheries had expanded into deeper waters to target larger offshore species. Though data from archaeological records are significant, they still remain site specific, meaning that they can only be used to explain the local marine situation (*ibid.*). This example would equally suggest that future research on the fluctuation of fish species composition in the Pangani River may benefit from the use of similar palaeontological and archaeological records.

In line with this kind of argument, Fouch and colleagues (2009) recently used zooarchaeological data to investigate changing interactions between humans and the environment in the East African interior. Specifically, they analysed faunal remains from Kibaoni, a late pre-colonial village in the northern Rukwa Valley in Tanzania, near Katavi National Park, with the intended objective of establishing how humans might have shaped the Katavi ecosystem. Additionally, their analysis sought to reconstruct the pre-colonial distribution of animal species, including cattle, and determining how their ranges and abundances may have been altered in more recent periods (*ibid.*: 258). Their results indicate that the Kibaoni assemblage “contains a diversity of species such as carnivores, lagomorphs, equids, suids, giraffes, and all size classes of bovids. All of these taxa are still found in Katavi National Park and surrounding areas today, and are among the animals commonly hunted by valley inhabitants both for food and profit” (*ibid.*: 262). Their general conclusion was that the Kibaoni faunal records indicate that pre-colonial hunters did not focus solely on a few specific species, but rather practiced a more ‘opportunistic’ hunting strategy. The same zooarchaeological study suggest that the past residents of Kibaoni hunted a diverse group of

fauna similar to those exploited in the area today, and that European colonialism and subsequent demographic, political and environmental changes in Katavi National Park have had only limited effect on species diversity (*ibid.*: 265).

Nonetheless, as Driver (2008: 22) shows, the loss of species not only affects biodiversity, but can also have a profound effect on other aspects of the environment. Tropical mammals and birds, for example, are said to be among the key agents of seed dispersal, thus as their populations decline or become extinct, plant diversity and reproduction may also be affected. Similarly, the removal of some animals such as elephants and wild pigs also means the removal of species that physically transform habitats through their feeding activities. Additionally, the removal of predators and competitors can result in population explosions of animals that may become pests in agricultural fields, or further alter ecosystem structures.

Ecofactual remains found in archaeological records such as bones, teeth, hair and shells, can help to trace the past occurrences of animal species, their composition, abundance and distribution, over space and time (Heike *et al.* 2008). In some cases, these remains are recovered along with hunting tools, and so are helpful in reconstructing whether human exploitation was for subsistence or for trade. However, while faunal analysis stands a good chance of revealing such patterns, Driver (2008: 25) is cautious that such advantages will be fully realised if the methodological problems pertaining to sampling, quantification and chronology are resolved.

Apart from zooarchaeological records, historical ecologists can also expand their timeline by consulting historical records and living memories (Heike *et al.* 2008: 256). Historical records such as reports, maps, logbooks, catch records and even restaurant menus have been used to estimate the former distribution and abundance of marine animal species, especially those exploited by humans. For instance, River and Fromentin (2001) were able to reconstruct a 300 year time series of Mediterranean tuna catches from 1650 to 1950. Their records showed that long-term fluctuations in trap catches appear to be closely related to changes in temperature, and that since the 1950s a 60 percent decline in spawning stock biomass can be attributed to overexploitation (*ibid.*: 256). Similarly, living memories can also provide valuable insights into historical changes. Older fishermen may have experienced higher catches and larger sized fish than the younger fishermen. They may also tell of the appearance and/or disappearance of some species during their careers (*ibid.*).

As already presented in this chapter, increased demand during the nineteenth century in the capitalist world for ivory and other natural commodities (such as copal) from East Africa, is likely to have left some long-lasting environmental problems. Some of these problems are well-known from documentary sources. Many, however, remain poorly understood. As the zooarchaeological studies reviewed above indicate, analysis of faunal data from archaeological sites can inform us about the extent to which local agronomies are changed as a result of external intervention, the intensification of trade, production, and related processes such as colonisation or the shift to market economies, and lead to a better understanding of how local environments have been shaped by such processes. It is precisely such an understanding that is attempted in this study, with particular reference to the Lower Pangani River Basin.

2.6 Chapter Summary

Various aspects pertinent to the current study, both theoretical and practical, have been presented in this chapter. Since this is an historical archaeology study, the chapter began by exploring the origins of this sub-discipline, its development and practices while pointing out some variations across academic traditions and over time. An important issue emerging from this discussion is the differing perceptions and practices of the field between the Western world and Africa (with the exception of the southern tip of the continent). This difference has largely centred on the potential guiding sources used for history making, notably between written sources for the Western world and oral traditions for most of Africa.

Generally, it has been shown that the initial perception and practices of historical archaeology placed a large part of the African continent outside history (Stahl 2005). However, the brief overview presented above regarding the history of trade and contacts between East Africa and other parts of the world acts to counter this simplistic view. On the basis of documentary sources (for example, the *Periplus*) and archaeological evidence (e.g., Chami 1994; Chami and Msemwa 1997; Horton 1996; Horton and Middleton 2002), this contact can be seen to have deep antiquity, dating at least as far back as the last few centuries BC. However, the problem with most of these archaeological studies has been their limited spatial coverage and mainly coastal focus: neglecting the hinterland, as if these areas were socio-economically disconnected (Walz 2005, 2010). This long-existing perception, however, is contradicted by recent archaeological findings from interior sites, for example along the Mkomazi Valley (a section of the Lower Pangani Basin) where the existence of local settlements clearly point to continuing interactions with the coast over at least the last 1400 years (Walz 2005). The discovery of dated

imported material derived from the Indian Ocean trade along the Mkomazi Valley suggest the existence of exchange links between the coast and the interior extending back to c. 600–1000 AD, and possibly earlier in some places (*ibid.*: 202–7).

Particular attention has been directed towards exploring this history, and pointing out key relevant issues pertaining to the current study, particular as regards the expansion of the caravan trade during the nineteenth century. This sub-section dwelt on exploring in-depth the inferred consequences of the caravan trade expansion in East Africa; which include the emergence of well-defined caravan trade routes linking the interior with the coast; the appearance of formal markets and provision centres along the main caravan routes; realignment of settlements; socio-political turmoil; and, of great relevance to the current study, the hypothesised changes in agronomic systems geared towards producing surplus food for feeding the passing caravans.

In regard to this last consequence, it has been discussed that scholars have attempted to argue for possible agricultural intensification, specifically in regard to crop production for the passing caravans (e.g., Håkansson 2004; Håkansson and Widgren 2008). There is little mention, however, of how animal economies would have changed as a result of caravan trade expansion during the nineteenth century. This project thus intends specifically to fill this knowledge gap by using zooarchaeological techniques linked to the concept of historical ecology, as reviewed in the last section of this chapter. Having presented the intellectual background, the following chapter presents the profile of the study area.

CHAPTER 3

PROFILE OF THE STUDY AREA

3.1 Introduction

This chapter presents a general profile of the study area and key characteristic features of the Lower Pangani River Basin (LPRB). A particular emphasis is given to a small section of the basin that falls within Korogwe District where the three studied sites of this project are located. Therefore, physical and natural resources of the Korogwe District are introduced first, followed by brief discussions of the present climatic conditions of the district, its demographic data, and current ethnic composition. The chapter also describes the current major economic activities and pattern of natural resources utilisation. The concluding sections provide a review of nineteenth-century accounts of the study area in connection to the caravan trade, and a summary of the archaeological researches that have been undertaken in the Lower Pangani River Basin and adjacent hills, concentrating on those which are relevant to this study.

3.2 The Pangani River Basin: Physical Characteristics¹

The Pangani River Basin (**Figure 3.1**) covers an area of about 43,650 km², of which 3,914 km² lies in the district of Taita Taveta in Kenya, while the greater proportion falls within the administrative boundaries of Tanzania, and is distributed across four regions namely Kilimanjaro, Manyara, Arusha and Tanga (Turpie *et al.* 2005). The Pangani Basin is drained by two major rivers, the Kikuletwa and the Ruvu. There are also additional minor rivers sourced from the Pare and Usambara Mountains. The Kikuletwa River rises on the slopes of Mount Meru and eastern slopes of Mount Kilimanjaro, while the Ruvu originates on the eastern slope of Mount Kilimanjaro and Lake Jipe. The two rivers join at Nyumba ya Mungu, (an artificial reservoir constructed in 1968) where they form the main Pangani (also known as Ruvu) River, which runs southeast through the district of Pangani to the Indian Ocean.

The three study sites of Ngombezi, Old Korogwe and Kwa Sigi are among several other abandoned riparian settlements on the Pangani River that are mentioned as having served as

¹ For the general profile of the Pangani River Basin see: <http://data.iucn.org/dbtw-wpd/edocs/2003-079.pdf>; and for Tanga region and Korogwe district see: <http://www.tanzania.go.tz/regions/TANGA.pdf>.

regular caravan halts during the nineteenth century (e.g., Burton and Speke 1858; Farler 1882; Baumann 1891). Specifically, these are situated within the area known as the Lower Pangani River Basin, which covers the low-lying plain of the Pangani Basin, and stretches along the western and southern foot of the West Usambara Mountains and westwards towards the edge of the Maasai steppe; and farther south and southeast where the terrain drops gently towards the Indian Ocean coast. Today, the study area forms part of Korogwe District, one of seven districts that make up Tanga Region. The district falls between latitudes 4°15' and 5°15' South, and longitudes 38°0' and 38°45' East, and covers an area of approximately 3,756 square kilometres (URT 2008: 9). Administratively, Korogwe District has twenty wards, and the studied sites are found in three different wards: Ngombezi main site in the Ngombezi ward; Old Korogwe in the Korogwe Township ward, and Kwa Sigi in the Msambiazi ward.

The climate of the Korogwe district ranges from tropical to sub-tropical conditions. It is influenced mainly by the topography of the district and its proximity to the Indian Ocean (URT 2008: 12). The district's rainfall is derived from the south-eastern monsoon winds from the Indian Ocean. As a result of differential topography, the lowland areas of the district receive a mean annual rainfall of 500mm, while the mountainous areas get up to 2000mm a year. The windward facing mountain slopes of the West Usambaras receive more rainfall than the leeward sides, which remain much drier (*ibid.*). Two main rainy seasons are experienced in the district: the long rains - known locally as *masika* - start in March and end in June, whereas the short rains called *vuli* run from September to November. The temperature tends to vary between the mountain ranges and the lowlands, the mountain ranges experiencing temperatures on average between 15°C and 30°C, while the lowland areas experience warmer average temperatures, which in the hot season can be up to 38°C (URT 2008). In recent years, however, these climatic aspects, especially rainfall, have shown some inconsistency.

The most distinctive topographical features of Korogwe District are the Usambara Mountains and the Pangani River. The West Usambara mountains (**Figure 3.2**), rising to about 1,219 meters above mean sea level, occupy nearly 32.4 percent of the total area of the district (URT 2008: 10). The mountains are rich in exceptional plants and animals, many of which are endemic species. As a consequence, they are well-recognised internationally for their biological importance, and are listed among the world's top 25 biodiversity hotpots (Conservation International 2002; Halperin *et al.* 2005: 51).

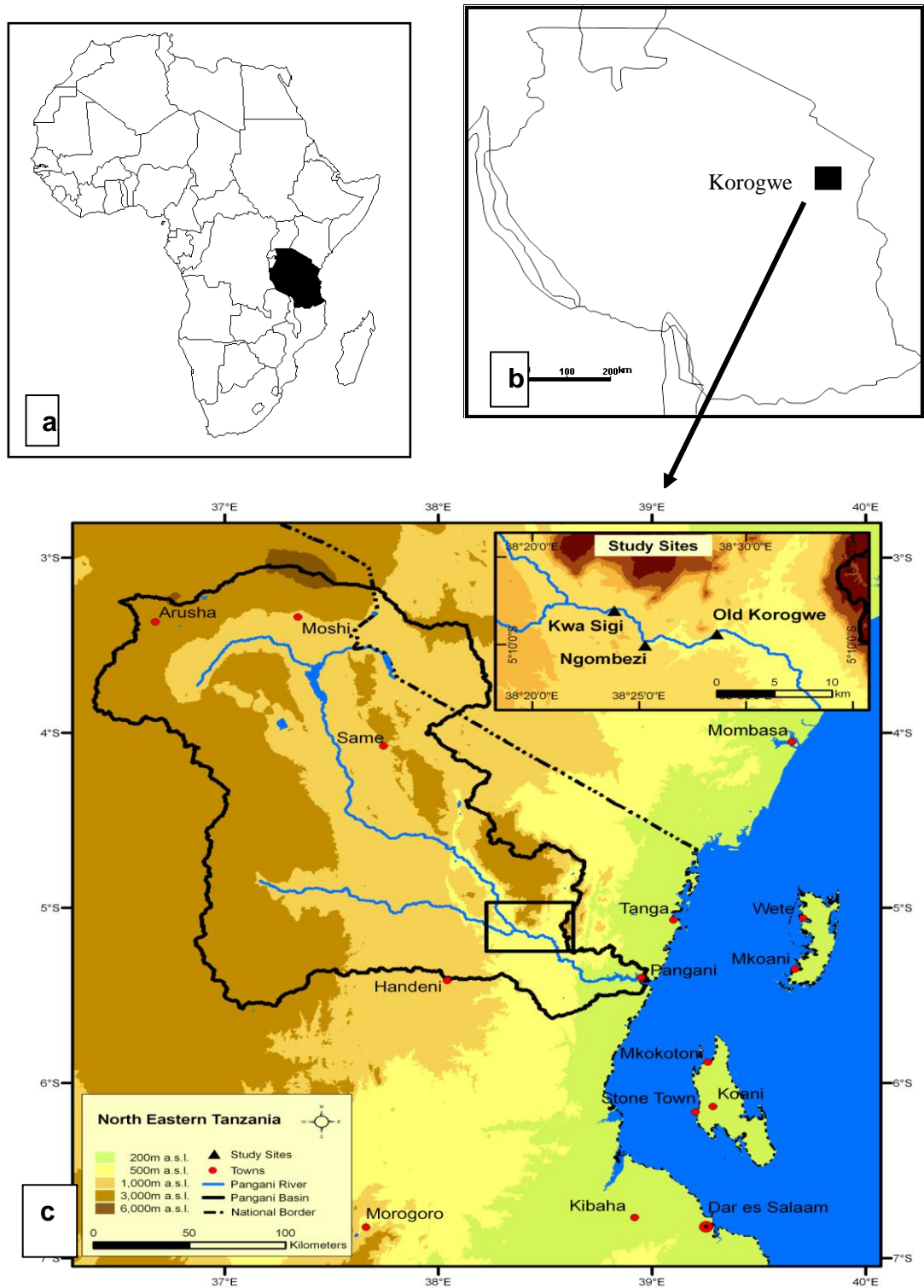


Figure 3.1: Location of the Pangani River Basin in its wider geographical contexts. Figure 3.1c indicates the location of the archaeological sites studied as part of this project.

The recognition of the scenic and the biological importance of the Usambaras is not a recent phenomenon, however. Back in the nineteenth century, one early European traveller, Rev. J.P. Farler who lived at Magila Mission station named this part of the country “the Switzerland of Africa” (1879: 82), observing that “no more fertile soil could be found in the world” (*ibid.*: 91). He went on to describe the flora of Usambara as “extensive”, and to include a diverse range of species including “ebony, copal, teak, acacia, the India rubber-tree, the orchella weed, the betel-pepper climber, prickly smilax ... several varieties of the strychnos tree, and many other trees producing valuable wood” (*ibid.*).

The Korogwe District is drained mainly by the Pangani River (also called Ruvu) and its tributaries such as the Mbezi, Vuluni and Kizara (URT 2008: 10). Other important rivers include the Mkomazi, Lwengera and Soni. Historically, the Pangani River (**Figure 3.3**) has played, and continues to play, a major role in local people’s livelihoods and the district’s economic growth at large. The river serves the community with water for domestic and other economic activities ranging from drinking water for humans and livestock, washing, gardening, irrigation and fishing (*ibid.*). More recently, the Pangani waterfalls at Hale have been tapped for hydro-electric power production to feed the national power grid. Additionally, the fertile alluvial soil along the banks of the Pangani River has made crop production possible (*ibid.*).



Figure 3.2: A view of Usambara Mountains from Ngombezi village. Photo: P.J. Lane, 2009



Figure 3.3: A section of Pangani River at Old Korogwe. Photo: P.J. Lane, 2009

The oldest geological formation of East Africa is the Precambrian metamorphic rock (Butzer and Cooke 1982), also referred to as the Basement complex system. The Korogwe District lies on this geological formation which was uplifted in the late Tertiary Period (Hartemink 1995). The parent rock materials of this formation include acid gneisses, pyroxene and hornblende granulites. The major soil groups found in Korogwe are loams as well as sandy and clay soils (URT 2008), which tend to be deep on the upland areas (except on ridges) and well drained (except in valley bottoms) (*ibid.*). Soil in these areas is characterised mainly by two types of latosols: humic ferrisols and humic ferrallitic soils (Hartemink 1995: 17-24). Though local variation in terms of soil texture is noticeable, the texture can generally be described as high in clay and sand (*ibid.*). Soil fertility is low in the bright red subsoil although the organic topsoil under forest cover has greater fertility (Lundgren and Lundgren 1979).

Soils on the lowland and gentle-sloping peneplain areas are derived from intermediate acid gneiss (Hartemink 1995). These rocks are intensively weathered - resulting in the formation of deep red earths; the bulk of the natural fertility of the soil, however, is provided by organic matter (Lundgren and Lundgren 1979). Soils on the crests and upper slopes of the landforms are usually deep and well drained. They are dark, reddish-brown clayey topsoils and dark to bright red clayey subsoils (Hartemink 1995). Meanwhile, soils found in the valley bottoms - so

called *mbuga* - are characterised by the constant alluvial deposition of clay washed down from the surrounding hills, resulting in vertisols that typically have very deep and dark coloured topsoils and dark greyish brown clayey subsoils (*ibid.*). Additionally, most of this soil type tends to crack when dry. As small islands within the fast flowing Pangani, soils around the study sites of Ngombezi, Old Korogwe and Kwa Sigi probably developed over a sequence of alluvial clays and sands deposited over bedrock by frequent flooding of the Pangani River (Heckmann, personal communication, 2010).

The topography of the district determines its vegetation distribution (Kaoneka and Solberg 1994; **Table 3.1**). The valleys and river margins, for example, are dominated by riverine forests, which are in turn significant in fortifying river banks (*ibid.*). These riverine forests represent unique oases for both humans and wildlife in arid and semi-arid areas of the district (*ibid.*). The lowland areas of less than 750 meters above mean sea level (a.s.l.) are characterised by evergreen forests, while the zones of between 750 and 1400m a.s.l., are composed of what has been termed intermediate forest. Finally, vegetation on the mountain tops (>1500m a.s.l.) comprises evergreen forest (Kaoneka and Solberg 1994: 209). The current vegetation at the studied sites comprises seasonal indigenous grasses with a few shrubs and trees along the river. However, most of the indigenous trees on these islands have been removed due to human activities such as farming, grazing and fuel wood collection (IPEP 2005: 4).

Among the rarer animal species found in the district's mountainous areas are tree hyraxes (*Dendrohyrax arboreus*); Swynnerton's squirrel (*Paraxerus vexillarius*), the lesser pouched rat (*Beamys hindei*) and Abbot's duiker (*Cephalophus spadix*). Usambara is also renowned for having important bird species, including: Usambara hylia (*Hylia usambara*), Usambara eagle owl (*Bubo vosseleri*), Usambara weaver (*Ploceus nicolli*), Hartlaub's Tauraco (*Tauraco hartlaub*), and the blue-mantled crested flycatcher (*Trochocercus cyanomelas*) (Halperian and Shear 2005). Furthermore, the Usambaras are reported to be the home of endemic frogs such as the Usambara Torrent Frog (*Arthroleptides martienssen*) and Kreffft's Frog (*Callulina krefffti*) (Moshia and Daggart 2002).

There is no reliable information about the presence of large terrestrial wild animals at and around the study sites. However, the presence of crocodiles in the tributaries of the Pangani has been reported regularly by villagers. In 1994, the crocodile population in the Pangani River within Korogwe District itself numbered about six hundred, and these were the greatest hazard

to the communities living along the Pangani and its tributaries, with a total of 51 people reported to have been killed due to crocodiles' attacks between 1990 and 1994 (Scott and Scott 1994: 1691).

Table 3.1 Vegetation of Korogwe District (after Kaoneka and Solberg 1994)

Topography	Vegetation type	Dominant plant species
Valleys and alongside rivers	Riverine forests	<i>Chrysophyllum</i> , <i>Newtonia</i> , <i>Parinari</i> and <i>Albizzia</i>
Lowlands (<750 m.a.s.l.)	Evergreen forests	<i>Afzelia quanzensis</i> , <i>Anisophyllea obtusifolia</i> , <i>Anthocheista grandifolia</i> , <i>Antiaris toxicaria</i> , <i>Milicia excelsa</i> , <i>Scarodophlocus flscheri</i>
Intermediate lands (750-1400 m.a.s.l.)	Intermediate forests	<i>Isoblerlinia scheffleri</i> , <i>Macaranga usambaransis</i> , <i>Myrtanthus arboreus</i> , <i>Newtonia buckanannii</i> , and <i>Parinari excelsa</i>
Highland/ Mountain tops (>1500 m.a.s.l.)	Evergreen forest	<i>Albizzia spp.</i> , <i>Cassipaurea spp.</i> , <i>Chrysophyllum spp.</i> , <i>Entandropbragma spp.</i> , <i>Ficalhoa laurifolia</i> , <i>Macaranga kilimandisharica</i> , <i>Ocotea usambaransis</i> , <i>Olea spp.</i> , <i>Parinari excelsa</i> , <i>Podocarpus spp.</i> , <i>Pygeum africanum</i> and <i>Syzygium guinense</i> .

3.3. Present Demography and Ethnic Groups

The national population census of 2002 reported Korogwe district to have 260,238 inhabitants, with an annual growth rate of 1.2 percent (URT 2008: 14). In the same census report, males comprised 101,398 (49.2%) whereas females numbered 104,854 (50.8%). About 89.8 percent of the population was reported to live in rural areas of the district, while only 10.2 percent inhabited urban centres (*ibid.*). It was noted from the same census that well-watered areas of the district such as Bungu and Korogwe divisions were more densely populated than the drier areas such as at Magoma and Mombo divisions (URT 2008: 16). Furthermore, rural areas of the district were reported to experience out-migration of inhabitants, the majority going to large towns and cities such as Tanga, Arusha and Dar es Salaam, to seek income-generating activities (*ibid.*). Such an out-migration tendency has led to a decrease of about 10 percent in the average sizes of rural households, which fell from 5.0 persons in 1988 to 4.5 persons in 2002 (*ibid.*).

In terms of ethnic composition, Korogwe district is heterogeneous. However, two major Bantu-language speaking ethnic groups, namely Washambaa and Wazigua, dominate in terms of ethnic composition (URT 1997: 4). Washambaa, who predominantly occupy the Usambara Mountains, constitute 42.8 percent of the total district population, while Wazigua constitute 18.1 percent. The latter ethnic group typically dominates the lowland areas of the district such as those along the Pangani River and the semi arid plains to the south. The current distribution of these ethnicities thus closely resembles their distribution as recorded in the latter part of the nineteenth century (e.g., Bauman 1891). With the creation of political boundaries, however, the Zigua-speaking people today are concentrated in Handeni District to the south, although their core distribution extends into the Korogwe and Pangani districts (Lane 2010).

Currently, all three study sites of Ngombezi, Old Korogwe and Kwa Sigi are surrounded by Zigua speakers, who refer to themselves as '*Wazigua wa Ruvu*' (the Zigua of the Ruvu [Pangani] River), so called because they have adopted a livelihood along the Pangani/Ruvu River (field interview 2008/2009/2011), as opposed to Zigua who live inland far away from the Pangani River. As discussed in subsequent chapters, it appears that the occupants of the studied abandoned island settlements were also '*Wazigua wa Ruvu*'. Historical accounts (e.g., Baumann 1891; Giblin 1992) as well as recent archaeological findings and oral interviews seem to accord with this assertion, and these details will be discussed further in subsequent chapters.

Apart from the Shambaa and Zigua, other ethnic groups found in the district altogether constitute 39.1 percent of the district population, and these include small groups of immigrants from nearby districts and regions, especially Wadigo, Wabondei, Wakwere, Wasegeju, Wapare, Wachaga, Wazaramo and Waha (URT 2008). It is interesting to find that the latter ethnic group came from as far as the Kigoma region in north-western Tanzania as cheap labourers to work in the colonial sisal plantations (Tambila 1983), and to date, the Waha are still found in and around areas of sisal estates (field observation 2008/2009; Lane personal communication June 2011). Non-Bantu language speakers within the district include Iparakuyo Maasai (Nilotic language speakers), and other smaller ethnicities such as the Mbugu, Vuna and Degere, whose origins are likely to be neither Bantu nor Nilotic. The Maasai and Mbugu are pastoralists who move widely across the district and wider region on a seasonal basis in search of pastures for their livestock.

Agriculture, both crop farming and livestock husbandry, are the main current economic activities performed in the district, engaging more than 90 percent of the rural community (URT 2008: 18). However, these are practiced on a very small scale, mainly for subsistence purposes, while small surpluses gained are often sold in the local markets, both within and outside the district. The average size of the plots farmed by individual farmers and households range from one to two hectares, and on these plots food crops such as maize, cassava, potatoes, banana and beans are grown (*ibid.*).

Maize is the most important and leading cereal grown in the district, followed by the production of paddy rice (URT 2008). The latter is grown in rain-fed swamps and irrigated fields along river banks. Cash crops grown in the district include sisal, cashew nuts, tea, cotton and fruits such as mango, orange, lemon and tangerines. Sisal plantations occupy nearly 16 percent of the total land of the district; some of these farms were established since the imposition of European colonial administration in East Africa (Tambila 1983).

Livestock keeping is the second most important agronomic activity, entailing the raising of cattle, goat and sheep, and chickens, with pig farming unpopular due to religious taboos (URT 2008: 25). Forestry and beekeeping are other economic mainstays in the Korogwe district. Both public and privately owned forests are exploited extensively for the production of charcoal, wood fuel and timber (e.g., Kaoneka and Solberg 1994; URT 2008), with most of these forestry products being sold in urban centres. Beekeeping, on the other hand, is practiced following traditional methods, with honey and beeswax harvested every year in February/March and in October/November (URT 2008). Similarly, these products have secured markets within and outside Korogwe.

Other economic activities in the district include small scale mining and fishing (URT 2008). Mining is a recent phenomenon following the discovery of mineral deposits of lime, gypsum, feldspar, ruby, tourmaline, rhodolite and komerupine at Mashewa, Mavumbi, Mombo and Tamota wards (*ibid.*). Fishing also takes place on a small scale and mainly to cater for subsistence needs and small scale market trading. This is carried out along the Pangani River and its tributaries as well as in small natural lakes and man-made ponds, from which Tilapiini and Clariidae are among several fish taxa available in the Korogwe district (*ibid.*).

3.4 Nineteenth-Century Accounts about the Lower Pangani River Basin

In all probability, there would have been some socio-economic, political and cultural changes within the ‘Zigua’ community between the nineteenth century and today. Relevant historical accounts are thus likely to be a better guide to the period prior to, during and after the expansion of the caravan trade. As Mapunda (2010: 5) has argued, we should also be alert to the possibility that communities’ ethnic boundaries change from time to time and in several ways, sometimes involving large-scale mobility of the whole ethnic group or a single clan, due to natural or culturally induced factors, or both. In the case of Africa, the establishment of national borders by colonial regimes in the late nineteenth and early twentieth centuries had a particularly profound effect (Mapunda 2010). For Tanzania, the Ujamaa policy of 1967, which aimed to promote national integration by bringing people of varied ethnic identities together through a policy of ‘villagisation’, accounts for similar difficulties in defining communities, ethnic boundaries and identities across space and time (*ibid.*; also see Iliffe 1979).

The Lower Pangani River Basin is no exception. Giblin (1992) is of the view that the ‘Zigua’ communities have often been fluid with permeable social boundaries, particularly during times of famine and other periods of economic or social stress. This was especially the case during the nineteenth century when misfortunes brought about by famine, warfare and slave raiding encouraged the pawning of family members across ethnic boundaries (Kimambo 1969; Feierman 1974; Giblin 1992; Willis 1992; Håkansson 1998). Nineteenth-century accounts and related documentary sources compiled by European travellers, missionaries, explorers and traders are thus helpful in understanding some of the nineteenth-century socio-economic, political and cultural aspects of the Zigua. This section examines these accounts to infer key issues relevant to this study: 1) the geographical extent and definitions of Zigualand; 2) nineteenth-century Zigua village and settlement characteristics (including the study sites); 3) nineteenth-century Zigua subsistence strategies; and 4) trade networks and characteristics.

3.4.1 Definition of Zigualand

Many of the nineteenth-century accounts (e.g., Burton and Speke 1858; Burton 1859; Baumann 1891) refer to the Lower Pangani River Basin as ‘Zigualand’ or ‘Usegua’, so called because this area was occupied mainly by ‘Zigua’ (also spelled Zegura) speaking people. Burton (1859: 100) described the territory of the Wazegura as spanning from south of the Pangani River to Cape Utundwe, and extending westwards as far as the Nguu hills. Similarly, when Oscar Baumann visited the Pangani Basin in the late 1880s he described the territorial

boundaries of the Wazegura as being bordered to the north by the Pangani River and by the Wami River in the south (1891:265). The eastern portion, which stretches almost from the Indian Ocean inland for about 80 km (50 miles), consists of a low, coastal plain rarely rising above 150 meters above mean sea level. Nineteenth-century accounts indicate that this area has generally been well-watered and favoured with both long and short rainy seasons. By contrast, the central and western part that stretches as far as the Nguu Hills and the edge of the Maasai steppe is far drier. What we learn today from these nineteenth-century descriptions is that the territory of the Wazigua has not changed significantly despite the socio-economic and political ‘restructuring’ that would have been brought by the caravan trade expansion in the region, and by later developments during the colonial and post-colonial eras.

3.4.2 Traditional Zigua Settlements and House Forms

Oscar Baumann (1891) provides a detailed description of the Zigua villages and house forms he saw when he journeyed along the Lower Pangani. He noted that Zigua villages were of considerable size, with the number of huts varying from ten to two hundred, with an average of thirty huts per village. This also includes the chain of island settlements on the Pangani River that were occupied by the Wazigua - who identify themselves as Waruvu (Burton and Speke 1858; New 1874; Farler 1882). According to Baumann (1891: 176), “the island villages of the Waruvu [on the Pangani River] are linked with the outside world by a footbridge (*uraro*), leading on to the bank. This is supported on posts which are driven into the river bed in the shape of forks and on these, stout beams are placed”. In crossing these bridges one had to balance on the planks, while a line stretched across [known as *Sigi* in KiZigua] served as a hand rail (**Figure 3.4**). The two last trestles of posts were not connected by a beam, but by two branches from a raffia palm which were removed at night. Baumann also noted “a distinctive feature of every Wasegua village is the large white heap of ashes piled up outside the village” (*ibid.*). However, he does not elaborate further about this feature.

The antiquity of the island settlements on the Pangani River has been a subject of scholarly concern; some dates have been proposed, albeit from a historical point of view. For example, Erhardt (Journal: 30, as cited in McInneshin 2008: 153-4) reported in 1853 that “the Wasegua have settled here [on these islands] in this fruitful region by the permission of Chief Kimweri”. This statement would seem to suggest that some of these island settlements only began to be occupied by Wazigua during the leadership of Chief Kimweri (Kimweri ya Nyumbai), the

‘King’ of Shambaa, who reigned between the second decade of the nineteenth century and 1862 (Feierman 1974: 10). Furthermore, these settlements have long been regarded as defensive camps of the Zigua, as Speke once wrote: “Of all villages the most secure from attack seem those that are situated on the river islands, where the division of the stream affords a natural moat, which no African art can overcome” (1864: 180). This said, however, it shall be demonstrated archaeologically that these island settlements on the Pangani River are of greater antiquity than previously thought (Chapters 4, 5, and 7).



Figure 3.4: Contemporary ‘traditional’ footbridge (*uraro*) at Kwa Mgumi Island.
Author’s Photo, 2009

Nineteenth-century traditional Zigua houses (*msonge*) were circular in plan, and made up of two concentric rooms (Lane 1997). The average sizes of Zigua house are 8m in diameter and about 4m high at the centre. The inner room (*kugati*) was usually 2.5m across, and was used as the main sleeping and cooking area. Above this space was a loft (*gumi*) where maize was stored. Other food supplies and household equipments may as well have been kept there. The outer area (*lukomero*) formed a concentric passage, approximately 1.5 m wide, around. Normally it was divided into between three or four sections by diagonal partition walls; these spaces were used variously: for penning sheep, goats and calves; as washing areas; as additional sleeping rooms; and as a veranda for meeting visitors. Within the compound there might have been additional circular houses erected, consisting of just the inner room. These were used as

sleeping huts (*tutu*) for unmarried sons or daughters, or married sons of the main occupants, or as cooking huts (*ziko* or *jiko*). The main *msonge*, on the other hand, was used by the male head of the compound, his senior wife and any pre-pubescent children.

Currently, most modern settlements in Ziguiland are fairly extensive and contain a mixed population drawn from a number of ethnic groups as indicated above. In the nineteenth century this was not always the case, however, and the current situation can be attributed largely to the implementation of ‘villagisation’ policies by the Tanzanian Government since 1967. Lane (1997) is of the view that these have had a noticeable effect on the organisation and use of space within Zigua households, and also on house forms. In particular, the older, cone and cylinder style has been largely superseded by rectangular forms (of the Zaramo, ‘Swahili type’) - originating from the coastal zone (*ibid.*).

3.4.3 Nineteenth-century Subsistence Strategies

Early European accounts (e.g., New 1875; Johnston 1879; Baumann 1891) indicate that the inhabitants of the Lower Pangani subsisted on farming, herding, fishing, hunting, and trading within the coastal networks. At some points, however, these accounts contradict slightly with recent archaeological evidence (as shall be shown in Chapter 6) concerning the scale, importance, and contribution of these activities to the livelihoods of the local populace in the Lower Pangani.

3.4.3.1 Farming

Farming was one of the prime undertakings in the Lower Pangani during the nineteenth century despite the fact that a large part of Ziguiland experienced drought. In this regard, Giblin (1992: 19) points out that those farming practices were particularly possible along the banks of the Pangani River and in the valleys; areas where moist lands were available for agricultural practices. Banana, millet, maize and rice were all staples, and these were grown in a mixed fashion for the purpose of exploiting the microenvironments available. Additionally, this helped to minimise the risk of crop failure, thereby ensuring food security, and generating surplus for trade (Giblin 1992: 21). The earliest nineteenth-century evidence suggesting farming was the main undertaking in this region, and that during this time communities were able to produce surplus for trade, comes from observations made by the missionary Johannes Krapf in the 1840s, who noted that Pangani town-based Swahili elites had:

“compelled the Mkafiri (heathen) to dispose of their produce, rice, Indian corn, horned cattle, sheep, goats, ivory, slaves, &c., to Mohammedans only, and to trade direct with Zanzibar, the course preferred by the tribes of the interior, to whom the Suahili sell clothes, copper-wire, beads, guns, &c. A large quantity of rice and Indian corn is thus yearly exported from the Pangani district”.

(Krapf 1860 [1968]: 373)

Krapf goes on to note that:

“Pangani people ... have constructed little villages along the river and brought the very fruitful soil into cultivation, by which they have obtained great influence among the heathen in this district”.

(*ibid.*)

Additionally, Burton and Speke witnessed, just southeast of Tongwe “during the hours of darkness ... two parties of savages armed with bows and arrows carrying maize to Pangani” (1858: 207). Although Burton and Speke did not elaborate why such an undertaking took place during night, McInnes (2008:133) wonders whether it was safer to travel through the area by night, or whether these individuals were attempting to bypass a particular toll somewhere.

As Krapf observed, along with several other accounts (e.g., Burton and Speke 1858; Farler 1882; Baumann 1891), nineteenth-century crop production in Zigualand not only met local needs but also generated a surplus to meet external demands, the latter possibly arising from the expansion of the caravan trade. More specifically, historians suggest that prior to the 1840s, crops were produced and exchanged between communities of different ecological zones such as between Zigua farmers and Maasai pastoralists (Giblin 1992: 23), and between Zigua and their mountain neighbours, the Shambaa (Kimambo 1996: 81-84). Produce was exchanged through barter in market places (*gulio*) held in several villages. Burton and Speke, for example, while marching from Maurui to Vuga to visit Chief Kimweri, witnessed the existence of several such local markets where villagers bartered their produce (1858: 199 and 211).

When Baumann visited Lower Pangani (towards the end of the nineteenth century), he noted that the Wasegua were producing considerably more grain than they needed for their own consumption, and that large quantities of grain were being exported to Saadani and Pangani (1891: 177). Apart from coastal markets, it is reported that Zigua cultivators also engaged in a

constant exchange of their produce with the pastoral Parakuyu Maasai and groups of hunter gatherers from whom they obtained cattle, milk, hides and ivory. The picture that emerges suggests that Wazigua would have taken advantage of being located between the Mrima coast and the dry interior regions further west, enabling them to sell their agricultural surpluses in both directions, while similarly acting as a trade hub for supplying coastal items such as cloth, brass wire, beads, knives, soap, firearms and gunpowder to the interior (Giblin 1992: 24). Giblin asserts that Zigua communities who lived within fifty miles from the coast would seem to have taken this advantage of selling in both directions because they could afford to transport the cargoes either way within this distance (1986).

3.4.3.2 *Livestock Keeping*

To a large extent, European travellers were not consistent in recording the presence of livestock in most villages they passed. However, the absence of such detailed narratives does not mean the absence of livestock in this region. Commenting on the gaps in such records, McInnes (2008:136) is of the view that “domesticated animals ... were not the spectacular part of the wild African landscape to European writers; they wanted wild mega fauna that matched their expectations of what Africa should be”. It could also be true that European travellers missed seeing flocks simply because during the nineteenth century livestock were often dispersed among different ecologies, this being a strategy against devastating losses if disaster befell a certain place (Feierman 1990: 52). When he visited Pangani, for example, Burton noted ‘rare’ animals on the edge of Pangani town and he observed that “cows soon die after eating the grass and even the Banyans despair of keeping them alive” (1872: 145; also see Burton and Speke 1858: 203).

However, some of the nineteenth-century texts provide indirect evidence suggesting that livestock keeping would have been one of the economic mainstays of the inhabitants of the Pangani. For example, Burton observed during his visit to Pangani town that the ghee (clarified butter, Swahili: *samlī*) being traded in town was “cheap and plentiful”, and that it was made in the interior by Wazegura and other ‘Washenzi’ [uncivilised peoples] with rich milk (1872: 145). This statement would suggest that there were substantial herds of cattle somewhere inland within Zigualand. The repeated accounts of raids by Maasai (e.g., Krapf 1860; New 1874, 1875; Johnston 1879) would also suggest that Zigualand held more than just a handful of cattle.

The earliest nineteenth-century accounts on the economic importance of livestock keeping in Zigualand comes from Smee and Hardy (1811 cited in Giblin 1992: 23) who reported the Uzigua area to have been the supplier of livestock to the Swahili ports of Pangani, Kipumbwe and Saadani, in exchange for cloth, beads, copper wire and iron goods. Almost sixty years later, Keith Johnston reported seeing cattle and goats, together with grain, being sent from the Rufu [Ruvu] Valley to the town of Pangani (1879: 546). Additional evidence to illustrate the prominence of livestock keeping in the Pangani Basin during the nineteenth century comes from the writings of the Rev. J.P. Farler who argued that the caravan routes passing through the Lower Pangani Basin were frequently preferred due to plentiful food supplies, notably cattle and sheep that were sold cheaply (1882: 731-32). With regard to cattle, Baumann reports having witnessed two common species, the long horned Sanga, and short horned Zebu, which were frequently very thin (1891: 177).

Because dense woodland and thicket vegetation attract tsetse flies (the vector for bovine sleeping sickness disease), the intriguing question remains: how was cattle keeping possible in Zigualand during the nineteenth century while the area is described to have been within the tsetse-fly belt? In his publications, Giblin (1990, 1992) offers answers for this by arguing that the nineteenth-century Zigua farmers were able to minimize such dangerous bovine infectious diseases (*trypanosomiasis* and *theileriosis*) through controlling the vegetation, and especially growth of woody scrub (the favourable habitat for ticks and parasites) by setting regular fires to create and retain Miombo woodland, and also by clearing trees and through frequent animal grazing.

Giblin (1990) also notes that through hunting wild animals, particularly pigs and buffalo (the wild game species that carry and spread the bovine infectious parasitic protozoa of the genus *Theileria*), Zigua farmers were able to reduce the spread of this dangerous infectious disease in the Lower Pangani. Following the same line of argument, Kjekshus (1996: 164) notes an increasing incidence of tsetse flies in large areas of Tanganyika in the early twentieth century, and he associates such an increase with the failure of the German (and later British) colonial authorities and settlers to adopt what he calls “important African initiatives for successful ecological control” which existed prior to their arrival. Thus, Kjekshus is of the view that the introduced colonial policies that prohibited vegetation clearing practices in the region would have been the main causes for the increase in tsetse flies and hence prevalence of sleeping sickness and trypanosomiasis.

Livestock, particularly cattle, played important roles among Zigua. Apart from its subsistence role, cattle also functioned in politics and patronage within these communities (Giblin 1992: 34). Exchange of livestock strengthened political loyalties and patron-client relations, both within the Zigua farming communities and between Zigua farmers and neighbouring Maasai pastoralists (*ibid.*). For example, Wazigua being a matrilineal society, in competition with mother's brothers for affection and loyalty of children, fathers derived advantages from owning livestock that could be promised as inheritance to sons and daughters (Giblin 1992: 35). Some of the livestock were thus used to pay bridewealth for sons. This involved the transfer of a few cattle, goat and sheep (*ibid.*).

Traditionally, the Zigua dramatised the symbolic and political importance of cattle, goat and sheep in rituals (Giblin 1992: 37). During major ceremonies in honouring the dead, a sheep was slaughtered by a political leader, who in conducting such rituals demonstrated his ability to mediate between the living and the dead. Thus, the possession of livestock was associated with leadership at post-burial feasts whereby rival leaders vied to show whose authority over the deceased had been paramount, as this was demonstrated by supplying a cow or goat as the patron's obligation to provide meat in fulfilment of such duties (*ibid.*).

Giblin (1992) also argues that in Zigualand wealthy stock owners attracted clients for whom a relationship with a cattle-holding patron acted as sufficient insurance against destitution. Villagers who held a few or no animals could borrow cattle from livestock owners and continue to gain some of the benefits of stock ownership, including milk and manure for their fields. Such arrangements also gave a chance for clients to build their own small herd slowly, because every third calf born in the care of the borrower became the owner's property. This manner of distributing livestock guaranteed greater food security in the context of crop failure. In some cases, the Zigua cattle were allocated to Maasai herders in a vector free steppe land (Giblin 1992: 35). This helped the Zigua cultivators to maintain close relations with the Maasai and thus providing them with access to milk and hides. It also allowed the Maasai pastoralists to obtain iron and other craft products, medicines, grain and other cultivated food as well as access to dry-season water sources and the right to graze their cattle in stubble-strewn fields after harvests. In turn, through grazing, the Maasai helped to keep grasses short, and hence kept the numbers of ticks near villages limited (*ibid.*).

3.4.3.3 *Hunting and Fishing*

Little is mentioned in the nineteenth-century sources concerning hunting and its contribution to the livelihood of the communities in the Lower Pangani. The scant documentary evidence available seems to suggest that larger wildlife was rare and only intermittently destructive to cropland. Burton did not witness any of the larger species, but was told of their presence:

“[W]e did not see a single specimen [but we] heard many tales of mabogo, or wild cattle, and of lions; of leopards in plenty; of a hog, probably the masked boar; amongst many antelopes...”

(Burton 1872: 169)

Some years later, while on his way from Pangani to Hendei [Handeni] Thomson noticed the scarcity of wild game (1879: 561). Nonetheless, animal species frequently seen included two species of mongoose, one of which he describes as the “ordinary dull-grey striped form, the other one being black with longer hair and much larger in size attaining to that of the cat”, hyenas, antelopes, boar and monkeys (*ibid.*: 265). Elsewhere in the adjacent mountains of Usambara, Krapf reported having seen “many dogs, something of the Jackal species, reddish brown and white, which the Wasambara make food of” (1860: 225).

Baumann (1891: 177) mentions briefly that hunting and fishing played only a small part in food provisioning for the Wasegua, with hunting being carried out by means of guns (for the larger animals) and snares (for the smaller ones). However, he does not provide a list of animal species that were being hunted and consumed. With regard to fishing, Baumann acknowledges such undertaking was being conducted skilfully by the Waruvu along the Pangani River (*ibid.*). Once again, however, he does not mention its contribution to the diets of the communities involved. Contrary to these documentary sources, the current project has revealed significant dietary contribution of a range of wild animals and fish (Chapter 6).

3.4.3.4 *Trade and Exchange*

When the coastal town of Pangani was connected directly with the Indian financiers in Zanzibar from 1837, the Pangani Basin region also became re-connected with the coastal trade system (Kimambo 1996: 88). At this time, the Zigua of the Lower Pangani became trade specialists: supplying ivory and some slaves to the coast, in exchange for coastal goods such as cotton cloth, beads, brass and iron wires, and, to a small extent, firearms (*ibid.*; also see Walz 2010 for the long time depth of these connections). Giblin (1992) argues that the great

majority of the Zigua in the Lower Pangani became well-adapted to this trade as a means of livelihood partly because a large part of the environment in which they lived was arid, and so did not favour cultivation.

Several changes were witnessed in the Lower Pangani for the period between 1837 and the 1850s. Kimambo (1996: 90) argues that since the sources of ivory near the coast would have been exhausted by the 1850s, the main source would have remained further into the interior. As a consequence, large numbers of people started to organise themselves in the form of caravans, and travelled between the coast and the interior, looking for ivory and other natural goods, in exchange for coastal imported items (also see Håkansson 2004). By the second half of the nineteenth century the general population in the Lower Pangani Basin became more directly involved in this trade. Not only did the Zigua villages along the Pangani River and adjacent areas supply provisions to the passing caravans, these villages also provided security to coastal traders and some of their settlements became major long-distance trade stations and caravan halts (e.g., Burton 1859). Additionally, some of the Zigua chieftaincies became more powerful due to successful control of the caravan trade (Kimambo 1969, 1996; Feierman 1974).

Customarily, once the caravans arrived in villages guns were fired by traders to announce their arrival and within a short time villagers would bring foodstuffs along with other local products to barter for coastal goods, some of which - beads, cloth, brass wire, and other metal objects - could be reasonably described as behaving like currency by this time (Burton and Speke 1858: 218; Farler 1882: 741). Similarly, when the missionary Krapf visited Chief Kimweri, he carried with him what he called “needful articles” - including calico, beads, knives, and so on - for presents to the chief, and for the purchase of provisions (Krapf 1860: 216). The two examples provided above clearly illustrate how the penetration of coastal goods into the interior of East Africa influenced, to some extent, the existing socio-economic, political and cultural set-ups of the local communities (Håkansson 2004; Prestholdt 2004; Palaver 2009).

Krapf (1860: 100) reports the Usegua area to have been a “big centre of the slave trade” following what he observed during his visit at Pangani in 1844. Krapf noted that Arabs from Zanzibar would go to Usegua and promise the chiefs a number of muskets, with powder and shots, for a certain number of slaves, and that the chiefs would then use those firearms to ambush and burn villages, as well as carrying off the inhabitants for sale as slaves (*ibid.*). The

period from the 1860s onward witnessed the intensification of slave raiding; an activity that became more prominent than the ivory trade in the Pangani Basin (Kimambo 1996: 91).

Competition for controlling trade among chieftaincies emerged, leading to some kingdoms rising to power whilst others collapsed. Burton and Speke (1858:380) report to have seen the Wazegura, originally a peaceful 'tribe', becoming especially predatory during the 1860s, following their acquisition of firearms obtained from Zanzibar. This was also the period when the Wazegura were reported to be "burning and murdering, kidnapping and selling in all directions" (Burton and Speke 1858: 204). On their map (**Figure 3.5**), Burton and Speke indicate several villages between Pangani town and Chogwe Fort having been burnt and destroyed (*ibid.*: 189), although there is no way of knowing that this was directly the result of slave raiding.

Similarly, in the Usambara Mountains Charles New (1875: 321) observed that human populations had been declining, and reported that the inhabitants were unsettled. He attributed this situation to the frequent wars caused by what he calls "love of victory and power as well as money obtained through selling prisoners of wars to the coast as slaves". The first hand observations by Keith Johnston (1879) would suggest that there were other reasons for the unsettled life in the Lower Pangani apart from slave raiding. During his visit in the Lower Pangani Johnston noted some of the Zigua settlements uninhabited, and he associated this with the raiding by the Maasai for Zigua cattle. However, Jennings (2005) is of the view that such raiding would have been restricted in areas along the western side of the Basin.



Figure 3.5: A chain of burnt Zigua villages between Pangani town and Chogwe. Source: Burton and Speke 1858: 189.

Additionally, although the idea of Maasai raiding is a view shared by some scholars, McInneshin is cautious about the geographical coverage of such raiding activities in the Pangani Basin, arguing that the targets of the Maasai raids were areas on the northern side of the Usambara ranges (2008: 155). The evidence presented to suggest that Maasai raids did not reach the Lower Pangani Basin, especially below the confluence of the Mkomazi, is “Erhardt’s story of Maasai being repulsed at Mazinde in 1853, by an alliance of Shambaa (under Kimweri’s son Semboja), Wazigua (under Kifuma), ‘Arab’ caravaners (probably Swahili), and Parakuyo; and the distant nature of the Maasai bogeymen described by Burton and Speke” (McInneshin 2008: 155). This issue however, should not be confused with the raiding for slaves, which intensified across the Lower Pangani area during the second half of the nineteenth century due to increasing need for plantation labour along the coast (Glassman 1995; Lane 2011).

3.5 Documentary Records Relating to the Study Sites

Nineteenth-century documents such as descriptive reports (e.g., Burton and Speke 1858; Farler 1882), cartographic evidence (e.g., Baumann 1891) and sketch maps (e.g., Burton and Speke 1858), have indicated that the studied settlement sites of Ngombezi, Old Korogwe and Kwa Sigi, all lay along one of the nineteenth-century caravan trade routes that passed through the Pangani corridor. These sites were some of the regular caravan halts from which the caravans obtained provisions before continuing with their long marches towards the interior (Burton 1859: 79 & 111; Farler 1882). Of these sites, however, the island of Old Korogwe (referred to in most nineteenth-century documents as *Kobode*) seems to have been better documented than the others.

The earliest published description of this settlement comes from Burton and Speke (1858: 209), and the site is also shown on their sketch map (*ibid.*: 189: see **Figure 3.6**). Described as one of the halts on the Ruvu [Pangani River], during Burton and Speke’s visit it was under Sultan Momba who they described as a “very friendly person” (*ibid.*: 209.). The village was surrounded and concealed by a stout palisade of tree-trunks, and the houses were of wattle-and-daub construction (*ibid.*). Inhabitants of the island were Zigua cultivators who are also reported to have kept numerous cattle and caprines, with both being stalled near human habitations. Burton and Speke noted that the inhabitants of Kohode [Korogwe] had become “masters of muskets, and use the arm to oppress and plunder ... armless communities” in the vicinity, obtaining the muskets, shot and gunpowder from passing caravans. Similarly, Sultan

Momba of this island village is described as a “thorn in the side of Sultan Kimwere [Kimweri]. He harries Usambara cattle with [a] merciless hand” (*ibid.*: 210).

Keith Johnston’s map in his *Notes of a Trip from Zanzibar to Usambara* (1879: 559) also shows a chain of island settlements on the Pangani River, one of these being the island of Korogwe [Old Korogwe]. Other villages indicated on his map include Kwa Mgumi, Sambwe, Zavuza and Panemo (**Figure 3.7**). As for Old Korogwe, the other four mentioned islands still exist and are still known by the same names today.

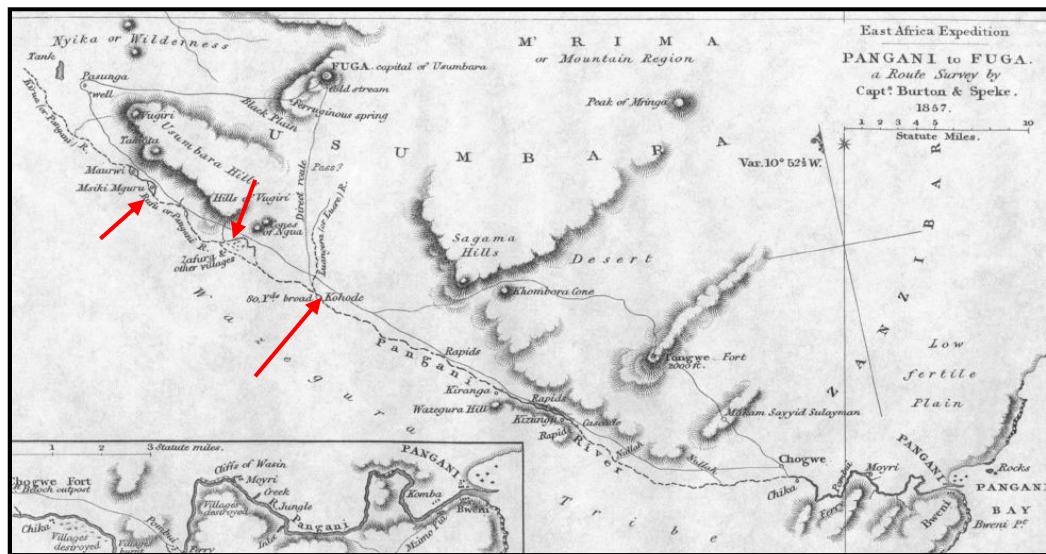


Figure 3.6: Sketch map by Burton and Speke (1858: 189) showing the nineteenth-century island settlements on the Pangani River. The arrows point to the locations of the sites investigated for this project.

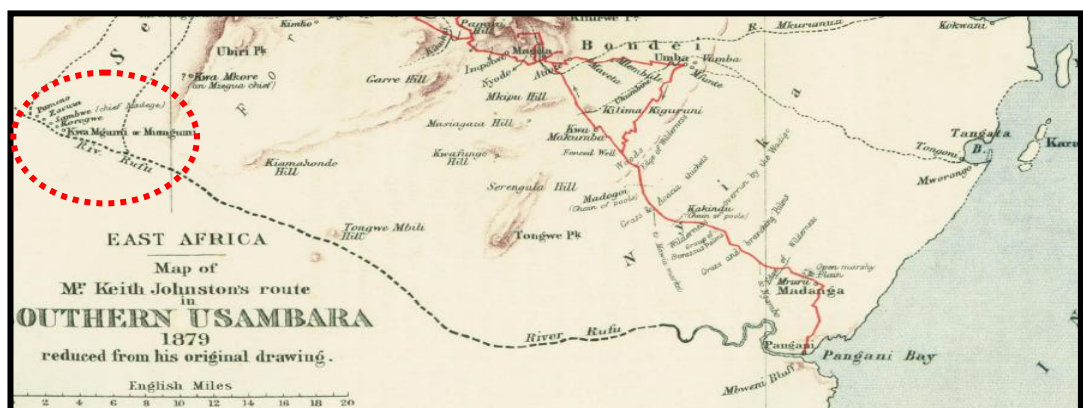


Figure 3.7: Keith Johnston’s (1879: 559) map showing the nineteenth-century island settlements (in dotted red circle) on the Pangani River.

In his account, Oscar Baumann (1891: 176) describes the island settlement of Korogwe [Old Korogwe] as an example of the “impressive villages of the Waruvu” located on the Pangani and linked with the outside world by a footbridge (*uraro*), “across which even small livestock can be driven one at a time” (**Figure 3.8**).

Baumann also described Hans Meyer’s (1890) depiction of this same settlement (**Figure 3.9**) in the following manner:

“The large village of Korogwe, inhabited by Wasegua, extends beautifully along both shores of the rapid flowing Ruvu, which is about 20 yards wide. The beautiful riverine vegetation and the numerous, magnificent coco palms that bend over the river, the original primitive bridge and the entanglement of round huts between which indigenous people in traditional indigenous Swahili customs and many children are shown, meld into a beautiful, lively picture”²

(Baumann 1890: 119)

Unlike the island of Old Korogwe, Ngombezi is scarcely mentioned in the nineteenth-century documents. Two possible reasons may explain this situation, one being the possibility that the island had a name other than Ngombezi, which was not recorded (since in some cases place names change). It is also possible that early European travellers to this region did not reach this island, and so did not record its existence. On their map, Burton and Speke (1858: 189) have simply shown the island village of Zafura [Zavuzza] amalgamated with “other villages”. Judging from Zafura’s location on their map, it is possible that Ngombezi could be one of these ‘other villages’ (see **Figure 3.6** above).

Despite the lack of mentions in the nineteenth-century accounts, this study revealed the rich oral histories and archaeological potential of Ngombezi similar to those from the better documented site of Old Korogwe. Indeed, Ngombezi turned out to be the major site for the current study for fulfilling key research objectives of this project.

² “Das grosse Dorf Korogwe, von Wasegua bewohnt, zieht sich sehr schön zu beiden Seiten des reissenden, etwa 20 Schritte breiten Ruvu dahin. Die schöne Ufervegetation und die zahlreichen prächtigen Cocospalmen, die sich über den Fluss neigen, die orginellen, primitive Brücke und das Gewirr der runden Hütten, zwischen welchen die Eingeborenen in Suahelitracht und viele Kinder zu sehen sind, vereinen sich zu einerschönen lebhaften Bilde”. Translated from German to English e by Matthias Heckmann 2010



Figure 3.8: A view of Old Korogwe island from Bank. Photo: P.J. Lane, 2009

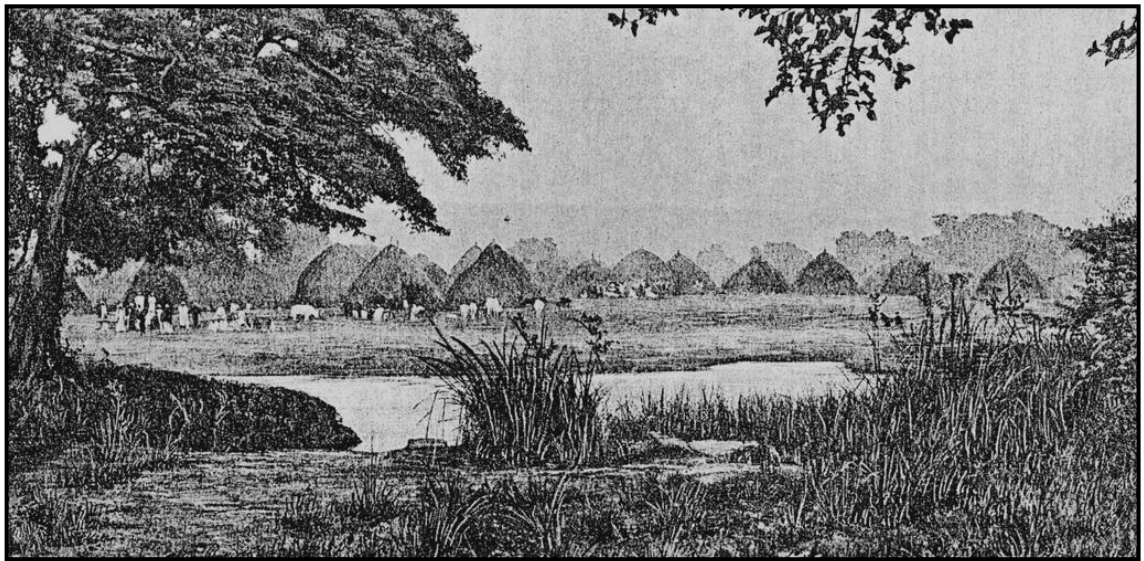


Figure 3.9: A nineteenth-century view of Old Korogwe.
Source: Baumann (1890, by Hans Meyer).

Likewise, the study island site of Kwa Sigi is rarely mentioned in the nineteenth-century historical sources. However, based on the descriptions given by Burton and Speke (1858: 211) concerning the distance from one island settlement to another, Kwa Sigi's location fits well with the village named on their map as Msiki Mguru. According to Burton and Speke (1858: 189 & 211) this island village is about twelve miles from Kohode [Old Korogwe], and the next island village after Msiki Mguru [i.e. Kwa Sigi] is Maurui - three miles from Msiki Mguru. Msiki Mguru is described as having a “cluster of huts on an island formed by diverse branching of the Pangani” (*ibid.*: 211). On arrival at Msiki Mguru on 13th February 1857, Burton was told a

story about the Maasai having just attacked two nearby villages (not mentioned), plundered and murdered inhabitants, and driven off the herds (*ibid.*).

An article titled *The Burning of Kwa Sigi Village* that appeared in the mission newsletter 'AFRICAN TIDINGS' (see **Appendix A**) is a piece of documentary evidence found at Magila Mission station during this research that provides additional information about the settlement of Kwa Sigi, particularly during the last quarter of the nineteenth century. The author, W.H. Kisbey reported on November 1st 1898 that Kwa Sigi village had been destroyed by fire. He describes the island as having been formed by the river dividing into two main streams, "one broad and lake like, the other narrow and rapid". The settlement comprised several closely spaced huts as well as numerous coconut palms. All these were destroyed by a fire said to have been caused by a woman putting some oil too close to a cooking hearth. It is reported further that the fire caused severe damage to properties and serious loss of food since the "Zigua have the foresight to put by a reserve stock sufficient for six months" (*ibid.*). However, it appears that by the time this report was published several houses on this island had already been rebuilt, a school that was closed due to this incidence had reopened, and normal life in the village had already recovered. The chief of this island is described to have been friendly and respectful to the missionaries.

As a summary, the nineteenth-century records on the socio-economic, political and cultural environment of the Lower Pangani River Basin have been presented in this section. It appears that by the mid-nineteenth century the Basin had experienced population expansion and prosperity. The claim made by Burton (1872: 211), that "flocks and herds clustered over the plain" could be considered as indirect proof for such an assertion. It is possible, therefore, to link the reduction in wildlife across this region with the spread of human settlements, coupled with the expansion of human activities, notably farming and livestock keeping (for similar argument see Kjekshus 1996: 71). Perceived this way, the presence of such developments contradict the descriptions concerning continual violence in the region in the mid-nineteenth century (e.g., Krapf 1860: 100; Burton and Speke 1858: 204; Johnston 1879: 556-7); thus, such descriptions might have been exaggerated. There might have been periodic conflicts happening in this region but rarely would these have caused major population disruptions.

In regard to the study sites, it has been shown that the site of Kohode [Old Korogwe] is far better documented in the nineteenth-century sources than Ngombezi and Kwa Sigi. These

accounts nonetheless indicate that the three study sites were among several island settlements on the Pangani River that lay along the caravan trade route, and were some of the regular caravan halts in the Lower Pangani during the nineteenth century. Historical accounts indicate that these settlements were inhabited by Zigua speakers who identified themselves as Wazigua Waruvu [the Zigua of the Ruvu/Pangani River]. They are pictured as having been good cultivators and skilful fishermen who also kept a good number of livestock. It has been indicated that these settlements were carefully selected by coastal traders because of the assurance of provisions, water and security (Farler 1882: 731).

3.6 The Nineteenth - Century Town of Pangani

Since the caravan route that passed the three study sites terminated at the coastal town of Pangani, this chapter would seem incomplete without a short history of this historic town. Pangani emerged as a vibrant international trade hub soon after Sultan Seyyid Said shifted his capital from Muscat to Zanzibar in the 1840s, and brought the East African trade firmly under his control (Kimambo 1996: 88). Also, trading activities along the coast that were formerly financed only in Zanzibar shifted to Pangani town during the second half of the nineteenth century (e.g., Sheriff 1987; Kimambo 1996), with the Zigua and Kamba emerging as key players in this trade by linking communities deep in the interior to the coast.

The earliest written descriptions of Pangani town were made by Krapf who visited briefly in January 1844. During his visit Krapf noted that the territory south of the Pangani River [probably Bweni] was inhabited by 'Wasegua' who he described as "great dealers in the slave trade" (1860: 100). As early as 1852, Krapf also observed that trade relations between the Zigua in Pangani and the Arabs (i.e. Omani) from Zanzibar were centred on slaves, noting that this was propelled by the widespread availability of muskets in the Pangani region (*ibid.*). A similar picture concerning slavery and slave trade in Pangani is painted by Richard Burton who first visited the town in the 1850s. On his visit, he recorded the population of Pangani town together with 'three other villages' to be about 4000 inhabitants, and noted that a large number were female slaves (1872: 331). Additionally, Burton and Speke further indicate in their accounts that the town of Pangani was surrounded by a thick thorny jungle full of dangerous wild animals that also "acted as refuge for local people when pursued" (1858: 202). The impression obtained from the aforementioned accounts would thus suggest that the town of Pangani gained its supreme position through the slave trade with Zanzibar.

During his visit in 1857, Burton found twenty Indian merchants in the town who were the main importers and exporters of trade goods, as well as the primary financiers of the caravan trade (1872, Vol. I: 328-9). It is reported that these merchants made a huge profit through lending money and imported goods to Arab and coastal Swahili traders who handled much of the caravan trade between the coast and the interior mainland (*ibid.*). The same Indian merchants in Pangani (all from Kutch, India) owned substantial stone houses and large plantations, as well as a large number of male and female slaves (*ibid.*: 331).

Caravans heading for the interior were equipped at the town, and led by a few prominent Arab and Swahili traders. Formed of up to 1000 individuals, the caravans were loaded with imported commodities such as iron and brass wires, brass chains, a variety of beads, cloth, and guns, for interior markets (Burton and Speke 1858). As cited in Lane (2011: 292), Benjamin (1998) asserts that there is at least one record indicating the involvement of an Indian merchant in Pangani town named Larji, who as the customs officer in town advanced trade goods to Arab caravan traders against the slaves the latter subsequently brought from the interior. One of these traders, by the name of Hadji, spent two years in the interior, accumulating slaves, some of whom were part of his caravan for at least eighteen months before he returned to Pangani town (*ibid.*). On returning to Pangani, the caravans brought ivory, rhinoceros horns, hippopotamus tusks and slaves among other commodities (*ibid.*). Burton and Speke noted that a huge amount of these commodities were being exported to Zanzibar; estimated to comprise 35,000 lbs (~15,875kg) of ivory, 1750 lbs (~1,750kg) of black rhinoceros horn and 160 lbs (~72.5kg) of hippopotamus teeth (i.e. tusks), along with grain, tobacco, livestock (cattle and goats) and ghee, being sent to Zanzibar annually (1858: 204).

Oral traditions recorded in Pangani town repeatedly mention a notorious slave dealer known locally as Gosi la Tembo [old male elephant] who based his activities at Bweni, on the shore opposite Pangani town (Lane 2011: 292). There are still several standing buildings there that may well have been connected with his slave trade activities (**Figure 3.10**). Apart from the outlined observable physical remains, it will be shown in subsequent sections that Pangani town has very rich buried records of potential for reconstructing the long historical trend of its development in the context of the Indian world economic system. The next section focuses on previous archaeological studies in the Lower Pangani River Basin.



Figure 3.10: A Nineteenth-century building at Bweni, popularly known as Gosi la Tembo's dwelling, which was possibly used as a slave depot. Photo: Lane, 2009

3.7 Previous Archaeological Research in the Lower Pangani River Basin

A limited amount of archaeological research has been undertaken in the Lower Pangani River Basin, most of which has concentrated in particular on the Pare and Usambara Mountains, as well as in some lowland areas around Pangani. These include the surveys and excavations by Soper (1966, 1967, 1968, 1971), Gramly (1981), Schmidt (1989), Lane (1991, 1993) and Walz (2005, 2010). The project *Historical Ecologies of East African Landscapes* (HEEAL), of which this study was a part, has also extended some of this earlier works (e.g., *On Site Archaeology* 2010; Heckmann 2011). There is also ongoing research in areas around Pangani Bay by the Archaeology Programme of the University of Dar es Salaam. This section reviews these, focusing on those aspects most pertinent to this study.

Archaeological surveys and limited excavations by Robert Soper (1966, 1967, 1968, and 1971) in the 1960s covered the Pare and Usambara Mountains as well as adjacent hilly slopes and lowland areas of the Korogwe District, and have remained very influential. Of immediate relevance to the current study is Soper's (1967) report on thirty archaeological sites in South Pare and about fifty in the Usambara Mountains. From these areas Soper discerned six

'Groups' of pottery, the earliest of which being Kwale Ware that he linked to the expansion of early farming and metal using communities associated with the spread of Bantu languages. He divided the rest of the pottery into five types, which he termed 'Groups' A to E. While Kwale Ware was the only pottery type common to both mountain ranges, pottery Groups A and B were reported to be restricted to South Pare, while pottery Groups C, D and E were found in the Usambaras.

Soper (1967: 21) lists six sites in the Usambaras that yielded Kwale Ware namely, Bogolo, Zigua, Mwele, Kazita, Mlaza and Shungii, and three sites in South Pare – Nzanano, Ntenga and Bombo Kabauri. The Kwale materials reported by Soper was weathered and had a crumbly texture, but in form and decoration was identical to that from the type site of Kwale near the Kenyan coast, where it has been dated to 1730 ± 115 years BP (*ibid.*: 24); a date which calibrates to between the mid-first to mid-sixth century AD, using calibration programme OxCal v3.1.0 (Bronk Ramsey 2005) and calibration curve IntCal 04 (Reimer *et al.* 2005). On typological grounds, these materials are now widely regarded to be an Early Iron Age development of Urewe Ware (Chami 1998; Helm 2000).

Group A pottery (also termed Maore Ware) from South Pare was found on the mountains and the lower areas at Gonja Maore (the type site for Maore ware), Nduru, Nzanamo, Ndolwa and Mkame wa Mafingo, and was originally dated by reference to a radiocarbon determination of 1080 ± 115 years BP (Soper 1967: 24); a date that calibrates to 685 to 1173 AD, cal at 95.4% probability (using Bronk Ramsey 2005 and Reimer *et al.* 2005). This pottery group consists of thick, round-bottomed, water or cooking pots decorated with roughly incised lines that can be horizontal, vertical, or diagonal, and usually occur in combination. Plain hemispherical bowls and thin walled spherical pots, finely made with burnished, graphited surfaces are also represented in some assemblages (*ibid.*). Faunal material associated with this pottery comprised both domestic and non-domestic species. Other materials associated with Maore pottery include glass and shell disc beads – signifying an existence of trade and exchange between coastal and hinterland communities in the early second millennium AD.

Group B pottery (1060 ± 110 years BP or approximately 760 to 1210 cal. AD) was located at Bombo, Igoma Ijevu, Goma Kalimani, Gonja Kalimani and Kazingamwe (Soper 1967: 27). This pottery is of two types: round-bottomed, globular pots with a wide mouth with decoration that consists of bands of parallel lines, either horizontal or wavy, or occasionally

vertical, combed on with some implement; and smaller, better finished, open pots or bowls decorated with horizontal and vertical bands of neatly impressed dots. Shell disc beads as well as glass beads occur on all the sites – indicating trade connections. As it shall be shown in subsequent chapters, Group B pottery (together with shell and glass beads) was also recovered at the studied sites of the current project – thus extending the known distribution of this ceramic (see Biginagwa 2009). At the study sites of this project, Group B pottery is mixed with pottery Group D (the latter discussed below).

Group C pottery (also known as TIW or Tana Ware) was regarded by Soper as a possible archaeological indicator of links to littoral communities since similar ceramics were already known from coastal sites such as Amboni Cave near Tanga (1967: 31). Subsequently, many more TIW/Tana Ware sites have been found and their chronological and cultural associations are much clearer (e.g., Chami 1994, 1998; Helm 2000). Ceramic vessels in Group C consisted of round-bottomed, open pots with a slight shoulder from which the upper part slopes inwards and upwards to more or less vertical rims; the most common motifs are rows of triangles pointing uppermost, which may or may not be hatched in, and are often based on a row of impressed dots (Soper 1967: 30). These were recorded from the Usambara Mountains at the sites of Kwekioi, Fyevyei, Old Mlalo, Paaru, Mwiingano, Kwemunyu, Kilemele and Kwemnyesi. All these sites were located in valleys or basins close to permanent streams, and none were located on a hill-tops (*ibid.*: 31). According to Soper, pottery of a similar shape and type of decoration also occurred on coastal sites in Kenya where they are dated to the thirteenth to fifteenth centuries AD (*ibid.*).

Group D pottery (dotted ware) came from Vuga, Bungu and Lwengera Valley (Soper 1967: 31-32), and consisted of open pots with vertical, straight or slightly concave, tapering rims, slightly angled at the shoulder. Decorative patterns for the pots included raised pimples and dots, with pimples placed in one or two rows below the rim. On the eastern side of the Lwengera valley the Group D sites lay immediately above the Group C on a spur above a permanent stream. According to Soper, unlike sites with pottery Groups A and B, no cowry shells or glass beads were found in association with Group D pottery - despite their location relatively close to the Indian Ocean (*ibid.*). No dates were obtained for this group of pottery – although Soper was convinced that Groups C, D, and E in the Usambara Mountains could have been broadly contemporary. As will be shown in Chapter 5, Group D pottery was retrieved in association with Group B pottery (as well with glass and marine shell beads and cowry shells) from Zigua

settlements dating back to the late seventeenth century, and thus acts to correct Soper's preliminary interpretation that Group B was restricted to North Pare; a point returned to in Chapters 5 and 7.

A final pottery type first recorded and named by Soper (1967) is referred to as Group E, and was initially thought to be confined to the eastern Usambaras in the Amani/Misalai area. This was characterised by a high proportion of graphited body sherds with or without rows of impressed dots on the shoulder, and by hemispherical bowls with tapered rims, sometimes also dotted (Soper 1967: 32). Sites containing this pottery recorded by Soper (1967) are Kwepumu, Mlesa, Mdonte, Gumbo, Mgambo Tea Estate, and Amani Malaria Institute.

Schmidt's work (1989) attempted to establish the settlement history and early exploitation of forest resources in the Usambara Mountains. His archaeological data obtained from surveys and limited excavations in the West Usambaras suggest Early Iron Age (EIA) people settled on these mountains between 500 BC and AD 500, and occupied formerly forested areas above 1400 meters (*ibid.*: 75). Schmidt asserts that this population cleared forests for agriculture and charcoal making for iron smelting, traces of which occur in the inter-montane valleys and on higher ridges. He names the iron industry of West Usambara Mountains as 'Mwitu' (forest tradition), indicating that it shares several features with those of North Pare, Taita Hills and that practiced on the slopes of Mount Kilimanjaro (*ibid.*). Similarities between these areas were established on the basis of material culture- notably local pottery and iron industry - and on a preference for settlements located in well-watered montane environments.

In due regard, Schmidt argues that because Kilimanjaro and the Pare Hills have been continuously occupied by settled agricultural and iron producing people during the last 2000 years, they are likely to have altered the landscape significantly through forest clearance, although he offered no supporting geoarchaeological, palynological or archaeometallurgical evidence to support these claims. He further argued that similar practices would have occurred in West Usambara (1989: 76). However, Schmidt acknowledges the absence of archaeological evidence for human settlements and iron industry in West Usambara, arguing that they may have been washed away from the landscape as a result of intensive exploitation and severe landscape degradation over the last several hundred years. Despite this apparent loss of settlement evidence, Schmidt's data indicates that several village sites in West Usambara were

established between AD 900 and AD 1000, and he suggests that these were also associated with intensive agriculture and iron production at this time (*ibid.*).

Schmidt concludes that the montane environments of the Usambaras would have experienced periodic, localised, but intense exploitation during three possible periods: AD 100-400, AD 900-1100, and probably AD 1600 or 1700 to the present. Settlement histories, pottery traditions and charcoal samples suggest that these settlements would have stretched from the moist montane areas at high altitude such as Kwa Msambia (EIA population) to lowland sites such as Kwa Mgumi (Later Iron Age population). Thus, Schmidt emphasises that even forests that were previously thought to have been little effected or undisturbed have, in fact, been influenced by human occupation and exploitation (1989: 77).

Recent palaeoecological work undertaken in the Usambara Mountains by Mumbi (2009) found no evidence of early phases of forest clearance suggested by Schmidt, and instead indicates that montane forests persisted during the last 500 years, at least in the vicinities of the coring sites at Duruma and Mbomolo. However, in the North Pare Mountains, Heckmann (2012) has demonstrated that forest clearance on hill slopes led to soil erosion and the accumulation of slope deposits as early as AD 300, with this process accelerating from c. AD 1600. Indeed, like Schmidt, Heckmann notes that this process is likely to have destroyed or buried multiple settlement sites constructed during this period.

Reporting the results of preliminary archaeological surveys and excavations from the Lower Mkomazi Valley near Mombo, Walz (2005) notes the presence of artefacts that must have been derived from trans-Indian Ocean trade within deposits that date to at least AD 600-1000, and in some localities possibly much earlier (*ibid.*: 202-207). These archaeological surveys and excavations around the contemporary towns of Makuyuni, Mombo and Mazinde also yielded remains of several settlements associated with the nineteenth-century caravan trade (*ibid.*). In discussing these findings, Walz arrives at the conclusion that some of these settlements (such as at Mbugani and Ulimboni) would have been incorporated within trade networks linking the coast and the interior from as early as the late first millennium AD (*ibid.*: 208 - 211), and thus concludes that the later caravan trade followed routes that were in use – albeit perhaps periodically – for well over a millennium.

In his recently completed thesis, Walz (2010) provides further details about the archaeology of areas immediately around Korogwe. His archaeological surveys and excavations identified sites

and artefacts perhaps dating to as early as the Middle Stone Age (100,000 years ago), but the data of most relevance to the current study comprises settlement evidence and imported materials indicating the antiquity of coastal contact in this area. In his discussion of these survey results, Walz argues that settlers using Group B and Group D pottery emerged near Korogwe around 500-600 years ago (2010: 173), and notes that the mountain slopes were likely to have been sparsely populated at this time, with the majority of settlements located in the low-lying well-watered areas. Investigations of these settlements found Group B and to a lesser extent Group D pottery in association with marine shell bead and glass beads, signifying again what Walz terms “coastwise exchange” (*ibid.*).

Lane (2011) reports briefly on the archaeological and ethnographic research he conducted at the site of Kwa Fungo in the 1990s. This settlement was founded by a Zigua chief called Fungo some time in the late 1860s, after he migrated from the Usambara Mountains to the lowland plain seeking arable land where he could produce maize and sorghum for sale to the local markets and to the passing caravans (also see Lane 1991). Being a powerful local leader who situated himself along the trade route and had authority over the trade links and access to the coastal networks, one would have expected to find his settlement flooded with imported coastal items. However, this is not the case. A systematic gridded surface collection and excavation at this site yielded predominantly local ceramics of nineteenth-century type and only smaller quantities of imported nineteenth-century material (Lane 2011: 299).

Analysis of the Kwa Fungo ceramics by Sarah Croucher (2006) revealed a huge contrast between this assemblage and other nineteenth-century ceramic assemblages from coastal sites. For example, imported goods were found in very low numbers at Kwa Fungo, with the imported ceramics comprising just over 3 percent of the ceramic assemblage. Flared neck pots and open and shallow bowls dominated the local pottery, in contrast to the preference for carinated bowls found at sites on the coast such as Mgoli: a slave plantation site on Pemba Island (*ibid.*; Lane 2011: 300). Additionally, there is a general lack of decoration on the Kwa Fungo ceramics, whereas decoration is common at other coastal sites of a similar date (e.g., Wynne-Jones and Croucher 2006). Following this general characteristic of the site inventory, Croucher (2006: 287) concludes that “archaeological remains from the site of Kwa Fungo appear to reflect a lifestyle whereby residents’ identities were mediated through locally produced goods and local practices of cooking and consumption, and through a spatial layout to the settlement and houses in a local Zigua style”.

Lane (1993) also examined the construction of Tongwe Fort (**Figure 3.11**) in connection with local political processes related to the expansion and consolidation of the nineteenth-century caravan trade in East Africa. The fort was built on top of Mount Tongwe close to Kwa Fungo village around 1853 by order of the Sultan of Zanzibar, Seyyid Said. Various reasons for erecting the fort on top of Mount Tongwe can be posited, but Lane is cautious about these possible interpretations. For example, the positioning of the fort along the trade route could have been interpreted as the desire by the Sultan of Zanzibar to protect the caravan routes in the Lower Pangani following the threats posed by Zigua raiding parties, however, the fort might equally have been constructed as a caravan halt (*ibid.*: 135). Nevertheless, by comparing various historical sources of the nineteenth century Lane (1993) is minded to reject both these hypotheses because by the time the Fort was built the caravans from Tanga and Pangani were avoiding the routes that passed through the Lower Pangani Basin due to threats posed by Zigua raiders (*ibid.*: 135). Instead, they were passing north of the Usambaras. Even by the 1850s Seyyid Said had already established a trade partnership with the Zigua from which he procured a huge supply of slaves, ivory and grain (Burton and Speke 1858; Krapf 1860). Thus, it would not have been in his interest to stop the Zigua raids in the Pangani Valley (*ibid.*).

Furthermore, Lane argues that the size of the garrison stationed at the Fort could not suit a policing role, if indeed it was meant to protect the caravans (*ibid.*). Similarly, the Fort was unlikely to have served as a caravan halt because it was located on the summit of the tallest hill in this area, and so would have been difficult to access (Lane 1993: 135). It is suggested, therefore, that Seyyid Said built the fort to send a message to Chief Kimweri asserting the presence and authority of the Sultan over the area and thereby making it clear that local officials were under his control. Since Chief Kimweri of Usambara was then considering offering Mount Tongwe to Krapf as a location for a mission station, the construction of the fort could be seen as the Sultan's attempt to protect his economic interests in the Pangani region.

However, Walz (2009) proposes an alternative interpretation concerning the construction of the fort on top of Mount Tongwe. He argues that Chief Kimweri offered Mount Tongwe first to Krapf and then the Sultan of Zanzibar in the hope that occupation of the site would be seen by Zigua speaking communities as a disturbance of “a mythical centre of power ...from which the Zigua drew inspirations” (*ibid.*: 34). Walz is of the view that by doing so, Chief Kimweri - who lacked weapons to compete with the gun-equipped Zigua - “hoped to fuel angst among

his political competitors”. As such, Walz argues that Kimweri was not “politically naïve but rather [was] politically informed and crafty” (*ibid.*: 38).

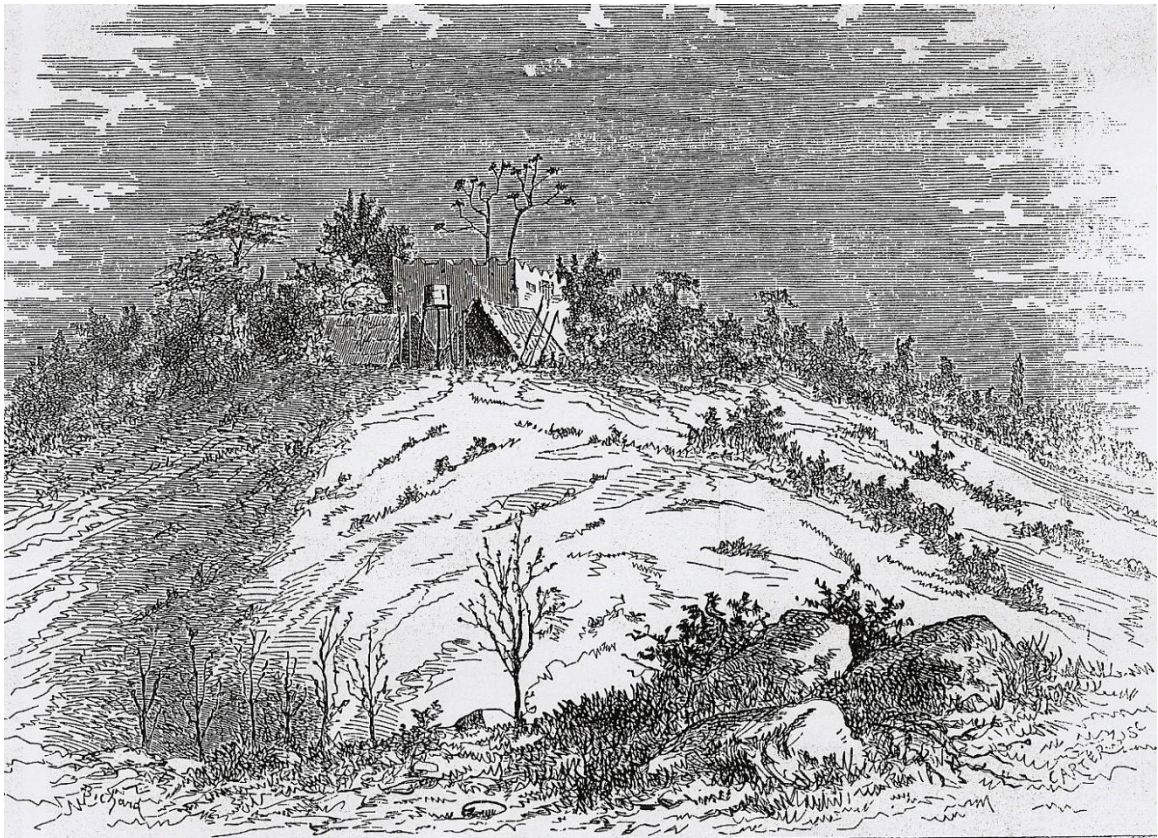


Figure 3.11: Tongwe Fort at Mt. Tongwe. Source: Lane (1993: 136, Figure 2)

Elsewhere, in Pangani Bay, Gramly (1981) reports the results of his reconnaissance survey and test pit excavation conducted at Muhembo, a Swahili settlement site located about 3km from the modern town of Pangani. Gramly’s research yielded local pottery (known as ‘Neck Punctated’ cf. Chami 1998), faunal remains, and a few foreign objects – notably glass beads. Gramly considered these materials to be of fifteenth-century date. He also recovered some stone tools which he suggested had been made by local farming communities in the second millennium AD; also arguing that the raw materials for making these tools (including petrified wood) came from inland (Gramly 1981: 22). His research also covered some colonial sites such as the German Fort on the south side of the mouth of the Pangani; the European graveyard in Pangani; and infrastructural remains of colonial plantations. Elements of these colonial traces have been further investigated in recent years by Rhodes (2010).

Archaeological investigations at various locations around Pangani town were undertaken recently by *On Site Archaeology Limited* (OSA) on behalf of the HEEAL project, in collaboration with the University of Dar es Salaam and a local, Pangani-based NGO, *Uzikiwasa* (**Figure 3.12**) This produced interesting results illuminating the presence of multiple phases of the earliest buildings beneath the present town of Pangani. The investigation report (OSA 2010) indicates that eleven trial excavation units (1x1m) that were positioned adjacent to four historic buildings revealed archaeological deposits containing potsherds, cowrie shells, slag, and evidence of buried structures.



Figure 3.12: Indian Street, Pangani. Photo: P.J. Lane, 2009.

Excavations beneath the Pangani Industries Building and the CCM building, for example, revealed evidence for the earliest structures which are in the form of house foundations and postholes (**Figure 3.13**). It is presented that some foundations of the earliest structure in town (for example the one encountered underneath the CCM building) followed a significantly different orientation to that of the current street alignment. This suggests, then, that a substantial period of reorganisation of the town took place. It is hoped that once the analysis of the recovered artefactual material is completed the results will lead to further investigations that can enhance our understanding of the history and development of the Pangani town,

especially in connection with the development and expansion of the caravan trade in the region.

Figure 3.13
One of the excavation units showing features indicative of early structures predating the standing buildings at Pangani Town
Photo: OSA, 2010



3.8 Chapter Summary

This chapter has surveyed the socio-economic, political and cultural settings and environments of the study area. It has shown that the Lower Pangani River Basin is diverse in terms of ecology and topography, as well as in terms of economic and cultural resources. These diverse resources were all important factors in contributing to this region's status as a northern hub of the Indian Ocean trade, particularly during the second half of the nineteenth century. The chapter has presented various accounts compiled during the nineteenth century about the Lower Pangani River Basin, and has summarised the limited written, pictorial and cartographic information that directly concerns the three study sites. From these, it appears that the northern geographical extent of what was called Zigualand during the nineteenth century has persisted until the present. However, with the creation of political boundaries by colonial regimes in the early twentieth century the territory of the Zigua speaking communities now

covers several administrative districts, namely Handeni and Korogwe (cores), and Pangani district. In these districts several other ethnic communities are found today, partly as a consequence of the Ujamaa villagisation process of the 1960s and 1970s.

While the modern ethnic population distribution probably contrasts with the situation during the nineteenth century, there is ample historical evidence, as reviewed above, to suggest that even in this earlier period ethnic groups and boundaries were fluid and constantly changing (e.g., Feierman 1974; Giblin 1992; Willis 1992). This opens up the possibility that the ethnic composition of so-called 'Zigua settlements' may have been more diverse than the nineteenth-century observers assumed. For convenience, however, I will refer to them as 'Zigua' settlements throughout the rest of this thesis. Furthermore, it has been shown that in broad terms the historical sources suggest the main subsistence strategies of the Zigua, notably agriculture, livestock keeping and fishing, have not changed significantly from the nineteenth century to today. However, the changing scales and practices of these activities for the period prior to and during the expansion of the caravan trade in the nineteenth century are difficult to assess from these records alone, and hence remain a core focus of this research (Chapter 6).

In regard to the study sites, it has been shown that these are among several Zigua island settlements on the Pangani River that also served as caravan halts in the nineteenth century. Nineteenth-century accounts indicate the inhabitants of these settlements were cultivators as well as livestock keepers, and from these activities they managed to feed the regular passing caravans through exchanging their produces for imported coastal items. No historical accounts from the nineteenth century provide information about when these island settlements on the Pangani were first settled, and there are no reliable later accounts that describe or mention their abandonment. However, some European observers (e.g., New 1874: 318; 1875:416; Johnston 1879, 553) perceived these island settlements to have been established only in the nineteenth century by Zigua as refuges against Maasai raiders. This issue is discussed in subsequent chapters.

The chapter has also presented a review of previous archaeological studies in the study area, and one of the main points to highlight is that the Lower Pangani River Basin and the adjacent mountain slopes and hills largely remain archeologically *terra incognita*. Nevertheless, taken as a whole, the body of previous archaeological work in the vicinity shows, among other things, the long history of human settlement in the region that dates back to the early Iron Age period

(e.g., Soper 1967), and that the hinterland settlements were in trade and exchange between themselves as well as with coastal communities for centuries prior to the nineteenth century (e.g., Walz 2005, 2010). However, it is clear from the archaeological studies reviewed in this chapter that most scholarly attention has been placed on investigating the earlier phases of such trade and contacts, but ignoring the later phases. Those studies, although limited, have highlighted the potential for applying various methods and techniques in researching the forgotten later phases of the 'coastal-hinterland' interaction. This is important to highlight, because archaeological investigations of these later phases are incredibly important in terms of complementing historical and oral records in the region and in terms of applying this knowledge to understanding current developmental challenges facing the region. It is in this way that the current study is able to bring together multiple lines of evidence focusing on later phases of development to understand the interaction between communities living in the study region and how this has shaped the current landscape.

The current study both builds upon and extends this earlier work, for example by demonstrating that some of the ceramic groups previously thought to have been restricted to specific highland area were also employed in the lowlands; for a discussion of which see below and Biginagwa (2009: 52-60). This suggests contacts between these highland and low land communities, though it should be noted too that Lane's (1991) work at Kwa Fungo serves as a warning that although the widespread movement of people through trading may have exposed them to other cultural groups, this still did not necessarily guarantee the widespread sharing of material culture expressions of identities (Croucher 2006; Lane 2011). Lane's data from Kwa Fungo would thus suggest that some local communities along the trade routes retained their own ways of life. Indeed, it further implies that locals had their own preferences, choices and decisions to make regarding what commodities were to be brought into their locales (cf. Prestholdt 2004; Pallaver 2009). The next chapter presents the results obtained from three study sites during the 2008 and 2009 field seasons, which may shed more light on such arguments.

CHAPTER 4

FIELDWORK RESULTS

4.1 Introduction

This chapter presents the results of the fieldwork carried out in 2008 and 2009 at the three study sites of Ngombezi, Old Korogwe and Kwa Sigi. The first section describes the fieldwork schedule and activities involved, excavation techniques employed, and recording methods. This is followed by section two, which entails a site by site description of the excavated deposits and structural remains encountered. This section also includes a brief overview of the finds recovered (which are analysed in a more detail in Chapters 5 and 6), as well as the radiocarbon dates obtained for the main study site of Ngombezi. Section three entails a brief presentation of oral interview results collected during the field; followed by the final section of the chapter which provides a general summary.

4.2 Fieldwork Schedule and Data Recovery Methods

The work reported upon here was carried over eight months, spread over three field seasons. The first phase, between April and June 2008, aimed to locate areas for in-depth investigation, and to negotiate future access to these sites. Through a combination of survey, oral interviews and the use of the nineteenth-century written accounts, this primary aim was successfully achieved; locating sites associated with the nineteenth-century caravan trade at Ngombezi, Kwa Sigi, Kwa Fungo, Old Korogwe and Hale. On the basis of their proximity, a decision was made to focus on the three sites of Ngombezi, Old Korogwe and Kwa Sigi. Previously identified by Lane in 1991, the site of Ngombezi was chosen to be the main focus for this study owing to the exceptional preservation of faunal material and the depth of underlying cultural deposits.

Major excavation work at Ngombezi was carried out during the second phase, between July and September 2008, and subsidiary excavations at Kwa Sigi and Old Korogwe followed during the third phase, between July and September 2009. Oral historical information was also collected during the fieldwork seasons of 2008 and 2009, and supplementary oral information was gathered in 2011. A 1m² test pit and a 2 x 14m trench were set and excavated at Ngombezi, while at Old Korogwe a 2m² trench was dug. A total of 11 test pits - each measuring 1m² - were excavated across the entire island of Kwa Sigi. Excavation Units at

Ngombezi and Old Korogwe were both established on top of suspected cultural mounds, and were excavated following depositional layers which were further subdivided into arbitrary 10cm spits. Layers were subdivided in this manner to monitor possible vertical change in the densities of artefacts (and artefact types) and also to track changes of deposits which were often hard to distinguish during excavation, especially in the upper, drier layers. Layers were differentiated on the basis of soil characteristics such as colour change, texture and compactness. A Munsell colour chart was used to help excavators differentiate soil colour changes and for soil descriptions.

Excavations at all three sites were undertaken by hand, mostly by trowelling, although hoes were sometimes used whenever deposits were too hard to excavate by trowels. Hoes were particularly used at the beginning of excavation to remove grass, root mats and topsoils, as well as for lifting large pieces of daub encountered in layers 6 and 12 in the main trench at Ngombezi.

The deposits were mainly dry sieved through a 5mm wire mesh screen - although sometimes a 2.5mm mesh was used, especially when deposits were particularly fine. The deposits were sieved by layer, spit, and in the case of the main trench at Ngombezi by 2x2m excavation square. In order to ensure small finds such as beads and micro-fauna were recovered as consistently as possible, attempts were made to sieve every fifth 5 litre bucket of excavated deposit using a 2.5mm sieve. In the event, however, this proved impractical as it slowed excavation down. Consequently, the 2.5mm sieve size was used only for those layers that contained high concentrations of small finds (such as beads) that could pass through a 5mm mesh. Thus, the choice of the sieve sizes depended on the soil characteristics, and hence, this may have affected the recovery rates of finds to a small degree.

Materials from sieving screen were separated by type and labelled and bagged appropriately prior to being transported back to camp. Since materials were recovered in large quantities they were washed on a daily basis. Materials were allowed to dry (**Figure 4.1**) before being re-bagged in clean plastic bags and labelled appropriately.

Charcoal samples for radiocarbon dating were collected from every level whenever encountered. These were treated with maximum care to reduce chances of contamination. Trowels were used to lift them from the deposit, and the samples were then wrapped in aluminium foil and kept in plastic bags. The three-dimensional coordinates of the charcoal samples were also recorded. In addition, five litre soil samples were taken from each spit and layer for subsequent flotation to retrieve archaeobotanical remains. 5 litre samples of deposits were also taken from other archaeological contexts of special interest such as hearths, pits and postholes whenever encountered. Each sample was bagged and labelled with appropriate contextual information.



Figure 4.1: Faunal remains from Ngombezi left to dry after washing. Photo: P.J. Lane, 2008

Each distinct layer of deposit was assigned a unique context number and described in the field on pro-forma context forms (e.g., **Appendix I**). Features formed by the removal of deposits such as postholes are referred to here as ‘cuts’ and were also assigned a unique context number and described. As part of the excavation records, photographs were taken using both a digital camera and a 35mm SLR camera with colour slide film. In each trench, photographs were taken after the excavation of each level had been completed and whenever a feature was

encountered. In addition, the top of each newly exposed layer was planned and drawn at a scale of 1:20. Upon completion of excavation of each layer the heights of the exposed deposits and cut features were recorded using a compact level. As a minimum, levels were recorded across the excavation unit at 0.5m intervals. For each trench or test-pit, at least two wall profiles were drawn at 1:20, and levels recorded at 0.5m intervals for the top of the basal natural deposits.

Global Positioning System (GPS) readings were taken with a Leica SR20 differential GPS and were used to establish permanent and temporary bench marks at the site. These benchmarks are referred to here as 'datums' and were typically located at ground level on the upslope side of excavation units. In addition, an area of approximately 500m around the excavation units was mapped using a Leica Total Station Theodolite. This plan recorded the excavation units, archaeological scatters and other important permanent topographic features such as river, streams, trees and mounds. These were used to produce site plans for the main site of Ngombezi (**Figure 4.2**) and Kwa Sigi (**Figure 4.17**). Finally, all the recordings ranging from the excavated layers, samples collected (both flotation soil and charcoal for radiocarbon dating), photos taken, section profiles, plans and levels, were assigned individual reference numbers and cross-referenced within the excavation recording file.

4.3 Excavation Results

4.3.1 Ngombezi Test Pit

Ngombezi Island (**Figure 4.2**) is situated at approximately S 5° 10' 1" E 38° 25' 1" and at about 318m above mean sea level. The island is approximately 0.35 km long, and the main channel of the Pangani River, which is very fast flowing at this point, runs along its northern side. A 1m² test pit was established at the foot of a large mound of suspected cultural deposits. This was excavated to the 'natural' (i.e. undisturbed deposits predating human occupation), which here was reached at 2.30m below datum. There were three reasons for excavating this test pit: i) to test the presence of sub-surface archaeological materials and assess their composition; ii) to determine the preservation conditions of sub-surface archaeological materials, especially faunal remains, and iii) to learn about the stratigraphy of the site. Information generated from this test pit was used to determine the location of a larger excavation trench, hereafter referred to as the 'Ngombezi main trench' (**Figure 4.5**).



Figure 4.2: Plan of Ngombezi Island showing the locations of the main trench and test pit. The heavy dotted lines mark the approximate outline of the island today.

Details of the layers identified in the Ngombezi test pit are summarised in **Table 4.1**, and a summary of the range and density of cultural materials recovered are given in **Table 4.2**. Figure 4.3 shows the test pit excavation in progress, while the profile of the test pit itself is illustrated in **Figure 4.4**.

Table 4.1: Description of Layers Identified in the Ngombezi Test Pit

<u>Layer</u>	<u>A Summary of Deposit Characteristics</u>	<u>Material Type</u>
1	Post-abandonment topsoil, dark brown [10YR, 3/3] loose silty loam of approximately 28cm thick. This layer had been disturbed by ongoing cultivation and animal grazing. Plant roots were evident and the recovered cultural materials were highly fragmented.	Pottery, bone, beads, daub
2	Less disturbed loose brown loamy soil mixed with tiny fragments of charcoal. This layer was encountered from 28-45cm below datum. [Hue 10YR, 5/3].	Pottery, bone, beads, cowrie shells, metal objects
3	Compact silty clay mixed with tiny fragments of daub. The deposit was dark greyish brown [10YR, 4/2], encountered from 45 to 65cm below datum.	Pottery, bone, beads, daub
4	Dark brown [10YR, 3/3] loamy soil mixed with patches of ash lenses. This layer extended from 65-85cm below datum.	Pottery, bone, beads, daub
5	Compact clayey loam mixed with tiny fragments of charcoal and daub. The soil colour ranged from dark brown [10YR, 3/3] to greyish brown [10YR, 5/2]. This layer spanned 85-130cm below datum.	Pottery, bone, beads,
6	Dark greyish brown [10YR, 3/2] silty clay mixed with concretions encountered at the depth of 130 and 185cm below datum. A thick belt of ash was encountered towards the base of this layer.	Pottery, bone, beads (increased number of shell beads)
7	Black sandy silt deposit [10YR, 2/1] lying between 185-230cm below datum. Excavation continued for another 10cm below this depth but no cultural materials were obtained –suggesting that sterile deposits predating occupation of the site had been reached.	Reduced quantities of finds; a few pottery and beads.



Figure 4.3: Excavation in progress (at early stage) of a 1m² Test Pit at Ngombezi by UDSM Archaeology students. Author's photo, 2008

Table 4.2: Cultural Materials Retrieved from Ngombezi 1m² Test Pit

<i>Layer</i>	<i>No. of spits</i>	<i>Depth (cm)</i>	<i>FINDS</i>					
			<i>Bones</i>	<i>Pottery</i>	<i>Beads</i>	<i>Conry Shells</i>	<i>Metal Objects</i>	<i>Daub (kg)</i>
1	2	0-28	412	450	24	2		4
2	2	28-45	392	218	78	1	2	0.5
3	2	45-65	476	516	42		1	5
4	2	65-85	350	317	29	4		2
5	5	85-130	203	497	22			3
6	5	130-185	354	154	19			2
7	4	185-230	0	4	2			
TOTAL			2,187	2,156	216	7	3	16.5

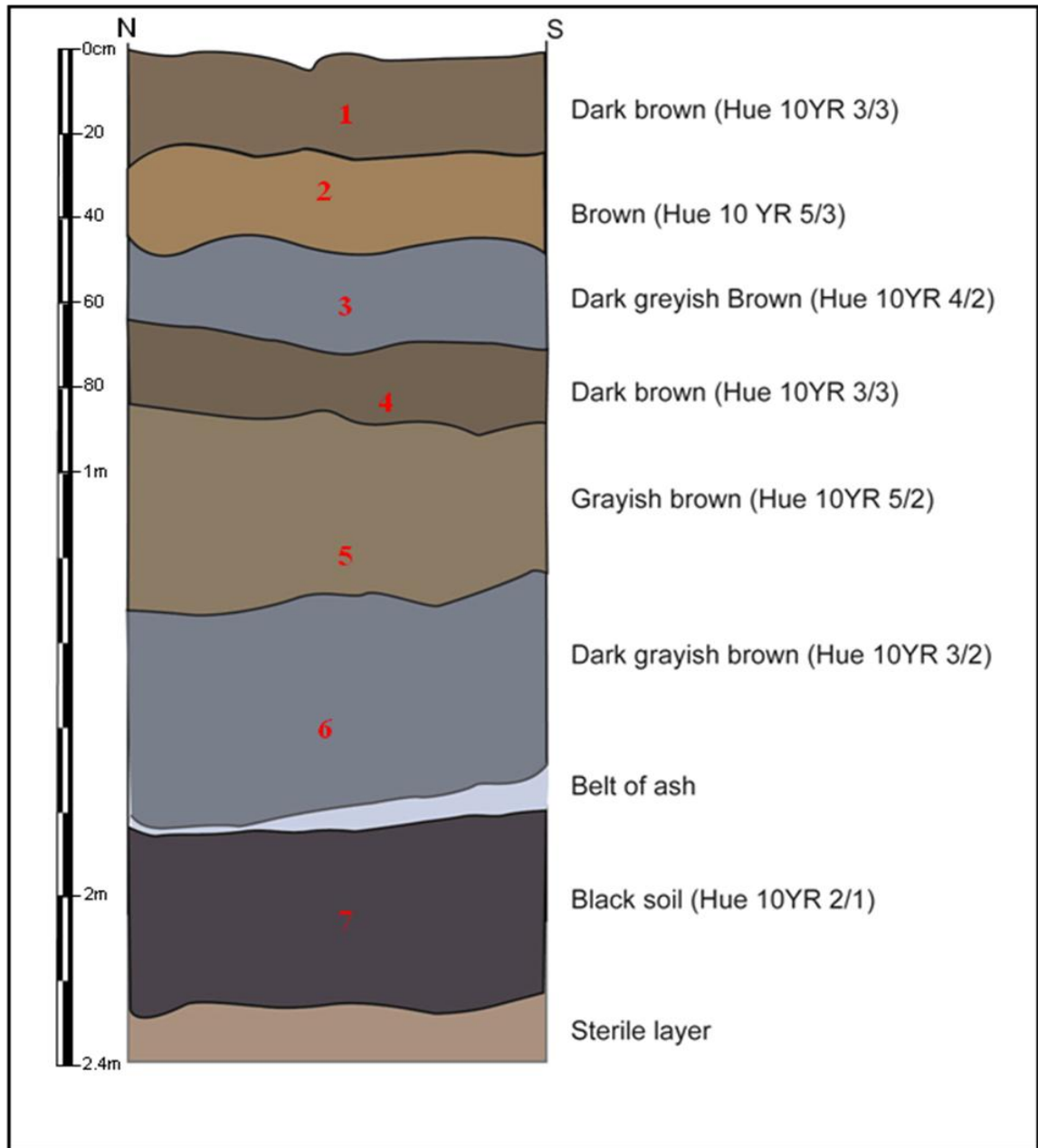


Figure 4.4: The stratigraphy of Ngombezi Test Pit, East facing wall.

4.3.2 Ngombezi Main Trench

On completion of the test pit excavation, a 2x14m trench was laid just a few meters away to the north-east. The Trench was aligned roughly northwest - southeast direction across the line of the contour of the mound in an attempt to provide a longitudinal half-section through the deposits from the highest point of the mound to the point where the surface levelled out (**Figure 4.2**). This trench was sub-divided into seven 2m² collection squares, which were numbered 1 to 7 from the upper, South-east end of the trench toward the lower North-west end (**Figure 4.5**).

While excavation proceeded across the trench by context, finds from each collection square were bagged separately. This strategy was followed so as to provide the opportunity to monitor possible horizontal variations in finds densities. In the event, however, subsequent analysis demonstrated a lack of any patterning between these arbitrary divisions, indicating that different deposits identified in the field represent distinct archaeological events. The trench was excavated until sterile deposit comprising sandy clay loam. Because of the slope of the mound, the excavated depth for this trench ended variously at 3.5m below datum for Square 1 (near the highest point of the mound), and 2.10m below datum for Square 7 (at the foot of the mound) (see **Figure 4.6**; also see **Appendix B**).

4.3.2.1 Stratigraphy

The stratigraphy of Ngombezi main trench is presented in Table 4.3, and illustrated in **Figure 4.6**. **Figure 4.7** presents the stratigraphic relationships between major deposits in terms of a Harris Matrix.

Table 4.3: Description of Layers, Ngombezi main trench

<u>Layer</u>	<u>A Summary of Deposit Characteristics</u>	<u>Material Types</u>
1	Post-abandonment disturbed top-soil, 20cm thick (0-20cm). This covered all seven squares of the trench and was characterised by very dark greyish brown loose loamy soil [2.5Y, 3/2]. The deposit yielded a mixture of highly fragmented cultural materials. Such fragmentation could be the result of on-going human activities on top of the mound such as cultivation and stock grazing.	Pottery, bone, daub, cowrie shells, beads
2	Moderately compact silty clay loam with colour varying across squares, but predominantly dark brown [10YR, 3/3]. Covering all seven squares of the trench, this layer was	Pottery, bone, daub, cowrie shells, beads

- c. 30 cm thick, and extended from 20-50cm below datum. Patches of tiny charcoal fragments and plant roots were also encountered.
- 3 Loose silty clay mixed with patches of olive brown ash [2.5Y, 4/4] - Pottery, bone, covering all seven squares of the trench. The layer was beads, cowrie approximately 20cm thick. The final depths for this layer were shells, daub, uneven between squares, 70cm for square 1; 75cm for square 4; and metal objects 80cm for square 7.
 - 4 About 20cm thick (70-90cm) powdery ash deposit of pale brown [10YR, 6/3] covering only square 1. The main feature of this layer was a burial (**Figure 4.8**), thus very few cultural materials were retrieved. Human remain, pottery, bone, metal objects, smoking pipe, beads.
 - 5 Dark greyish brown powdery loamy clay [10YR, 4/2] mixed with ashes. This layer covered squares 2 to 5, and the final depths were uneven between squares, ranging from 70cm -110cm below datum. Pottery, bones, daub, beads
 - 6 A dense layer of daub representing a collapsed house wall (**Figure 4.9a**) covering squares 1 to 5. The depths ended uneven between squares, ranging from 90-140cm below datum. The daub is burnt - with colours ranging from light red [2.5, 7/6] to dark yellowish brown [10YR, 4/6]. Larger pieces of daub had clear wood impressions from wattle house frames (**Figure 4.9b**). Fewer cultural materials were recovered from this layer than in daub free ones. Pottery, bone, daub, beads
 - 7 Covering three squares located towards the foot of the mound (5, 6 and 7), this layer was compact, pale olive in colour [5Y, 6/3] and comprised a loamy clay matrix. The depths for the layer ranged from 80-140cm below datum. The only two pieces of imported ceramic came from this layer (Chapter 5). Pottery, bone, daub, metal objects, beads
 - 8 This was one of the deepest layers of the trench and it covered squares 1 to 5 at uneven depths - ranging from 120-200cm below datum. It was characterised by several thin lenses of olive brown [2.5YR, 4/4] ashes alternating with bands of loose dark yellowish brown [Hue 10YR, 4/4] sandy silt/clay. A large amount of material was retrieved, and bones were in an excellent state of preservation. Most likely that the dominance of ashes throughout the main body of this layer would have affected the soil chemistry leading to enhanced faunal preservation. Pottery, bones, cowrie shells, beads
 - 9 Dark greyish brown [10YR, 3/2] silty clay that covered squares 2 to 6 with depths that ended variously between squares - ranging from 160 - 230cm below datum. The main feature in this layer was a series of postholes cut into the top Pottery, bones, beads

of this layer, which probably represent a house floor (**Figure 4.10**).

- | | | |
|-----------|---|---|
| 10 | Compact dark brown [10YR, 3/3] silty clay covering all seven squares of the trench - with depths ending unevenly across squares - ranging from 130-250cm below datum. Many of the bones recovered from this layer had been discoloured brown, with many showing burn marks. | Pottery, bones, beads |
| 11 | Deep ash deposit (Pale Olive, [2.5YR, 4/4]) containing several thin lenses of fine clay mixed with fragments of charcoal. The deposit covered squares 1 to 5, and ended at uneven thickness between squares, from 200cm to 310cm below datum. As in layer 8, the faunal remains were well-preserved. | Pottery, bones, daub, worked bones, beads |
| 12 | A thick layer of daub (Figure 4.11) that covered squares 1 to 4. The base of the layer varied across squares, but ranged from 310-320cm below datum for squares 1 and 2, and 220- 240cm for squares 3 and 4. The daub varied in colour between light red and dark yellowish brown. The layer contained few cultural materials. It is likely that this horizon represents a collapsed house wall. | Pottery, bones, shell beads |
| 13 | This layer represented the earliest phase of settlement recorded at the site. It consisted of a deposit of sandy silt/clay, dark greyish brown [10YR, 4/2] in colour, which covered all seven squares of the trench. Fourteen postholes (Figure 4.12a) and a hearth (Figure 4.12b) were exposed - cut into the top of this layer. Much less material was encountered in this layer than in those above. Excavation ended once a sterile basal sticky clay loam (dark greyish brown [10YR, 4/2]) was encountered at between 350cm below datum in square 1 and 210cm in square 7. | Non-glass beads, pottery |



Figure 4.5: Ngombezi main trench during excavation (early stage), showing its subdivision into squares. The red arrow points the direction where the test pit was positioned. Author's photo, 2008

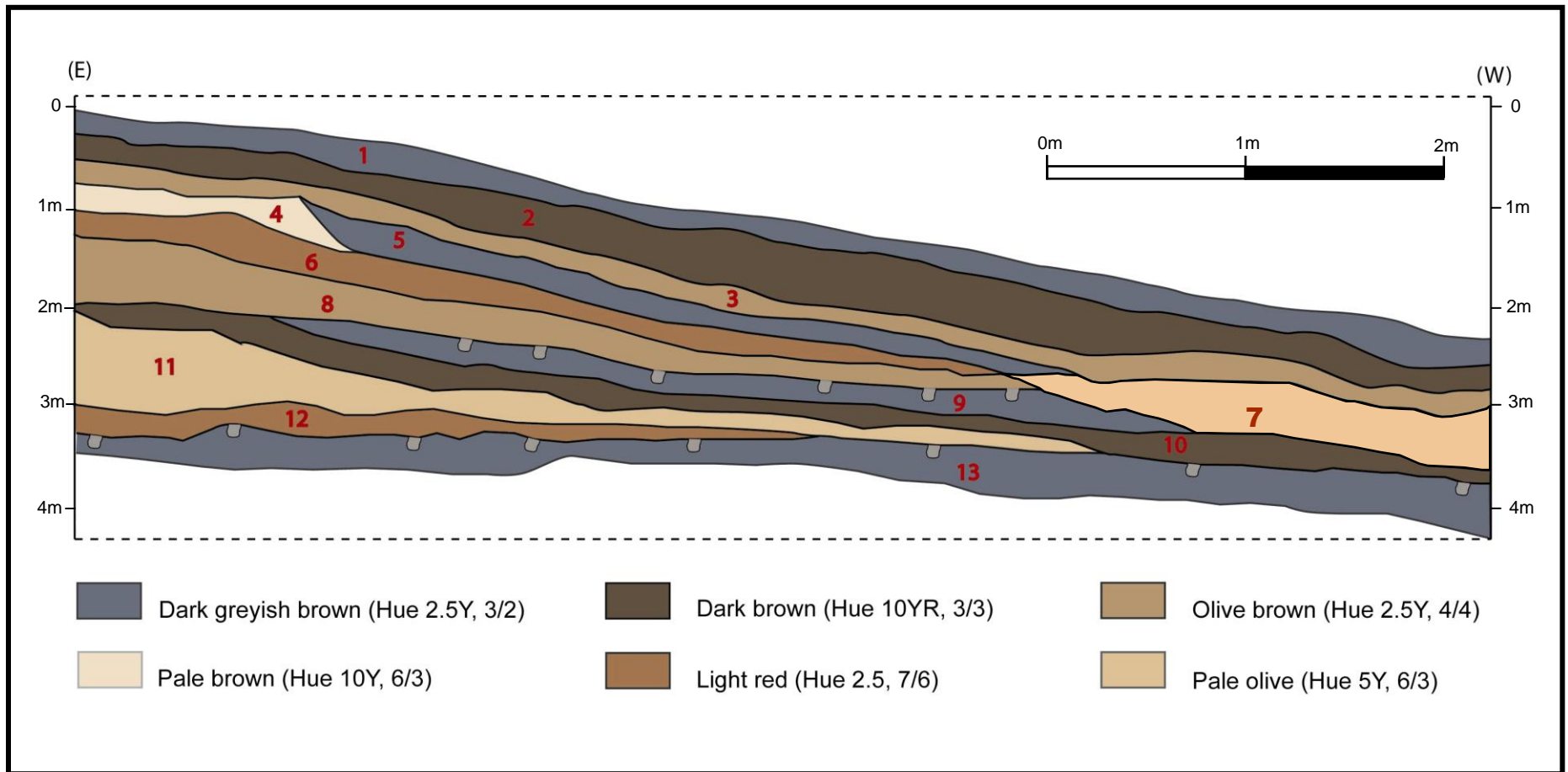


Figure 4.6: Composite section of the south facing wall profile showing the stratigraphy of Ngombezi Main Trench

4.3.2.2 *The Matrix of Ngombezi Main Trench*

The long sequence encountered at Ngombezi main trench can be subdivided into three relatively clear phases. As shown on the Harris Matrix below (**Figure 4.7**), layers 13-10 represent the first phase of settlement activity. Initial occupation is represented by layer 13, which represents occupation deposits and a possible house floor as evidenced by the presence of a series of fourteen postholes and an associated hearth (**Figure 4.12**). The hearth consisted of a shallow, ash-filled scrape around which three stones were arranged. One complete graphite-coated bowl with punctate decoration was found on top of these cooking stones (**Appendix C**). However, the absence of either soot or traces of food suggests that it was probably not used for cooking, and based on analogy with recent Zigua pottery, is more likely to have been used for serving sauces (details in Chapter 5). The diameters of the post-holes ranged from 10cm-22cm while their depths ranged from 5cm-23cm. However, it is possible that the depths of some of the postholes were accidentally truncated during excavation of the overlying deposits before they were noticed. This early structure subsequently collapsed or was deliberately knocked down as evidenced by the presence of a thick layer (12) of house daub (**Figure 4.11**). Subsequent deposition of middens and periodic fires followed after the house collapsed, as represented by layers 11 and 10.

The second phase is represented by four layers, 6 to 9. These indicate a phase of rebuilding or reoccupation, followed by subsequent collapse or deliberate demolition of the second house, and subsequent midden deposition. Twelve postholes were exposed on top of layer 9 (**Figure 4.10**). Their diameter ranged between 15cm to 20cm while their depths were between 7cm and 28cm. As with the lower horizon of postholes, there is a possibility that the depths of some of the postholes had already been reduced before they were detected. The postholes were aligned circularly, and the posts they contained probably represent part of a wooden frame. While this may have been a wattle and daub house, the absence of a dense layer of daub immediately sealing layer 9 suggests this could have been a different kind of structure such as a stock corral, or that the debris from the demolished structure was deposited beyond the confines of the excavated trench. At the western (lower) end of the trench, layer 9 appears to have been truncated for some reason, before a deposit of pale olive loamy clay (layer 7) formed over this area. Most of layer 9, however, was sealed by thin lenses of ash interleaved with silty clay (layer 8). This may represent a period of episodic dumping of ash, perhaps from household hearths given the quantity of bones and cultural materials recovered. The formation of thin clay lenses

suggests that these dumps were left exposed for a period of time before more ashy material was deposited. The total duration of these events could not be determined, but may represent several years, and in any case the combined sequence appears to represent fairly intensive midden deposition associated with regular hearth clearance - indicating continued occupation in the immediate vicinity of the trench at this time.

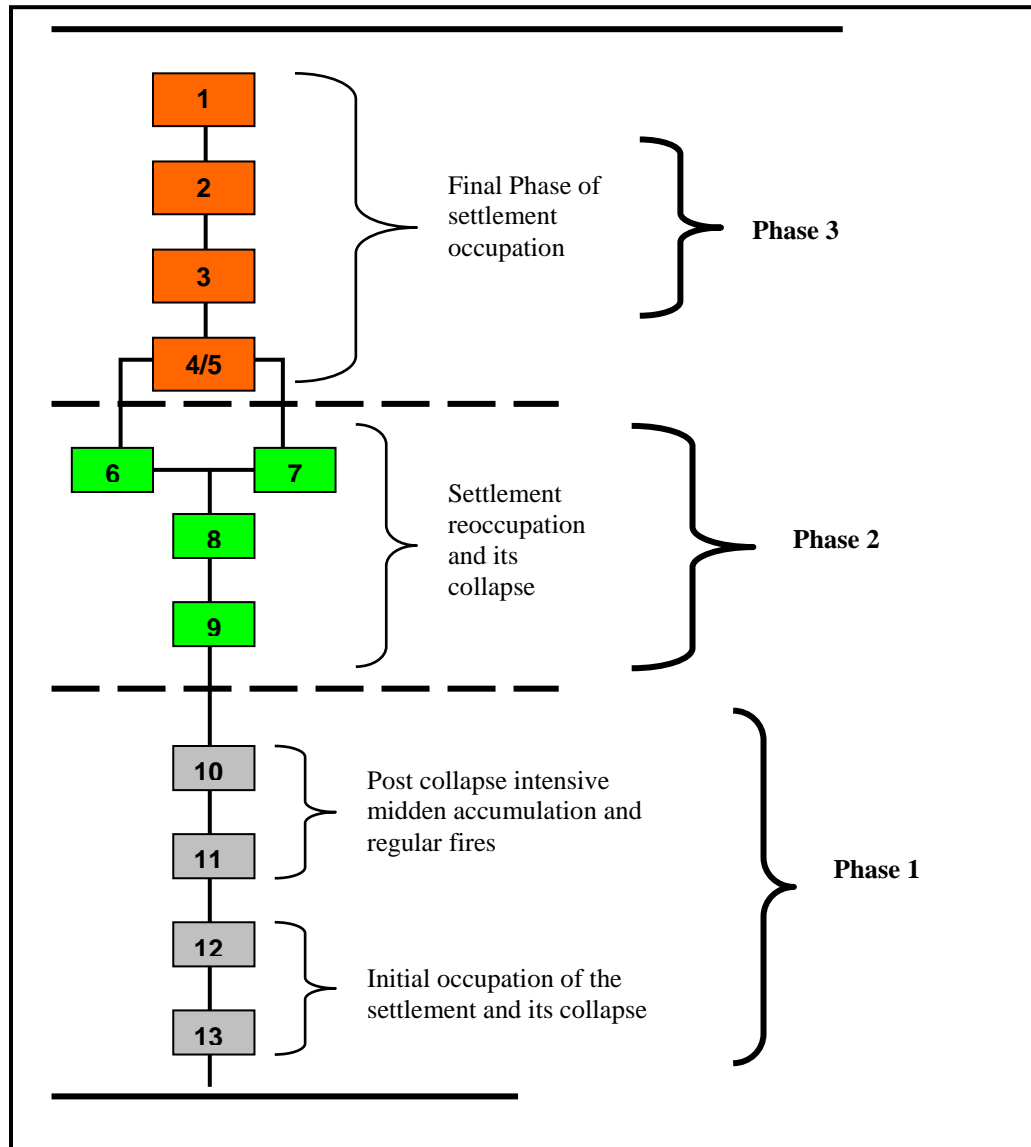


Figure 4.7: The Matrix for Ngombezi Main Trench showing major depositional events only.

Layer 8 is sealed by a deposit of house daub (layer 6) which extends approximately two-thirds of the way across the trench from the east. The source of this daub is not clear, but in view of the fact that it thins toward the west, it may derive from a collapsed structure toward the top of the mound beyond the limit of the excavated area. At the western end of the trench, layer 7 is overlain by a layer of loose silty clay with patches of ash (layer 3), which may represent a later phase of dumping. The third occupation phase is represented by layers 1 to 5. These correspond to the final phase of occupation on the site and dumping (layers 3, 4, and 5), one of which (layer 4) included an intrusive burial (**Figure 4.8**). The uppermost layers are post-abandonment weathering deposits (layer 2) and the modern cultivation horizon (layer 1).

As mentioned earlier, fourteen postholes were encountered in layer 13 and twelve postholes in layer 9 of the Ngombezi main trench. These represent the remains of structures and associated house floors, and indicate two distinct phases of construction occupation and demolition. The arrangement of the postholes suggests circular structures. The diameters of the postholes suggest that medium sized poles were being used in house construction, and their depths suggest that the poles were placed deeply after the postholes were dug first.

Taken together, the stratigraphic data suggest at least two phases of house construction followed by occupation and subsequent demolition or collapse: the earliest represented by the group of postholes associated with layer 13; the second by the postholes associated with layer 9. The dense layer of daub (layer 6) may represent the collapse of walls associated with the layer 9 structure following a period in which this building was used as a place to dump household waste (layer 8). However, given that these postholes are themselves sealed by layer 8 it is more likely that the daub-rich deposit (layer 6) demonstrates the demolition or collapse of a building located outside the confines of the current excavation.

The fact that demolitions layers are sealed by midden deposits demonstrate that occupation continued or recommenced in the immediate vicinity following the abandonment of these two or three structures. It is not possible on stratigraphic grounds to discern whether the site as a whole underwent periods of complete abandonment and re-occupation, but the combined artefactual assemblage and two radiocarbon dates suggest occupation of the settlement mound at Ngombezi was continuous.



Figure 4.8: Burial encountered in layer 4, Square 1 (70cm below ground surface), Ngombezi main trench. Author's photo, 2008



Figure 4.9a: Dense layer of house daub, (layer 6), Ngombezi main trench. Author's photo, 2008



Figure 4.9b: Daub from Layer 6 showing impressions of wattle/wooden frame. Author's photo, 2008

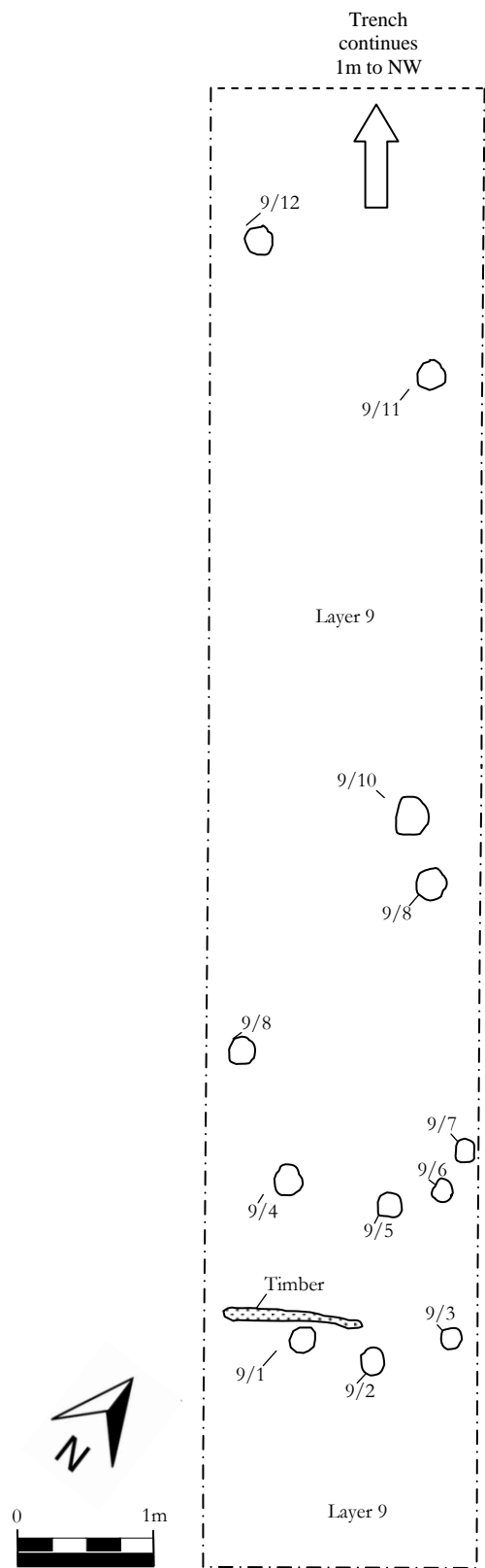
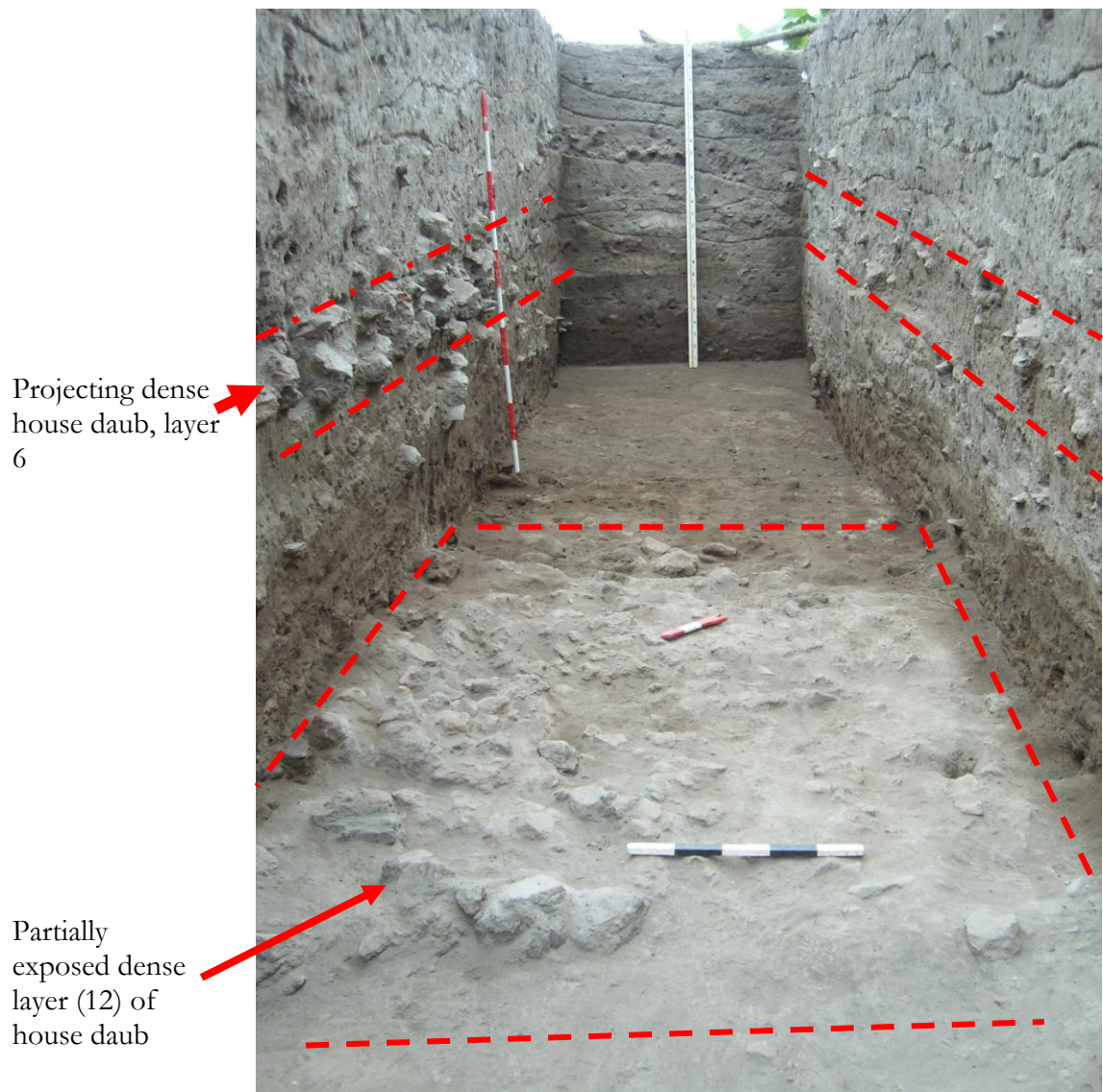


Figure 4.10: Postholes encountered in Layer 9, Ngombezi main trench



A photographic view of a section of the postholes in layer 9. Author's photo, 2008



Projecting dense
house daub, layer
6

Partially
exposed dense
layer (12) of
house daub

Figure 4.11: Dense layer of house daub, layer 12, partially exposed. The vertical scale (left) shows approximately 1m depth interval between daub fill layer 6 (projecting daub) and the newly exposed layer 12. Author's photo, 2008

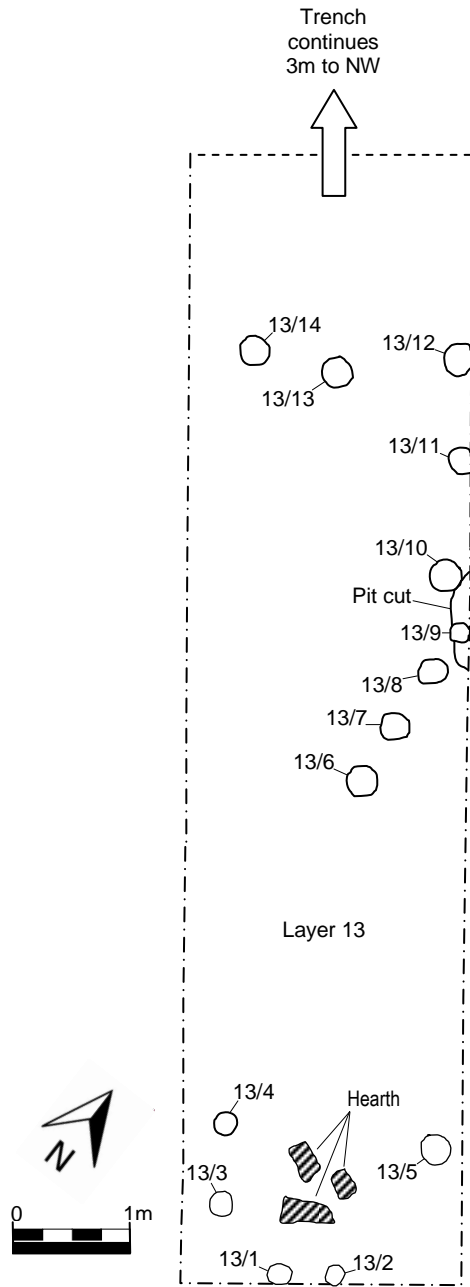


Figure 4.12: A plan of postholes encountered in Layer 13, Ngombezi main trench

4.3.2.3 Finds

A summary of the finds recovered from Ngombezi main trench is presented in **Table 4.4**. Generally, the daub deposits (layers 5 and 12) and layers with cut features such as the burial (layer 4) and postholes (layers 9 and 13), contained relatively fewer finds of any kind than those that lacked visible features (layers 1, 2, 3, 6, 7, 8, 10 and 11). In total, 32,857 potsherds were recovered from this trench, out of which only 4.5 percent (n=1,497) were diagnostic - with only 10.4 percent of the diagnostic sample (n=156) being decorated. Particularly, high concentrations occur in layers 7 and 10 although they were common throughout all of the deposits that lacked structural remains or other archaeological features. Glass beads appeared in rather higher concentrations in the upper layers of the trench, while shell and other non-glass beads were generally confined in the lower deposits. Interestingly, no glass beads were recovered from the lowest two layers. Full details of the artefacts recovered from the site are provided in Chapter 5.

Faunal material from Ngombezi main trench was in a very good state of preservation. This might be due to the fact that the mound built up quickly, with the result that any deposited bones were rapidly buried, and so only subject to taphonomic processes and agencies for a limited period. Additionally, the spread of ash deposits across several layers may have created local soil chemistry favourable for faunal preservation. A total of 20,565 bones were recovered from this major trench, representing a diverse range of animal species, including both domestic stock such as caprines, cattle and chicken and various wild terrestrial taxa, particularly rodents, and numerous fish bones. An analysis of the faunal remains recovered is presented in Chapter 6.

Table 4.4: Amounts of Cultural Materials Retrieved from Ngombezi Main Trench

L A Y E R	S Q U A R E	L E V E L	Depth (cm)	Finds						
				BNS	POT	BDS	C/S	M/O	DB (kg)	ETC
1	1-7	1	0-20	2237	3143	119	11	5	12.5	
2	1-7	3	20-50	1955	2251	316	27	4	24	
3	1-7	3	50-80	2556	2414	229	25	7	54	
4	1	2	70-90	361	258	25	3	0	3	4 SP
5	1-5	Daub	80-140	388	1067	47	2	0	1090	
6	2-5	3	70-120	1904	2737	391	13	7	190	3 SP
7	5-7	4	80-140	2487	4123	393	10	2	147	2 IC
8	1-5	7	120-200	3406	3804	324	22	4	14	
9	2-6	3	120-230	584	1361	50	1	0	22	
10	1-7	8	110-250	2166	5152	193	5	3	6.5	
11	1-5	11	200-310	2103	4814	94	9	0	75	6 WB
12	1-4	Daub	230-320	180	711	8	0	1	802	
13	1-7	3	190-340	238	1022	106	0	0	0	
TOTAL				20,565	32,857	2,295	128	33	2,440	

Abbreviations: BNS=Bones; POT=Pottery; BDS=Beads; C/S=Cowrie Shells;
M/O=Metal Objects; DB=Daub; SP = Smoking Pipe; IC = Imported Ceramic;
WB = Worked Bone.

4.3.2.4 Absolute and Relative Dates for Ngombezi

For absolute dates, two charcoal samples were submitted for AMS (accelerator mass spectrometry) radiocarbon dating to the laboratory at the University of Waikato, New Zealand. Sample 11I was collected from the layer associated with the floor of the first structure (layer 13) and was recovered from square 1, level 1 at c. 330cm below datum. This sample (Wk 25718) aimed to date the earliest phase of settlement occupation evidenced within the excavated area, and yielded a date of 238 ± 30 BP. The second sample, (Sample 1A; Wk 25711) collected from layer 6, square 5, level 2 (100cm below datum) was submitted to provide a date for the daub layer associated with a later collapsed structure, and produced a date of 184 ± 30 BP. The calibrated dates (**Figure 4.13 a & b**) indicate that the earliest structure could date to as early as the sixteenth century or as late as the mid-twentieth century, but is more likely to date to the late seventeenth or early eighteenth centuries. The date range of the later collapsed structure is between the mid-seventeenth to mid-twentieth century. However, given known difficulties when using the radiocarbon method for dating

post-1600 material, these dates are treated here simply as corroborating evidence and priority is placed on the relative dates provided by the stratified imported glass beads, and cross-referenced to historical sources and to other excavations where beads and pottery have been recovered within well dated depositional sequences.

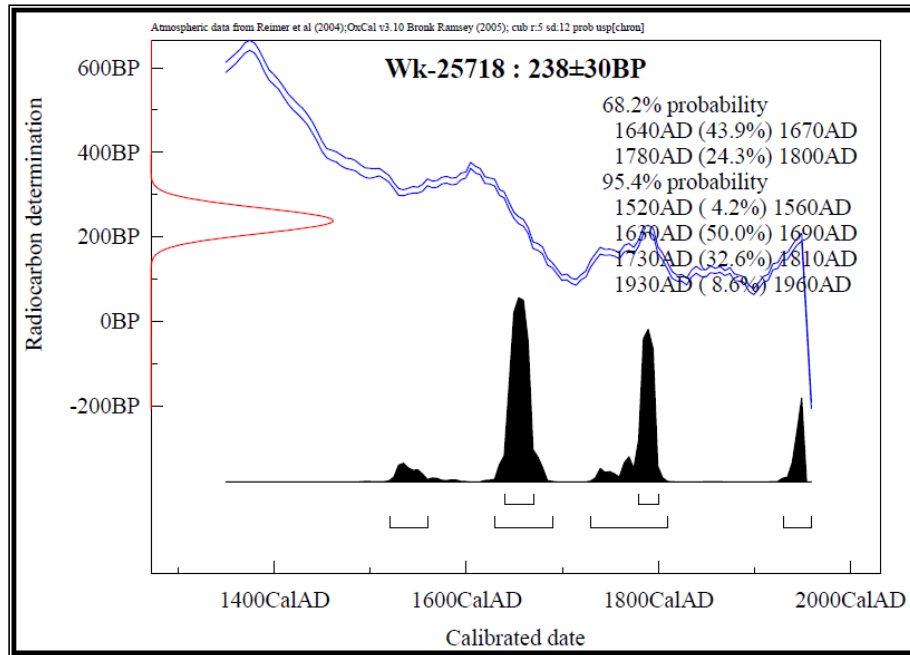


Figure 4.13a: C14 dating calibrated graph for sample 11I

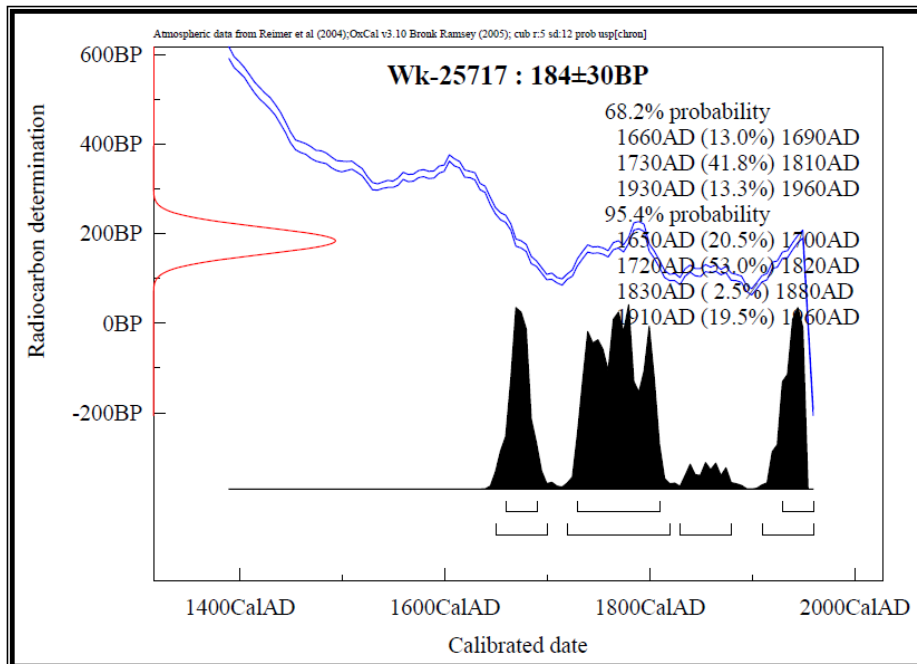


Figure 4.13b: C14 dating calibrated graph for sample 11J

Given that historical sources indicate that the site was occupied in the nineteenth century, and oral sources attest to its eventual abandonment in the twentieth century, the most likely date for the formation of layer 6, the second phase of house collapse, probably lies in the mid-nineteenth century; this is also suggested by the recovery of various imported glass trade beads of likely European manufacture from this layer (See Chapter 5 for further discussion of the dating of the bead assemblage). On rather similar grounds, the lower building horizon, which represents the initial phase of human occupation of Ngombezi Island, is likely to predate the nineteenth century; owing to the complete absence of glass beads from both this layer and the layer that overlies it (layer 12). While this might suggest a much earlier date for the foundation of the site, the ceramics recovered from layers 12 and 13 show obvious similarities with those recovered from layers higher up, and are also typologically similar to ceramics from elsewhere in the East Africa hinterland that have been roughly assigned to date between the seventeenth and eighteenth centuries. (See Chapter 5 for further discussion of the dating of the ceramics).

On this basis, it is cautiously suggested here that the Ngombezi main site was probably first founded during the late eighteenth century and was continuously occupied, with phases of rebuilding and reorganisation, up to the early twentieth century, when oral sources indicate that the inhabitants moved off the island onto the southern banks of the Pangani River.

4.3.3 Old Korogwe

Situated at approximately S 5° 9' 25" E 38° 28' 38" on the Pangani River and at about 301m above mean sea level, the island of Old Korogwe is another abandoned settlement. It is located about five kilometres South-east of the present town of Korogwe, and about 11km from the main site of Ngombezi. It covers an area of approximately 0.4 square km and currently only small scale cultivation is taking place on this island. As at Ngombezi, excavation on this site targeted a mound of cultural material which is located at the centre of the island (**Figure 4.14a**). Archaeological scatters of beads, bones, and pottery were visible on top of the mound, and these were reported by villagers to the author while conducting his first research at Ngombezi. On this mound, a 2m² excavation unit was laid out near the centre of the mound and excavated to the base of anthropogenic deposit at a depth of c. 3.60m below ground level (**Figure 4.14c**).

4.3.3.1 Stratigraphy:

The stratigraphy of the Old Korogwe excavation unit is presented in **Table 4.5** and **Figure 4.15**. Four distinct layers were observed during excavation, although as shown on Figure 4.15 other less distinct soil changes which could represent separate layers were observed in section. The stratigraphic relationship between the major layers is shown in **Figure 4.16**.

Table 4.5: Description of Layers, Old Korogwe

Layer #	A Summary of Deposit Characteristics	Material Types
1	Post-abandonment disturbed topsoil, dark yellowish brown [10YR, 4/4] of fine texture clayey loam, c. 20cm. Thin plant roots dominated the layer as well as one large hole - probably of ants. Bones and pottery were fragmented as was the case at Ngombezi - probably due to ongoing hoe cultivation on top of the mound.	Pottery, bone, beads, musket barrel
2	Thick deposit of light brownish grey [10YR 2.5, 6/2] ashy soil extending from 20-100cm below datum. This layer incorporates a thin band of compact, olive brown clay. Recovery of a few pieces of daub suggests there may have been a structure nearby.	Pottery, bone, cowrie shells, beads, metal objects, smoking pipe, daub
3	Pale brown [10YR, 6/3] compact clay mixed with fragments of daub and charcoal encountered from 100 cm to 200cm below datum. A thin band of ash was present –appearing at c. 180cm below datum.	Pottery, bone, beads, cowrie shells, smoking pipe
4	Dark brown silty clay [10YR, 3/3] extending between 200 cm and 340cm below datum. At the depth of 240cm below datum, the western section of the trench was reduced by half and excavation continued until 360cm when a sterile deposit of dark greyish brown [10YR, 3/2] clay loam was encountered.	Pottery, bone, beads, metal objects, cowrie shells



a): Excavation on progress at Old Korogwe. Author's photo, 2009

b): A 2x2m trench at Old Korogwe, a view from the east. Author's photo, 2009



c): Section drawing in progress in the 2x2m trench at Old Korogwe, showing final excavated levels. Photo: J. Mpangarusya, 2009.

Figure 4.14: Excavation work at Old Korogwe

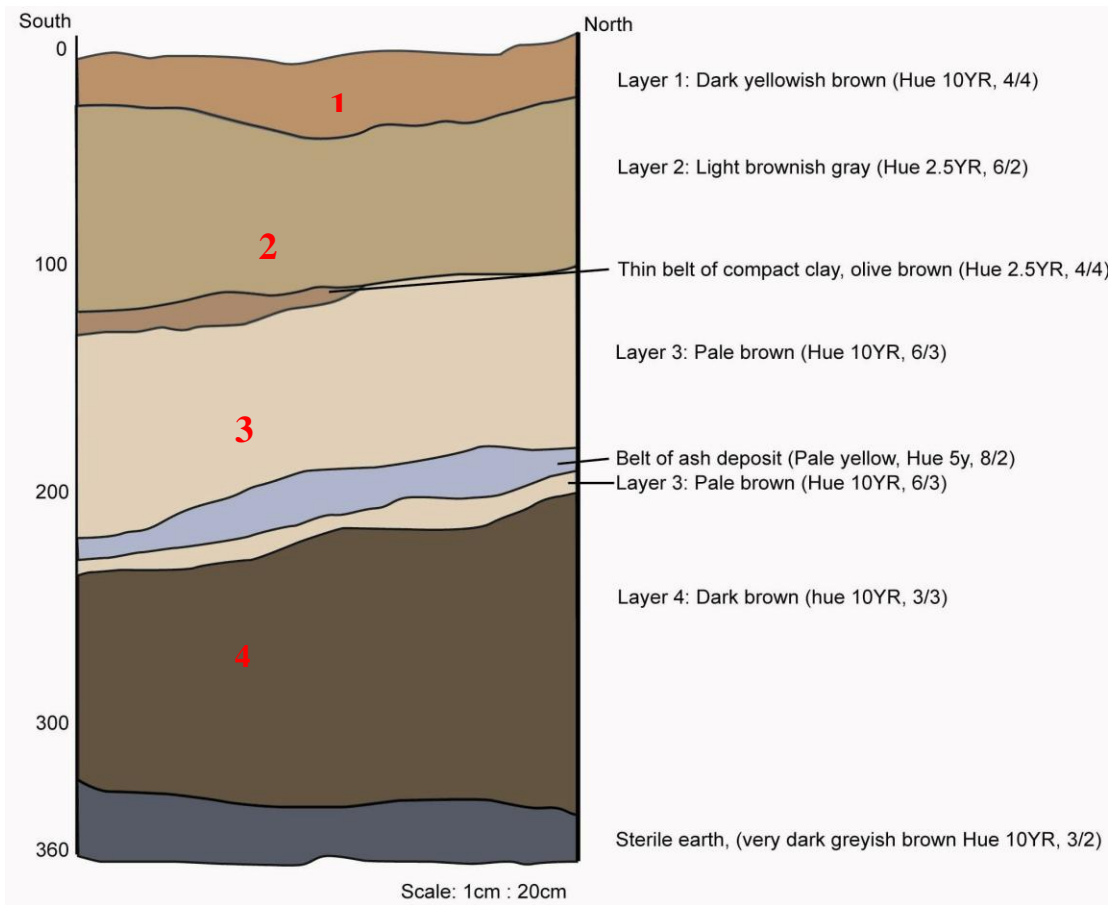


Figure 4.15: The stratigraphy of Old Korogwe Trench, west facing wall

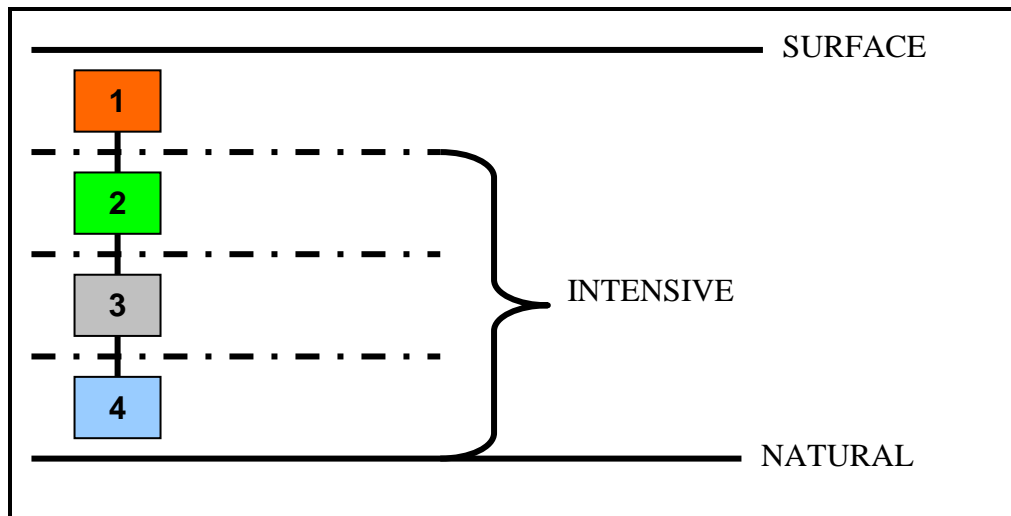


Figure 4.16: Matrix for Old Korogwe

4.3.3.2 Finds

Table 4.6 presents the types and amount of cultural materials recovered from Old Korogwe. Generally, these are similar in several aspects to those retrieved from Ngombezi, the main difference simply being the quantity of material recovered here - owing to the smaller scale of the excavation, which was equivalent to just 1/7th of the area excavated at Ngombezi main trench. In addition, no structural remains such as postholes or hearths were found - although the presence of small amount of daub recovered would suggest the presence of built structure somewhere nearby. As at Ngombezi, the faunal remains were generally in a good state of preservation. In terms of bead distributions, shell beads dominate the lower layers while the glass beads seem to have appeared late at this site, exhibiting a similar vertical trend to that noted at Ngombezi.

Table 4.6: Types and Amount of Materials from Old Korogwe

L A Y E R S	L E V E L S	Depth (cm)	Finds						
			Bones	Pottery	Beads	Cowry	Metal Objects	Daub (kg)	Others
1	1	0-20	323	237	53	0	1	2	1 MB 1 GF
2	7	20-100	1444	802	237	5	5	26	1 SP
3	10	100-200	1403	1195	123	3	3	0	1 SP
4	15	200-360	1155	1730	95	3	0	0	
TOTAL			4325	3966	508	11	9	28	

Note: Abbreviations: MB = Musket Barrel; SP = Smoking Pipe; GF = Gun Flint

4.3.4 Kwa Sigi

Kwa Sigi is another abandoned island settlement (**Figure 4.17**) located on the Pangani River, situated roughly at S 5° 8' 8" E 38° 23' 58", and about 6km West of Korogwe, at 356m above mean sea level. Today, the island is considered part of Msambiazi village, lying at c. 4km northwest from the main study site of Ngombezi. Residents from Msambiazi use the island for grazing livestock. No signs of cultivation were seen, but several fish-traps are evident around the banks of the island. The island is predominantly flat and open - enjoying a good view of the Usambara Mountains to the north (**Figure 4.18a**). A few, small-circular raised areas that look like severely eroded house floors are noticeable; these typically have surface scatters of beads, abraded pottery and severely fragmented animal bones (**Figure 4.18c**).

Eleven test pits - each measuring 1m² - were laid out across the island (**Table 4.7**), with most targeting the possible house floors. All test pits were excavated to sterile deposits which were reached at various depths (**Table 4.8**). Generally, the archaeological deposits in all eleven test pits were fairly similar, with the main matrix consisting of compact clay mixed with gravel. Owing to the hard nature of these deposits, the use of hoes for excavating certain layers was unavoidable. Likewise, some difficulties were also encountered while sieving as most of the deposits retrieved were in form of lumps (**Figure 4.18b**). In due regard, wet sieving was sometimes introduced in order to improve the recovery of small finds such as beads and micro-fauna embedded in soil lumps (**Figure 4.19a**).

The depth and frequencies of subsurface occurrences of material from all eleven test pits is presented in **Table 4.8**. Ten test pits yielded cultural materials. A control sample (IP 2) was located in an area where no cultural material were visible on the ground surface and was found not to contain any artefactual remains. Pottery was recovered in all the other ten test pits - suggesting this was the most widely distributed class of artefact at the site. However, as indicated in **Table 4.8**, almost half of the pottery retrieved from Kwa Sigi comes from Test Pit 11, which is the deepest of the test pits.

All the recovered pottery was locally made, and most of it was heavily worn and fragmented compared with that recovered from Ngombezi and Old Korogwe (**Figure 4.18c**). Such a situation might be attributable to animal trampling and/or running water on this flat island. Nonetheless, as discussed further in Chapter 5, although a rather higher proportion of diagnostic and decorated pieces were recovered from this site compared with Ngombezi and Old Korogwe, the overall composition and styles are similar to the material from these sites.

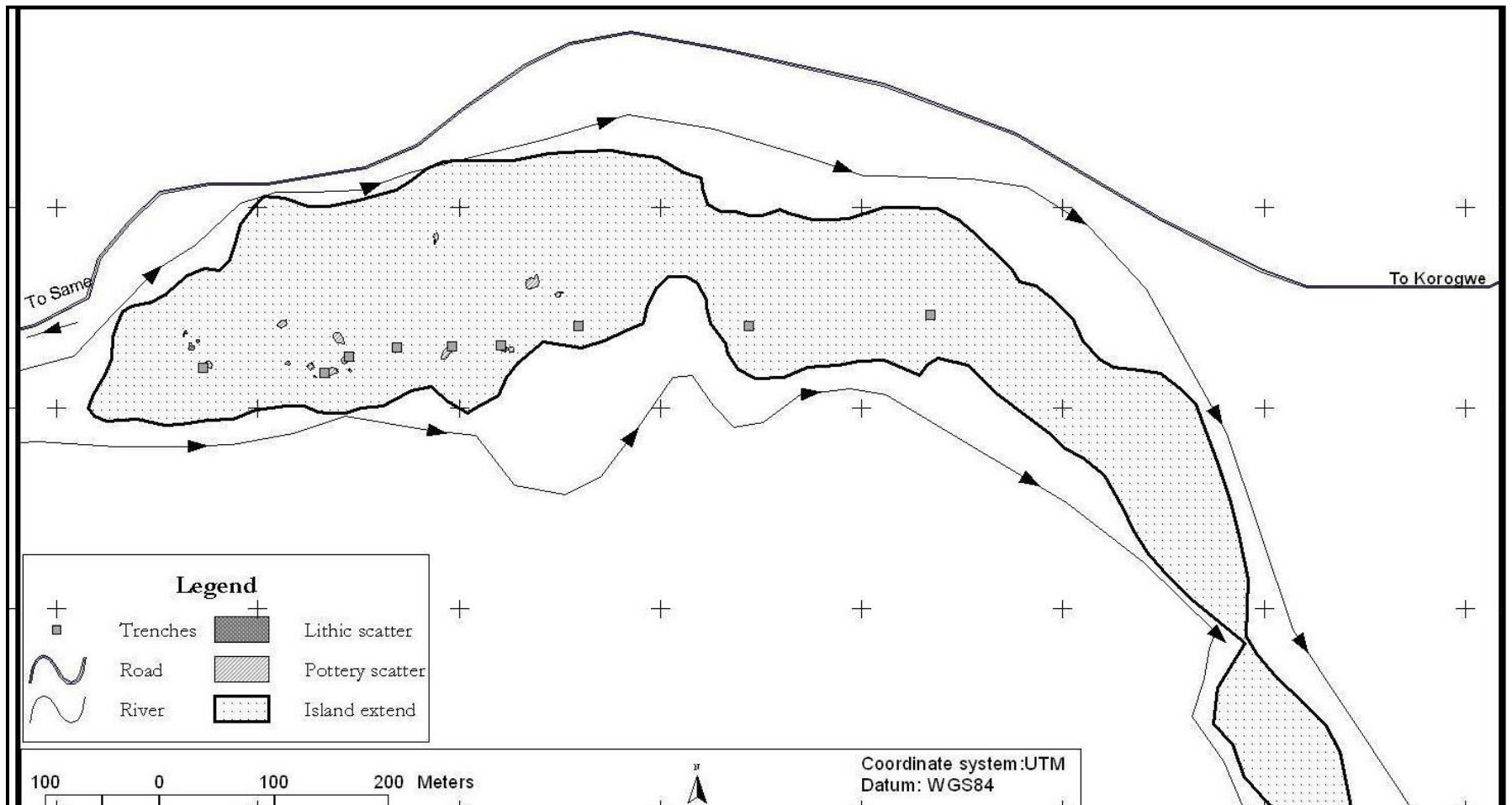


Figure 4.17 A plan of Kwa Sigi Island showing distribution of Test Pits and other features

Table 4.7: The coordinates for the location of the Kwa Sigi Test Pits

<i>Test-Pit</i>	<i>Latitude (S)</i>	<i>Longitude (E)</i>	<i>Elevation(m)</i>
Datum point	05° 08 097'	038° 23 803'	352
1	05° 08 068'	038° 23 800'	355
2	05° 08 052'	038° 23 798'	356
3	05° 08 063'	038° 23 879'	355
4	05° 08 057'	038° 23 903'	356
5	05° 08 059'	038° 23 934'	356
6	05° 08 058'	038° 23 962'	351
7	05° 08 071'	038° 23 866'	356
8	05° 08 046'	038° 24 001'	356
9	05° 08 046'	038° 24 093'	352
10	05° 08 040'	038° 24 191'	351
11	05° 08 241'	038° 24 326'	360

Beads are the next most abundant artefact category. These were encountered in seven test pits, with large concentrations from Test Pits 4, 8, 10, and 11. All ten non-glass beads came from a single test-pit, Test Pit 11 low down (below 80cm) in the profile. As at Ngombezi and Old Korogwe, the dominant bead types at Kwa Sigi are hand drawn examples. Perhaps more significantly, a type (barrel shaped with Indian reddish brown outer layer on an opaque white core) not found at the other two sites, was recovered (see Chapter 5 for details).

Test Pit 8 yielded burnt maize seeds and some maize cobs (**Figure 4.19b**). Together these weigh approximately 2.5 kilograms. These were observed on the western wall of the test pit between 45 and 60cm below surface - beneath a daub horizon. Extraordinarily thick potsherds were also recovered underneath the maize; these might represent the remains of a large storage vessel - as these are known to have been used for this purpose in other parts of Tanzania in the past (Bertram Mapunda, pers. com., September 2009). Five coins were also recovered, three from Test Pit 8 and two from Test Pit 11. These all bear the words 'DEUTSCH OSTAFRIKA' on one side, and 'HELLER' on the other. All were minted in 1905. The presence of these German coins would suggest that the island was still occupied up to the establishment of German colonial rule in East Africa, and so might provide a *terminus post quem* for the abandonment of the settlement.

Table 4.8: Depths, Lithology, and Materials Recovered from Kwa Sigi Test Pits

<i>Test Pit No.</i>	<i>Depths reached (cm)</i>	<i>Depth for Artefacts (cm)</i>	<i>Munsell Colour</i>	<i>Materials retrieved</i>
1	30	0-10	Brown [7.5YR, 5/3]	Pottery (11), Beads (8), Daub (4kg).
2	20	Nil	Very Dark Brown [7.5YR, 2.5/2]	Nil
3	50	0-20	Very Dark Grey [7.5YR, 3/1]	Pottery (127), Beads (7), Metal objects (1), Daub (6kg).
4	50	0-40	Very Dark Greyish Brown [10YR, 3/2]	Pottery (166), Bead (390), Bones (270), Metal objects (6), Daub (11kg), gun muzzle (1)
5	50	0-20	Brown [7.5YR, 5/3]	Pottery (16), Daub (1.5kg)
6	50	0-40	Dark Greyish Brown [10YR, 4/2]	Pottery (178), Beads (3)
7	50	0-30	Very Dark Brown [7.5YR, 2.5/3]	Pottery (144), Bone (7), Metal objects (3), sharpening stone (2), grinding stone (1)
8	100	0-70	Very Dark Grey [5Y, 3/1] from 0- 70cm, and Olive [5Y, 4/4] from 70-100cm	Pottery (323), Bones (35), Beads (331), Daub (74kg), burnt maize grains/cobs (2.5kg), Coins (3)
9	50	0-40	Dark Reddish Brown [5YR, 3/2]	Pottery (59), Bones (31), Beads (28), Daub (56kg)
10	50	0-20	Light Gray [5Y, 7/2]	Pottery (183), Beads (103), Metal objects (1)
11	150	0-120	Dark Reddish Brown [5YR, 3/4] from 0-70cm, and Dark Grey [5YR, 4/1] from 70- 100cm.	Pottery (1099), Bones (1045), Beads (131), Cowrie shells (3), Metal objects (12), Coins (2)

Note: Figures in parenthesis refer to artefact counts, except for daub, where they refer to weights in kilograms



a): A view from south, Kwa Sigi Island and surface bead and pottery scatters.



b): Excavation in progress at Kwa Sigi.

c): Heavily abraded potsherd from Kwa Sigi Test Pits



Figure 4.18: Excavation work at Kwa Sigi Island, 2009. Author's photos



Figure 4.19a: Beads embedded in compact soil deposits at Kwa Sigi (left). Wet sieving to recover such small finds (right). Author's photo, 2009

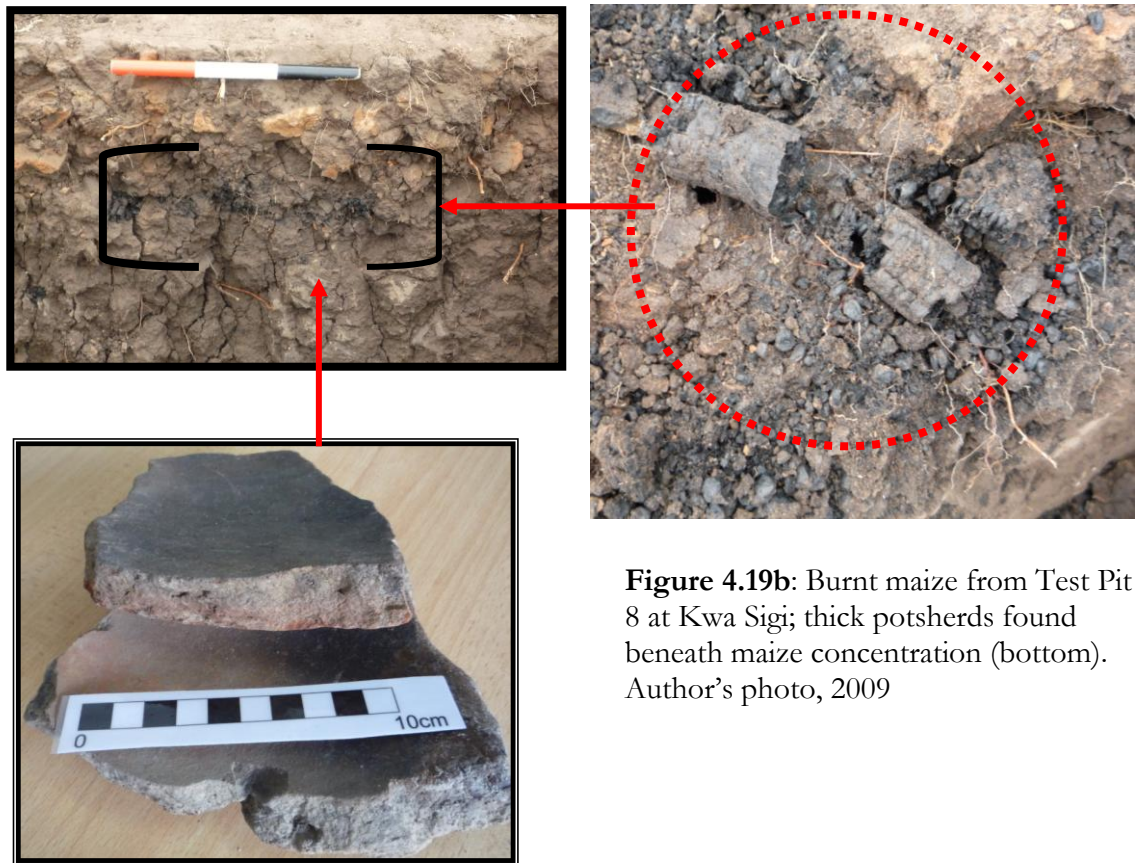


Figure 4.19b: Burnt maize from Test Pit 8 at Kwa Sigi; thick potsherds found beneath maize concentration (bottom). Author's photo, 2009

4.4 Oral Historical Evidence

Oral interviews were conducted as part of data collection for this project. This involved fifteen villagers (**Appendix D**) who were identified by residents of Korogwe areas as having deeper understandings of the history of various events, especially those pertaining to the Zigua who lived on the islands along the Pangani River. The respondents were aged between 64 and 106 years old, of whom twelve were men and three were women. The interviews focused mainly on five aspects of the past: i) identification of the ethnic community or communities that inhabited the island settlements, when and why these communities lived on the islands, the main reasons that led them to abandon the island settlements, and when this happened; ii) daily activities in the settlements and the typical subsistence activities of the residents; iii) the history of potting, pottery styles and the functions of different vessel forms; iv) various uses of beads and their history; v) memories and oral histories on the ivory and slave trade in the Korogwe area.

It was hoped that the information collected could aid the interpretation and understanding of various archaeological remains obtained from excavations carried out at the study sites of this project. While details of the craft activities, material culture, and ivory trade are given in Chapter 5, the section below summarises the limited information obtained from informants, which is broadly consistent with the available primary and secondary historical sources.

4.4.1 Ethnic Communities Inhabited the Island Settlements

All fifteen respondents agreed that residents of the island settlements were Zigua who identify themselves as ‘Wazigua wa Ruvu’ - in short ‘Waruvu’. The main reason for identifying themselves as the ‘Zigua of the Ruvu’ is due to adaptation of their subsistence activities, especially fishing, to life along the Pangani River. My informants elaborated that unlike other Wazigua, the Waruvu are not afraid of water – whether this is crossing the Pangani, or simply daring to conduct their daily activities such as farming and fishing along a stretch renowned for its dangerous crocodiles (Appendix D, interviewee 2, 3, 6 and 7). In other respects, the Waruvu share aspects of Zigua culture and speak a variant of KiZigua that is perfectly intelligible even to those WaZigua who live in Handeni district, some distance south of the Pangani.

Three respondents (Appendix D, interviewee 2, 6 and 7) demonstrated a greater understanding of the boundaries between the Zigua and their neighbours. These informants stated that the Zigua occupy the area from Pangani River (including the islands) to the west and south west of

the river up to the Handeni area. The area just across the Pangani River and north into the Usambara Mountains is the home of the Sambia. They also emphasised that the area around Korogwe and along the Pangani River Basin is considered a frontier zone where Zigua and Sambia communities share settlement space.

None of my informants knew precisely when these islands had first been settled. Most simply made a comment along the lines: 'a very long time ago', 'during the time of our ancestors', and 'we do not have records'. However, nearly all respondents claimed that the islands had been occupied by Zigua for reasons of security, and particularly protection from Maasai cattle raids. Some even suggested that the Maasai are scared of crossing fast flowing rivers, although it is perhaps more likely that the settlements on the islands were simply easier to defend than those on the plains to the north and south. Two interviewees (Appendix D, interviewee 3 and 5) reported that the islands were occupied only during periods of war, although neither was specific about which wars in particular.



Figure 4.20: The author (left) interviewing Ali Mgunya (middle) in 2009. On the right is a Zigua translator, Mr Faraja. Photo: J.Mpangarusya, 2009

As regards the reasons for abandoning the island settlements, five informants (Appendix D, interviewee 1, 3, 4, 6 and 7) said that the main reason was the difficulty experienced during and after heavy rains, with crossing onto and off the islands - as a result of the high levels of the Pangani/Ruvu River. In addition, four respondents related their abandonment specifically to the frequent floods that occurred during May, recalling in particular the heavy rains experienced in the years 1936, 1947 and 1956. It was presented that these resulted in serious flooding and the colonial government resorted at least once to using helicopters to evacuate residents. However, Mr. Christopher Hela who was born at Kwa Sigi explained that another important reason was that during floods, many residents were unable to get to work on the nearby sisal plantations, which prompted the colonial government to encourage the island dwellers to leave because the productivity of the plantations was falling.

Regarding when the island settlements were vacated, the responses differed - although all indicated that it was before independence. Mr. Juma Haji Msengi (interviewee no. 1) said that the island of Old Korogwe started to be deserted in the 1930s, and that the last family moved out in 1956. Mr. Andrea Hassan Chambo (interviewee no. 3) expressed the view that the island of Kwa Sigi started to be deserted in 1940, and the last family to move out was that of Mr. Hela (interviewee no 7) who did so in 1960. Ngombezi Island was inhabited until 1956 (Appendix D, interviewee 2 and 4). According to Ali Mgunya (interviewee no. 2), this was as a result of the floods of that year. However, Mrs. Margaret (interviewee no. 4) who was married on the island of Ngombezi held that many families left following a police raid in search of a murderer, during which several residents were beaten up by the police.

4.4.2 Aspects of Subsistence Strategies of the Studied Communities

The cultivation of food crops (maize, sorghum, cassava, bananas and potatoes) along the Pangani River was mentioned as one of the main activities of the Zigua community. These crops were often grown intermixed as a strategy aimed at limiting the effects of possible crop failure. The four informants (Appendix D, number 1, 5, 7 and 8;) who contributed to this topic had no knowledge about whether this production was on a large scale intended to generate a surplus for sale, or was simply aimed at meeting the subsistence needs of individual families. In addition to farming, fishing was mentioned by ten respondents as the main subsistence activity of the Waruvu undertaken along the Pangani River and its tributaries.

In view of the large quantities of fish bone recovered from the excavations (Chapter 6), an effort was made to try to find out more about the species that were caught and the fishing methods or techniques used. Two respondents (Appendix D, interviewee 1 and 3) who had themselves been active fishers described a variety of fish species found in the Pangani River. These include (with common Zigua/Swahili names in brackets) *Synodontis* (Ngogogo), *Clarias* (Kambale), *Oreochromis* (Perege), *Barbus* (Kuyu), and *Anguilla* (Ningu). Mr. Juma Haji Msengi, who assisted in the identification of fish species recovered during excavation, stated that some fish species in the Pangani River are found in large quantities only during certain periods of the year, while others are common year round. For example, he mentioned that *Perege* (*Oreochromis*) and *Kambale* (*Clarias*) are available for much of the year, especially during the rainy season, while the *Ningu* (*Anguilla*) and *Kuyu* (*Barbus*) are only available for some times, especially during the hot season.

Mr. Juma Haji Msengi (69) and Andrea Hassan Chambo (83) stated that there are five ways (some still exist to date) of fishing in the Pangani River. The main method is the use of basket traps. These baskets are made of thin wooden rods and cords made from palm tree leaves. Known in Zigua as ‘*migono*’, these basket traps are set in the river with the basket opening facing upstream so that the fish that follow the flow of water get into the trap. There are also wicker basket traps similar to ‘*migono*’ but these are smaller in size, and have a wide opening on one end for fish to get into it, and the other end is narrow and blocks the movement of the fish. These are called ‘*masega*’ (sing. *sega*) in KiZigua (**Figure 4.21**). The third method is with nets (‘*kimia*’ or ‘*hwavu*’ in KiZigua), the fourth involves fixed fence traps built of reeds and extended across the width of the river. Finally, line fishing with hooks also occurs, but is much less common than the other methods.

Waruvu kept chicken, duck, goat, sheep and cattle. Today, chickens are slaughtered regularly, while goats and sheep are slaughtered only rarely, especially for special events such as when guests visit, at times of bereavement, for various rituals, and other social activities. Cattle are kept mostly as a source of wealth and herds are managed so that herd size increases consistently. Consequently, cows are sent to slaughter only when they are no longer productive. Informants reported that when the islands were inhabited, all animals were grazed off the island, and livestock were taken across the river every morning to the grazing pastures, and returned in the evening to pens. However, according to Mr. Juma Haji Msengi (interviewee no. 1) the size of Zigua herds started to decrease significantly following the

introduction of sisal plantations around Korogwe in the 1930s, as these plantations reduced the grazing areas.



Figure 4.21: Mr. Andrea Hassan Chambo (right) displaying to the author (left), one of his fishing gears locally known as ‘*Masega*’. Photo: Elgidius Ichumbaki, 2011

Hunting was also mentioned as an important activity in the past. Informants indicated that the species most widely hunted included cane rat, rabbit, bushbuck, reedbuck, antelope, buffalo, dikdik, warthog and, to a lesser extent, porcupine. According to these informants, large herbivores were still commonly seen in abundance close to people's homes up to the 1950s, but that they began to disappear steadily thereafter - as a result of the expansion of human settlements and agricultural activities. My informants asserted that the Zigua used to hunt using a combination of weapons including bow and arrows, spears, machetes and clubs. Dogs also had an important role in hunting activities as they helped hunters identify the whereabouts of animals and with chasing them. Small animals like cane rats were hunted even by young

boys using dogs and net traps. My informants (interviewee 1, 2, 3, 5 and 7) also held that cane rat meat is delicious and hence most preferred over that of other wild game. This statement would imply that eating such small animals may not necessarily indicate an absence of larger game species, but rather, is a matter of taste and cultural preference.

4.5 Chapter Summary

Three sites were excavated as part of this project. At Ngombezi, a 1m² test-pit and a 2x14m trench were completed, while a 2m² trench was dug at Old Korogwe. At Kwa Sigi, eleven 1m² test pits were dug across the entire island. Generally, the material recovered from all three sites was similar, although their quantity and density varied between sites and excavation units - partly because of the sizes of the excavation units, and also because of the nature of the deposits encountered. The results from the sampling exercise at Kwa Sigi, despite the smaller size of the individual excavation units, nonetheless generally mirror those obtained from the larger trenches.

Clear structural evidence was only encountered at Ngombezi. Here, in the main trench, evidence was found for at least two structures, one of which almost certainly representing the remains of a circular wattle-and-daub cylinder type of house - similar in form to ethnographically documented Zigua houses (*msonge*). Associated with this structure was a cooking hearth with three stone supports, on which a bowl was resting. A charcoal sample from this horizon gave a radiocarbon date of 238±30 BP. Given ambiguities in the calibration curve for this time period, the age of these deposits could lie between the early seventeenth century and the early twentieth century. Based on the artefactual evidence, and particularly the lack of imported glass beads from this and the subsequent horizon, an eighteenth century date for these deposits is preferred. The second collapsed structure was also radiocarbon dated, in this case to 184±30 BP. Given that the site of Ngombezi is known from documentary sources to have been occupied during the latter part of the nineteenth century, and also given the nature of the glass beads recovered from this horizon, a mid-nineteenth century date would seem a reasonable inference.

On the basis of oral evidence collected from knowledgeable local elders, the island settlement may not have been finally abandoned until as late as the 1950s. The date of the initial occupation of Kwa Sigi and Old Korogwe is less certain. However, both are known to have been inhabited during the middle and later part of the nineteenth century, and in the case of

Kwa Sigi the recovery of German coins dated to 1905, indicate that this site at least was still occupied at the start of the colonial period. Oral evidence collected as part of this project also suggests that these settlements, like that at Ngombezi, were only finally abandoned in the mid-twentieth century although the process may have had begun earlier.

In terms of artefactual remains, shell beads and imported glass beads were recovered from all three sites. In all excavation units shell beads dominated the basal layers in which glass beads were either missing completely or found in very small amounts. This would suggest that shell beads were already in use at these settlements before glass beads were introduced. This may well indicate that the sites had been already established prior to the expansion of the caravan trade c AD 1840. Local pottery dominates the artefactual assemblage at all three sites, and only two pieces of imported ceramic were recovered, both from Ngombezi. The general characteristics of the ceramic assemblages in terms of vessel types and decorative motifs were also similar at all three study sites. This similarity would suggest that the pottery found at these sites was either manufactured at the same source or obtained by the site occupants from the same neighbouring communities. Even faunal materials from all three sites had similar characteristics, particularly in terms of species composition. Domestic and non-domestic animals of different sizes as well as a variety of fish species were consumed at these sites, which would suggest similarity in animal economies and patterns of food consumption. Detailed analyses of all material evidence are presented in the following two chapters.

CHAPTER 5

THE ARTEFACTUAL EVIDENCE

5.1 Introduction

This chapter presents the results of the analysis of artefactual evidence recovered from the excavations described in Chapter Four. Pottery and beads constitute the most common classes of artefacts recovered, so consequently, the chapter begins with a presentation of the analysis of the pottery assemblage. Particular attention is given here to describing the general composition of the assemblage, the varieties of different vessel forms and their possible typological, cultural and functional significance. The second section presents the results of the bead analysis. These are discussed in terms of general characteristics, the different types, and their possible cultural and historical significance. Because other materials such as metal objects, cowry shells, smoking pipes and worked bones were recovered in small amounts, these are described and briefly discussed in the fourth and penultimate sections under the heading 'miscellaneous artefacts'. The final sections of the chapter entail a general discussion of all classes of findings, and followed by a general summary of the chapter.

5.2 The Ceramic Assemblage

The primary aim of the ceramic analysis was to identify key types and attributes, and outline their relationship to other published pottery types from East Africa, the intention being to ascertain possible chronological relationships of the assemblages and to define their cultural and historical significance. Additionally, it was hoped that this exercise would shed some light on the trade networks and interactions between the studied communities of the Lower Pangani and their neighbouring communities. To achieve the above, the following attributes were examined: fabric and temper, rim forms and profiles, vessel forms and shapes, and types of decoration and their placement.

i. General Composition

The analysed ceramics are likely to have been manufactured by hand from an initial thick coil of clay which was then drawn up to form the body of the vessel using the paddle and anvil technique; a method still used by contemporary Zigua potters. On completion, the interior and exterior surfaces would have been polished while the clay was still soft by using small rubbing

stones before the decoration (if any) was added. Smoothing of the pot would have taken place once the clay had hardened slightly.

Tables 5.1 and 5.2 present the total amount of local pottery recovered from all three study sites and the proportion of analysed diagnostic potsherds from each site. Undiagnostic material from all three sites, essentially undecorated body sherds, were counted and weighed by layer. No further analysis of this material was carried out. All the diagnostic sherds (average 7% of the total, ranging from 4.5% to 24.3%), mainly comprising decorated pieces, rim sherds and a few diagnostic body or neck sherds- were analysed in more detail and the results are presented below. It should be mentioned at the outset that the higher frequency of diagnostic potsherds from Kwa Sigi (24.3%) is probably due to the more fragmentary nature of this assemblage, which seems to have resulted in a higher representation of sherds derived from the same vessels than was the case at Ngombezi, where sherd sizes was typically much larger. This was attested by the regular co-variation of decoration motif and fabric among the diagnostic potsherd fragments.

ii. Analysis Procedures and Methods

All the diagnostic potsherds were given a unique artefact number. The attributes of each piece were recorded on an Excel Worksheet following a coding system based on the criteria outlined below. Information recorded for each sherd included contextual information, sherd dimensions (maximum length, width, and thickness in mm), sherd fabric and temper, surface treatment (if any), body part, vessel form, decoration type or types, decoration placement, and ceramic types. In the case of rims, rim form, lip shape and lip stance were also recorded. The contextual information recorded was the trench/test pit number, layer number, and the assigned artefact number. The dimensions of individual specimens were recorded using digital Vernier Callipers.

Fabric was determined by breaking off a small section of a sherd to reveal the type of clay and temper used. The colour of the core and thinner and outer margins was then noted, following the procedures outlined by Orton *et al.* (1993: 69). Table 5.3 lists the fabric types and codes that were recorded during this analysis.

Although a potsherd's colour is partly influenced by the type of clay used, it also has the potential to indicate particular firing conditions (Hodges 1976: 40-1). However, in this study it

was difficult to determine this mainly because the pottery assemblages from all three study sites have high colour variations. As such, it was common to find different parts/sections of the same sherd having different colours. This suggests that the firing atmospheres and/or clays used were extremely variable. Wynne-Jones (2009:30) attributes such a high degree of colour variations to firing pots in open bonfire kilns whereby vessels can be differentially exposed to heat depending on their location within the furnace and their proximity to the fuel. The use of bonfires for firing pottery was expected in this context since there are no ethnographic or historical records for the use of specially built kilns in this region.

Temper is used by potters to modify the properties of clay in order to counteract shrinkage and promote an even evaporation of moisture contained in the clay (Shepard 1985; Rice 1987; Orton *et al.* 1993). Adding temper helps to reduce the probability of a pot cracking during drying and firing. The selection of tempering material is an indicator of the potter's awareness of the properties of his or her clay, and this signifies an ability to apply techniques that make his/her clay more workable (Warner 2007: 9). Rice (1987: 407) lists a range of materials that are used as temper in pot making. These include a variety of organic matter, mineral and man-made materials. During this analysis, the different types of temper materials used were identified by examination of the cross section of a fresh break under a hand lens. In some cases, temper materials were also clearly visible on sherds that had rough surfaces caused by post-depositional taphonomic factors (e.g. abrasion), and in some instance, on those sherds which had untreated (i.e. unburnished) surfaces. Table 5.4 lists the different types of temper materials as observed and the codes that were used for recording them.

The surface treatment of each diagnostic sherd was recorded initially as either present or absent. Where present, different types of surface treatment were recorded and coded as follows (codes in brackets): Burnished (1), polished (2) pigment stained (3), slipped (4), painted (5), and graphite coated (6). Sherds lacking visible signs of surface treatment were given the code 0 (zero).

Where vessel form could be reconstructed from the diagnostic sherds, especially those with surviving rims and necks, these were classified into one of eleven types of vessels (Table 5.5) following the scheme used by Wynne-Jones (2009: 30-36) to classify the pottery from Vumba Kuu. The site of Vumba Kuu is located on the Indian Ocean coast close to the border between Kenya and Tanzania near the modern town of Vanga. It is known archaeologically to

have been a modest farming and fishing settlement occupied by Wavumba roughly between the fourteenth or fifteenth centuries and eighteenth or nineteenth centuries. According to Wynne-Jones (2009: 2), the Wavumba dispersed from Vumba Kuu in the twentieth century and settled in Vanga, and on Wasini Island. Wynne-Jones indicates that this site does not display substantial contact with the wider Indian Ocean area. The reason for adopting Wynne-Jones' ceramic classification scheme is due to the fact that archaeologists have, until now, not developed ceramic classifications for the post-Swahili period in large area of East Africa (see also Wynne-Jones and Croucher 2006). Hence, Wynne-Jones' scheme, coupled with Croucher's (2006) work on the Kwa Fungo pottery assemblages (briefly discussed in Chapter 3), is the most comprehensive and most recent study.

Rim shape and profile were recorded in order to enhance the classification of the pottery since these attributes facilitate comparisons with regional pottery sequences. In this regard, over twenty different types of rim forms were defined and each of these was given a unique code (**Appendix E**). However, during the analysis only nine types of rim profiles were identified and these are presented below.

Regarding decoration, approximately 7.4 percent of the diagnostic potsherds from all three sites are decorated. This is equal to 0.52 percent of all retrieved potsherds from all three study sites. The nature and mode of decoration as well as types of motifs is described below. The location of decorations on the vessel surface is presented in Table 5.12. Generally, decorations were in a combination of different designs.

5.2.1 Analysis Results of Local Pottery

Fabric and Temper: Table 5.6 summarises the types of temper materials recorded for all three sites. The majority of the ceramics (77.7%) were made from fine clay tempered with sand and grit (*Type 4*), probably derived from river deposits close to the sites. While some of the sand and grit inclusions may have been naturally occurring in the clays used, the proportion of both is consistent with the hypothesis that these materials were added as temper. The use of similar type of clay and temper materials at all study sites indicate that pottery was made from similar raw materials, and hence they were locally made. This may further suggest that they were made by the same or closely related communities, although a definite conclusion on this matter will require petrological studies.

Table 5.1: Inventory of all Local Pottery Recovered by this Project

<i>Site</i>	<i>Total no. of sherds recovered</i>		<i>Diagnostic sherds</i>	
	Total count	Weight (gm)	No. of sherds	Weight (gm)
Ngombezi	32,857	128502	1497 (4.5%)	23435
Old Korogwe	3,966	15346	676 (17%)	9953
Kwa Sigi	2,306	9878	562 (24.3%)	5921
TOTAL	39,129	153726	2735 (7%)	39309

Table 5.2: Composition of the Analysed Diagnostic Potsherds

<i>Site</i>	<i>Rim</i>	<i>Half profile</i>	<i>Body</i>	<i>Base</i>	<i>Handle</i>	<i>TOTAL</i>
Ngombezi	1406	58	30	3	0	1497
Old Korogwe	611	24	33	7	1	676
Kwa Sigi	514	31	14	3	0	562
TOTAL	2531	113	77	13	1	2735

Table 5.3: Summary of Fabric Codes Used

Code	Fabric Colour	Code	Fabric Colour
1	Uniform Dark	9	Red in, Dark out
2	Dark Core	10	Uniform Brown
3	Light Core	11	Red out, Dark in
4	Mottled throughout	12	Red Core
5	Uniform Light	13	Uniform Pink
6	Light out, Dark in	14	Uniform Grey
7	Dark out, Light in	15	Re in, Light out
8	Uniform Red	16	Red out, Light in

Table 5.4: Summary of Temper Type and Codes Recorded

Code	Temper Description	Code	Temper Description
0	No distinct temper	5	Organic matter
1	Grit and organic matter	6	Shell
2	Grit and quartz	7	Predominant quartz
3	Grog and grit	8	Pure sand
4	Sand and grit	9	Specularite

Table 5.5: Summary of Vessel Types and Codes Used

Code	Vessel Type	Code	Vessel Type
0	Unknown	6	Medium/Large Necked jar
1	Open bowl	7	Open jar
2	Rounded closed bowl	8	Flared neck pot
3	Carinated bowl/pot	9	Cup
4	Deep wide-mouthed bowl	10	Practice pot
5	Shallow platter/plate	11	Undefined

A variety of fabrics were recorded, and these are summarised in Table 5.7. Most of the pottery was fired to light or dark brown colour, suggesting incomplete oxidisation, although a good number are entirely red in colour, indicating complete oxidisation (Rice 1987). The majority of sherds have dark grey cores. The range of fabric colours and uneven oxidization is consistent with the pots having been bonfire fired, as is known to have been the practice in more recent times (Lane, pers. comm., August 2011).

In terms of surface treatment, polishing is common at all three sites, over 85% showing some signs of this. Contemporary potters in the region use smooth stones and other materials such as cloth and maize cobs to finish and polish the outer surfaces after vessels have been formed (Lane, pers. comm. August 2011). This does not leave a burnished finish which is produced when the vessel surface is polished more vigorously once the clay is leather hard. Instead, polishing leaves smooth, slightly glossy surfaces, as were seen on the pottery collected archaeologically as part of this study. The second most common surface treatment was graphite coating. This was generally restricted to small rounded bowls (see **Appendix F**). Some potsherds have blackened surfaces, probably as a result of their use for cooking over a fire.

Vessel Form and Rim Shape: A very restricted range of vessel forms were recorded namely jars and bowls. Jars have their maximum diameters (major point) on the body, dividing the latter into two parts, the lower and the upper body. The rim diameter of a jar is smaller than the maximum diameter (Chami 1994: 75). For bowls, no part of the body is wider than the orifice, thus, the maximum diameter (major point) is measured at the rim (*ibid.*). Table 5.8 presents the proportion of jars to bowls recorded for each site. In general, the available diagnostic material indicates that most vessels were jars, constituting over 84 percent in total, while bowls comprised only 15.8 percent. The majority of the jars from all three sites have a globular shape,

most of which are short-necked. It was noted that most jars have gently out-turned rims, while the bowls typically have either vertical or slightly in-turned rims. Most jars have lip ends flattened and a few of these are slightly grooved. For the bowls, most lip ends are thinned and round. Some specimens of jars had thickened rims, especially short-necked globular jars. Table 5.9 summarises the types of rim shapes and profiles recorded for all three study sites.

Rim Sizes: The diameters of 271 adequately sized (i.e. sufficient measurable width) rim sherds were reconstructed by using a standard rim chart. The resulting measurements were classified into three main groups. Vessels with reconstructed rim diameters of 15cm or below were regarded as ‘small’; those ranging from 16-25cm were classified as ‘medium’, while vessels with rim diameters above 25cm were categorized as ‘large’. This exercise revealed that most vessels, 66 percent (n=179) had ‘medium’ sized openings. Rims falling in the small diameter category account for 21 percent (n=57) of the sample, while those with large diameters constitute 12 percent (n=33). Meanwhile, the thickness of pottery walls varied from 5 to 23mm.

Table 5.6: Results of Temper Material Recorded

<i>Site</i>	<i>Type 1</i>	<i>Type 2</i>	<i>Type 3</i>	<i>Type 4</i>
Ngombezi	104	136	91	1166
Old Korogwe	46	64	40	526
Kwa Sigi	45	54	28	434
TOTAL	195	254	159	2126

Note: *Type 1*=Grit and Organic Matter; *Type 2*=Grit and Quartz; *Type 3*=Grog and Grit; *Type 4*=Sand and Grit

Table 5.7: Results of Fabric Type, Diagnostic Sherds only

<i>Fabric Type</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
Ngombezi	169	8	15	53	15	105	260	437	435
Old Korogwe	82	3	7	24	5	50	122	184	198
Kwa Sigi	56	9	16	20	1	94	147	6	212
TOTAL	307	20	38	97	21	249	529	627	845

Table 5.8: Results of Vessel Forms Determined

<i>Site</i>	<i>Bowl</i>	<i>%</i>	<i>Jar</i>	<i>%</i>	<i>TOTAL</i>
Ngombezi	232	15.4	1,265	84.5	1,497
Old Korogwe	102	15	574	84.9	676
Kwa Sigi	99	17.6	461	82.3	560
TOTAL	433	15.8	2,300	84	2,733

Table 5.9: Rim Shapes and Profiles

<i>Site</i>	<i>Code</i>	<i>Ngombezi</i>	<i>Old Korogwe</i>	<i>Kwa Sigi</i>	<i>TOTAL</i>
Gently in-turned & flattened	A	21	15	26	62
Gently in-turned & rounded	B	49	7	19	75
Sharply in-turned & rounded	C	6	0	0	6
Gently in-turned & pointed straight out	D	208	84	44	336
Gently out-turned & flattened	E	449	299	268	1016
Gently out-turned & rounded	F	64	34	36	134
Vertical pointed straight out	G	157	48	33	238
Vertical flattened	H	445	129	23	597
Vertical rounded	I	65	17	18	100
Unknown	J	1	43	94	138
TOTAL		1465	676	561	2702

Table 5.10: Ceramic Types from Three Sites, Diagnostic Sherds only

<i>Ceramic type</i>	<i>Ngombezi</i>	<i>Old Korogwe</i>	<i>Kwa Sigi</i>	<i>TOTAL</i>
Globular jars	432	252	316	1000
Necked jars	532	219	92	843
Open pot	198	81	42	321
Closed bowls	51	28	48	127
Open bowls	126	59	34	219
Large storage vessel	21	7	14	42
Cups	1	0	0	1
Undetermined	136	30	16	182
TOTAL	1497	676	562	2735

Ceramic Typology: The combined analysis of all diagnostic sherds produced seven ceramic types. These types however, do not appear to reflect a chronological sequence mainly because the excavation did not produce any clearly defined dominant type or types for each excavated layer. The amount and distribution of ceramic types recovered from the three study sites are summarised in Table 5.10 above and illustrated in Figure 5.1 below.

Ceramic Type 1: Globular Jars with out-turned rims

This is the commonest type at all three sites (36.5% in total). The majority belong to the medium sized category, and have gently out-turned rims with flattened lips. In terms of colour, most range from light brown to red, and the use of sand and grit temper was nearly ubiquitous. The majority of these sherds are polished. Only two sherds of this ceramic type were graphite coated. A variant of this type, which is relatively scarce in the assemblages, has a short and

sharply out-turned rim with a flattened lip. Vessels of this category could well have been used for cooking.

Ceramic Type 2: Necked Jars with either Long or Short Neck

This is the second most abundant vessel type in the assemblage (29.7% in total). These jars have a globular body, usually with a wide mouth and vertical or slight out-turned rims. The lips are either squared off, or rounded. Sometimes these vessels have a narrower mouth and a slightly outward curving rim. There are two variants: long-necked forms and short-necked ones. *Ceramic Type 2* vessels have similar characteristics: they are hard, well-fired with grey-brown to red-brown fabric, and clay contains abundant quartz and grit. A few have incised decoration while the majority are plain, with smooth exterior surfaces and rough interiors. Some potsherds show breaks (for example, see **Appendix G**), which, following Wynne-Jones (2009:34), are consistent with coil construction. These vessels could have been used for storage.

Ceramic Type 3: Open Pot

These medium sized unrestricted vessels are round-bottomed with a slightly inwardly angled shoulder from which the upper part forms a flattened 'S' shape below a near vertical rim. Vessels with this form typically are 'uniform red' in terms of colour and their fabric appears well-fired and hard. This vessel type is rare in the assemblage, constituting 11.7 percent in total from all three sites. The majority of the sherds in this category have broken lips. Additionally, decoration seems uncommon to these vessels as only two decorated sherds were found.

Ceramic Type 4: Rounded Closed Bowls

These restricted bowls have a rounded or globular profile, mostly with slightly inverted rims. The lips vary from squared-off to round, while a few are tapered. The fabric of this material is almost exclusively brown in colour with a fine sandy temper. The vessel sizes are fairly standard, with rim diameters ranging from 10-14cm (categorised here as *4a*, small variant). There is a larger variant (*4b*, large variant), which is undecorated and has in-turned rims, and either flattened or rounded lips. Only those bowls with surface graphite coating have further decoration; this is in the form of rows of circular punctates placed immediately below the rim. This vessel type is common at all three sites. One non-graphite coated sherd has a handle. One nearly complete vessel was recovered from layer 13 in the Ngombezi main trench (**Appendix**

C). While the small graphited bowls could have been used for serving food, the big bowls were likely to have been used for storage or carrying.

Ceramic Type 5: Open Bowls

These form the minority among the bowls. As the name suggests, these are grouped generally as unrestricted since the majority have vertical rims, and relatively wide mouths. The fabric, temper, and decorations are similar to category 4 above. The lips of the majority of the graphite coated examples are rounded. For those that are not graphite coated, rims tend to be squared. The uses of these vessels would have been similar to that of *Type 4* described above.

Ceramic Type 6: Large Storage Vessel

These are represented by body sherds only, and hence it was difficult to determine whether they were jars or bowls. The main characteristic of these vessels is their extraordinarily thick walls, ranging from 16 to 25mm. The fabric is orange and light yellowish brown with a very fine texture. However, the external and internal surface finishing is rather rough, suggesting that these were used for storage.

Ceramic Type 7: Cup

Only one cup was recovered and this came from Ngombezi main site. It is small in size with a rim diameter of 80 mm. The rim is vertical and the lip is tapered and rounded. It is burnished on both the internal and external surfaces, but otherwise undecorated.

Stratigraphic Distribution: Stratigraphically, very little variation was noted in terms of vessel types. This is perhaps unsurprising since the cultural deposits probably accumulated over a relatively short time period (especially at Kwa Sigi and Old Korogwe), and were probably subject to mixing up as they were deposited. The main exception is at Ngombezi, which has the longest cultural sequence. Here, with regard to *Ceramic Type 2* (Necked Jars), the longer-necked variant was restricted to the lower layers (9 to 13) while the short-necked example is commoner in layers 6 to 10. This means that there is some overlap in layers 9 and 10. The rest of the vessel types occur unevenly across the excavated layers at all three sites.

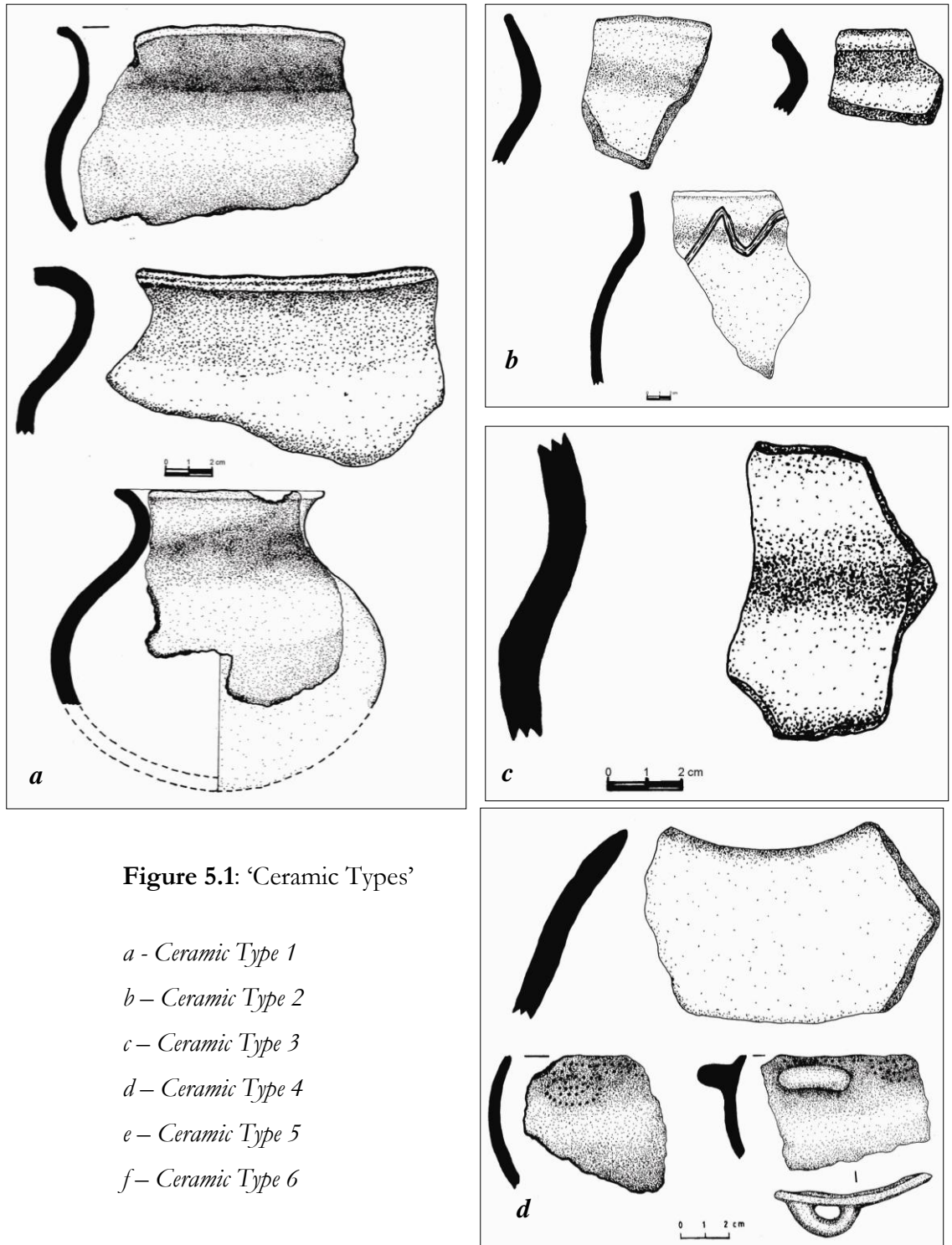
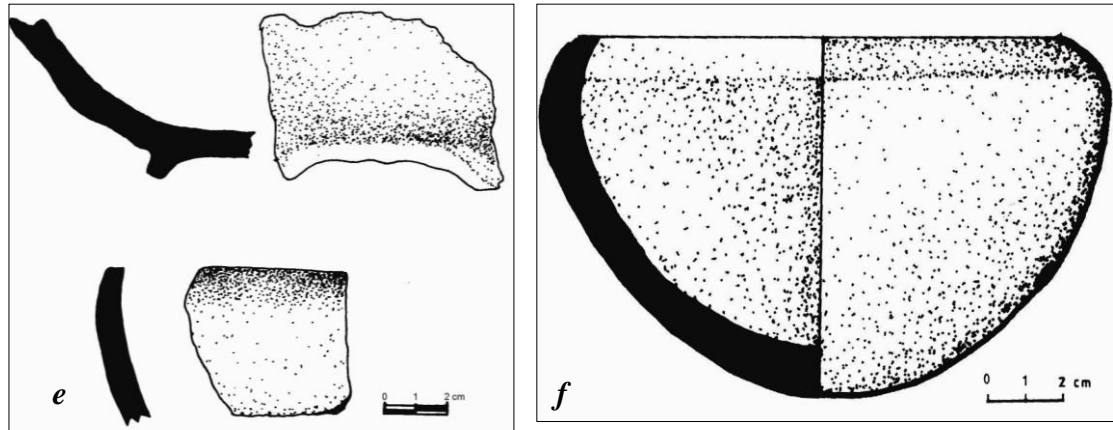


Figure 5.1 Continued



Decoration Type and Placement: The distribution of decoration categories in the three assemblages is presented in **Table 5.11**. Overall, decoration was scarce, with only 10.4 percent, 5.0 percent and 2.4 percent of the ceramic assemblages from Ngombezi, Old Korogwe and Kwa Sigi, respectively, being decorated. Ten categories of pottery decoration motifs (categories A to J) are described below, and their illustrations are presented in **Figure 5.2**. These include fingernail impressions, stamped or punched dots, raised nipples, and incised lines, often occurring in combination. For the most part, decoration was restricted to either on, or immediately below the rim, and/or on the neck or shoulder. The frequency of decoration locations on vessels is presented in **Table 5.12**.

Table 5.11: Distribution of Categories of Decorative Motifs

<i>Category</i>	<i>Ngombezi</i>	<i>Old Korogwe</i>	<i>Kwa Sigi</i>	<i>Total</i>	<i>%</i>
A	42	9	4	55	26.9
B	33	9	5	47	23
C	9	5	3	17	8.3
D	35	4	0	39	19.1
E	2	0	0	2	0.9
F	4	3	0	7	3.4
G	4	0	2	6	2.9
H	11	0	0	11	5.3
I	2	2	0	4	1.9
J	14	2	0	16	7.8
Total	156	34	14	204	100

Table 5.12: Categories of Decoration and Frequency of their Location

<i>Decoration Categories</i>	<i>Body</i>	<i>Neck</i>	<i>Rim</i>	<i>Between Neck & Rim</i>	<i>Shoulder</i>	<i>TOTAL</i>	<i>%</i>
A			55			55	27
B			47			47	23
C		14			3	17	8
D				39		39	19
E		2				2	0.9
F			7			7	3.4
G			6			6	2.9
H			11			11	5.3
I					4	4	1.9
J	16					16	7.8
TOTAL	16	16	126	39	7	204	100

Category A: Punctates/ Impressed Dots

Punctates occur on 55 potsherds representing graphited bowls. This amount is equivalent to 26.9 percent of all decorated sherds. These come from Ngombezi main site (n=42), Old Korogwe (n=9) and Kwa Sigi (n=4). At Ngombezi and Old Korogwe punctate decorated ceramics occur in all layers, those from Kwa Sigi all come from test pit eleven. In terms of motifs, these typically consist of two to five rows of circular dots of various sizes and depths placed immediately below the rim and extending around the entire circumference of the vessel. While simple punctate decoration around the rim occurs on a range of vessel forms, more complex patterns are restricted to small, graphite coated bowls. Specifically, the rows of punctates in some examples are joined with pendant panels of different designs, some are made up of three vertical lines of dots, and others are U-shaped designs in-filled with dots, or V-shaped designs made of two to four parallel lines of dots (see **Appendix F**).

Category B: Fingernail/ or Stylus Impression

Fingernail or stylus impressions occur on forty seven potsherds (23%), of which 33 were from Ngombezi main site, 9 from Old Korogwe and 5 from Kwa Sigi. At Ngombezi, the sherds decorated in this manner were recovered from layer 3 up to layer 10 only. At Old Korogwe, however, they were present in all four layers. Typically, this type of decoration consists of a single horizontal line of deep vertical fingernail (or occasionally stylus) impressions. These occur either on the surface of the vessel immediately below the rim (the rim being thickened in all cases), or on an applied bead either on a thickened rim, or on a bead roughly half a centimetre below the rim. Vessels with this type of decoration were almost entirely short-

necked jars with slightly flaring rims, although one example was found on a jar with a sharp out-turned rim.

Category C: Incised Decoration

Seventeen sherds (Ngombezi main site n=9; Old Korogwe n=5; Kwa Sigi n=3) or 8.3 percent of the decorated sherds in total, had incised decoration. At Ngombezi these were confined to layers 9 to 13. Diverse motifs were produced in this manner, including deep single horizontal lines just below the shoulder; roughly parallel lines scored around the neck, and bands of parallel wavy-lines combed on with an implement with an unevenly serrated edge (c.f. Soper 1967). These occur only on thin walled, well-fired long-necked, wide-mouthed globular jars.

Category D: A combination of Incised in-filled Triangles and Raised Nipples

Thirty nine potsherds (19.1%) were assigned to category D, and these were recovered from Ngombezi main site (n=35) and Old Korogwe (n=4) only. At Ngombezi, sherds with this decoration appeared in layers 7 to 13 of the main trench, while at Old Korogwe they were only recovered from layer 4. This type of decoration occurs on two types of vessels: round-based open pots with slightly angled shoulders and tapering rims, and round-sided bowls. On the former, this type of decoration comprises a series of incised triangles in-filled with parallel oblique lines of short-vertical incisions on the neck. Sometimes these triangular panels are joined with one or two rows of raised nipples placed immediately below the rim. The round-sided bowls have similar motifs, the only difference being that some of the raised nipples have been pricked in the centre by pushing a fine point into the soft clay (c.f. Soper 1967).

Category E: Angled Stamped Punctates with Incised Zigzag Line

Only two potsherds, both from layer 8 in the Ngombezi main trench, have this type of decoration. Both represent necked jars with flaring rims. The angled punctates occur on the neck immediately below the rim, and are bounded below by a single, deeply grooved zigzag line.

Category F: Raised Nipples/ Boutons

Of the seven sherds (3.4%) with raised nipples (or 'boutons'), four come from Ngombezi and two from Old Korogwe. The four potsherds from Ngombezi were recovered from layer 7 while those from Old Korogwe came from layer 4. This type of decoration consists of a single row of applied clay boutons placed around the lip and only occurs on round-sided bowls.

Category G: Fingernail Nicking

Six (2.9%) sherds recovered from two sites (Ngombezi n=4; Kwa Sigi n=2), have fingernail nicking around the rim. These are open bowl vessels with vertical, pointed, or tapered rims.

Category H: Single Line of Closely Spaced Stabs

This decoration type (11 sherds in total, or 5.3% of the entire decorated sample) all come from the Ngombezi main site, and were recovered from layers 7, 8,9 and 11. This type, which consists of a single line of closely-spaced stabs placed immediately below the rim, occurs on medium-sized short-necked jars.

Category I: Combined Chevrons and Stabs

Four potsherds were recovered decorated with a combination of incised chevrons and a single line of widely spaced stabbed impressions around the shoulder in the case of long necked jars, and just below the rim in the case of open bowls. Two examples of this design come from Ngombezi and two from Old Korogwe.

Category J: Zigzag Incision

Sixteen potsherds (7.8%) are decorated with incised zigzag lines, either as a single line or in multiple bands of incised zigzags placed around the main body of the vessel. Most come from the site of Ngombezi (n=14), the remainder from Old Korogwe (n=2). This motif occurs on open jars with out-turned rims and rounded lips.

Category K: graphite coating

A total of 55 graphite-coated potsherds (26.9%) were recovered from Ngombezi (n=42), Old Korogwe (n=9) and Kwa Sigi (n=4). Those examples with rim profiles suggest these were bowls of both restricted and unrestricted types. Apart from being graphited, these specimens are also decorated by rows of circular/impressed dots of various sizes just below the rim. This is additionally presented as an independent category under A above.

Synopsis and Inter-Site Comparison: The observed variation in fabric, vessel form, rim shape and lip stance, as well as type of decoration and decorative motifs, probably relate to a variety of factors. The correlation of several of these different attributes is summarised in Table 5.13. Some of this variation can probably be accounted for, by differences between individual potters. This is hard to track archaeologically, but is well documented in ethnoarchaeological studies (e.g., Dietler and Herbich 1989). Other aspects of the variation could be chronological;

for instance, it has been noted that at Ngombezi short-necked jars are slightly more common higher up in the stratigraphic sequence than long-necked jars. Otherwise, Table 5.13 suggests broad similarities in terms of fabric and temper on most vessel types. This may suggest a common source of potting materials as well as firing techniques. Additionally, in most cases vessels bear more than one decoration type. This further suggests that decoration types alone, and/or their placement are not a good indicator of 'ceramic type'.

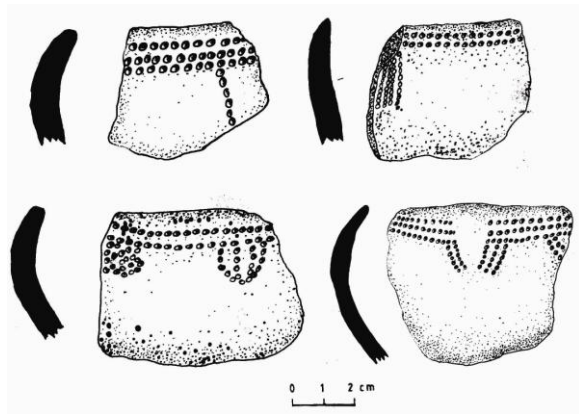
This said however, as discussed below, the ceramic assemblages from all three sites is all broadly contemporary and is consistent with the occupation of these sites during the eighteenth and nineteenth centuries.

Inter-site comparison of the pottery assemblages based on vessel forms, fabric types and decorative motifs revealed a marked similarity between three study sites of Ngombezi, Old Korogwe and Kwa Sigi, as might be expected given their proximity to each another. In terms of vessel forms, jars dominate at all three sites, constituting over 80 percent while bowls form less than 20 percent. Most jars have gently out-turned rims with flattened lip ends, the main variation being in the size of the mouth. Most of the bowls are small in size, with either vertical or slightly in-turned rims. The majority of the ceramics are made from moderately fine clay tempered mainly with sand and grit. These are ubiquitous in the area of study, and were probably derived from river deposits.

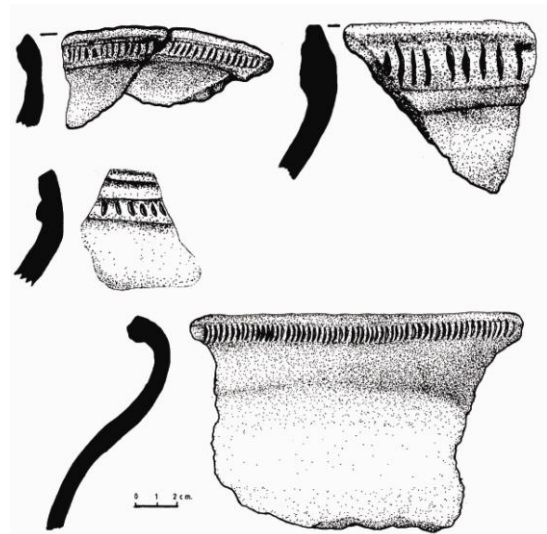
Generally, decoration techniques at all three sites are also similar. Other than polishing which is common, the other surface treatment is graphite coating. This is restricted to closed bowls. Plastic decoration consist of diverse motifs made by either incision (typically scored lines) or impression (especially punctates), and some use of applied decoration in the form of small raised nipples below the rim. Overall, there seems little doubt that these ceramics were manufactured by closely related communities. More discussion on the local ceramics is extended in the general discussion section of the chapter.

Table 5.13: Multi-Variety Summary of Attributes of Different Ceramic Vessel Types

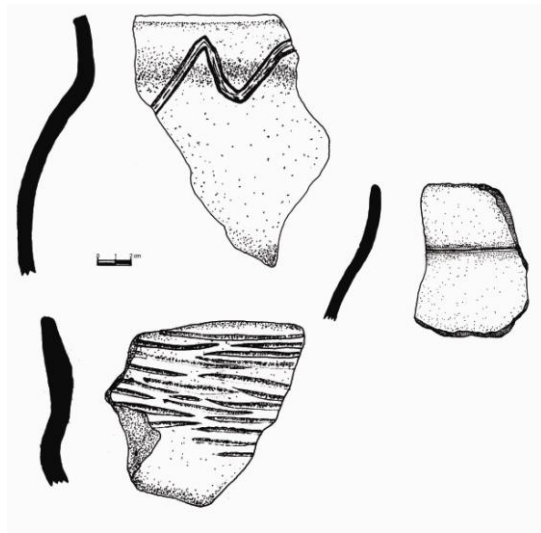
<i>Vessel Form</i>	<i>Fabric Types</i>	<i>Temper</i>	<i>Rim Stance</i>	<i>Decoration (Types)</i>	<i>Decoration Placement</i>	<i>Remarks</i>
Glob. Jars	3, 10, 11, 12	2, 4	E, F	B	Immediately below rim	Limited decoration types and placement
Short-Necked Jars	10, 12, 14	2, 4	D, E, F	B, H	Immediately below thickened-rim	
Long-Necked Jars	10, 12, 14	2, 4	D, E, F	C, E, I	Around shoulder Around neck Immediately below rim Between shoulder and neck	Wide range of decoration types and areas of placement
Open Pot	8	2, 4	?Flattened 'S'	D, J	Between neck and rim	
Rounded Closed Bowls	10	4	D	A, D, F, K	On lip end Immediately below rim and body parts	Wide range of decoration types but restricted in areas of placement
Open Bowls	10	4	I	A, D, F, K	Around lip Immediately below rim and body parts	As for 'rounded closed bowls'
Large Storage Vessel	11	4	Undetermined	Undecorated	Undecorated	Only body sherds, cannot infer rim stance or decoration



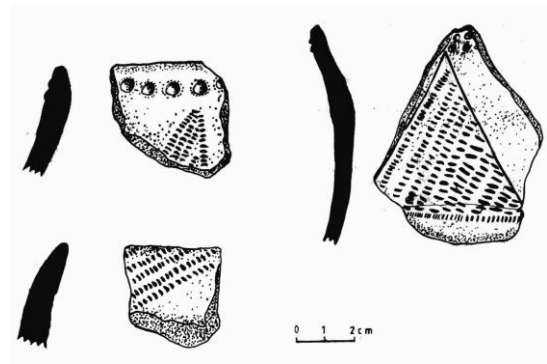
Category A



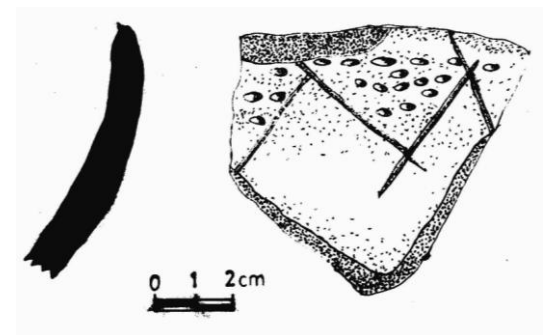
Category B



Category C



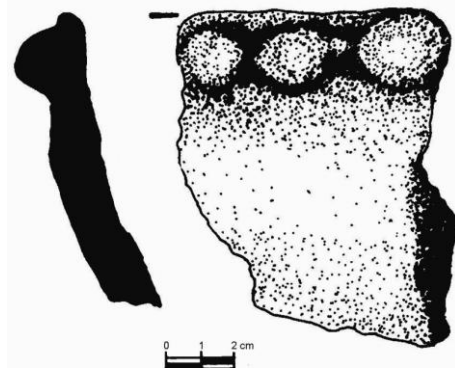
Category D



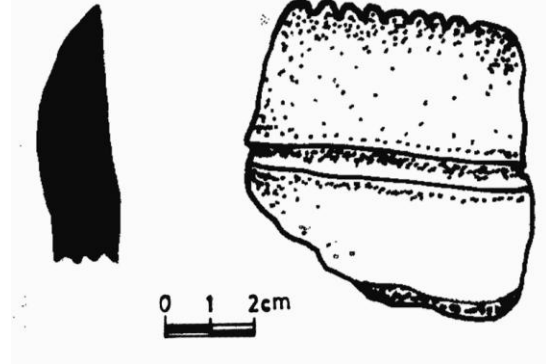
Category E

Figure 5.2: Categories of Pottery Decoration Motifs

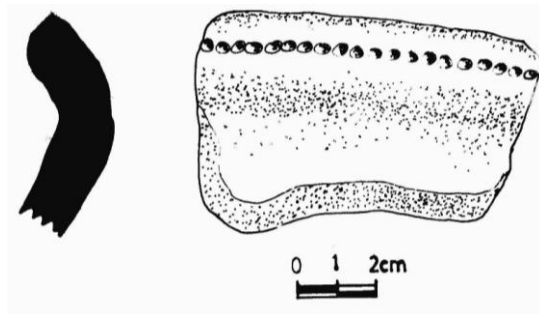
Figure 5.2 continued



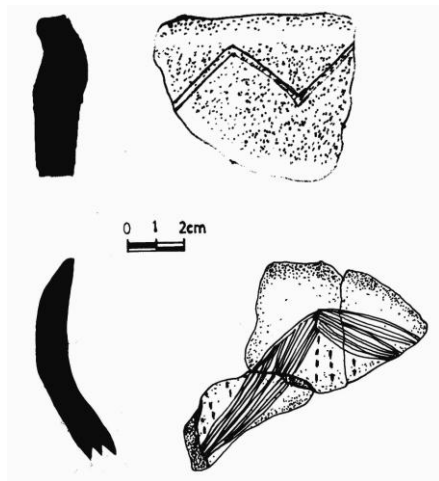
Category F



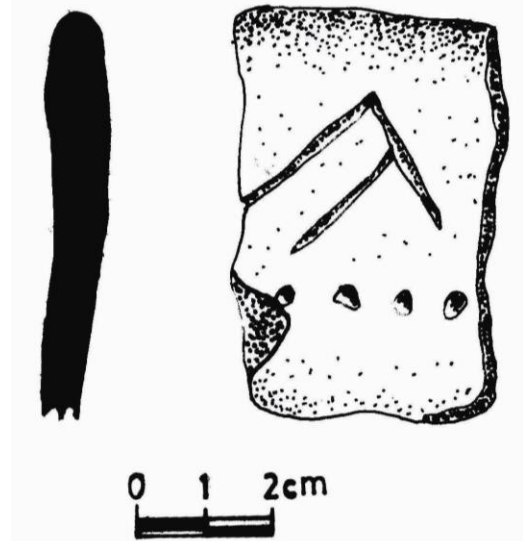
Category G



Category H



Category J: Zigzag Incision



Category I

5.2.2 Imported Pottery

As indicated in Chapter 4, both pieces of imported ceramic (**Figure 5.3**) were recovered from layer 7 of the Ngombezi main trench. On the basis of descriptions and classifications given by scholars working on archaeological sites along the East African coast (e.g., Chittick 1974, 1984; Wright 1984; Horton 1996; Wilson and Omar 1997; Radimilahy 1998; Chami 2002; Fleisher 2003) the two pieces fit better under the group of *late sgraffiato*. This has been hypothesized to be a Persian Gulf import (e.g., Horton 1996: 281-90; Fleisher 2003: 269). Horton argues that the *late sgraffiato* is the most common imported ceramic at eastern African coastal sites from the tenth to fourteenth century (*ibid.*).

According to Fleisher (2003: 269), *late sgraffiato* ceramic is characterised by consistent pink/orange fabrics and fine sand paste. The decoration type of *late sgraffiato* vessels consists of a white slip that is either incised or cut away to create certain designs. That is, they are covered with a lead glaze, resulting into a range of decorative motifs of monochrome and polychrome colour schemes (*ibid.*). Fleisher (pers. comm. 2011) identifies the right ‘hatched’ *sgraffiato* piece (**Figure 5.3a**) as the earliest variety of all the *sgraffiatos* on the coast and that it dates to between the eleventh and twelfth centuries AD. The other piece (**Figure 5.3b**) is said to be more of a generic green which dates to the thirteenth or fourteenth century AD. The two pieces represent open bowls. Fleisher (2003) makes a point that *sgraffiatos* do occur residually in the fifteenth to sixteenth centuries’ deposits.

The occurrences of these two *sgraffiato* pieces at Ngombezi may require some explanation and possible interpretations. Donley-Reid (Donley 1982, Donley-Reid 1990) reports having encountered some earlier imported porcelain at the eighteenth to nineteenth century coastal Swahili sites in East Africa, and she interpreted them as having been kept and used as talismans against the ‘evil eye’. Donley-Reid proposes, for example, that porcelain plates (similar to the ones embedded within the mosque) had protective properties within Swahili cultures for attracting evil spirits and were thus often used as form of “protective decoration”(1982: 50).

Similarly, Wynne-Jones (pers. comm. 2012) observed earlier imported porcelain appearing in eighteenth to nineteenth century deposits at Vumba, another coastal site in south-east Kenya, and noted that some sherds were fashioned into pendants. Wynne-Jones interprets these earlier items as heirlooms. On the basis of the two cases presented above, it is thus possible to

suggest that the few *sgraffiati* recovered from Ngombezi were curated items brought to this settlement, to serve either of the purposes outlined by Donley and Wynne-Jones.



Figure 5.3: Imported Ceramic Recovered from Layer 7 in the Ngombezi Main Trench. Author' photo, 2009

5.3 The Bead Assemblage

This section discusses the beads recovered from Ngombezi, Old Korogwe and Kwa Sigi. A total of 4,020 beads from three study sites are examined (Table 5.14). Glass beads dominate the bead assemblage from all three sites, representing 92.2 percent of the total. These are classified in terms of their method of manufacture, structure, shape, size and colour, following the criteria proposed and widely used by bead analysts who have worked on the European trade glass beads recovered from sites in East African (e.g., Chittick 1974; Horton 1996; Wood 2002), West Africa (e.g., DeCorse *et al.* 2003) and South Africa (e.g., Kinahan 2000; Wood 2005). These are discussed in detail below, following an overview of the non-glass specimens.

Table 5.14: General Composition and Distribution of Beads

<i>Site</i>	<i>Non-glass beads</i>	<i>Glass beads</i>	<i>TOTAL</i>
Ngombezi main trench	261 (11.3%)	2034 (88.6%)	2,295
Ngombezi STP	8 (3.7%)	208 (96.2%)	216
Old Korogwe	34 (6.6%)	474 (93.3%)	508
Kwa Sigi STPs	10 (1%)	991 (99%)	1,001
TOTAL	313 (7.7%)	3,707 (92.2%)	4,020

5.3.1 Shell Beads

Generally, non-glass beads show a particular pattern in terms of their distribution at all three sites as they occur in higher concentrations in lower levels. Except for the Ngombezi main trench where they make up 11.3 percent, non-glass beads form between 1 and 7 percent of the total beads, and from the entire assemblage of the recovered beads they make up only 7.7 percent. The majority of non-glass beads (66%, n=207) are shell discs (referred here as *Type 1*, see **Figure 5.4a**). These have diameters ranging from 7.5 to 18 mm, and appear to have been made from marine bivalves as they show near parallel grooves running transversely across the shell surface. Determination of shell species is difficult, but *Anadara* spp. has been proposed as the most likely species by a marine biologist Prof. Kasigwa of the Department of Zoology, University of Dar es Salaam. This species is known to be confined to tropical and sub-tropical waters, needing a sea temperature of between 12 and 15 degrees centigrade, and sandy/muddy inter-tidal ocean or rocky shore habitats (Spry 1964).

A further 106 non-glass beads (*Type 2*) still await identification with regard to their material (**Figure 5.4b**). However, Kwekason has preliminarily suggested that they are likely to be made from mammal hooves (pers.com. January 2011). All 106 beads were found together in layer 13 (the base of anthropogenic deposits) in the Ngombezi main trench, and where concentrated in

a small area close to a hearth. These beads are very smooth and all have a similar diameter of 9mm with a thickness of 2mm. Their context of recovery strongly suggests that they represent a single depositional event, perhaps the discard or accidental loss of a bag of beads or a single item of jewellery. This is, of course, significant in terms of any subsequent statistical analysis.

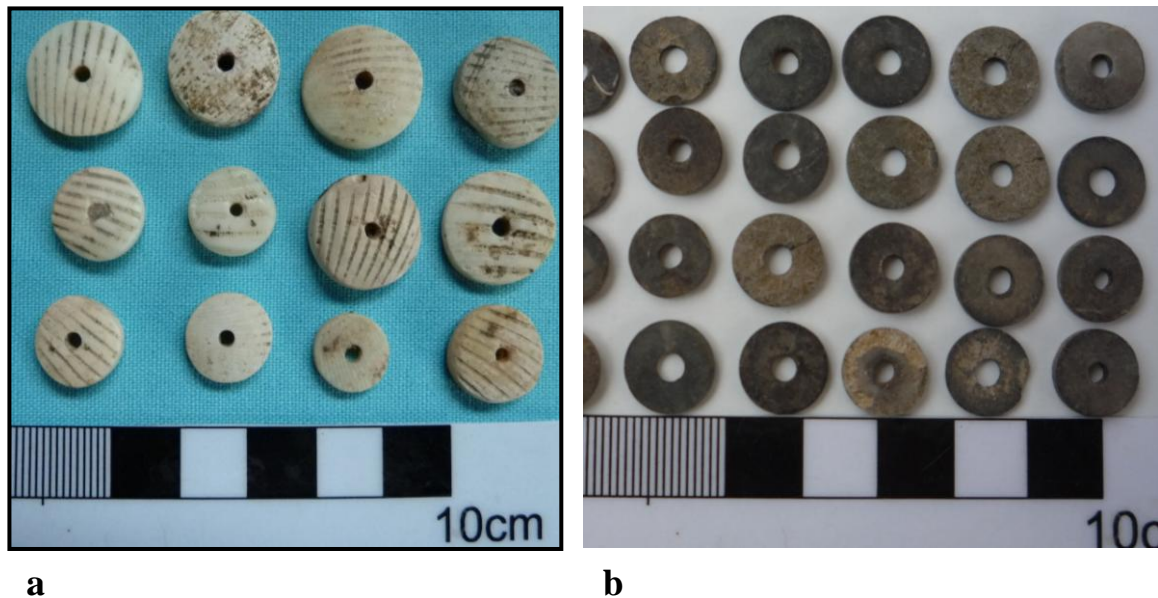


Figure 5.4: Non-glass beads: *a)* *Bead Type 1*- Bivalve shells beads; *b)* *Bead Type 2* - Unidentified beads from Ngombezi main trench

5.3.2 Glass Beads

The glass beads reported upon here were manufactured by two distinct methods: hand drawing and winding. According to Wood (2002: 51) drawn beads are made by creating a hollow in a gather (globule) of molten glass either by blowing a bubble into it or perforating it with a tool. The gather is then drawn or pulled out into a long tube that is subsequently cut into small bead-sized lengths which may be rounded by re-heating. Kinahan (2000: 52) notes that drawn beads show striations or elongated bubbles in the glass running parallel to the perforation, and further adds that the longitudinal arrangement of fibres of glass is the main identifying characteristic of a drawn bead (*ibid.*).

Wound beads are made by using a mandrel, usually of iron, that is dipped into a crucible to pick up a thread of molten glass (Wood 2002: 52). The mandrel is spun around to build up glass layers until the desired size is reached. The bead is then shaped while hot either by rolling on a surface (marvered) whilst being manipulated with paddles, or by placing the molten glass

in a mould (*ibid.*). Kinahan (2000: 55) is specific that wound beads can be identified on the basis of the fibres that are arranged in a spiral fashion around the perforation, and a noticeable swirl that sometimes forms a slight peak at the end of the bead where the viscous glass has been nipped off after one or more revolutions.

Beads are assigned to their most closely approximate geometric shapes based on their longitudinal and transverse sections. Three bead shapes are evident among the studied assemblages. The dominant shapes are cylinder and barrel, and the least represented shape is spherical. Cylindrical beads are recognised for having a straight-sided profile with the long axis parallel to the perforation, while a barrel beads have profile that is slightly convex (Kinahan 2000: 55). Conversely, a bead that is well-rounded with a length smaller than its diameter can be classed as having a spheroid or spherical shape (Wood 2002: 46). Within the current assemblage all cylindrical and barrel beads are hand drawn, while the few spherical beads recovered appear to have been wound. Another attribute typically recorded is bead structure. This refers to the arrangement of the structural parts of a glass bead, especially the number of layers and decorative elements (Kinahan 2000: 55; DeCorse *et al.* 2003: 88). A bead's structure is thus defined as *simple* for single-layered beads or *compound* for multi-layered beads (Kinahan 2005: 55).

The standard reference for colour designation of beads is the Munsell system. Munsell numbers for each bead are recorded, and in order to make these numbers valuable to readers who cannot instantly access the Munsell charts for reference purposes, these numbers are translated into generalised colour categories by assigning each colour to a broad colour group such as black, green, red, yellow and so on. However, the colour named 'Indian red' is sometimes used here to refer to brownish-red beads since this name appears frequently in most of the literature discussing glass beads found in East Africa.

i. **Ngombezi**

a. *Main Trench*

The proportion and stratigraphic distribution of trade glass beads in comparison with non-glass beads at Ngombezi main trench is presented in **Figure 5.5**. Glass beads in this trench constitute 88.6 percent (n=2,034) of all the beads. These are well-distributed across layers 1 to 11 but none was recovered in the lowest two layers, 12 and 13. Instead, in these basal layers there was a high concentration of non-glass beads, which reduce in frequency further up the

profile. This pattern clearly suggests that non-glass beads were already in use at this site before glass beads were introduced. It also suggests that the popularity of non-glass beads diminished over time as glass beads gained value at this settlement.

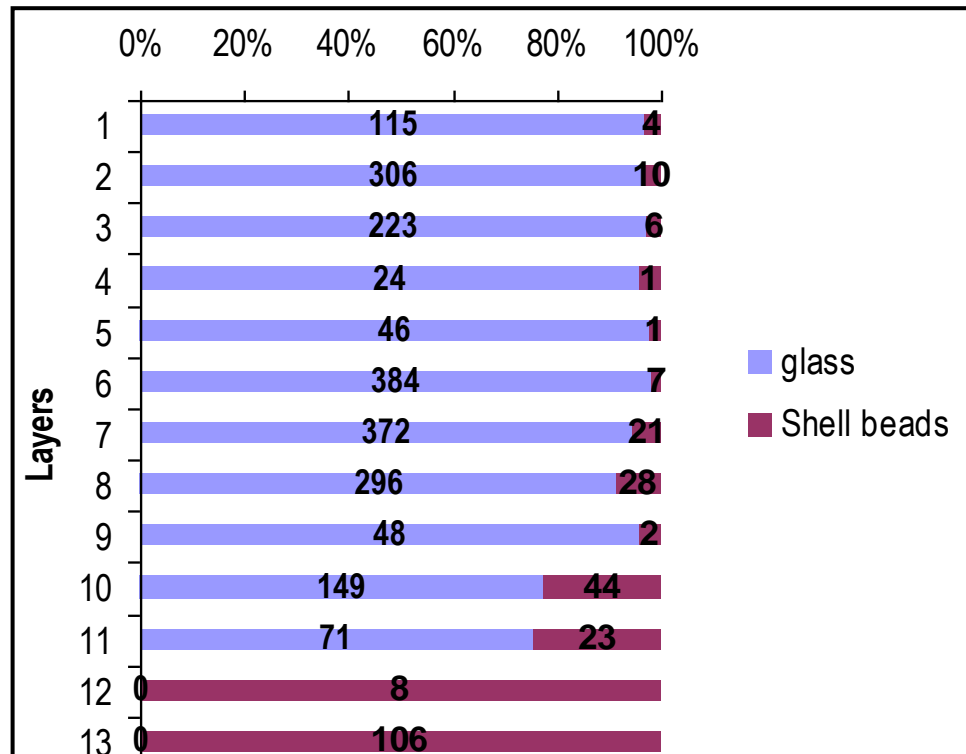


Figure 5.5: Distribution of glass and non-glass beads, Ngombezi main trench

Classification of glass beads from this trench is by method of manufacture, structure, shape and colour, and the results are summarised in **Table 5.15**. Generally, the Ngombezi bead assemblage is dominated by drawn beads (99.4%). These are well represented across the layers which yielded the glass beads. However, unlike the drawn beads, the wound type was recovered only from layers 10 and 11. Table 5.15 also indicates the dominance of cylindrical beads (79.9%), followed by barrel shaped types (20.5%). Constituting 0.9 percent of the total, spherical forms are rare.

About 77.2 percent of the glass beads from this trench are single-layered in terms of colour, and thus, have a *simple structure*. It was noted that the majority of simple structured beads are white and cylindrical (referred here as *Type 3*, see **Figure 5.6a**) and were distributed across all eleven layers that yielded glass beads. The multi-layered beads, those with *compound structure* constitute 22.7 percent. These are more concentrated in the upper and middle layers (layers 1

to 8) of the trench, and none are found below layer 9. Of the compound beads, 94 percent are cylindrical in shape and the remaining 6 percent are all barrel shaped.

Table 5.15: Glass Beads Classification from all three study sites

<i>Attributes</i>	<i>Type</i>	<i>Ngombezi Main Trench</i>		<i>Old Korogwe</i>		<i>Kwa Sigi</i>	
		<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Method of manufacture	Hand drawn	2,022	99.4	472	99.5	979	98.7
	Wound	12	0.58	2	0.42	12	1.2
Structure	Simple	1571	77.2	363	76.5	765	77.1
	Compound	463	22.7	111	23.4	226	22.8
Shape	Cylinder	1,565	76.9	187	39.4	185	18.6
	Barrel	439	21.5	285	60.1	794	80.1
	Sphere	20	0.98				
	Undetermined	10	0.48	2	0.42	12	1.2
Colour	White	1,458	71.6	311	65.6	566	57.1
	Red	456	22.4	110	23.2	228	23
	Blue	102	5.0	45	9.4	167	16.8
	Yellow	4	0.19	4	0.84	2	0.2
	Green	10	0.49	4	0.84	7	0.7
	Pink	4	0.19	-	-	18	1.8
	Black/Blue?	-	-	-	-	3	0.3

Table 5.16: Bead Sizes (in mm), sampled according to shapes

	<i>Size</i>	<i>Cylindrical</i> (n=200)	<i>Barrel</i> (n=200)	<i>Spheroid</i> (n=10)
Length	Range	3 – 12	1.5 – 3.5	4.5 – 22
	Mode	7	2.2.	6
Width/Thickness	Range	3.8 – 8.5	3 – 5	5 - 20
	Mode	7	3.4	6
Perforation	Range	1.5 – 4	1 – 1.6	1 – 2.5
	Mode	2.5	1.2	2



a



b



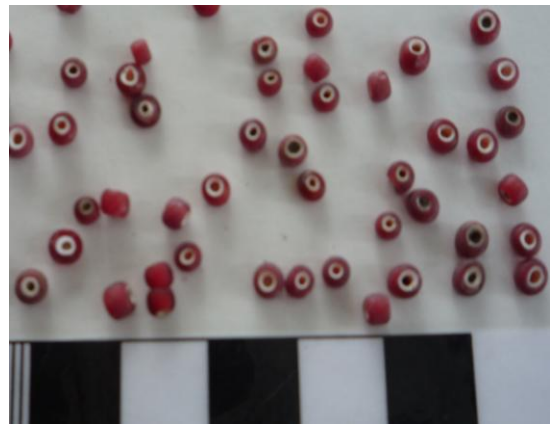
c



d



e



f

Figure 5.6: A variety of glass beads discussed in the text: a) *Type 3* 'oyster white'; b) *Type 4* 'Indian red'; c) *Type 5* 'cylindrical blue'; d) *Type 6* 'barrel shaped of various colours'; e) *Type 7* 'Spherical wound'; f) *Type 8* 'samsam' / 'food finisher'

The majority of the cylindrical compound beads are coloured brownish-red (the colour also known as 'Indian red') on the outer layer, and the cores are transparent to translucent, in either green, blue or opaque white (*Type 4* , **Figure 5.6b**). There is also a very small number of compound cylindrical beads which are generally thinner in terms of diameter and blue in colour on the outer layer with cores of transparent white glass (*Type 5*, **Figure 5.6c**). Table 5.16 presents the sizes of sampled beads of various shapes from all sites.

White beads appear to have been commonly preferred at Ngombezi as they constitute 71.6 percent of all glass beads. These occur in all eleven layers that yielded glass beads. From the point when glass beads appear at the settlement this colour dominates throughout the profile. The second preferred bead colour was Indian red, making up 22.4 percent of all bead colours. However, unlike the white coloured beads, the red are concentrated in layers 1 to 8 and only 4 percent of the red beads come from layers 9 and 10. Clearly, this suggests that red beads only became popular later in the settlement's history. Blue coloured beads constitute 5 percent of the total, occurring in all eleven layers, but in an inconsistent pattern. The least represented colours are green and yellow as they altogether constitute only 0.8 percent of the glass beads from Ngombezi; all being barrel shaped beads.

b. Ngombezi Test Pit

Generally, this test pit yielded a variety of beads that are similar to those recovered from the nearby Ngombezi main trench. Glass beads dominate the bead assemblage at 96.2 percent. They occur in layers one to six of the test pit, with none found in the basal layer; non-glass beads on the other hand were restricted to the two basal layers (**Figure 5.7**). As shown in Table 5.15, the assemblage is dominated by hand drawn beads (97.5 %), while the remaining 2.5 percent are wound. Like the nearby Ngombezi main trench, the dominant bead shape is cylindrical (65%, n=135), followed by barrel shaped beads (32.6%, n=68). Likewise, the least represented bead shape is spheroid (2.4%, n=5).

In terms of bead structure, single layered beads, mostly white cylindrical ones (*Type 3*) are common (70.8%) in this excavation unit, while multi-layered compound types comprised 29.1 percent. The majority - 90 percent (n=54) - of the multi-layered beads are of the *Type 4* kind, i.e. brownish red coats with cores ranging from transparent to translucent green or blue, or opaque white. 10 percent of the compound beads (n=6) have blue outer layers and translucent white cores (*Type 5*). White beads dominate the assemblage (61.5%, n=128); followed by

Indian red (30.2%, n=63), and then blue (8.1%, n=17). There is no clear pattern in terms of distribution of these three colours across the layers of this test pit.

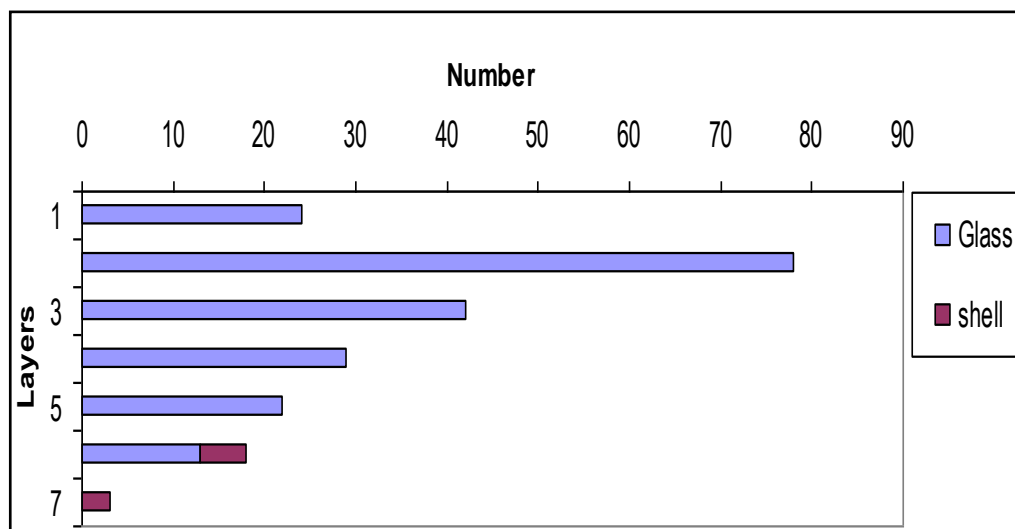


Figure 5.7: Distribution of glass and non-glass beads, Ngombezi test pit

ii. *Old Korogwe*

Figure 5.8 presents the distribution of glass beads across layers at Old Korogwe site where they make up 93.3 percent (n=474) of all the recovered beads. Even though glass beads were discovered in all four layers at Old Korogwe, they were relatively scarce in the basal layer (layer 4), which in contrast produced a large amount of non-glass beads, a pattern similar to that observed at Ngombezi main trench.

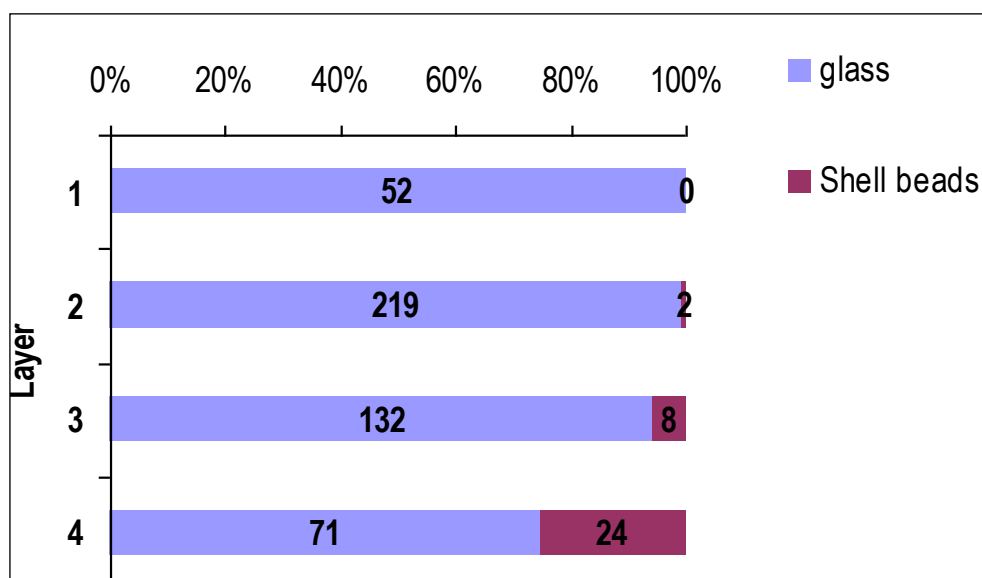


Figure 5.8: Distribution of glass and non-glass beads, Old Korogwe

Table 5.15 above presents the classification of glass beads from Old Korogwe. The Old Korogwe bead assemblage is similar in several aspects to that from Ngombezi. Around 99.5 percent of the glass beads recovered are hand-drawn, and only 0.5 percent (n=2) are wound. In addition, drawn beads occurred in all four layers of this trench while the two wound beads were found in layers two and three, one from each layer. The majority of single-layered simple structure beads are white in colour and barrel-shaped (*Type 6*), making up 76.5 percent of the total. These are well-represented across all four layers of the trench. Beads with multi-layers (*compound structure*) constitute only 23.2 percent, and all are coated brownish red with cores that are either transparent to translucent green, blue or white (*Type 4*). These are more concentrated in layers one to three, in total making up 97.2 percent (n=107) of compound structured beads from Old Korogwe, with only three being recovered from the upper levels of layer 4.

Unlike Ngombezi however, barrel-shaped beads (*Type 6*, **Figure 5.6d**) are the dominant form at Old Korogwe. These constitute 60 percent (n=285) of the total glass bead assemblage. Beads of cylindrical shape account for 39.4 percent (n=187) and forms the second preferred bead shape at this settlement. Both cylindrical and barrel shaped beads are well represented in all four layers of the Old Korogwe trench. Only two spherical beads were recovered from layers 2 and 3, both being wound beads (*Type 7*, **Figure 5.6e**). For all bead types, the white coloured dominate the Old Korogwe bead assemblage (65.6%), and they are well represented in all four layers. As at Ngombezi, the second preferred bead colour was brownish red, accounting 23.2 percent, followed by blue (9.4%). A slight difference occurs in terms of the distribution between the red and blue beads in this trench; the red beads being well-represented in layers 1 to 3 while the blue beads were found in greater concentrations in layers 2 to 4. No blue beads were found in layer 1.

iii. Kwa Sigi

Eleven test pits dug at Kwa Sigi yielded a total of 1,001 beads, of which 99.1 percent (n=991) are glass beads and the remaining 0.9 percent (n=10) are shell (*Type 1*). The amount and distribution of glass beads from Kwa Sigi is presented in **Figure 5.9** below, while the general **Table 5.15** above summarises the Kwa Sigi bead classification on the basis of method of manufacture, structure, shape and size, and colour.

Hand drawn glass beads dominate the Kwa Sigi assemblage at 98 percent (n=971), with the remaining 2 percent (n=12) being wound beads. In terms of structure, the majority of the Kwa

Sigi beads (77%, n=765) are single-layered (*simple structure*), and 22.8 percent (n=226) are *compound*. Of the compound beads, 16 percent (n=36) are cylindrical in shape; these have an Indian red outer layer coated on either transparent to translucent green, blue, or white cores (*Type 4*). The remaining majority (84%, n=190) of the compound beads are barrel shaped coated with an ‘Indian red’ outer layer on an opaque white core (*Type 8*, **Figure 5.6f**).

Generally, barrel-shapes dominate the Kwa Sigi bead assemblage - accounting for 80 percent (n=794), followed by cylindrical shaped beads constituting 19 percent (n=185). Similarly, colour distribution among the Kwa Sigi beads is summarised in **Table 5.15**. At Kwa Sigi, the number of pink beads is higher than that recorded at Ngombezi (no pink beads were recovered at Old Korogwe). Similarly, black beads appear only at Kwa Sigi although in the quantity is low.

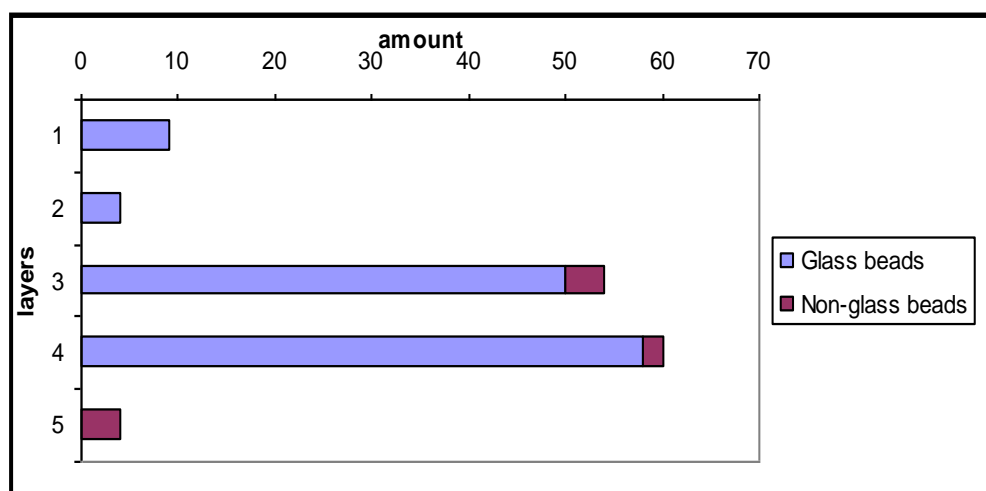


Figure 5.9: Distribution of glass and non-beads, Kwa Sigi test pit 11

5.4 Miscellaneous Artefacts

Other materials that were recovered include cowrie shells, metal objects, smoking pipes and worked bones. In total, 142 cowry shells were recovered (**Figure 5.10a**). All of the cowry shells are white in colour, and possibly belong to *Cypraea* spp., which is ubiquitous along the coast of East Africa (Poutiers 1998: 503). Most came from Ngombezi (128), with smaller quantities from Old Korogwe (11) and Kwa Sigi (3). At the main site of Ngombezi, cowry shells were well-distributed across layers 1 to 11; they were absent from the lowest two layers, 12 and 13. At Old Korogwe, cowry shells appear first in layer 4, while none were recovered from the latest horizon, layer 1. All three cowrie shells from Kwa Sigi came from level 5 of test pit 11.

Burton and Speke (1859: 448) report that in the nineteenth century cowries were traded from the East African coast to the interior beyond Lake Tanganyika where they were used as currency and ornament. Referred to by Arab traders as *Kaure* (in Kiswahili *Kbete*, and in the interior as *Simbi*), cowries were collected in large quantities from various coastal locations but especially Mauritius. According to Burton and Speke fifty strings, each of 40 shells, totalling 2000 - were valued at a Maria Theresa dollar. In Zanzibar, cowries were purchased for 75 cents per *jizlab*: i.e. between 3 and 3.5 sacks (*ibid.*).

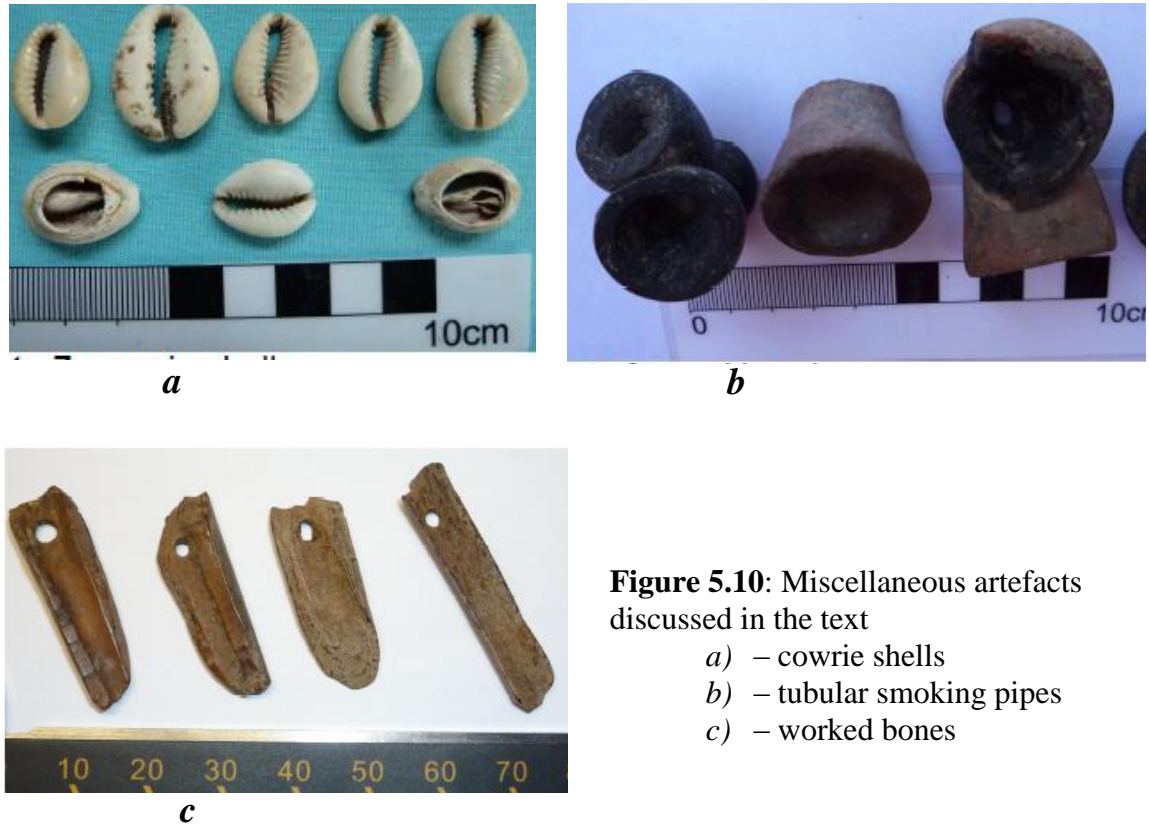


Figure 5.10: Miscellaneous artefacts discussed in the text

- a) – cowrie shells
- b) – tubular smoking pipes
- c) – worked bones

Nine tubular smoking pipes were recovered from Ngombezi (n=7) and Old Korogwe (n=2) (**Figure 5.10b**). These are made of clay and have a flat base with a small branching pipe (handle-like in form) and a bowl that flares out like a miniature trumpet. Among the other miscellaneous artefacts are six worked bones of lengths between 30 and 40mm (**Figure 5.10c**). All were recovered from layer 11 of the Ngombezi main trench, and are all pointed at one end, polished and perforated. They seem to have been made from long bone shafts of a relatively small animal. Although it is difficult to ascertain what would have been the actual function of such worked bones, other researchers (e.g., Thorp 1984; Manyanga 2000) have interpreted similar objects as pendants. Manyanga (2000: 63) reports finding similar worked bones at

Malumba Hill, a farming community settlement dating to between AD 900 and AD1800, located in south-eastern Zimbabwe. He argues that they are typical of what traditional healers in Zimbabwe wear today as necklaces (*ibid.*). It is possible that the Ngombezi worked bones served a similar purpose.

A total of 71 metal objects were recovered. Most came from Ngombezi (33), Kwa Sigi (29), and fewer pieces from Old Korogwe (9). Because the metal is generally corroded, only a few are identifiable as follows: 11 corroded knives; three arrow-heads; four nails; two rings; and two bangles; two fishing hooks; five German *Deutsch Ostafrika* coins minted in 1905; and two musket muzzles. The German coins are all found at Kwa Sigi, whilst one gun muzzle is from Kwa Sigi and the other muzzle and a single gun flint come from Old Korogwe. An assortment of metal objects and the gunflint are shown in **Figure 5.11**.

5.5. General Discussion

This section reviews the artefactual material recovered from excavations at all three sites, and place them in a broader regional and temporal perspective. Attention is given on the value of different artefact classes as chronological markers, their possible affiliation with particular ethnic groups, and the kind of information that their study can add to current knowledge about the organisation and operation of the nineteenth-century caravan trade. The discussion begins with a review of the ceramics, which constitute the largest class of artefacts recovered at all three sites. This is followed by a discussion of the glass and other beads recovered, which comprise the second most common artefact class. Finally the remaining miscellaneous objects are discussed.

5.5.1 Pottery

i. Regional Perspective

The local pottery recovered from the excavated sites shares some features with pottery found in neighbouring areas, including that by Robert Soper from South Pare and the Usambara Mountains. For example, it is evident that Soper's Pottery Group B is similar to the material classified here as *Ceramic Type 2*, comprising round-bottomed globular pots with wide mouths and slightly out-turned and occasionally vertical rims that are rounded or squared off (cf. Soper 1967: 28). Soper noted that these materials are hard and well-fired, with surfaces ranging from grey-brown to red-brown in colour; similar to those recovered by this project.



Knives



A bangle



Fishing hooks



Coins



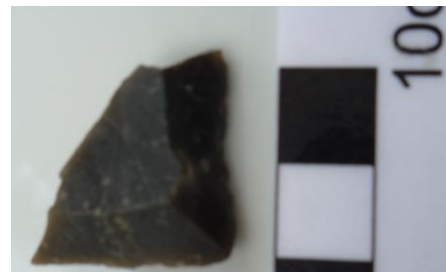
Arrow-head



Ring



Gun Muzzle



Flint

Figure 5.11: Assorted metal objects described in this chapter

In terms of decoration, Soper's pottery Group B from South Pare (see for example **Figure 5.12 a & b**) resemble some of the decorations found on pottery recovered during this study, especially those classified under categories C and D (see Figures 5.9 & 5.10). However, it appears that the majority of the decorated sherds recovered by the current project are similar to Soper's Pottery Group D (Dotted Ware) as well as those he describes as 'pottery from recent Sambaa sites' (Soper 1967). Likewise, decoration category 'A' of this study (punctates/impressed dots) and category B (fingernail impression) also appears on Soper's list of pottery from the Usambara Mountains which he describes as 'pottery from recent Sambaa sites' (*ibid.*: 30). Figure 5.12 shows a selection of some similarities in terms of decoration between Soper's pottery Groups discussed above and those recovered by this project.

Another shared feature between the pottery assemblages reported by Soper and those recovered by the current project is the presence of graphited vessels. A majority of the graphited vessels are small fine bowls with tapered, rounded or pointed rims, most of them bearing patterns of punched dots. Similarly, Soper found graphite coated vessels on sites with pottery Groups A (South Pare), C, D, E and on 'recent Sambaa pottery' on the Usambaras (1967: 35). However, in his pottery Group A, Soper observes the presence of some thin-walled, hole mouth pots that are also graphited (*ibid.*: 26).

Walz (2010) describes the pottery assemblages he recovered from areas around Korogwe (*Survey Area 3*) and Mombo (*Survey Area 4*) (**Figures 5.13 and Figure 5.14**), and it is worth comparing them with those recovered from Ngombezi and the other sites investigated as part of this project. As might be expected there is considerable similarity between these different data sets. For example, Walz recorded a mix of Group B and Group D pottery at his *Type 15* archaeological localities (after Soper 1967). Walz noted also that pottery Group B ceramics (900-1500 AD) predate those of Group D (1200-1800 AD); however, at some sites (e.g., *Survey Unit 20* – northwest of Korogwe) the two types overlap (*ibid.*: 169). This was specifically the case for late Group B and early Group D material. Walz argues that such an overlap between Group B and Group D pottery could be an indicator of interaction between two contemporary communities making these distinct 'ceramic types' (*ibid.*). At Ngombezi, both Group B and D ceramics co-occur, but Group D material is much more common (see **Appendix H**).

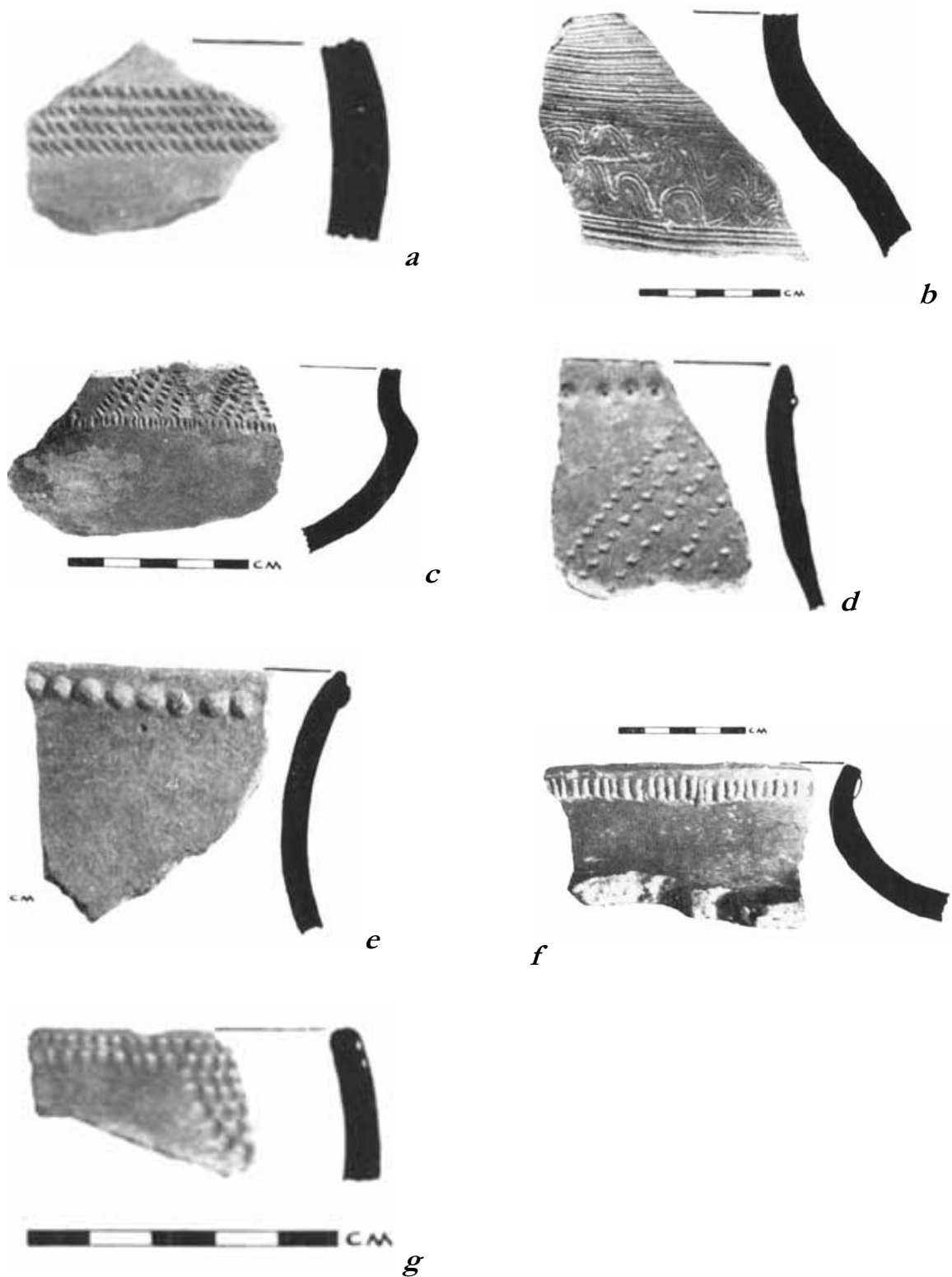


Figure 5.12: Examples of selected pottery types reported by Soper (1967) from South Pare and Usambara Mountains. Specimens **a** and **b** are Group B pottery from South Pare Hills; **c**, **d**, and **e** are Group B pottery from Usambara Mountains, while **f** and **g** are pottery from 'recent Shambaa sites'.

There are also similarities in aspects of decoration between Walz's assemblages and those of this study. Walz identified ceramics decorated with bands or triangles of impressed dots immediately below vessel lips (2010: 169). Additionally, he noted that on Group D vessels, some sherds have a row (or rows) of raised pimples with, or without a pin-prick in the centre (*ibid.*), and that graphite decoration typically occurs on hemispherical bowls (*ibid.*: 194). Walz encountered necked jars decorated with hatched pendant triangles along vessel shoulders; similarly, he argues that these materials signify a link between Korogwe and interior mainland, arguing that such pottery types have been reported by other researchers (citing Wynne-Jones and Croucher 2006) in Central Western Tanzania (*ibid.*: 170). These decoration types also occur on pottery recovered by the current project from Ngombezi, Old Korogwe and Kwa Sigi.

While completely absent in the pottery assemblages recovered by this project, Walz noted some examples in his Group B pottery assemblages of round-bottomed globular pots with slight carinations (2010: 191). Another difference between Walz's pottery assemblages and those of the current study lies in the ceramic compositions encountered on what he calls 'typical' Zigua settlements. Specifically, Walz (2010: 170) reports 'an almost complete absence of Shambaa ceramics' at Zigua settlements (e.g., at *Site Type 19*). This contrasts with the patterns observed at Ngombezi, Old Korogwe and Kwa Sigi where Shambaa pottery occurs fairly frequently (also see Biginagwa 2009). The absence of Shambaa pottery on Zigua sites away from the Pangani could indicate that Zigua communities north of Korogwe were probably in hostile relations with their neighbour Shambaa communities during the nineteenth century - perhaps because of increased inter-ethnic warfare and slave raiding. However, historical accounts point out that when Semboja (a son of the deceased Shambaa King, Kimweri ye Nyumbai) moved to Vuga he developed good relationships with the Zigua chiefs so as to benefit from having greater control over the caravan trade (Walz 2010: 177). This suggests that much more comparative research on contemporary Zigua and Shambaa sites is needed to clarify what these patterns might mean.



Figure 5.13

a) Post-AD 1500 'Late Swahili' carinated vessel from Mkatani, Pangani (Source Walz 2010: 113, Figure 4.7)

b) Group B Necked jar with horizontal comb incisions from Kwa Mgogo, Mombo area (Source Walz 2010: 192, Figure 6.6)

c) 'Shambaa' ceramics from Site 188a, Mombo area (Source Walz 2010: 193, Figure 6.7).

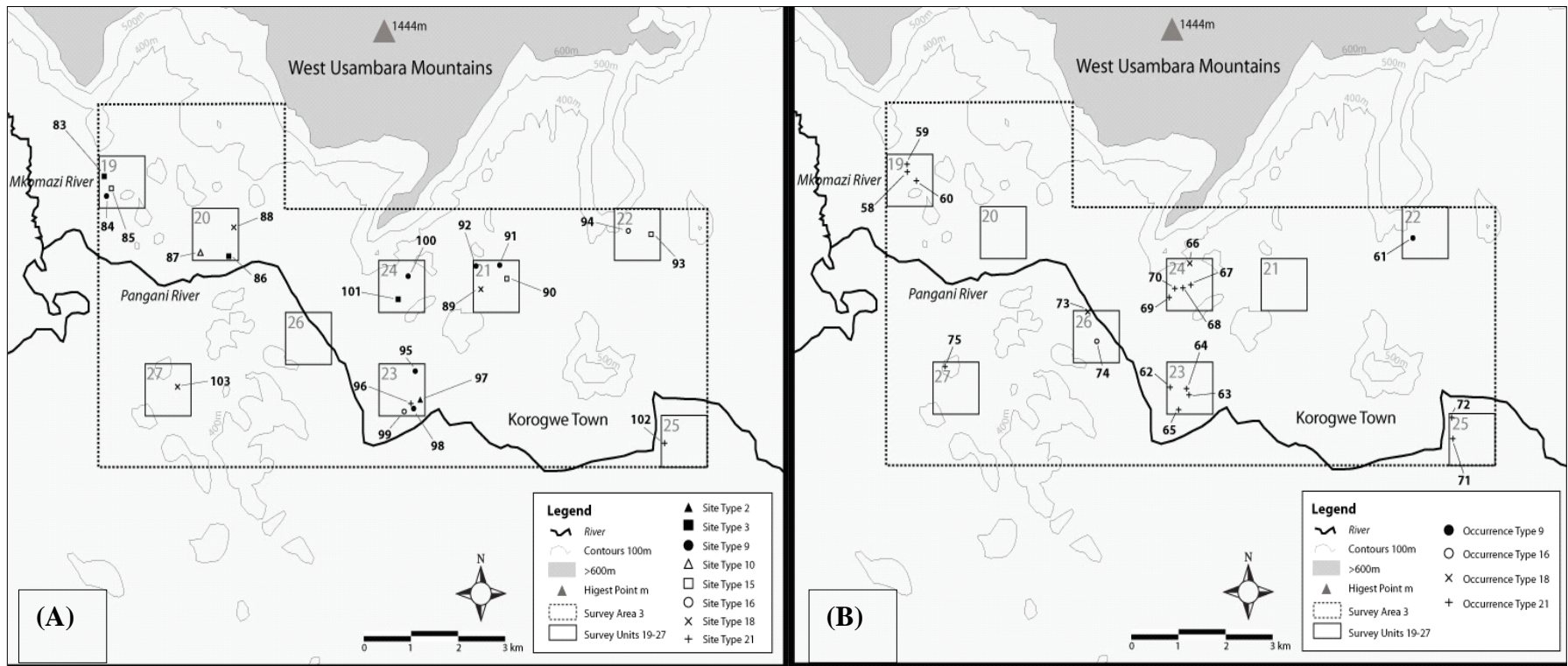


Figure 5.14: Location of survey areas and finds spots categorised by site ‘type’, by J. Walz’s surveys around Korogwe.

Sources: **A)** Walz 2010: 167, Fig. 5.6; **B)** Walz 2010: 168: Fig. 5.7.

NB: distribution of Site Types 15–16: multiple ceramic types (e.g., Group B and D) (ending ~ AD 1200–1800), and Types 17–22: local ceramics of different types (often with foreign artefacts) (post- AD 1750 to early twentieth century).

Comparisons were also made with the assemblages from other nineteenth-century sites and the results were of great interest. The pottery from Kwa Fungo - another caravan halt in the Lower Pangani - were found to comprise only a small number of imported ceramics, just over 3 percent of the whole assemblage (Croucher 2006; Croucher and Lane, in prep.), while the amount of imported European wares recovered at the sites of the current project was even lower, amounting to just two sherds. At Kwa Fungo, as at the sites investigated as part of the current study, the dominant local ceramic form was flared neck-pots with rims that are gently out-turned and squared off (*ibid.*). Furthermore, there is a general lack of decoration on the Kwa Fungo ceramic, similar to those from Ngombezi, Old Korogwe and Kwa Sigi, which comprise less than 1 percent of the total.

Croucher (2006) has noted a big difference in terms of the composition and characteristics of ceramic assemblages between coastal and inland nineteenth-century sites. More, specifically, she compared the Kwa Fungo ceramics with those from Mgoli, a slave plantation site on Pemba. The Mgoli assemblage is dominated by carinated bowls and pots, along with quantities of imported ceramics. At Kwa Fungo carinated bowls and pots as well as imported ceramics are found in extremely small numbers. Similar situation is evident at the sites of the current project where almost none of such artefact types were recovered. Additionally, according to Croucher (2006: 287) the decorative motifs of local ceramics on the nineteenth-century coastal sites are dominated by 'arc' motifs, which are not represented in the assemblages from inland sites including Kwa Fungo and the three study sites of the current project. Croucher (2006: 287) attributes these to differences in "practices such as food preparation, storage and consumption surrounding these local ceramics", arguing that these usage types would have impacted on the forms of the pots (for similar discussion see Wynne-Jones and Mapunda 2008: 1-17).

In summary, the local ceramics recovered from three study sites of the current project share much in common with material reported by Soper (1967) from the Hills of South Pare, Usambara Mountains and its adjacent hills. Such a wide distribution of these types, however, was not unexpected. This is mainly because historical sources (e.g., Feierman 1974; Giblin 1992; Kimambo 1996) indicate that the nineteenth-century communities in the Lower Pangani and adjacent mountains and hills were demographically 'fluid', as movements of people from one place to another across the basin was usual. This would have allowed maximum interaction of communities between the lowlands and the mountains. Accounts such as Burton

and Speke (1958) indicate further that in the early part of the nineteenth century when a large area of the Pangani Basin was under the authority of King Kimweri, communities from different ecological zones developed a good relationship and regularly traded and exchanged goods and produces (Kimambo 1996: 74-75). It is possible that during this time some pottery classes were exchanged between communities in local markets.

Additionally, it is possible that the spread of potting technologies would have also resulted from movements of people across the territory due to factors such as marriage, hunger, and later slavery as outlined by Giblin (1992) and Kimambo (1996). However, such relationships between communities in the Pangani Basin would have broken up in the later part of the nineteenth century, especially when Seyyid Said moved his capital to Zanzibar, since at this time the Pangani Basin became unsettled due to increased slave trading. This discussion will be extended in Chapter 7.

ii. Potting and Uses of Ceramic Vessels – Interview Data

Oral tradition concerning Zigua pottery making, types of ceramic vessels and their uses, was collected through interview with elderly respondents in the study area. All six respondents on matters related to pottery commented that the Waruvu are more skilful potters than their neighbours, the Washambaa (Appendix D; interviewee 4, 5, 6, 7, 8, 11). They argued that good soil for potting was plentiful on the lowland and along the river valley, and not on the mountain. Centres for pottery making include villages such as Msambiazi (where clays for potting came from Kivumbo valley), Gereza (soil from Kilozo), and Bagamoyo (with soil from Lusinja). It was reported that members of the Waseja clan (in Makuyuni) for example, are well-known historically to have been prominent potters along the Lower Pangani River Basin.

Production of local ceramic vessels by Waruvu was intended for their daily uses, especially those relating to food preparation, storage and consumption. All informants commented that there are several size and form categories which are partly related to function. These local categories refer to the following vessel types (see **Figure 5.15**): 1) Large pots (greater than 30cm maximum diameter) with neck and out-turned rims are commonly used for water and cereal storage. In KiZigua these are called *biga*. 2) Small pots (less than 20cm of maximum diameter) are used for the storage of local beers and are known as *fuke*. 3) Sauce and Ugali (maize porridge) cooking vessels are called *kikaango* and *nyungu*, respectively. *Kikaango* have an unrestricted shape with vertical rims, while *nyungu* have an unrestricted body shape with out-

turned rims. 4) *Lwiga* is the term used for small pots (about 10 cm maximum diameters) used for serving food. These vessels have vertical rims and are mostly graphite coated. However, respondents did not identify the source of graphite, but mentioned that *Lwiga* were a very expensive vessel and that they were used mainly by dignitaries for special occasion. 5) Lids used with some of these vessels are flat having handles and they are called *funiko*.

Generally, the knowledge displayed by local people concerning pottery production and uses, as presented above, would suggest that pottery from the study sites were locally produced at, or in areas close to, the study areas.

5.5.2 *The Bead Assemblage*

Four main analytic attributes for imported trade glass beads have been adopted in this study: method of manufacture, bead structure, shape and size, and colour. The analysis showed that the majority of beads in the studied assemblages were hand drawn, with only a few wound beads being present. In terms of colour, most single layered beads are white, and these are well-represented across the layers of the excavated trenches and test pits. The multi-layered beads were red-on-white, which various sources (e.g., Burton 1860; Karklin 1992; Pallaver 2007) describe as having been the most expensive. These occur only in the later deposits at all three sites.

As discussed in Chapter 2, beads have been a favoured trade item for hundreds of years throughout East Africa. On a regional scale, researchers working at sites on the coast such as Kilwa, Manda and Shanga (e.g., Chittick 1966 & 1967; Horton 1996) have indicated that shell beads dominate in the earliest levels dating from the ninth to twelfth centuries, and that glass beads in these levels are extremely rare. Shell beads are derived from marine bivalves, and are considered to have been locally produced, since deeply grooved pottery sherds and sandstone blocks interpreted as bead grinders are commonly found in the same levels (for a review see Flexner *et al.* 2008).

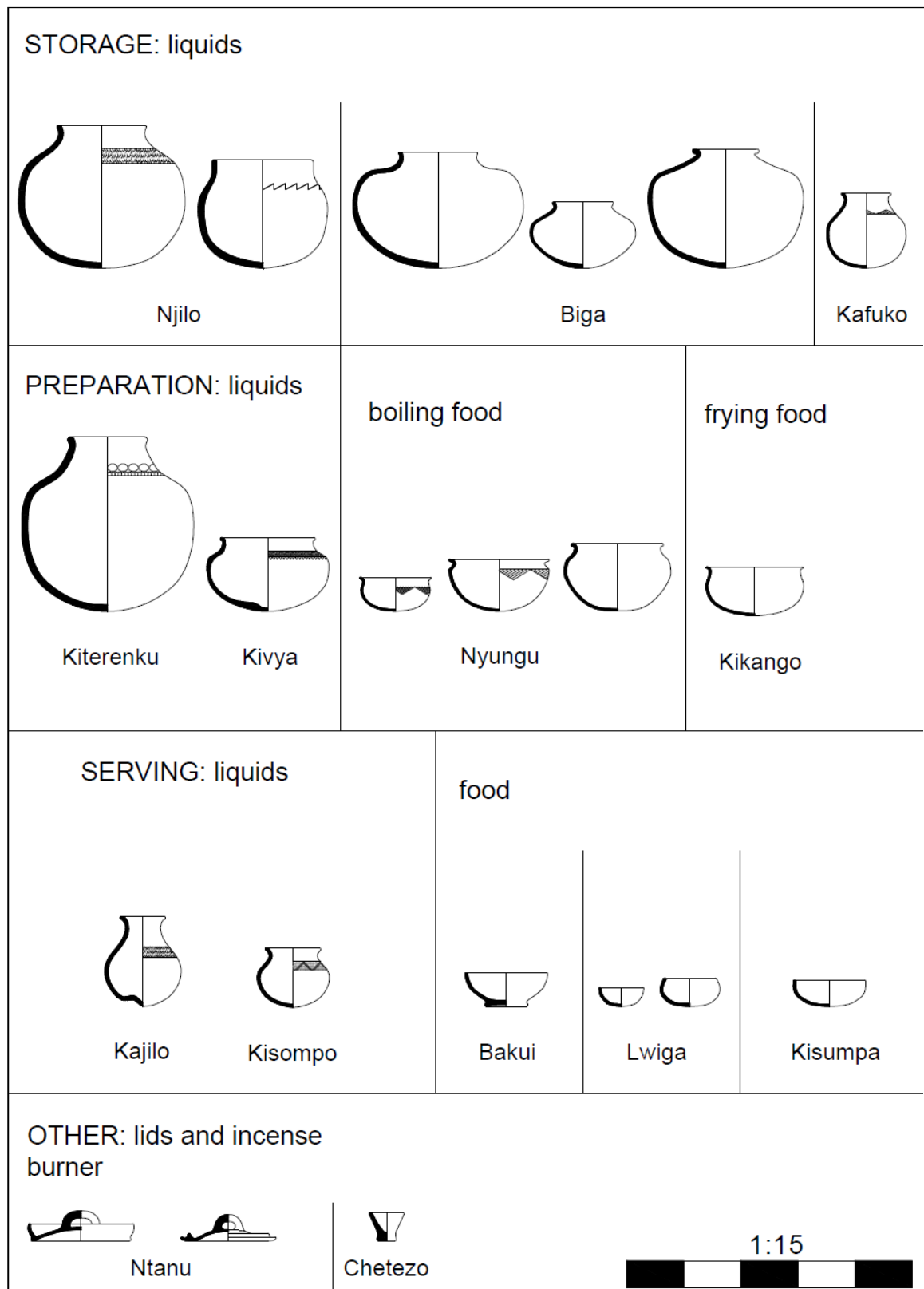


Figure 5.15: Zigua and Bondei Pottery Forms, Kwa Fungo and Ngombezi.

Source: Lane, P. (1991)

Soper also reported the presence of shell beads from interior sites in the Pare and Usambara Mountains in north-eastern Tanzania. On the hills of South Pare, shell beads occur at Early Iron Age sites associated with Group A pottery (Maore ware) dating to about AD 870 (1967: 24). Shell beads also occur in the Usambara Mountains at sites reportedly abandoned in the early twentieth century; the majority of these sites being located on the defensive hill tops such as at Mavumbi and Vuga. Soper concludes that the presence of shell beads at the interior sites would have been the result of trade contacts that existed between the interior and the coastal communities (*ibid.*). Similarly, the occurrence of shell beads in the lower deposits at Ngombezi, Old Korogwe and Kwa Sigi could equally attest to the existence of such trade and contacts between the interior and coastal communities for a long period prior to the nineteenth century (for deep time of this trade contact see Walz 2005 & 2010, and also Chapter 2 above). The decline in shell beads and their ultimate disappearance from the archaeological record at these sites could also be interpreted as an indicator of increased preference for imported items at these settlements, as communities were drawn more comprehensively into a new global exchange network.

A substantial number of glass beads have been recovered from the region, both at coastal sites where they first landed and at inland sites where they spread through trade. Glass beads have many potential uses for archaeologists. Wood (2005: 2) argues that they sometimes assist with the dating of the sites and levels within them, and also provide clues about interaction between peoples locally, regionally and internationally. Being exotic items, glass beads can also be used as an indicator of the ability of local people to control or access trade and to accumulate wealth, and so eventually change their social and/or political status (*ibid.*).

Although glass beads occur on the Swahili coast of East Africa from the first millennium AD, a more reasonable comparison for the Lower Pangani beads is with the assemblages from the last 500 years. Several sources describe the variety of glass beads imported into East Africa during the nineteenth century including the first hand accounts such as that presented by Burton (1860), and more recent analytical studies by, amongst others, Harding (1962), Karklins (1992), Wood (2002) and Palaver (2009). For example, Richard Burton recorded some of the names, values, origins and distributions of some glass beads when he journeyed through East Africa in the mid-nineteenth century. A common bead variety that was in the market during his time in East Africa was generically known in Zanzibar as *hafiz*, which he described as

‘coarse porcelain’ of various colours (1860: 393-4). Burton himself named this variety as “staple of commerce” (*ibid.*). He also noted that there were three sub-types of *hafiz* in circulation namely *Kanyera*, *Kidunduguru* and *Merikani*. *Kanyera* was the name given to white beads (also known as ‘oyster white’) called in Kiswahili ‘*ushanga waupa [mweupe]*’. According to Burton this variety was common throughout East Africa since they were cheap and plentiful (*ibid.*). The average price for this bead type in Zanzibar was six dollars per *frasilah* (*ibid.*). Thus, the description provided for *Kanyera* beads matches well with the cylindrical white beads (*Type 3*) recovered from the study sites of this project.

Merikani, named after the white cloth imported from America and used as currency in the interior, was a general name for white beads. These beads were in circulation in the areas of Ufipa, Usagara, Ugogo and Unyamwezi (Burton 1860: 394). Stanley (1913) [1872] noted these beads were sometimes thrown into the waters of Lake Tanganyika and in rivers to appease ‘God’ and so cross these water bodies safely. *Merikani* beads, as reported in the nineteenth-century sources could as well be a variety of white barrel shaped beads (*Type 6*) of the kind recovered at all three sites of this project. However, the description provided by Burton for the beads called *hafiz* may equate with the beads that Stanley reports as *Sofi*, which were used in the interior as currency, especially in Ujiji and Unyamwezi (1899 cited in Harding 1962: 177). Stanley describes *Sofi* as resembling “bits of broken pipe-stems, about two-thirds of an inch in length and white, brick-red or blue colour”.

Burton recorded the name *Kidunduguru* for the ‘dull brick-red’ beads with a diameter measuring about 4mm, sold at Zanzibar from five to seven dollars per *frasilah* (1860: 393; also see Karklin 1992). The cylindrical Indian red beads (also known as ‘green hearts’) recovered by this project are thus likely *Kidunduguru* beads (referred here as *Type 4*). As presented above, these beads were found in higher concentrations in the upper and middle layers at both Ngombezi (layers 1 to 8) and Old Korogwe (layers 1 to 3), while only a few were recovered from Kwa Sigi. Their presence at these sites likely confirms other evidence that Ngombezi and Old Korogwe were occupied in the 1850s, although particular bead types may have remained in circulation after their supply had ceased.

The site of Kaole, 5 km south of Bagamoyo on the central part of the Tanzania coast, also provides a useful comparison. The site was occupied between 1100 and 1800 AD, and thus spans the period from the Swahili ‘stone town’ era through the arrival of the Portuguese into

the early modern period (Chami 1994). Imported glass beads were particularly common (n=1189), although non-glass beads were also recovered (n=54, c. 4% of the total) (Wood 2002). Most of the non-glass beads were shell discs made either from marine bivalves or *Achatina* shell. Although found throughout the deposits, they were more common in the lower horizons. A much wider range of glass beads were found, including both the wound and drawn varieties. In the contexts predating European contact, rather more drawn beads (11%) were recovered compared with the post-European levels (5%). More critical in the context of this discussion, is the shift in choice of colours (see **Figure 5.16**). Specifically, in the pre-European levels brownish-red was the dominant colour (65%), followed by green (9%) and then yellow and blue-green (each 7%). Wood (2002) noted that in the post-European levels white became the most favoured colour (41%), followed by blue colour (30%), and then brownish-red (17%). While the change in the proportion of colours represented may have been influenced by changes in the source of beads (i.e. from Indo-Pacific to European ones), the changes may also illustrate shifts in local preferences along similar but not identical lines inferred from the study sites of this project.

With regard to European period glass beads, the large cylindrical brownish-red beads with transparent to translucent green, blue or opaque white cores (*Type 4*) found at sites of the current project are similar to beads recovered from the upper levels of trenches 1 and 10 at Kaole (Wood 2002). Wood argues that the brownish red on transparent to translucent green cores called 'green hearts' were first produced in Europe about AD 1600, and around 1835 they were replaced by transparent red on white beads (called 'white hearts') (*ibid.*: 53). Wood is of the view that the large white cylinder beads (*Type 3*, also called 'oyster white') were produced in Venice in the early 1580s onward, but may additionally have been produced elsewhere (*ibid.*).

Chittick (1974: 464-6) also describes a range of nineteenth-century beads from Kilwa, which seem to have equivalents in those recovered from Ngombezi, Old Korogwe, and to an extent Kwa Sigi. These include composite beads of Indian red on green, red on white and single tone light blue and white beads. The royal blue drawn beads listed by Chittick as occurring in 'very late' contexts at Kilwa (*ibid.*) are also found at Kwa Sigi (*Type 5*), which as discussed in Chapter 4, is known to have been inhabited until the imposition of German colonial administration in East Africa in the early twentieth century.

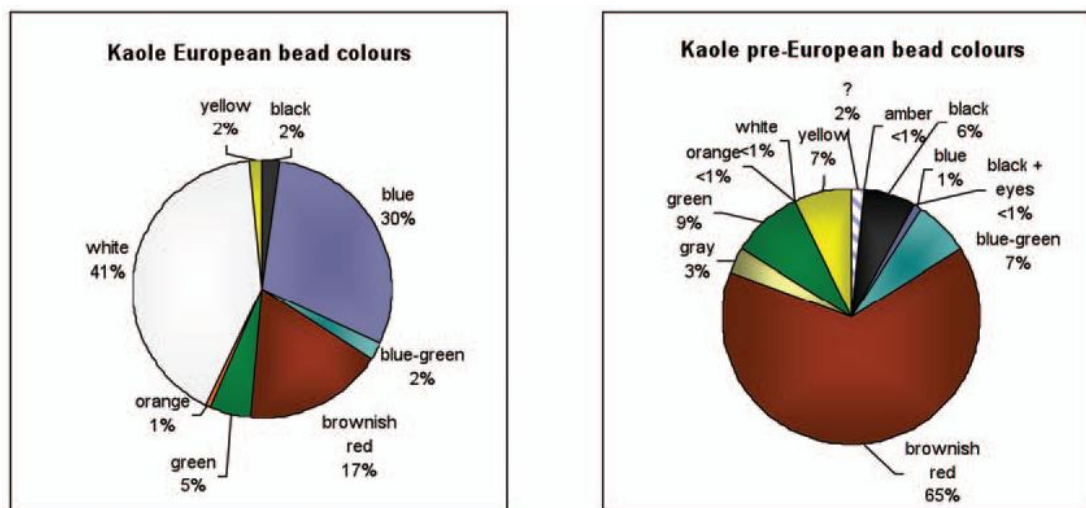


Figure 5.16: Comparison of different colours represented in pre-European contact and post-European contact horizons at Kaole, Tanzania (Source: Woos 2002, Figures. 2 & 3).

The dominant barrel compound beads with an Indian red outer layer built on an opaque white core (*Type 8*), dominate at Kwa Sigi, and are likely to be what were known as *samsam* (in Arabic) or *samesame* (in Kiwahili). Burton (1859: 425) describes these beads as “scarlet enameled upon a white ground”. In Zanzibar they were called *kharaz-kartazi* (paper beads) because they were imported already strung and packed in paper parcels (*ibid.*). During Richard Burton’s expedition in the 1850s, these beads were the most requested in the areas of Unyamwezi, and they remained in demand also during Stanley’s first travels in 1871, and even until the German colonial period (Karklins 1992). Burton also documented further names for *samsami* in the interior; these include *kimara-p’hamba* (‘food finisher’), *joho* (‘scarlet cloth’), and *kifunga-mgi* (‘town breakers’), so called due to women’s passion for this style of bead (1860: 392). Being the most requested beads, they were also the most expensive, commanding anything from 13 to 16 Maria Theresa Thalers (dollar) per *frasilah* (ca. 36 lb or 16.32 kg) in Zanzibar in 1857.

Taken together, these studies from other sites in the region and the historical observations of Burton along with the radiocarbon dates for the main trench at Ngombezi, suggest that it is likely that the beads discussed here fall between the middle and late phases of European contact, probably from late eighteen to early twentieth century.

i. Global Patterns in Glass Beads

Working at the nineteenth-century sites in the Kasungu National Park in Central Malawi, Killick (1987) reported beads similar to the ones recovered from the study sites of the current project. Indian red on green beads (*Type 4*) were found, occurring in small numbers on all of

the five sites. Drawn red-on-white beads occurred in greatest number (n=131) on the most recent site, IpIdI, dated A.D 1860-1895. A total of 47 occurred on site IoId2 (dated 1860-1875 A.D.), 9 on IpIc9 (earlier than the 1860s and 1830s) and none on the oldest site, IpIc12 (1660-1850). Killick's data thus support the conclusion that the beads recovered from the Lower Pangani sites could be of late eighteenth to mid- nineteenth century in date.

Elsewhere in Southern Africa, a total of 1,079 red-on-green and 182 red-on-white beads are reported by Saitowitz (1990) from the site of Mgundgundlovu, known to have been occupied from 1828 to 1839 (cited in Kinahan 2000 and Wood 2005). About 40 years later, the same beads occurred on Ondini in a reverse proportion (21 and 753 in number). Saitowitz concluded that red-on-whites would have arrived in Southern Africa much earlier than 1860. Likewise, Kinahan (2000: 52-70) reports the glass bead assemblages totaling 1,757 from the !Khuseb Delta on the Namib coast. Frequency seriation produced three distinct assemblages. The first group Kinahan calls the eighteenth-century and 'earlier' assemblage, containing: blue cylinders, opaque Indian-red cylinders, Indian red on green cylinders and barrels, opaque blue barrels, and opaque white barrels. The nineteenth-century assemblage comprised red-on-whites, barrels in a variety of colours including pink, and compound striped beads. The third group Kinahan terms the 'most recent, colonial assemblage', consisting of wound and mould-pressed beads in bright colours. It is interesting to learn that some of Kinahan's bead groups of the eighteenth century are similar to *Types 4, 5 and 6* of the current project, while the red on white beads regarded by Kinahan as part of the nineteenth-century assemblage is also similar to *Type 8 (samsami)* recovered from Kwa Sigi.

DeCorse *et al.* (2003) developed a system for classifying archaeological beads found in West Africa using bead assemblages from the Lower Felemme, Senegal. The site was a commercial monopoly zone of French chartered companies wishing to secure inland trade in gold, slaves, gum, cloth, firearms, and other manufactured items from competing British merchants. Archaeological survey and excavation at Lower Felemme yielded a total of 474 European made trade glass beads which DeCorse and colleagues (*ibid.*) classified on the basis of manufacturing method, bead structure, shape and size, diaphaneity, colour, origin and age.

The list of bead type variety from the Lower Felemme is of special interest to this study, especially with regard to understanding of the origin and age of different glass bead types of the European contact period. Their bead type no. 71-77 (see DeCorse *et al.* 2003: 90)

comprises short cylindrical, cylindrical, barrel and short barrel beads of white and brick red outer layers on either opaque white or transparent to translucent green or blue cores. These are types that clearly resemble those retrieved by the current project from the Lower Pangani. DeCorse and colleagues classify these as Venetian beads dating from the seventeenth century through to the early nineteenth and beyond (*ibid.*: 97). Furthermore, the bead variety no. 99-104 (*ibid.*) comprising short cylindrical coloured scarlet red, white and bright blue - have all been classified as European beads of c.1840 and later date. Similar bead types were recovered from the study sites of this project.

Trade glass beads have been extensively studied in North America. These may be compared with the glass beads recovered by the current project to provide additional indications about the earliest period these beads would have reached the Lower Pangani Basin. White opaque cylindrical beads, corresponding to the Lower Pangani *Type 3*, are considered typical of the early seventeenth century in Canada (Hancock *et al.* 1999). In the United States the same beads are found on sites dating from 1600 AD to 1836 AD, although the majority dates to the eighteenth century (Brian 1979). The Indian red on green bead, Lower Pangani *Type 4*, also has a broad temporal distribution in the United States, ranging from the early seventeenth to mid-nineteenth century (Kimura and Shenkere 2009).

Kimura argues that because the majority of glass trade beads were obtained from the same sources, namely Venice, Bohemia and Amsterdam in the seventeenth to nineteenth century (c.f. Brain 1979; Quimby 1978; van der Sleen 1967), the frequencies of the types may reflect frequencies in manufacture, and thus could be a world wide chronological marker. It should be noted, however, that traders preferentially bought beads that were popular in the areas they traded with (Quimby 1978; Prestholdt 2004; Pallaver 2009), and therefore we might expect regional differences in assemblages.

In summary, the glass beads retrieved by this project are comparable with beads from other sites in Africa and North America. Some of the European glass beads from Kaole and Kilwa (east coast of Tanzania), Kasunga (central Malawi), Mgundgundlove (South Africa) !Khuiseb Delta (west coast Namibia) and Lower Felemme (Senegal), resemble in several aspects the beads recovered from Lower Pangani Basin. The same is true for bead assemblages reported from contact-period sites in Canada and the United States. Beads from all the mentioned sites have been confirmed to post-date European contact, the majority being Venetian and Dutch

in origin (Kimura and Shenkere 2009). These are considered to have arrived in some parts of Africa as early as the seventeenth century, although in other areas European glass trade beads only became commonly available during the nineteenth century. It is, therefore, a secure assumption to place the arrival periods of the glass beads in the Lower Pangani between the eighteenth and twentieth century, with the majority dating to the nineteenth century, the time when the caravan trade had expanded and consolidated in East Africa.

ii. Uses of Beads in the Zigua Community – Interview Data

Some additional insights into the social value of glass beads among Zigua communities were also gained from the interviews conducted with elderly residents in the study area (see Chapter 4 for a summary of informant selection). Specifically, all informants stated that beads were supplied by traders from the coast, known as *Wagunya*. They also identified the large cylindrical shaped beads known by a Zigua name '*makoja*' (Appendix D; interviewee 1, 2, 3, 4 and 7). They also provided some information about the uses of beads (and in some cases these practices still continue). For example, informants mentioned that beads were primarily worn, especially by women, as decoration and that often a mixture of different colours was used. They were worn around the necks in strings, or in bands around the hands and feet, and even as open sided cloak. However, there were special beads worn during specific times and only by married women. The author was told that these beads, which were often red in colour, were tied onto a string and worn by women during their menses. The purpose was to inform their husbands that they were in their cycle, thus women would not be able to make love. These beads were worn slightly above the umbilicus (the area called by the Zigua '*bumbunya*'). It was also mentioned that immediately after the menstrual period ends, women replace the red beads for different beads, often wearing more than one string and in different colours. These are worn around waist in order to sexually attract their husbands and stimulate them during sex.

It was noted that white beads (*'usalu ung'aile'*) were used for various purposes in daily Zigua life. For example, a child was tied up with white beads for protection in various stages of his or her development. If the child took too long to start sitting without support, the child was tied up with a string of white beads (together with other traditional medicines) around his/her waist. Such beads would also be worn around the feet when it took too long for a child to start walking or around the neck if the development of neck muscles took too long to stabilize. In general, white beads helped protect children from being seen by witches who could harm their growth. White beads were also worn to identify a person returning from attending particular

traditional rituals (called '*miviko*' in KiZigua). These were often worn around the neck, or as an open sided cloak or as bracelets. In addition, the white beads were also used as part of the ceremonies to enshrine someone to a traditional title.

Finally, my informants explained that men also wore beads (as open sided cloaks) during dancing in the initiation rite (called '*sero*'). They also indicated that the white beads were used in courting. When a young man advanced a proposal to a girl's family, the proposal was accompanied with chains of white beads. If the proposal was accepted by the girl's family, then the beads were received and if not accepted, the beads were returned. Further, a young man who had enticed away a girl was supposed to send white beads to the girl's home as a symbol of cleansing for the mistake he made. When the beads were received, it meant the young man had been forgiven for his mistake and then the normal procedures for marriage followed.

5.5.3 Miscellaneous Objects

Several metal objects were recovered from all three study sites. These included tools such as knives, arrowheads and fishing hooks, indicative of various activities taking place at these sites. The presence of musket barrels and a gun flint suggest that weapons were also available to some individuals at these sites. Nineteenth-century accounts (e.g., Burton and Speke 1858: 204; Burton 1859: 100; Johnston 1879) indicate that flintlock muskets and gun-powder were important trade commodities. Unpublished archival research by Lamphear (cited in Lane 2011: 295), for example, suggests that the quantities of gunpowder and flintlock muskets being imported rose dramatically between 1840 (c. 2,000 flintlocks and c. 12 tons of gunpowder) and the mid-1860s (c. 26,000 and c. 22,650 tons, respectively). The finds discussed here provide the first reported tangible record of this trend. Also, as mentioned above, several historians have argued that the influx of firearms (along with other commodities) eventually transformed political entities and altered regional power relations within and among chiefdoms, and it also triggered slave raiding (Kimambo 1991; Giblin 1992). This might explain some of the signs of violence and destruction reported by nineteenth-century observers. Finally, the German coins (minted in 1905) from Kwa Sigi provide additional chronological detail to indicate that this site was still occupied when the German colonial administration was established in East Africa.

5.6 Chapter Summary

The artefactual evidence from three caravan halt sites has been presented in this chapter. The three assemblages were similar in a number of ways. Local pottery dominates the artefactual material at all three sites, and their decoration and forms suggest a close affiliation with pottery traditions reported from the nearby Usambara Mountains and the South Pare Mountains (Soper 1967), as well as those ethnographically documented among the Zigua. It was also shown that the pottery assemblages of the current study differ from contemporary assemblages recovered on coastal sites (e.g., Croucher 2006; Croucher and Wynne-Jones 2006). This suggests that despite the integration of local hinterland communities into the coastal trade networks of the nineteenth century, these communities retained many of their traditional potting methods and techniques. This patterning, according to Croucher (2006), may well reflect retention of local food preparation and consumption practices.

The chapter has also shown that both glass and non-glass beads were recovered from Ngombezi, Old Korogwe and Kwa Sigi, and the pattern of their distribution across layers of the excavated units is almost identical at all three sites. Generally, the occurrence and distribution of glass and non-glass beads at Ngombezi, Old Korogwe and Kwa Sigi have assisted in interpreting the relative chronology of the occupation of the study sites. Thus, for instance, non-glass beads, the majority made from bivalve shells of the coast, are concentrated in the lower deposits where glass beads are either very few or completely absent. Such a vertical distribution clearly suggests that non-glass beads (*Types 1 & 2*) are the older beads at the studied settlements in the Lower Pangani, and were in use in the interior settlements for a long time prior to the introduction of imported glass beads. Non-glass beads were possibly locally made on the coast of East Africa and spread to the interior through regional trade and exchange. It appears that the popular uses of non-glass beads in these settlements diminished slowly as European trade glass beads were introduced. A few non-glass beads also occur higher up in the stratigraphic sequences at Ngombezi and Old Korogwe. However, this is unsurprising as studies elsewhere (e.g., Harter 1981 and DeCorse 1989) have shown that because of the ritual, symbolic, and special economic significance of some beads among many African societies, their uses may have been continuing well beyond their period of manufacture or trade. Furthermore, practices such as retaining beads as heirlooms may introduce considerable confusion into chronological assessments, making certain beads appear more recent than they are. An additional study aimed at recognizing the continuing circulations of

beads, from abrasion or weathering on the bead surface, could clarify the importance of such practices in these contexts.

The presence of glass beads further points to the involvement of local communities in the nineteenth-century caravan trade, since glass beads were, after cloth, the second most significant material of commerce in the nineteenth century. Accordingly, an attempt has been made to relate the archaeological beads to those mentioned in the nineteenth-century sources, from which it appears that the majority of the beads mentioned in these sources were in circulation in the Lower Pangani River Basin. These include the white cylindrical beads (*Kanyera*), dull brick-red beads (*Kidunduguru*), white beads (*Merikani*) and barrel reddish brown beads with opaque white cores (*Sam sam* or *samsami*). The price of various beads in Zanzibar as well as in the interior varied and fluctuated over time. Additionally, it appears that prices for the beads were determined mainly by bead colour and size. It is interesting therefore that the preferences in terms of shape, structure and colour of glass beads changed over time at all three sites; probably reflecting the changing local tastes. This also tells us how local communities in the interior had their voices heard within a large system of trade, particularly concerning the type and quality of trade goods they wanted. With regard to beads, Prestholdt (2004: 761) for example, argues that each 'tribe' had its own chosen tint, colour and size of beads, and that traders had to be extraordinarily sensitive to local tastes. It is documented for instance, that the solution that East African caravan leaders devised to address the contingencies of fashion change was to carry various sizes and shapes of beads that had been reported to be in style in a particular locale in the interior mainland (*ibid.*: 762).

Finally, although limited in number, a range of metal artefacts, some probably used for subsistence tasks such as fishing, hunting and clearing bush, and others having perhaps more of a defensive significance (such as the evidence for musket use), were also recovered, as well as a small sample of bone artefacts. The function of the latter has yet to be determined, but on analogy with other areas they could have been used by traditional healers (e.g., Manyanga 2002).

The wider significance of the recovered artefactual material is discussed further in Chapter Seven. The next chapter gives the results of the analysis of the faunal assemblages.

CHAPTER 6

FAUNAL ANALYSIS

6.1 Introduction

The results of the analysis of faunal remains retrieved from all three study sites are presented in this chapter. The first section outlines the procedures, methods and techniques used in the analysis. This is followed by presentation of the analyses results, site by site. Here, a description is provided of the general composition of the assemblage, taxonomic abundance and species diversity. Section three considers the domestic fauna in more detail - in terms of species representation, age structure (for Ngombezi main site only), and elements and body parts representation. The non-domestic fauna are explored in the fourth section in terms of their composition and taxonomic representations. The taphonomic issues of the faunal assemblage are presented in the penultimate section, which is then followed by a chapter summary.

Table 6.1 presents the general composition of the faunal material retrieved from all three study sites of Ngombezi, Old Korogwe and Kwa Sigi.

Table 6.1: General Composition of the Faunal Material Retrieved from the Study Sites

<i>Categories</i>	<i>Ngombezi main trench</i>	<i>Ngombezi STP</i>	<i>Old Korogwe</i>	<i>Kwa Sigi</i>	<i>Total</i>	<i>%</i>
Maximally identified	6,853	1,082	2,149	667	10,751	37.7
Minimally Identified	10,889	1,010	1,854	642	14,395	50.5
Non-Identified	2,823	95	322	79	3319	11.6
Total recovered	20,565	2,187	4,325	1,388	28,465	100

6.2 Analysis Procedures and Methods

The analysis of this material was conducted in three phases involving several steps: cleaning and sorting; species identification; estimating taxonomic abundance; calculation of age profiles for domestic stock; calculating elements and body parts representation; and finally assessing the taphonomic factors that may have affected the assemblages. During the first phase all bones were cleaned and sorted into categories of mammals, fish and birds. Taxonomically unidentifiable bone fragments and ribs were sorted and bagged separately, but with their contextual information labelled appropriately. All these activities were carried out by the

author at the Department of History and Archaeology, University of Dar es Salaam in Tanzania (**Figure 6.1a**).

The second phase of the faunal analysis was conducted at the Department of Archaeology, University of York in the United Kingdom by the author under the supervision of Professor Terry O'Connor. The main task was to examine every bone specimen against the analytic attributes set forth, and record the information obtained onto an Excel Spreadsheet. The Data entered on this worksheet included the following information:

- Contextual Information - site, layer no., square no., level no.
- Skeletal element - e.g. femur
- Count – number of elements, e.g. 1, 2, etc
- Portion – e.g. proximal, distal, shaft, etc.
- Side – e.g. left or right
- Weathering stage - in a range between 0 – 5 (as described below).
- Taxon – e.g. species, genus, or artiodactyls or mammal class
- Identification - e.g. cattle, sheep/goat, etc.
- Aging criteria - e.g. unfused or fused
- Surface modification - e.g. burnt, cut/chop, gnaw, etc.
- Comments: e.g. photo taken or need further examination.

In addition, preliminary identification of animal species was carried out during this phase using zooarchaeological reference faunal materials held in the archaeology laboratory at the University of York. This preliminary identification also relied heavily on the illustrations and measurements of various skeletal elements given in Walker (1985): *A Guide to Post-Cranial Bones of East African Mammals*. The analysis was then finalised at the Department of Veterinary Anatomy at Sokoine University of Agriculture, Morogoro, Tanzania. The main activity during the final phase was to identify the animal species of the materials that were not identified in York, especially wild fauna. This was achieved through the use of reference collections in the departmental laboratory at Sokoine, and was carried out by the author under the joint supervision, training and assistance of Professors Gabriel Mbassa and Terry O'Connor (**Figure 6.1b**).



Figure 6.1a: Cleaning and sorting bones at the University of Dar es Salaam. Photo by Happinos Marufu, 2008



Figure 6.1b: Faunal analysis (species identification) at Sokoine University of Agriculture. Photo by Mr. Mwangalimi, 2010

6.2.1 *Sorting and Identification*

The faunal materials were sorted into three categories based on the levels of their identifiability: the maximally identifiable; the minimally identifiable; and non identifiable specimens. These terms deserve clear definitions at this point as they will be used frequently in subsequent sections of this, and following chapters.

Maximally identifiable: This refers to the material identifiable to body parts and that could be assigned to a specific taxonomic group such as family, genus or species, whenever possible (Marshall 1990a; Mutundu 1999) (e.g., **Figure 6.2a**). Particular attention was paid to this sub-assembly during the analysis as it was used in calculating the Number of Identified Specimens (NISP); age profile (for caprines and cattle); estimation of elements and body parts representation, as well as examining the taphonomic aspects of the assemblage.

Minimally identifiable: This refers to materials that were identifiable to skeletal element or a portion of it, but could not be assigned to exact taxonomic units such as family, genus or species (*ibid.*). In this category, two groups were artificially created due to the nature and composition of the assemblage. The first group was intended to accommodate ungulate fauna remains falling under the *order artiodactyla* and was assigned to artiodactyls size classes, one to four (see **Table 6.2**) borrowing the idea of bovid size classification from Bunn *et al.* (1988). The majority of faunal specimens in this group were the phalanges (e.g. **Figure 6.2b**), carpal and tarsal bones, horn core fragments, fragmented mandibles and maxillae, as well as hoof sheaths. These specimens, however, were excluded from the NISP, although they were studied for other analytic attributes outlined above. The second group of the minimally identifiable fauna comprises materials that could neither be assigned to specific taxonomic units nor artiodactyls groups. This group comprises specimens such as ribs, vertebrae and long bone fragments (e.g., **Figure 6.2c**). These materials were recorded under approximate mammal size classes, one to four (after Brain 1981; Bunn 1986). Table 6.2 shows a classification schema of artiodactyls and mammal size groups used in this analysis.

Non-identifiable: This material comprised bone fragments that were neither identifiable to body part nor taxonomic unit. The majority of these specimens were tiny fragments of less than 2cm length, and lacked an articular surface or recognisable anatomical landmarks that could aid their identification (c.f. Marshall 1990a; Mbassa 2004). These were counted, bagged and labelled according to their excavation provenience.



Figure 6.2a: Example of the maximally identified specimens.



Figure 6.2b: Example of phalanges that were grouped under artiodactyls size classes.



Figure 6.2c: Example of ribs and long bone fragments that were grouped under approx. animal size classes

All photos by Author, 2010

6.2.2 Methods of Estimating Taxonomic Abundance

There are four widely used methods for estimating relative taxonomic abundance in archaeological faunas. These are: Number of Identifiable Specimens (NISP); Minimum Number of Individuals (MNI); Minimum Number of Animal Units (MAU), and Minimum Number of Elements (MNE). Of these, the first two, NISP and MNI have received greater attention (e.g., Grayson 1984; Klein and Cruz-Urbe 1984; Marshall and Pilgram 1993) as they are widely used by faunal analysts. MNI by definition refers to the total number of individuals necessary to account for all the skeletal material identified for each taxon. In contrast, the NISP refers to the total number of identifiable specimens that can be assigned to a taxon within a given faunal assemblage (Klein and Cruz-Urbe 1984).

The current study, however, is aware of the merits and drawbacks of using any of these methods in estimating taxonomic abundance and elements representation. There is a common perceived weakness of NISP, which is the variation in counts of taxa with variously fragmented bone assemblages (Marshall and Pilgram 1993; O'Connor 2001). The NISP method fails to achieve one-to-one correspondence between specimens and whole bones - resulting in multiple counting. On the other hand, MNI has been challenged because of its sensitivity to sample size and a tendency towards disregarding uneven distribution of body parts across sites (*ibid.*). Consequently, MNI fails to achieve one-to-one correspondence through biased undercounting at higher levels of fragmentation. In weighing the two methods, observations have been made (e.g., Marshall and Pilgram 1993: 267; O'Connor 2001: 706) that the shortcomings of MNI are more serious, in that its values cannot be used without first comparing them to NISP figures (see for example Marshall 1990b; Arnold 2008). It is against this background that the current study is based on the NISP values to estimate taxonomic abundance in the studied assemblages. NISP values were thus obtained simply by counting all the identifiable cranial and postcranial materials that could be assigned securely to a particular taxonomic category.

6.2.3 Methods of Age Estimation for Domestic Stock

Caprine's age estimation by using dental evidence (e.g., **Figure 6.3a**) followed the methods outlined by Noddle (1974) and Grant (1982); and these have been employed by faunal analysts working on East African domestic faunas (e.g., Dahl and Hjort 1976; Marshall 1990a&b; Gifford-Gonzalez 1985; Mutundu 1999; Prendergast and Mutundu 2009). While four to seven

caprine age categories have been proposed concerning dental eruption and attrition stages (*ibid.*), it appears that analysts differ over the number of age classes to be used, and this depends mainly on the size of the studied sample (Mutundu 1999). In due regard, because the sample size of caprine dental materials obtained was small (n=39), it was felt prudent to limit the number of age classes to just five age classes (see **Table 6.3**), instead of seven as proposed by Marshall (1990a: 208). The difference being that the current study did not separate the age classes between ‘young adult’ and ‘adult’ as well as ‘aged’ and ‘very old’ as other scholars (*ibid.*) have proposed.

Due to inadequate dental material collected from excavation, age estimation for cattle was based on the examination of long bone epiphyses, following the procedures described by Silver (1969). The long bone elements used included distal and proximal humeri, radii, tibiae, femora and metapodials (**Figure 6.3b**). Table 6.4 presents the timing categories of the fusion of long bone epiphyses of different elements for cattle as used in this study for age calculation.



Figure 6.3: Examples of elements used for aging domestic stock: **a)** caprine's dental material; **b)** cattle's long bone. Author's photo, 2010

Table 6.2: Animal size classes used for recording minimally identified fauna

<i>SIZE CLASS</i>	<i>BODY WEIGHT</i>	<i>EXAMPLE</i>
Artiodactyls 1/ Mammal 1	< 10 kg	Rodent, Suni/Dikdik
Artiodactyls 2/ Mammal 2	10 – 20 kg	Duikers
Artiodactyls 3/ Mammal 3	20 – 80 kg	Ovicaprines, warthog
Artiodactyls 4/ Mammal 4	=/> 100 kg	Cattle, buffalo, zebra

Source: Adopted and slightly modified from Brain (1981)

Table 6.3: Caprines age classes based on dental evidence.

<i>Code</i>	<i>Age group</i>	<i>Descriptors</i>	<i>Approx. age in months</i>
1	Neonate	Not erupted/ unworn deciduous dentition	< 1
2	Young juvenile	DP4 in wear, M1 not erupted	~ 6
3	Old juvenile	M1 in wear, M2 not erupted	=/> 12
4	Adult	M2 in wear, M3 not erupted	=/> 27
5	Aged	Permanent dentition in full wear, M3 fully worn	Over 27

Source: Adopted and slightly modified from Marshall (1990a)

Table 6.4: Estimated time for cattle long bone epiphyseal closure (after Silver,1969)

<i>Fusing time category</i>	<i>Estimated time</i>	<i>Element involved</i>
Early fusing time	< 18 months	Distal humerus, Proximal radius
Medium fusing time	2 – 3 years	Distal tibia, Distal metapodials
Late fusing time	3½ years and above	Proximal humerus; proximal tibia; distal radius; Proximal and distal femur

6.2.4 Methods of Analysing Fish Fauna

As for fish identification, the absence of reference collection from the Pangani River led the author to rely on identifications provided by the knowledge of local fishermen who have lived for many years in villages along the Pangani near the study sites. Experienced local fishermen were identified through local informants. In the first stage of the process, the fish bones were taken to Ngombezi village where the retired fisherman, Mzee Said (76), sorted them into five taxa based on the most surviving identifiable elements. The names of the fish were provided in the local language, i.e. KiZigua. The identified fish material was then taken to Old Korogwe

village where Mzee Mselenge (69), another fisherman, was asked to confirm the initial identification (**Figure 6.4**).

During the second stage some reference materials for three different fish taxa identified were also prepared by Mzee Mselenge, as a way of demonstrating that he had correctly identified the species. Satisfied with a match between the archaeological fish fauna and the reference material prepared, the final step was to find the proper Swahili and English names for the fish identified by the locals. This process was carried out at the Institute of Kiswahili Studies (IKS), University of Dar es Salaam, Tanzania. Having names identified, it was then possible to access, for the purpose of confirmation, available databases (e.g., Bailey *et al.* 1978; Skelton 1994; Seegers 2008; IUCN 2003), as well as from an internet source (<http://fish.mongabay.com/data/Tanzania.htm>) concerning the presence of, and distribution of fish species identified, in the Pangani River. Data on African fresh water riverine fish ecology as it relates to the identified taxa was compiled from, among others, Datzie *et al.* (1988), Okeyo (2001), Prendergast and Lane (2010). Having followed these procedures, at least five different fish taxa were identified at these sites based on the most durable and surviving skeletal elements in the archaeological deposits. These fish taxa are described in the subsequent sections.

Estimation of fish body size for each taxon across the layers would have informed this study of possible diachronic change in mean body size, which then could reflect individuals' ages, environmental changes, or human choices (cf. Prendergast and Lane 2010). Such an estimate, however, was not undertaken due to the fact that the identification of fish taxa was based only on the large and most durable elements (which have higher chances of surviving in archaeological contexts). Thus, if such estimation of fish body size was undertaken, the results would have been biased to favouring large sized taxa only.

6.2.5 Methods of Recording Taphonomic Aspects

The taphonomic aspects of the assemblage were recorded following six subaerial bone weathering stages as proposed by Behrensmeyer (1978, cited in O'Connor 2004: 44). In this schema, over each stage, one through five, bones show progressively greater damage; the last of these stages (Stage 5) may not survive in the archaeological record. However, a large proportion of the studied faunal materials, especially those recovered from mound excavations, were in a good state of preservation. As such, it was possible to examine other

bone surface modifications by using a normal hand lens. This process, however, did not rule out the protocols laid down by faunal analysts dealing with the faunal material of more remote time periods than the current study, notably Binford (1981), Fischer (1983), Blumenschine (1988 & 1995), Marshall (1990a), and O'Connor (2004), for identifying cut, tooth and burning marks on bone surfaces. Other taphonomic aspects such as biochemical pitting, abrasion and mould were not noticed in the assemblages.



Figure 6.4: Fish identification in progress, by a local fisherman (Mzee Mselenge) at Old Korogwe. Author's photo, 2010

6.3 Analysis Results for Ngombezi Main Trench

6.3.1 General Composition

Table 6.5 presents the general composition of the faunal assemblage recovered from Ngombezi main trench, showing that over half of the material (52.9%, $n=10,889$) was minimally identifiable. Of the minimally identified portion, 7.9 percent ($n=869$) were categorised under artiodactyls size classes, while the rest, 92 percent ($n=1020$) were grouped under mammal size classes. On the other hand, the maximally identifiable materials (to specific taxa) constitutes 33.3 percent ($n=6,853$) of the whole Ngombezi assemblage. Of this portion,

however, 25.9 percent (n=1,776) were fish and the remaining 74 percent (n=5,077) were terrestrial faunas. The remaining 13.7 percent (n=2,823) of the materials were unidentifiable.

6.3.2 Taxonomic Representation

Figure 6.5 indicates that medium sized animals (size class 3, body weight approximately 20 to 80 kg) were largely consumed at this site. These animals dominate the assemblage for 54.2 percent (n=5,912). The second most abundant group is of large sized animals (class 4, body weight approximately 80 kg and above) - constituting 30.5 percent (n=3,325); and then animal size class 2 (9.1%, n=995). The least represented animal group in the assemblage is of small animals (size class 1, body weight approximately 10 kg or less), constituting 6 percent (n=657). However, a majority of smaller animals in the assemblage are typically more complete, and so more likely to be identifiable (see **Table 6.6**). Therefore, they were likely to be over-represented in the identified sample (NISP) but could have been less abundant in relative terms in the original fauna.

Information on the taxonomic representation of the maximally identified fauna specimens is presented in **Table 6.6** and **Figure 6.6**. The result shows that domestic stock constitutes 49.5 percent (n=3,396), while non-domestic fauna, including fish accounts for 50.4 percent (n=3,457). Of the domestic fauna, chicken is the largest group (45%, n=1,531), followed by caprines (38.7%, n=1,317), and then cattle (16.1%, n=548).

However, one observation needs to be made concerning the NISP figures for large sized animals. Figures in Table 6.6 seem to depict a scarcity of cattle at this site while in actuality cattle may have been more abundant. Elsewhere, studies (e.g., Bunn *et al.* 1988; Klein 1989; Marshall and Pilgram 1993; Prendergast and Mutundu 2009) have observed that faunal remains of large animals (such as of cattle sizes) are often heavily fragmented for various reasons, including butchery to reduce the sizes of the carcass for easy transportation, to fit into a cooking pot, and the shattering of bone shafts to extract within-bone nutrients. All these actions contribute to reducing the likelihood of positive identifications of skeletal elements of large classes of mammals (*ibid.*). This situation, indeed, may explain why long bone fragments of larger sized animals (of cattle size) were encountered in large numbers at all three study sites - in contrast to the figures indicated in the NISP for animals of the same size.

Fish remains dominate the non-domestic fauna (51.3%, n=1776), followed by rodent (26.4%, n=915), and then ungulates of different sizes (9.2%, n=321). Additional breakdown indicates that the majority of ungulates were antelopes of the medium size (85%, n=273). Other uncommon species and their proportion in the assemblage are shown in Table 6.6, and these are discussed in detail in subsequent sections. Generally, when summing up the figures obtained for the maximally (NISP) and minimally identified materials, it is safe to conclude that the Ngombezi faunal assemblage is dominated by medium sized animals of body weight approximately 20-80 kg. The following section offers further analysis of the domestic components of the assemblage.

Table 6.5: Composition of the assemblage from Ngombezi main trench

<i>Category</i>	<i>Sub-category</i>	<i>Group</i>	<i>Sub-Total</i>	<i>Total</i>	<i>%</i>
Maximally identifiable	Terrestrial		5,077	6,853	33.3
	Fish fauna		1,776		
Minimally identifiable	Artiodactyls sizes	Size 1	14	869	4.2
		Size 2	104		
		Size 3	520		
		Size 4	231		
	Mammal sizes	Size 1	643	10020	48.7
		Size 2	891		
		Size 3	5,392		
		Size 4	3,094		
Non-identifiable				2,823	13.7
TOTAL				20,565	99.9

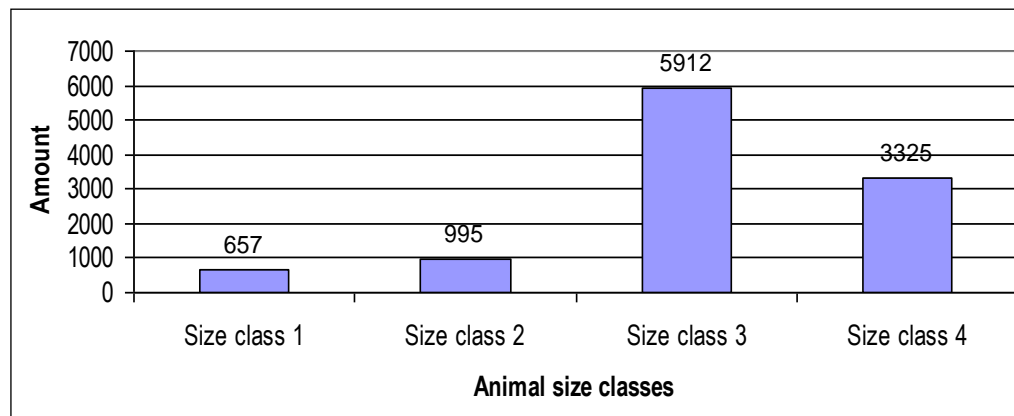


Figure 6.5: Animal Size Classes in the Ngombezi Faunal Assemblage

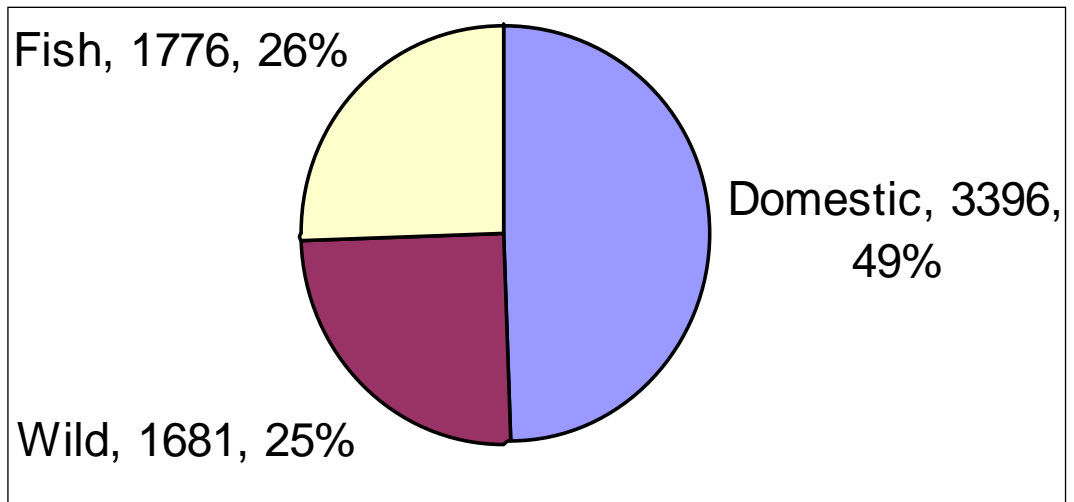


Figure 6.6: Composition of the maximally identified faunal, Ngombezi main trench

6.3.2.1 Domestic Species

As mentioned above, domestic species in the assemblage comprise caprines, cattle, and chicken. These were identified mainly based on post-cranial elements. While a small amount of cranial materials such as complete mandibles were confidently assigned to caprines (sheep/goat) and cattle, a substantial amount of highly fragmented cranial materials were recorded under artiodactyls/mammal size classes 3 and 4, which still may be attributed to caprines and cattle, respectively.

i. Sheep/goat (Ovis/Capra)

Table 6.6 presents the Number of Identified Specimens (NISP) for sheep/goat, and their distribution across layers in the Ngombezi main trench. Caprines were found in all thirteen layers of the trench; however, they were remarkably under-represented in layers 12 and 13, the two basal layers in this trench. Caprines were also underrepresented in layers 4, 5, 9 and 12, and this could be due to the fact that these four layers included only a small number of excavated squares, and were found to have contained collapsed walls (daub) and other archaeological features whose deposits did not include a substantial amount of faunal remains.

Table 6.6: Taxonomic Representation /NISP for Ngombezi main trench

Taxon	LAYERS													Total
<i>Identification</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Domestic														
Sheep/goat	70	123	197	33	28	233	152	232	24	63	147	4	11	1317
Cattle	15	48	86	2	3	29	23	34	6	107	141	12	42	548
Chicken	135	88	244	40	43	280	214	307	30	69	72	8	1	1531
Wild														
Black rat	3		1			1		1						6
Cane rat	171	52	50	10	11	37	66	153	19	79	61	12	3	724
Giant rat	7	8	8	2	3	15	12	19	7	17	21	1	3	123
Unid. Rodents	4	3	2	1	5	7	10	13	4	4	5	2	2	62
Duiker	7	13	32	1		20	14	23	3	16	24	4		157
G.gazelle	5	1	4	1		5	3	6	1	3	1			30
Hartebeest		1	4			1	2	11						19
Impala	2	8	12	1		4	5	16		3	4	1		56
Suni/Dikdik			3					3		3	2			11
Buffalo			2						1					3
Elephant			1											1
Cat	2		1	1		1		1		2				8
Dog						1								1
Mongoose		2	4	1		2	1	3	1	2	3			19
Civets	1		3			1		2		3	1			11
Unidentified Carnivora	1	1				4	2	1	1	1	1		1	13
Baboon								2						2
Monkey		1				5	1	2	1	1	1			12
Elephant shrew	13	3	5	4	3	18	18	96	8	13	15	2		198
Bird	6	17	18	16	6	15	3	55	14	11	1	2		164
Suid		7	6			3	1	10	1	1	3			32
Hyrax		1	1					4		7	2			15
Aardvark		1	3					3						7
Equid			1					1		2			1	5
Monitor Lizard							1							1
Leopard tortoise			1											1
Aquatic														
Fish	264	181	208	37	46	257	189	254	127	102	100	8	3	1776
TOTAL	706	559	897	150	148	939	717	1252	248	509	605	56	71	6,853

Note: For a full list of taxa with their *Latin* equivalents, see Table 6.20

Tables 6.7 and 6.8, as well as Figures 6.7 and 6.8 present the data and results obtained for the caprines' mortality profile. The profile was established through examination of 39 jaws that had complete rows of teeth, and 430 long bone epiphyses. The dental material examined shows the dominance of slaughtered adult and aged caprines - altogether accounting for 61.53 percent (n=24). Young and old juveniles in their totality make up only 38.46 percent (n=15). No neonates were represented in the studied sample. Interestingly, the result of the mortality profile reconstructed by using stages of long bone epiphyseal closures (**Figure 6.8**) closely match that revealed by dental evidence. The studied long bone epiphyses show that most caprines at Ngombezi were slaughtered after they had reached at least 24 months in age. This suggests that the consumption pressure on caprines was not that great.

Table 6.7: Scores obtained for caprines age using dental specimens

<i>LAYER</i>	<i>AGE GROUP</i>					Total/ Layer
	Neonate	Young juvenile	Old juvenile	Adult	Aged	
1			1	1		2
2			1			1
3		3	2	2	6	13
4		1				1
5		2				2
6		1	3	3	3	10
7				4	1	5
8			1	2	2	5
TOTAL	0	7	8	12	12	39
%	0	17.94	20.51	30.76	30.76	100

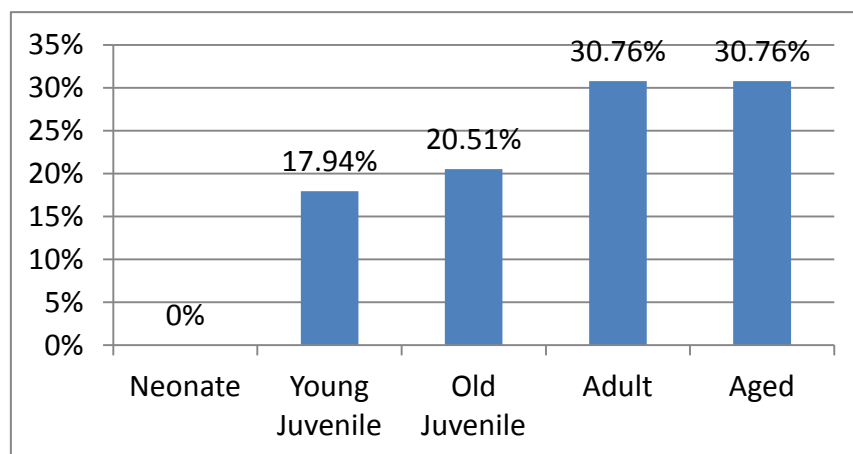


Figure 6.7: Caprine age profile reconstructed from dental evidence

Table 6.8: Scores obtained for caprine ages using long bone specimens

<i>Skeletal elements examined</i>	<i>Total unfused</i>	<i>% unfused</i>	<i>Total fused</i>	<i>% fused</i>	<i>Total elements</i>
<i>Early fusing</i>					
Distal humerus	6		46		52
Proximal radius	9		31		40
Sub-total	15	16.30	77	83.69	92
<i>Middle fusing</i>					
Distal tibia	19		21		40
Proximal & Distal femur	65		79		144
Sub-total	84	45.65	100	54.34	184
<i>Late fusing</i>					
Proximal humerus	6		7		13
Proximal tibia	22		15		37
Distal radius	11		14		25
Distal metapodials	32		47		79
Sub-total	71	46.10	83	53.89	154
TOTAL					430

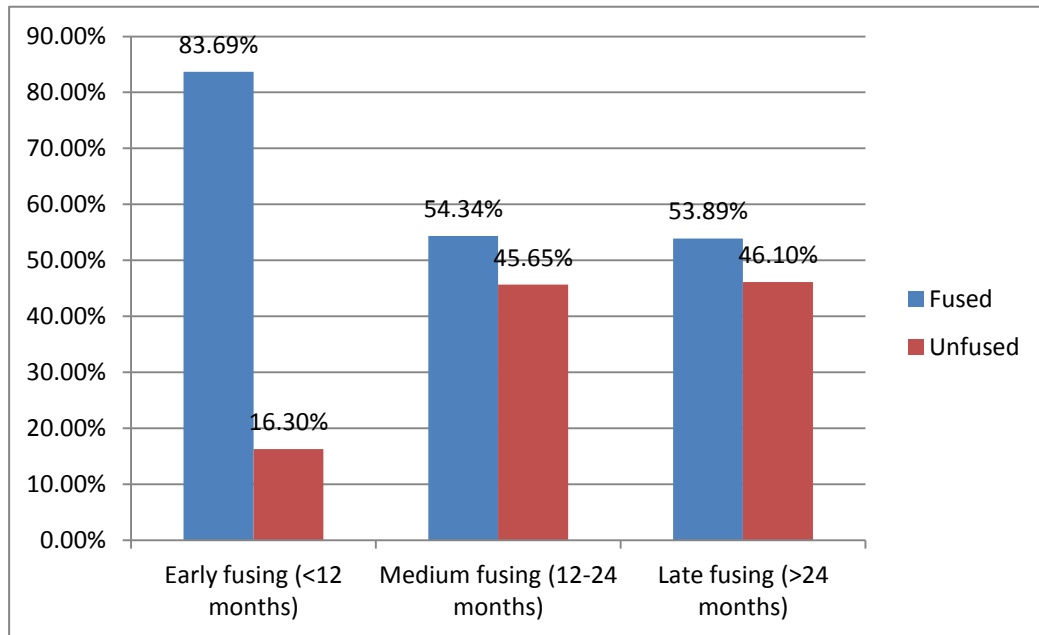


Figure 6.8: Caprine age profile based on stages of long bone epiphysal fusion

ii. Cattle (Bos taurus)

Table 6.6 presents the NISP for cattle and their distribution across the Ngombezi main trench. Cattle constitute 16.1 percent (n=548) of the identified domestic species from Ngombezi main trench. Cattle occurs in all thirteen layers of the trench although they decline sharply in layers 4, 5, 9 and 12, due to the same reasons given above for caprines. Unlike caprines, however, the NISP for cattle in the lowest two layers, 12 and 13, are much higher, possibly this is due to what zooarchaeologists term 'density mediated effect' whereby generally heavy bones are more likely to survive in archaeological deposits than the light density bones.

Information on the age profiles for cattle is summarized in Table 6.9, and depicted in **Figure 6.9**. The data indicate that 62.5 percent (n=15) of early fusing long bones had already fused - suggesting that the age at death of these animals was already above 18 months. Only 37.5 percent (n=9) of the studied long bones of the same group (early fusing group) were found unfused - signifying they were below 18 months of age. It was found that 80.9 percent (n=51) of the long bones that fuse between two and three years had already fused, while only 19 percent (n=12) were unfused. This means the latter were less than three years of age. Late fusing elements found unfused account for 52.3 percent (n=45) – suggesting they had not reached 3.5 years old - while 47.6 percent (n=41) were found fused – an indicator that these individuals had already reached or survived beyond 3.5 years of age. Taken together, these statistics indicate that over half of the cattle at the site were allowed to survive up to three years or more before they were slaughtered. As for caprines, this also suggests that consumption pressure on cattle was not significantly high. It further indicates that other causes of cattle mortality at this site such as disease were not significant.

An important point needs to be made with regard to Figure 6.9 below, however. The figure depicts a general trend whereby the proportion of fused to unfused cattle long bone material increases from younger to older age cohorts, when in theory the opposite should be the case. Such a trend would normally occur if a particular age cohort of animals had been killed away from the site. Similarly, because bones for this age cohort (1-2 years) are underrepresented in this assemblage, most likely cattle of this age group were being killed away from the studied settlements. More discussion on this observation is presented in Chapter 7.

Table 6.9: Scores obtained for cattle age by using long bone epiphyses

Timing category	Element	Pieces for ageing	Total unfused	% unfused	Total number of fused	% fused
Early fusion (<18 months)	Distal humerus	12	3	37.5	9	62.5
	Proximal radius	12	6		6	
	Total	24	9		15	
Medium time (2 – 3 years)	Distal tibia	12	1	19	11	80.9
	Distal metapodials	51	11		40	
	Total	63	12		51	
Late fusion (3½ years over)	Proximal humerus	14	8	52.3	6	47.6
	Proximal tibia	18	8		10	
	Distal radius	24	9		15	
	Prox and dist femur	30	20		10	
	Total	86	45		41	

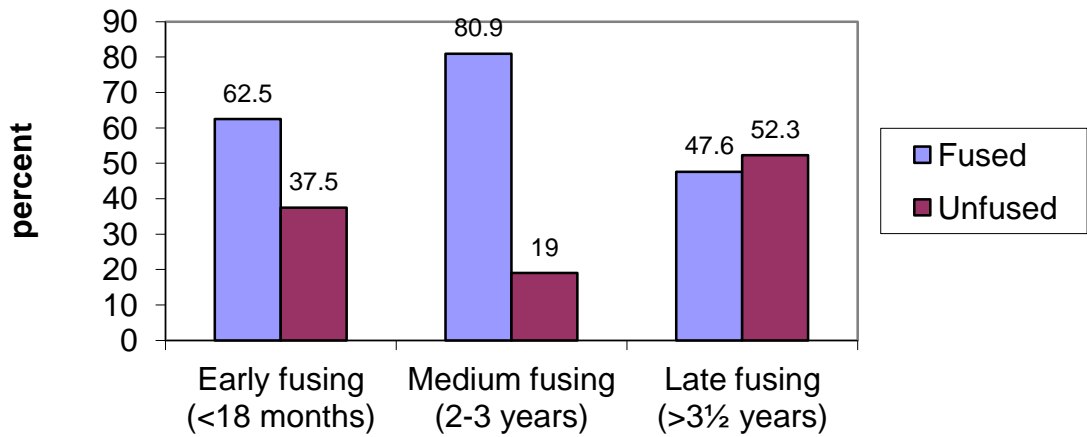


Figure 6.9: Reconstructed age profile for cattle based on stages of long bone epiphyseal fusion

Elements and Body Parts Representation for Domestic Stock: Data on body parts and elements representation is presented in Table 6.10. For cranial materials, mandibles were present in higher frequencies for caprines than cattle. Conversely, maxillae fragments were in higher frequencies in cattle than in caprines. The latter signify that the frequency of maxillae fragmentation tends to increase with increasing animal size. Post cranial materials were relatively well preserved and represented for both caprines and cattle. It is argued here that if there were differential preservation conditions and bias in recovery processes, bone remains of smaller caprines would have been underrepresented in the assemblage; relatively robust bones of cattle would be more frequent and lowest for relatively small bones such as caprine tarsal and carpal bones. The smaller ratio for cattle to caprine bone elements thus refutes the possibility of distortion or alteration of representation of bone elements due to their differences in size. However, if there was chemical attack of bone remains in the subsurface, it was minimized by the alkaline conditions of the ashy deposits that dominated the excavated mounds at Ngombezi and Old Korogwe.

Table 6.10: Body parts/elements representation for cattle and caprines

<i>Body Part</i>	<i>Skeletal elements</i>	<i>Total Elements</i>	<i>cattle</i>	<i>%</i>	<i>caprines</i>	<i>%</i>	<i>Ratio Cattle: caprines</i>
1	Cranium (mandible, maxillae, teeth, horn corn, hyoid, eye socket)	398	131	32.9	267	67	1:2
2	Scapula, pelvis, sacrum	390	96	24.6	294	75.3	1:3
3	Humerus, femur	321	73	22.7	248	77.2	1:3
4	Radius/ulna, tibia/fibula	422	139	32.9	283	67	1:2
5	Metapodials, hoof sheath	208	72	34.6	136	65.3	1:2
6	Carpal/tarsal, calcaneum, astragalus, patella	126	37	29.3	89	70.6	1:2
	Total (NISP)	1,865	548	29.3	1,317	70.6	1.2



a) A sample of chicken bones



b) A sample of caprine bone elements



c) A sample of cattle bone elements

Figure 6.10: Examples of selected faunal specimens representing domestic species.
Author's Photo, 2011

6.3.2.2 Wild Animals

Table 6.6 and Figure 6.11 provide the composition and distribution of wild fauna in the assemblage. Generally, the composition of the faunal assemblage suggests that inhabitants of Ngombezi hunted small, medium and large sized animals for consumption. Rodents and elephant shrew dominate the assemblage; the two animal species are well- represented by well preserved dental materials (mandibles and maxillae) and (tibia/fibula), respectively. The unusual abundance of mandibles and maxillae of small species can be explained by the fact that a well-roasted small animal such as elephant shrew and rodent can be eaten whole with all other bones being crushed in the process, but not the mandibles and maxillae due to the hardness of their teeth. Evidence for cooking is additionally discussed below. Other wild fauna in the assemblage include ungulates, dominated by small and medium sized antelopes; small sized carnivora such as mongoose, and non-human primates (see Table 6.6 above). The following sections describe in detail the major wild fauna recovered from Ngombezi main trench.

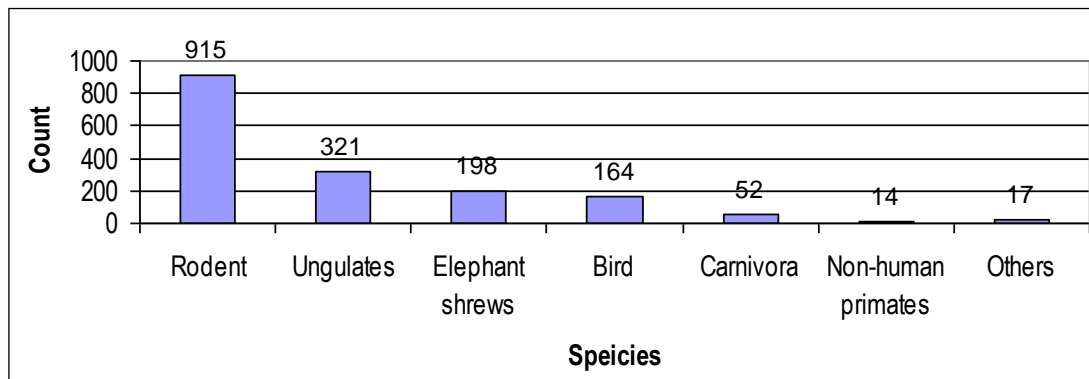


Figure 6.11: Non-domestic terrestrial species, Ngombezi main trench

i. Rodents

These were the most abundant (54.4%, n=915) taxonomically identified terrestrial wild fauna in the Ngombezi assemblage. Three taxa were identified based on well-preserved cranial and postcranial materials. These are cane rats (*Thryonomys* spp.), giant rat (*Cricetomys gambianus*) and black rat (*Rattus rattus*). Cane rat was the most abundant (79.23%, n=725) at the site, and is represented by two species identified on the basis of mandible sizes, and especially mandibular dentition. These are *Thryonomys swinderianus* (a larger species) and *Thryonomys gregorianus* (a lesser species) (see Figure. 6.12a & b). Cane rat were found across all thirteen layers of the trench, although very few were found in the lowest two layers (see Table 6.6). As shown in Table 6.6,

the amount of cane rat material increases sharply in layer 1. The possible reasons for this trend are discussed in Chapter 7.

The second largest group of rodents in the assemblage is giant rat (13.4%, n=123). The analysis attributed these materials to only one species, *Cricetomys gambianus* (Figure 6.12c). As for cane rat, giant rat also occur in all thirteen layers of the trench, but are clearly underrepresented in layers 12 and 13, possibly due to preservation bias against smaller mammal bones in these basal levels. The least represented rodent group in the assemblage is black rat, *Rattus rattus* (0.65%, n=6). This was found in layers 1 to 8 and none were found below that. This suggests it was a later introduction at the sites. Furthermore, their presence at this caravan trade halt site might be linked with the expansion of trade contacts between coastal and interior communities. A total of 62 (6.7%) rodent skeletal elements could not be identified to specific taxa (see Figure 6.12d).

ii. *Elephant shrews*

Elephant shrews form the second largest group of small-bodied wild animals consumed at the site, constituting 11.7% (n=198) of the total. They were recovered from all but layer 13. Well-preserved dental materials (n=181) and uniquely tibia and fibula fused together (n=17) aided their identification. At least two species were identified on the basis of the relative sizes of their premolars and canine alveoli. The smaller sized taxon, which comprises the majority in the assemblage, matches well with the four-toed elephant shrew *Petrodromus tetradactylus*, and the less abundant species in the assemblage represent the larger sized taxon, *Elephantulus* species (**Figure 6.12e**). Studies of elephant shrews (e.g. Kingdon 1974; Nowak 1999) have indicated that the habitat of the taxon *Petrodromus tetradactylus* ranges from tropical moist lowland forest and moist montane forest to moist savanna. On the other hand, *Elephantulus* species prefers a relatively dry environment (*ibid.*). A range of these environmental conditions and ecological niches is typical in areas surrounding the study site. This suggests that the two species could have been readily procured nearby.



a.) Smaller sized cane rat, *Thryonomys gregorianus*



b.) Larger sized cane rat, *Thryonomys swinderianus*



c.) Giant rat, *Cricetomys gambianus*



d.) Taxonomic unidentified rodent material



e.) Elephant shrew mandibles: a larger sized species (top) and a smaller sized species (bottom)



f.) Tibia-fibula of Elephant shrew

Figure 6.12: Rodent and Elephant shrew materials mentioned in the chapter

iii. Wild Ungulates

The analysis identified 321 skeletal elements of various species of wild ungulates (Table 6.6). The dominant taxa were duikers (52.3%, n=168), followed by medium sized ungulates of the gazelle size (38.9%, n=125), and then a few large ones, elephant (n=1), buffalo (n=3), equids (n=5) and hartebeest (n=19). It is worth mentioning that the NISP figure for wild ungulates would have been higher than indicated in Table 6.6 if the phalanges (n=480) were also included. Instead, as mentioned above, the substantial amounts of phalanges were recorded under artiodactyla size classes 1 to 4, with the majority (64.7%, n=311) falling in the category of medium sized ungulates. Figure 6.13 shows the selected specimens representing wild ungulates discussed in this section.

Table 6.6 shows the dramatic decline of wild ungulates in the two basal layers - with only 5 specimens in layer 12 and none in layer 13. It could be that hunting of these larger wild animals appeared later and slowly, unlike domestic stock whose consumption began early with the onset of this settlement. There is also a decline in wild ungulates evident in the upper most layers, 1 and 2, which in general produced a large amount of small animals, notably rodents and elephant shrews. This could be explained in terms of over hunting of the larger species. In Nigeria, Asibey (1974) has shown that when larger game species diminish in an area, communities turn to a range of smaller animal species, although taboos and restrictions may prevent consumption of specific species. Likewise, at Ngombezi small mammals such as the rodents and elephant shrews would have been well-adapted to heavy exploitation due to their higher reproductive rates, a point further discussed in Chapter 7.

iv. Carnivora

A total of 52 specimens belonged to carnivora (Table 6.6; also see Figure 6.14). These were civets (n=11), mongoose (n=19), cat (n=8) and dog (n=1). Another thirteen specimens could not be attributed to any exact taxonomic unit. Ascertaining whether carnivora species were consumed at this site is difficult, although one pelvis of a wild cat was found to have a cut-mark, although this might have derived from skinning the animal for its pelt. The only patchy evidence concerning human consumption of carnivora in north-eastern Tanzania, comes from an observation made by the missionary Johann Krapf who reported to have seen, during his visit to chief Kimweri, “many dogs of Jackal species that the Wasambara made food of” (1860: 225).

v. Other Terrestrial Fauna

These include 14 skeletal elements of non-human primates that were identified to be baboon (n=2) and colobus monkey (n=12) (Figure 6.13f). Both taxa were seen wandering around the site during field work for this project. There are also specimens representing hyrax (n=15) and bird (n=164) in the assemblage. Additionally, two humeri representing a monitor lizard and a leopard tortoise were identified.



Figure 6.13a: Dental materials of wild ungulates. Author's photo, 2010



Figure 6.13b: Metapodials of Antelope species. Author's photo, 2010



a): A pelvis of a cat



b): Pelvis of mongoose



c): A carnivore mandible, probably dog



d): Radius and Ulna of a monkey

Figure 6.14: Carnivore specimens (a-c) and non-human primates (d).
Photo by Terry O'Connor, 2010

6.3.2.3 Fish Fauna

Table 6.11 presents the general composition and distribution of fish fauna recovered from Ngombezi main trench. Of 1,776 specimens, only 37.4% (n=665) was taxonomically identified (Figure 6.15). The taxonomically identified sample is dominated by the order Siluriformes with two main families, namely Mochokidae and Clariidae. The catfish of the genus *Synodontis* is likely to be the Mochokid present in the Ngombezi assemblage, especially as reference skeletons made available by local fishermen showed no differences with the archaeological specimens. The identification of this taxon was based on the pectoral fin spines, the element that typically has the best chance of preservation in archaeological deposits.

Synodontis constituted 44.8 percent (n=298), and were distributed in layers 1 to 12, but none were found in layer 13. A general decrease of fish from layers 10 to 13 was evident, and this could be attributed to poor preservation conditions in these lowest deposits. *Synodontis* are

omnivorous generalists, feeding on a wide spectrum of different foods (Tamatamah 2007). Such behaviour gives them advantage for coping with seasonal changes of habitats (*ibid.*). *Synodontis* occur in open waters, and they always migrate into the floodplain during seasonal inundations for reproduction (*ibid.*). Skelton (1994) indicates that *Synodontis* is a native genus to the Pangani River.

The second most abundant catfish is Clariidae, another common taxon in the Pangani River (Skelton 1994). *Clarias* is the only genus identified in these materials; the identification that generally based on the head bones that were over represented in the assemblage compared to the vertebrae parts. Studies (e.g., Gautier and Van Neer 1989; Van Neer 2004) have reported that the head bones of *Clarias* usually have a higher preservation chance than any other parts of their body. *Clarias* accounts for 35.7 percent (n=234) and were found well-represented in layers 1 to 11. *Clarias* is omnivorous, feeding on small fish, molluscs, and other invertebrates as well as detritus and aquatic weeds (Tamatamah 2007). This fish inhabits shallow waters in vast numbers on flood plains during the inundation, and at the beginning of the floods they migrate laterally towards the spawning grounds that are preferably in marginal shallow areas (Van Neer 2009). *Clarias* thrives in stagnant, frequently hypoxic waters, and are often found in muddy ponds, canals, ditches and similar habitats (Willoughby and Tweddle 1978). It is reported that *Clarias* are naturally distributed in the Pangani River (Bailey *et al.* 1978; Seegers 2008).

In terms of NISP figures, Cichlidae rank third (11.7%, n=78) in the taxonomically identified fish fauna from Ngombezi. The most likely genus in these materials is *Oreochromis* (c.f. *Oreochromis korogwe*) - as to date this taxon exists in the Pangani River (Lowe 1955). The taxon is typical to normal riverine habitats and can be found in inshore areas of reservoirs and dams. *Oreochromis* is a generalised and extremely adaptable guild and they occupy the riparian zone, particularly the vegetation of the main channel and floodplain water bodies (Tamatamah 2007). *Oreochromis* is described by Lowe (1955) as having the ability to adapt behaviourally to altered hydrographs, flexible, and able to adopt other habitats as river conditions change. Additionally, they generally increase in number as other species decline (*ibid.*).

A few dental specimens (n=43) were securely attributed to *Barbus* spp., of the family Cyprinidae. Its identification was based on the skeletal reference material for this fish species prepared from the Pangani River, along with the comparison with confirmed specimens (e.g. Bailey 1969). *Barbus* materials were distributed from layers 1 to 9, and none were found below

that level. *Barbus* inhabits the deeper stretches of rivers with rocky shores or riparian trees, and thrives in slow-moving water (*ibid.*). *Barbus* is naturally distributed and endemic in the Pangani River, to date (Bailey 1969; Banister 1973). Additionally, a few specimens (1.2%, n=12) from layers 1, 6 and 8, were attributed to the family Anguillidae. Skelton (1994) reports this taxon as being common in the Pangani River. However, their rarity in the taxonomically identified fish fauna can be explained in terms of the inadequate amount of easily identifiable elements for this taxon, probably most of which do not survive well in the archaeological record.

Table 6.11: Identified fish fauna and their distribution, Ngombezi main trench

Taxa	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
Clariidae (<i>c.f. Clarias</i>)	15	11	30	6	4	53	32	29	27	11	16	0	0	234
Mochokidae (<i>c.f. Synodontis</i>)	58	19	12	3	5	45	17	66	57	8	5	3	0	298
Tilapiine (<i>Oreochromis</i>)	11	9	5	2	0	7	4	17	11	4	6	2	0	78
Cyprinidae (<i>c.f. Barbus</i>)	8	4	12	3	0	3	3	4	6	0	0	0	0	43
Anguillidae (<i>Anguilla</i>)	2	0	0	0	0	4	0	6	0	0	0	0	0	12
Total	94	43	59	14	9	112	56	122	101	23	27	5	0	665

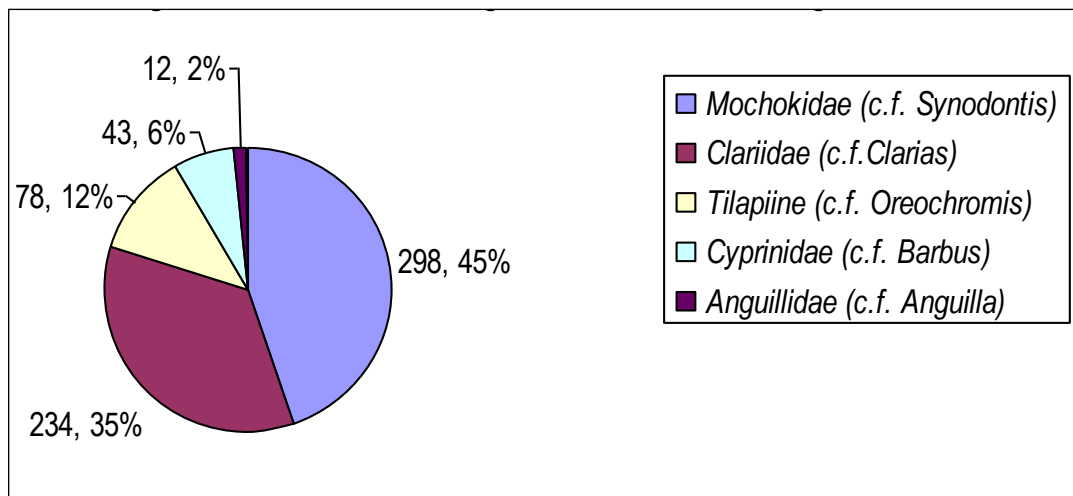


Figure 6.15: Identified fish taxa, Ngombezi main trench

Generally, the numbers of fish bones identified to specific taxa for each layer is relatively small, and in the basal deposits most fish taxa were underrepresented. This situation is most likely due to poor preservation conditions. In due regard, it can be concluded that there was no

significant trend noticed in terms of the temporal distribution of fish fauna between the excavated layers.

6.3.3 Taphonomic Aspects of the Assemblage

About 3 percent (n=616) of the recovered fauna from Ngombezi main trench fall under weathering stage 0 – as for not showing any cracking or flaking (Behrensmeier 1978, cited in O'Connor 2004:44), while 42 percent (n=8,637) is recorded under weathering stage 1, because they show cracking in a mosaic pattern (*ibid.*). The majority of the faunal material falling under weathering stage 2 (41%, n=8431) show flaking along the edges, while those falling under weathering stage 3 (12%, n=2467) have roughened patches. Only 2 percent (n=411) of the material fall under weathering stage 4, that is, being in a poor preservation condition - revealing rough surfaces with loose splinters (*ibid.*). Thus, a large proportion of the studied fauna from Ngombezi main trench was in excellent state of preservation. O'Connor is of the view that such a good preservation condition is attributable to rapid incorporation of the material into the deposits, and that the presence of ashes dominating the main excavated deposits in the mound would have buffered the chemistry of the buried bones (pers. com., May 2011). This idea then supports the conclusion from the artefactual data that the mound at Ngombezi (and Old Korogwe as well) accumulated relatively quickly - over a period of two to three centuries.

Almost 7 percent (n=1,297) of the terrestrial fauna specimens had cut marks. Of the cut-marked sample, 61.3 percent (n=796) were found on the minimally identified faunal specimens, while 38.6 percent (n=501) were noticed on the maximally identified material. Of the minimally identified faunal material with cut-marks, 42.8 percent (n=341) comprise vertebrae fragments, 32 percent (n=255) were ribs, and 25.1 percent (n=200) were unidentified long bone fragments. Maximally identified specimens with cut-marks (n=501) were almost entirely on the long bones belonging to cattle (35.7%), caprines (33.5%), antelopes (19.5%), rodents (4.3%), chicken (3.3%) and suid (3.1%), except for one example, on a pelvis of a wild cat. With these statistics it is safe to conclude that cut marks occurred more frequently on large and medium sized animals than small sized animals. Selected examples of cut-marked specimens are shown in Figure 6.16.

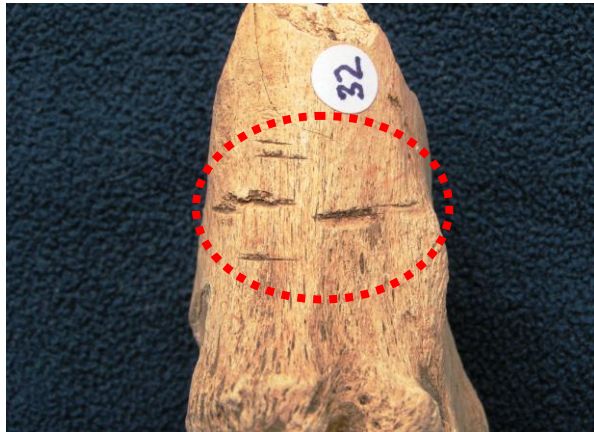
The specimens with evidence of burning marks constitute 8.8 percent (n=1669) of the Ngombezi assemblage. Of this sample, 48.1 percent (n=803) were long bones, mostly (80.3%) being of the medium sized ungulate class such as caprines and gazelles. Ribs of medium sized

animals form the second largest group of burned material (11.1%, n=186), and then phalanges of the same animal size (2.3%, n=40). Interestingly, just over half of the recovered elephant shrew material from this trench (51.5%, n=102) reveal burning marks. These are the mandibles (n=68) and tibia (n=34). Other burnt elements of the taxonomically identified specimens belong to caprines (17.6%, n=294), cattle (1.3%, n=23), duikers (n=6), and chicken (n=17). A substantial amount of tiny bone fragments (11.8%, n=198), mostly from upper levels of the trench was found charred all over. These patterns suggest that some bones were put into fires, or fires were constructed on surfaces on which bones were already lying. Thus, these materials cannot be considered as evidence for cooking, unless if such charring was localized at the ends of bones. Examples of elements with burning marks are shown in Figure 6.17.

Fauna specimens with possible evidence of tooth marks constitute 0.5 percent (n=101). Of this sample, 33.6 percent (n=34) were noticed on long bone specimens of cattle and caprines. These marks were also evident on pelvis and scapulae of cattle and caprines (22.7%, n=23). Yet, the same marks were noticed on taxonomically unidentified long bones (20.7%, n=21), ribs (14.8%, n=15), vertebrate (5%, n=5), on a single phalange and on a calcaneum. The only recovered elephant tibia also showed evidence of tooth marks, possibly carnivore gnawing (Figure 6.18). It is difficult to infer much from this single specimen, but given the presence of carnivore gnawing it is possible that this represents opportunistic foraging of a carcass rather than deliberate hunting for meat or ivory.

6.4 Analysis Results for Ngombezi Test Pit

Excavation of a 1m² test pit at Ngombezi island yielded a total of 2,187 faunal specimens. The general composition of the assemblage is summarised in Table 6.12 and Figure 6.19. The analysis indicates that about 49.4 percent (n=1,082) of the specimens are taxonomically identifiable, of which 66.2 percent (n=717) comprise terrestrial fauna and the remaining 33.7 percent (n=365) is fish. Generally, as for Ngombezi main trench, the faunal composition from this test pit is dominated by medium sized animals of body weights ranging approximately between 20 to 80 kilograms (see **Table 6.12**).



a): cut-marks on the distal tibia of cattle

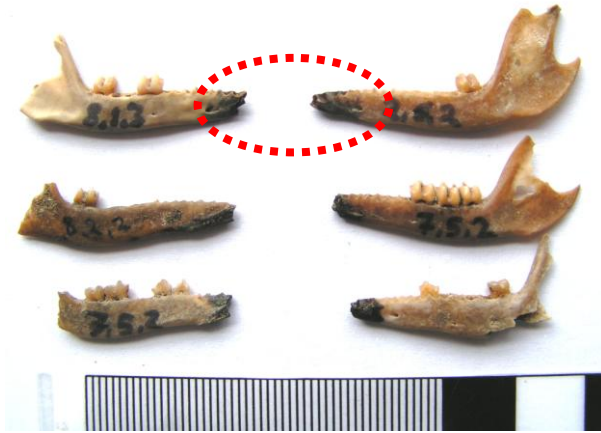


b): cut-marked femur of cane rat



c): cut-marked pelvis of a wild cat

Figure 6.16: A sample of bones showing evidence of cut-marks.
Photos by Terry O'Connor, 2010



a): Burnt mandibles of Elephant Shrew



b): Burnt tibia of Elephant Shrew



c): Burnt metapodials of antelopes

Figure 6.17: A sample of specimens showing evidence of burning marks.
Photo by Terry O'Connor, 2010



a): Tooth marks on a pelvis of cattle, probably by a large sized carnivore



b): Tooth marks on elephant tibia, probably by a large sized carnivore

Figure 6.18: A sample of tooth-marked elements. Author's Photo, 2010

Table 6.12: Composition of the faunal assemblage, Ngombezi test pit

<i>Category</i>	<i>Sub-category</i>	<i>Group</i>	<i>Sub-Total</i>	<i>Total</i>	<i>%</i>
Maximally identifiable	Terrestrial		717	1082	49.4
	Fish fauna		365		
Minimally identifiable	Artiodactyls sizes	Size 1	0	173	7.9
		Size 2	2		
		Size 3	117		
		Size 4	54		
	Mammal sizes	Size 1	3	837	38.2
		Size 2	44		
		Size 3	380		
		Size 4	410		
Non-identifiable			95	4.3	
TOTAL			2187	99.8	

6.4.1 Species Composition and Distribution

A summary of species composition and distribution is presented in Table 6.13 and Figure 6.19. Domestic species in the assemblage comprise chicken, caprines and cattle. In this category, chicken dominates (57.6%), followed by caprines (29.7%), and then cattle (12.5%). Although the NISP figure for cattle is small, there is a large amount of taxonomically unidentified materials that were recorded under animal size class 4, which could equally be attributed to cattle. Domestic species were well-represented in all seven layers of the test pit.

Rodents form the largest group of non-domestic species (65.4%), followed by antelopes (13.3%), and then elephant shrew (12.5%). As for Ngombezi main trench, the majority (58.5%) of the rodent materials were cane rats (*Thryonomys* spp.), followed by the giant rat (*Cricetomys gambianus*) at 4.4%. There were 58 rodent specimens that could not be identified to exact species, constituting 37% of the whole rodent materials. The analysis identified two species of cane rat: *Thryonomys swinderianus* (larger species) and *Thryonomys gregorianus* (lesser species). Other rare species in the assemblage constitute altogether 8.8% (see **Table 6.13**).

Table 6.13: Taxonomic/NISP Distribution Ngombezi Test Pit

Taxon	Common name	LAYERS						Total
		1	2	3	4	5	6	
<i>Domestic</i>	Sheep/goat	20	33	27	20	26	16	142
	Cattle	19	5	7	15	0	14	60
	Chicken	25	31	87	85	15	32	275
<i>Wild</i>								
Rodent	Cane rat	8	4	18	58	2	2	92
	Giant rat	7						7
	Unidentified rodents	11	13	17	17			58
Antelopes	Duiker	3	4	1	8	1	1	18
	G.gazelle						1	1
	Hartebeest				4			4
	Impala			3	4			7
	Roan antelope				2			2
<i>Others</i>								
	Elephant shrew	10	1	4	6	9		30
	Monkey		1					1
	Porcupine					1		1
	Bird			6	12			18
	Equid						1	1
<i>Aquatic</i>	Fish	133	37	78	59	32	26	365
TOTAL NISP		218	127	241	263	100	133	1082

Note: For a full list of species with their *Latin* equivalents see Table 6.20

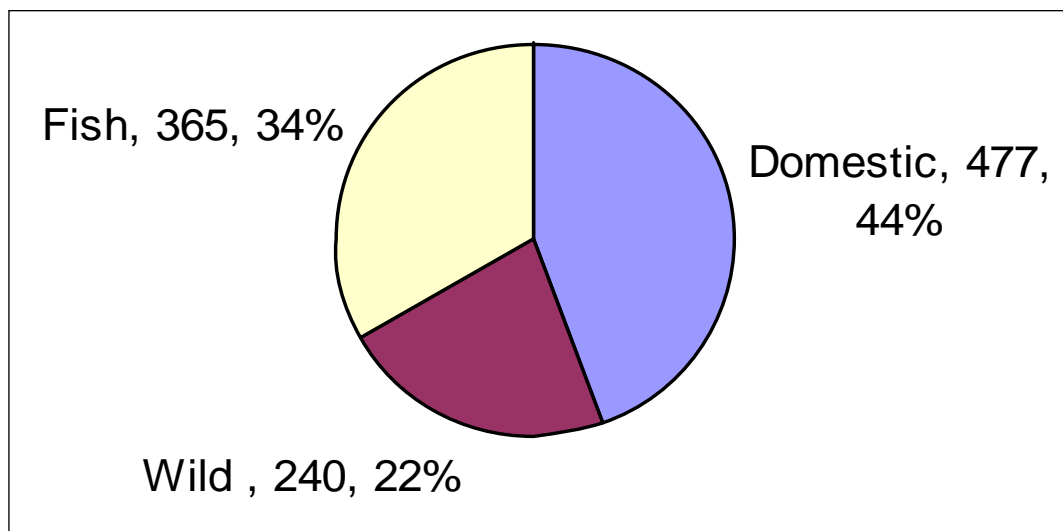


Fig. 6.19: Composition of the maximally identified fauna, Ngombezi TP

Table 6.13 indicates the highest concentration of rodent material was in the upper and middle layers (1 to 4) of the test pit, while they were extremely underrepresented in the basal layers (5 and 6). This trend, however, is not seen in the main trench (Table 6.6) which is located just metres away. A bias in sampling the excavated deposits is likely to be the most factor to account for such an under representation of rodent in the basal layers of this test pit. Small sized antilopinae species such as duikers dominate the wild ungulates at 54.5 percent. The rest are distributed among the larger and medium sized antelopes including gazelles, impala and hartebeest. Wild ungulates were concentrated in the upper and middle layers, while only minimally present in layer 5 and below.

The composition of fish taxa in the Ngombezi test pit is depicted in Figure 6. 20. As for Ngombezi main trench, the fish fauna from this test pit included four taxa: Mochokidae (c.f. *Synodontis*), *Clariidae* (c.f. *Clarias*), *Tilapiine* (c.f. *Oreochromis*) and *Cyprinidae* (c.f. *Barbus*). The family *Anguillidae* was not identified in this assemblage, however.

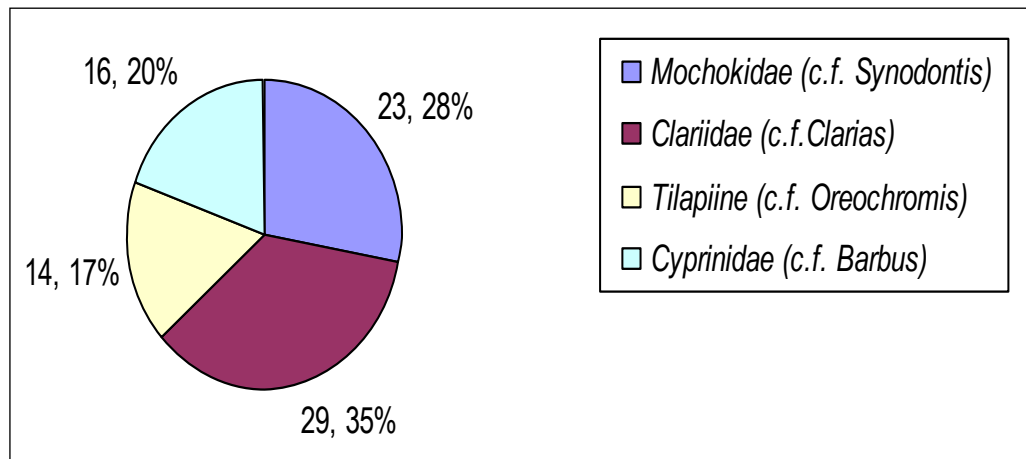


Figure 6.20: Identified Fish Taxa, Ngombezi Test Pit

6.4.2 Bone Surface Modification

Only 45 faunal specimens from the Ngombezi test pit showed evidence of cut-marks; of these, 9 specimens are taxonomically identified. These were 2 pelvis and 2 scapula of caprines; 2 scapula of cattle; 2 metapodials of a duiker; and 1 femur of a chicken. The remainder were minimally identified, and these include 22 specimens recorded as animal size 3 (3 vertebrae pieces, 10 long bone fragments and 9 ribs); 11 specimens falling under animal size 4 (6 vertebrae pieces and 5 long bone fragments), and 3 elements of a medium sized artiodactyla (2 phalanges and 1 horn corn).

A total of 94 bone specimens showed burn marks. These were 5 elements of caprines (3 astragali and 2 scapula); 6 elements of chicken (1 radius, 2 tibia, 1 coracoid and 2 humeri); 3 elements of rodents (1 femur and 2 mandibles); 3 ulna of duikers, and 3 mandibles of elephant shrew. Other burnt material fall under animal size 3 (15 long bones, 4 cranial fragments and 2 ribs), and 53 long bone fragments belonging to animal size 4. Tooth marks were only noted on a single cattle humerus.

6.5 Analysis Results for Old Korogwe

A 2m² trench at Old Korogwe yielded a total of 4,325 faunal specimens. This assemblage was treated and analysed following the same analytic procedures as for the Ngombezi assemblages. Table 6.14 summarises the general composition. Unlike Ngombezi, a large amount (50%) of fauna specimens from Old Korogwe was maximally identifiable. This reflects good preservation conditions at the site, although other factors such as the sizes of animals consumed, butchery and food preparation practices may also be considered. The majority of maximally identified fauna (60%) were fish and the remaining (40%) were terrestrial faunas.

Table 6.14: General Composition of the faunal assemblage from Old Korogwe

<i>Category</i>	<i>Sub-category</i>	<i>Group</i>	<i>Sub-Total</i>	<i>Total</i>	<i>%</i>
Maximally identifiable	Terrestrial		859	2,149	49.6
	Fish fauna		1,290		
Minimally identifiable	Artiodactyls sizes	Size 1	2	112	2.58
		Size 2	15		
		Size 3	67		
		Size 4	28		
	Mammal sizes	Size 1	31	1742	40.2
		Size 2	180		
		Size 3	1,212		
		Size 4	319		
Non-identifiable			322	7.4	
TOTAL			4,325	99.9	

6.5.1 Taxonomic Representation

Table 6.15 presents the taxonomic representation of the maximally identified fauna. For the minimally identified materials, the medium sized animals (20-80kg) dominate the assemblage at 68.9 percent (n=1279), while large sized animals (body weights above 80 kg) accounts for 18.7 percent (n=347). Small sized animals (size 1 and 2, less than 20kg) are the least represented group - constituting just 12.2 percent (n=228). A remark needs to be made here concerning

the quantification of sizes classes 1 and 2 animals. Observations have been made by Prendergast and Mutundu (2009) that there is a higher chance of encountering intact bones of small mammals compared to large mammals because they are not heavily subjected to fragmentation. Under such circumstances most of them will be positively identified. This could explain as well, why the NISP figures for small mammals in the Old Korogwe faunal assemblage are much higher than the figures for the unidentified bone fragments of the same animal sizes.

Table 6.15: Taxonomic representation /NISP, Old Korogwe fauna

Taxon	Common name	LAYERS				Total
		1	2	3	4	
<i>Domestic</i>						
	Sheep/goat	4	22	48	26	100
	Cattle	12	8	5	14	39
	Chicken	1	28	28	17	74
<i>Wild</i>						
Rodent	Black rat		5	1	1	7
	Cane rat	3	54	44	56	157
	Giant rat		3	2	1	6
	Unidentified rodents		58	131	199	388
Antelopes	Duiker		3	8	13	24
	Grant gazelle				3	3
	Hartebeest			1		1
	Impala	1	2	4	1	8
	Suni/Dikdik		1		1	2
	Roan antelope				1	1
	Reedbuck		2	3	2	7
Carnivora	Unidentified Carnivora				3	3
	Mongoose		1	1		2
Others	Elephant shrew		4	13	5	22
	Suid		2	7	4	13
	Hyrax			1		1
	Leopard tortoise				1	1
<i>Aquatic</i>	Fish	127	504	397	262	1290
TOTAL		148	697	694	610	2,149

Note: See Table 6.20 for a full list of taxa with their *Latin* equivalents

6.5.1.1 Domestic Species

Domestic fauna (caprines, cattle and chicken) comprises 9.9 percent (n=213) of the taxonomically identified sample. As at Ngombezi, the proportion of caprines at Old Korogwe exceeds that of cattle. Although caprines, cattle and chicken are represented in all four cultural layers of the trench, on the basis of NISP, the lowest deposits generally yielded more domestic fauna than the uppermost deposit (layer 1). Age estimation for both cattle and caprines was not possible due to inadequate dental materials and the lack of long bone epiphyses, both of which are the most reliable means of reconstructing age at death.

Elements and Body Parts Representation for Domestic Stock: Information on skeletal elements and body parts representation is summarized in Table 6.16. This pattern does not differ significantly with that observed for Ngombezi. All elements are fairly well represented for both caprines and cattle. As at Ngombezi, the frequency of the cranial material is higher for caprines than cattle, and this could be the result of differences in butchering and processing large and small sized animals. Similarly, preservation conditions at the site would not have biased the recovery of post-cranial elements since all elements are fairly well represented and in a consistent ratio between caprines and cattle.

Table 6.16: Elements/Body parts representation for domesticates, Old Korogwe

<i>Body Part</i>	<i>Skeletal elements</i>	<i>Total Elements</i>	<i>Cattle</i>	<i>%</i>	<i>Sheep/ goat</i>	<i>%</i>	<i>Ratio Cattle: Caprines</i>
1	Cranium (mandible, maxillae, teeth, horn corn, hyoid, eye socket)	23	3	13	20	87	1:7
2	Scapula, pelvis, sacrum	16	6	37.5	10	62.5	1:2
3	Humerus, femur	23	12	52.2	11	47.8	1:1
4	Radius/ulna, tibia/fibula	46	8	17.4	38	82.6	1:5
5	Metapodials, hoof sheath	20	7	35	13	65	1:2
6	Carpal/tarsal, calcaneum, astragalus, patella	11	3	27.3	8	72.7	1:3
	Total	139	39		100		1:2

6.5.1.2 Non- Domestic Fauna

Table 6.15 summarises the general composition and distribution of non-domestic fauna retrieved from Old Korogwe. Generally, species composition in this assemblage resembles that from the Ngombezi main trench. This may suggest that inhabitants of the two island settlements had similar practices of animal economies - for consuming domestic and wild animal species of various sizes. In their totality, non-domestic fauna from Old Korogwe constitutes 90 percent (n=1936) of the maximally identified sample; however, this large figure is inflated by fish fauna which alone constitute 66.6 percent (n=1290) of the non-domestic fauna.

Besides fish, the majority of identified non-domestic fauna comprised rodents (28.8%, n=558), followed by *antelopinae* species (2.3%, n=46). As at Ngombezi, the dominant group of rodent (28.1%) was cane rat with two species represented - *Thryonomys swinderianus* and *Thryonomys gregorianus*. There were also giant rat of the species *Cricetomys gambianus* and black rat, *Rattus rattus*. About 69.5 percent (n=388) of the rodent material could not be identified to species level. Table 6.16 shows that rodent bones occurred across all levels at the site.

Ungulates form the second largest non-domestic terrestrial fauna (9.1%, n=59). Medium sized ungulates dominate this group at 4.7 percent (n=31), and these include gazelle, impala, reedbuck and suid. The small sized ungulates were duikers and suni/dikdik - altogether constituting 4 percent (n=26) of all non-domestic ungulates. Large ungulates include hartebeest (*Alcelaphus buselaphus*) and roan antelope (*Hippotragus equinus*) - each represented by a single specimen.

As at Ngombezi, elephant shrew is also found in this assemblage, represented by 22 specimens: 17 mandibular elements and five tibia-fibula fused together. Elephant shrew is confined to layers 2 to 4, and none were found in layer 1. Of the 17 mandibles collected, 15 belong to the species *Petrodromus tetradactylus* and the remaining two mandibles resemble the large taxon, *Elephantulus*. There were five specimens in the assemblage that represent carnivora species. Two were identified to civets, while the remaining three specimens could not be identified to exact taxon.

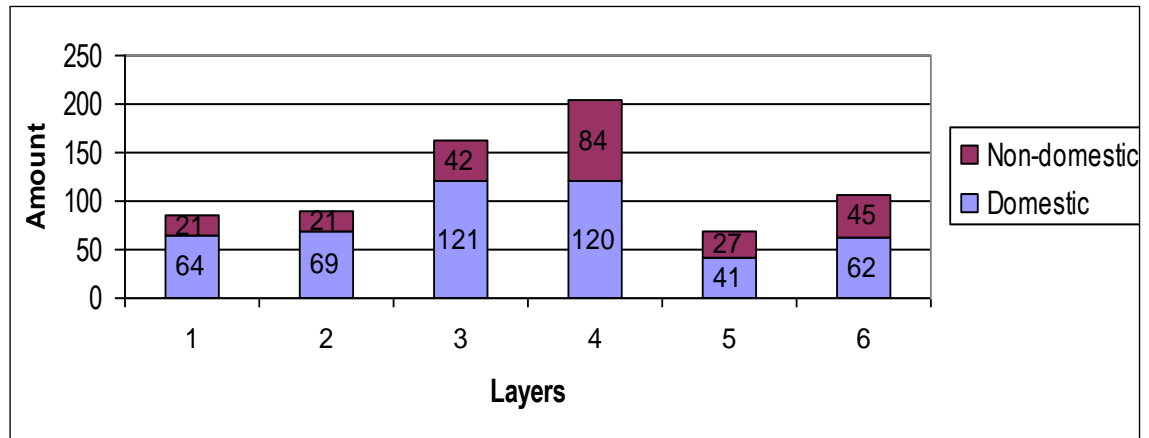


Figure 6.21: Proportion of Domestic and Wild Fauna (fish excluded) Old Korogwe

6.5.1.3 Fish Fauna

The taxonomic composition and distribution of fish fauna from the site of Old Korogwe is presented in Table 6.17. This indicates that of 1,290 fish specimens recovered, only 18.2 percent (n=235) were taxonomically identified. The species composition and their relative proportions are similar to that from the main trench at Ngombezi – indicating exploitation of similar aquatic habitats. *Synodontis* and *Clarias* are two catfish species that dominate the assemblage. Rarer taxa are *Oreochromis*, *Barbus*, *Cyprinidae* and *Anguillidae*.

Table 6.17: The Identified Fish Taxa, Old Korogwe

Taxon	Layers				Total
	1	2	3	4	
Clariidae (<i>c.f. Clarias</i>)	17	32	23	16	88
Tilapiine (<i>Oreochromis</i>)	4	6	0	0	10
Mochokidae (<i>c.f. Synodontis</i>)	24	45	19	17	105
Cyprinidae (<i>c.f. Barbus</i>)	6	8	9	2	25
Anguillidae (<i>c.f. Anguilla</i>)	2	5	0	0	7
Total	54	98	54	39	235

6.5.2 Bone Surface Modifications

Cut-marks were present on 5.5 percent (n=167) of the Old Korogwe terrestrial fauna. A total of 14 skeletal elements of caprines show evidence of cutting damage. These are scapula, tibia, humerus, femur and radius. Only four skeletal elements of cattle were cut-marked. These are ulna, humerus, pelvis and femur. Three specimens of wild species have cut-marks, and these are duiker (n=1) and impala (n=2). Cut-marks were also seen on 146 minimally identified

fauna specimens. This figure makes up 87.4 percent of the cut-marked sample of the Old Korogwe faunal assemblage. Under this category, elements of the medium sized animals that show cut-marks constitute 71.9 percent (n=105). These are long bone pieces (n=59), ribs (n=31) and vertebrae fragments (n=15). The remaining 28 percent (n=41) of the minimally identified sample with cut-marks belong to large sized animals. These elements are long bone fragments (n=30), vertebrae fragments (n=9) and ribs (n=2). Overall, these statistics suggest that the incidence of cut marks is much higher on the skeletal elements of the medium and larger sized animals than on smaller ones. These occur in a higher frequency on flat bones, long bones, and on vertebral pieces. The possible reason(s) for this is discussed in Chapter 7.

Eight percent of the Old Korogwe terrestrial fauna (n=242) revealed evidence of burning. Of the burnt sample, 21.9 percent (n=53) are on taxonomically identified faunal specimens namely, elephant shrews (n=15), rodents (n=19), duikers (n=4), caprines (n=8), cattle (n=5) and chicken (n=2). Burning marks also occur on the materials that were recorded under animal size classes, and these constitute 37.1 percent (n=90) of all burnt materials. Of this figure, material of the medium sized animals (size 3) with evidence of burning constitutes 65.5 percent (n=59), whereas those bones of animal size 4 account for 21.1 percent (n=19). The remaining 18.8 percent (n=17) are bones of animal sizes 2.

A total of 63 tiny bone fragments (less than 2 cm) were found burnt completely to a greyish colour. This sample constitutes 26 percent of the burnt materials. Such burning is not considered to be the result of culinary practices, but rather post-depositional fires set at the site - as all of these pieces were recovered in the upper levels of the trench, between 0-20 cm. Generally, the above figures suggest that traces of burning marks occur in higher frequencies on small sized animals than large ones, and they occur mostly on dental materials (mandibles and maxilla) and long bones (femur, tibia, radius and humerus). This suggests that small sized animals like the elephant shrews were likely to being roasted whole on fires without butchering.

6.6 Analysis Results of the Kwa Sigi Assemblage

The eleven test pits dug at Kwa Sigi yielded 1,388 faunal specimens, of which 48 percent (n=667) were maximally identified; however, with the majority (71.2%, n=475) being fish fauna. Terrestrial fauna are in a poor state of preservation and a large portion of the assemblage is highly fragmented, probably due to rain wash and regular running water on this flat island. Table 6.18 indicates that the minimally identifiable material forms 46.2 percent (n=642) of the whole assemblage, while unidentifiable specimens constitute 5.6 percent (n=79). Of the minimally identifiable material, 15.4 percent (n=99) are assigned to artiodactyls size classes, and 84.5 percent to mammal size classes. Terrestrial fauna dominates the assemblage at 65.7 percent (n=913) while fish fauna comprises 34.2 percent (n=475).

Table 6.18: General Composition of the Kwa Sigi Faunal Assemblage

<i>Category</i>	<i>Sub-category</i>	<i>Group</i>	<i>Sub-Total</i>	<i>Total</i>	<i>%</i>
Maximally identifiable	Terrestrial		192	667	48
	Fish fauna		475		
Minimally identifiable	Artiodactyls sizes	Size 1	0	99	7.1
		Size 2	5		
		Size 3	33		
		Size 4	61		
	Mammal sizes	Size 1	13	543	39.1
		Size 2	2		
		Size 3	264		
		Size 4	264		
Non-identifiable			79	5.69	
TOTAL			1,388	99.9	

6.6.1 Taxonomic Representation

Figure 6.22 presents the proportions of animal sizes classes in the assemblage. Large animals of cattle size (size 4) dominate the minimally identifiable faunal sample (50.6%, n=325), followed closely by medium sized animals (size 3) at 46.2 percent (n=297). Animals of sizes 1 and 2, are extremely underrepresented in this sample as this group altogether accounts for only 3.1 percent (n=20) of the total. Poor preservation conditions at Kwa Sigi could be a factor for such under representation, as it could be the effects of ‘density-mediated attrition’.

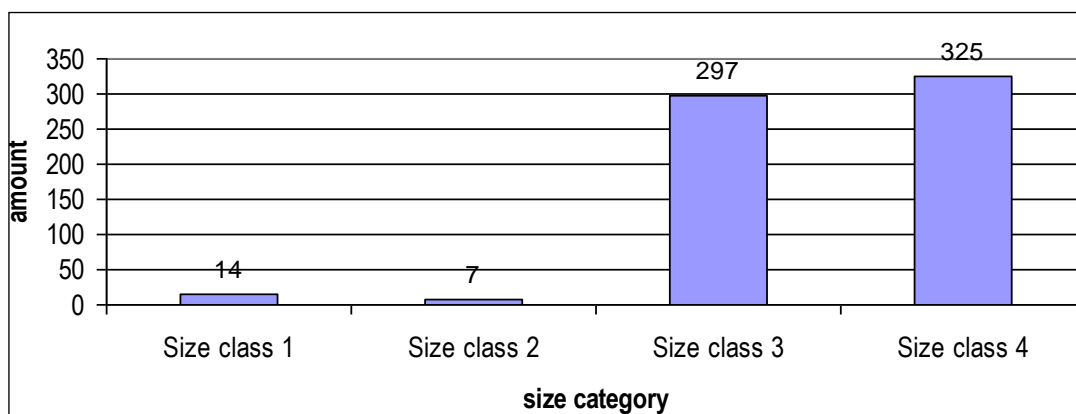


Figure 6.22: Animal Size Classes, Kwa Sigi Faunal Assemblage

Table 6.19 presents a summary of the taxonomic distribution/NISP of domestic and wild fauna in the Kwa Sigi assemblage. Non-domestic species dominate the faunal assemblage at 91.1 percent (n=608) against 8.8 percent (n=59) of domestic species. This figure, however, is influenced by the inclusion of fish fauna, which alone constitutes 78.1 percent (n=475) of non-domestic resources. Of the other wild fauna, rodent are most frequent (16%, n=98), and then antelopes (2.6%, n=16). As for Ngombezi, small animals like elephant shrews were also present at the site (n=10), as well as hyrax (n=2). For the domestic species, caprines lead (n=23), followed by chicken (n=19) and then cattle (n=17). Like Old Korogwe, the dental material and long bones of caprines and cattle were too few to allow estimation of their mortality pattern, the results of which would have been compared with those obtained from the main site of Ngombezi. Figure 6.24 summarises the identified fish taxa in the Kwa Sigi faunal assemblage.

6.6.2 Bone Surface Modifications

Only 6.6 percent (n=61) of the Kwa Sigi faunal material show evidence of cut mark damage. Of this sample, 18 percent (n=11) are found on the maximally identified faunal specimens and 81.9 percent (n=50) are found on the minimally identified specimens. The maximally identified faunal specimens with cut marks belong mainly to large and medium sized animals such as cattle (n=7), caprines (n=3) and impala (n=1). The specific elements that bear cut-marks are long bones (metapodials, radius, femur, and tibia), flat bones (pelvis (n=2) and scapula (n=1)).

On the minimally identified materials with cut marks, 54 percent (n=27) belong to animal size 3, and 38 percent (n=19) are animal size 4 material. Specific body parts of this group are vertebrae (n=12), long bone pieces (n=12), ribs (n=21) and phalange (n=1). Generally, the

evidence of cut-marks seems to be higher on larger animals than the smaller ones – similar to the situation observed in the Ngombezi and Old Korogwe faunal assemblages.

Only 16 specimens show evidence of surface burning. These were three elephant shrew mandibles, one cane rat femur, one chicken humerus and one cattle radius. The remaining 10 burnt specimens could not be identified to their specific taxon but were recorded under animal size 3 (n=5) and animal size 4 (n=5); all these are long bone fragments.

Table 6.19: Taxonomic /NISP abundance, Kwa Sigi TPs

Taxon	Common name	Total
<i>Domestic</i>	Sheep/goat	23
	Cattle	17
	Chicken	19
<i>Wild</i>	Black rat	1
	Cane rat	44
	Giant rat	9
	Unidentified rodents	44
Antelopes	Duiker	12
	Impala	2
	Suni/Dikdik	2
<i>Other terrestrial</i>	Buffalo	3
	Mongoose	1
	Elephant shrew	10
	Suid	2
	Hyrax	2
	Bird	1
<i>Aquatic</i>	Fish	475
TOTAL	NISP	667

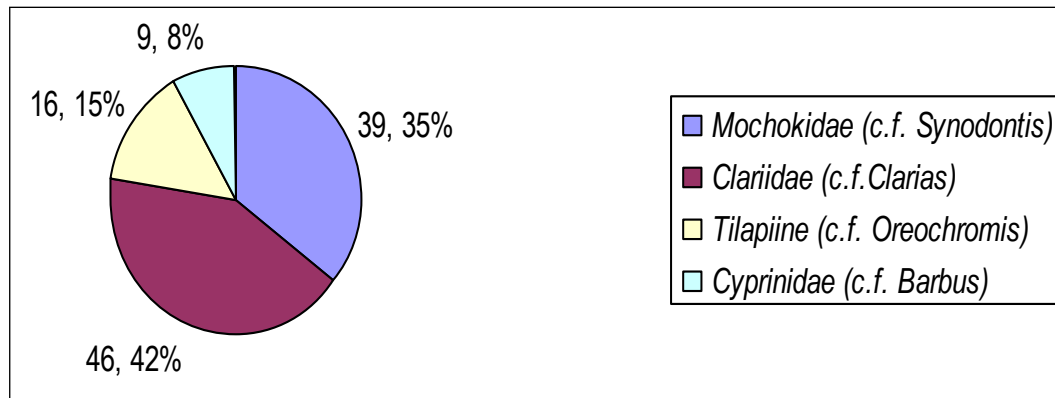


Figure 6.23: Identified Fish Taxa, Kwa Sigi Assemblage

6.7. Chapter Summary

This chapter presented the results of the analysis of a total of 28,465 faunal specimens obtained through excavation from three study sites of Ngombezi, Old Korogwe and Kwa Sigi. The methods and approaches used in analysing the archaeofaunal remains have been described and the justifications for choosing them, where necessary, have been outlined. The assemblages were organised into three categories based on the levels of each specimen's identifiability. These categories were the minimally identified, the maximally identified, and non-identified faunal remains. In sum, 37.7 percent (n=10,751) of all faunal remains were taxonomically identified (NIPS), and the majority (50.5%, n=14,395) were minimally identified. Both categories revealed the dominance of medium sized animals (size 3) in the assemblages, hereby referred to as those with a body weight of approximately 20 to 80 kg - such as caprines, warthog and gazelles.

The analysis revealed some patterns in the faunal assemblages being similar between sites. This is specifically the case in terms of the preservation conditions of the assemblages, species composition and distribution between layers, and taphonomic issues that affected the assemblages. Generally, the preservation condition of the faunal remains from trench excavations at Ngombezi main site and Old Korogwe is generally excellent, a factor that contributed to attaining over 35 percent maximally (NISP) identified specimens in these assemblages. This good state of preservation, indeed, enhanced a visibility of taphonomic markers on the bone surfaces such as cut-mark damages, burning and tooth marks.

Analysis of these assemblages revealed that similar forms of animal economies were practised at the study sites, with domestic species (cattle, caprines and chicken) being consumed consistently along with wild animals since these sites were inhabited prior to the nineteenth century (further discussion in Chapter 7). The presence of various wild species of different sizes in the studied assemblages, ranging from antelope species to rodents and elephant shrews, may imply that the occupants of the studied settlements were foragers; however, foraging in this context does not mean subsisting on garbage or refuse, but rather it implies hunting any animal species available (regardless of their sizes and return rates) for consumption (i.e. non-selective hunting). The evidence for regular consumption of small mammals such as rodents and elephant shrews at these sites was unexpected, however. Evidence of cut and burn marks revealed on the skeletal elements of these small animals clearly indicates that they were brought to these sites for human consumption (i.e. their

presence at these sites was not the result of natural deaths). The burn marks on the distal ends of the elephant shrew tibiae and mesial parts of mandibles are also consistent with spit-roasting of these animals whole.

The mortality profiles for domestic stock at the main site of Ngombezi have been reconstructed; for caprines on the basis of both the dental evidence and long bone epiphyses, while for cattle using only the long bone epiphyses. The aim was to determine herd management strategies as reflected in the culling practices of domestic stock. Additionally, taken together with the consumption pattern of wild faunal, this could enable detection of pressure (if any) posed on domestic stock, and to ascertain whether there were any introduced or adapted herd management strategies during the expansion of the caravan trade in the nineteenth century. The results obtained in this analysis indicate that the majority of caprines at Ngombezi were slaughtered after reaching a minimum age of 24 months, while for cattle the majority were allowed to survive up to 36 months before being slaughtered. The implication of this is discussed in greater depth in Chapter 7.

Domestic stock elements and body part representations in the assemblages have been calculated based on the NISP figures. It is shown that all the identified elements for caprines and cattle at Ngombezi are well-preserved and represented in a consistent ratio. Since the ratio of smaller bones of caprines to those more robust ones of cattle is higher, this suggests that the preservation and recovery processes at the sites did not bias the results against smaller bones, as would be expected if differential preservation and/or recovery had been significant factors. Even those bones of very small sized animals such as rodent's astragali and calcaneum were recovered in large proportions from the deposits. The implication for this is also discussed in Chapter 7.

The results of the analysis of the fish fauna have shown at least five fish taxa were being utilised at the study sites, the majority being catfish of the families Clariidae and Mochokidae (of the order *Siluriformes*). The likely candidate for the former species is *Clarias* spp., and the latter is *Synodontis* spp., both being native to the Pangani River on which the three study sites are located. Other taxa are Cichlidae (cf. *Oreochromis* spp.), Cyprinidae (cf. *Barbus* spp.), and Anguillidae (cf. *Anguilla* spp.). Undoubtedly, the occurrence of similar fish taxa at all three sites is due to their proximity to the Pangani River and its tributaries. Thus, this tells us that site occupants were exploiting similar aquatic habitats.

Information on bone surface modifications in terms of cut marks, burning and tooth marks have been presented in this chapter, for each site. With regard to cut marks, the results show that the majority occur on long bone skeletal elements, vertebrae and ribs. Generally, the analysis revealed that the incidence of cuts is higher on the elements of larger bodied animals than on small animals, and this could be the result of butchering, in which carcasses were dismembered for distribution and sliced for cooking. This analysis indicates that large amounts of long bone fragments originated from larger-bodied animals. It is suggested that such additional fragmentation would have resulted from pounding bones for bone marrow extraction.

By contrast, burn marks occur in higher frequencies on small and medium sized animals such as duikers, rodents and elephant shrews than on elements of large sized animals. It is argued that small animals like elephant shrews and rodents were likely to have been preferred when roasted, and hence, some were thrown onto fires to roast whole without butchery. Finally, tooth marks were generally visible on various skeletal elements of both domestic and non-domestic species. Possibly, these are evidence of carnivore and rodent gnawing activity on discarded bones.

The results of the faunal analysis presented in this chapter provide the basis for a discussion (in Chapter 7) on the practices of animal economies and subsistence strategies by the communities situated along the trade routes during the period of the expansion of caravan trade in the nineteenth century in the Lower Pangani River Basin.

Table: 6.20: List of Animal Species Identified with their *Latin* equivalents

Category	Common Name	Latin/Scientific Name
Domestic species	Sheep/goat	<i>Ovis aires / Capra hircis</i>
	Cattle	<i>Bos taurus</i>
	Chicken	<i>Gallus gallus</i>
Wild species	Black rat	<i>Rattus rattus</i>
	Cane rat (two species)	<i>Thryonomys swinderianus</i>
		<i>Thryonomys gregorius</i>
	Giant rat	<i>Cricetomys gambianus</i>
	Duiker	<i>Sylvicapra grimmii</i>
	Grant gazelle	<i>Gazella granti</i>
	Hartebeest	<i>Alcelaphus buselaphus</i>
	Impala	<i>Aepyceros melampus</i>
	Roan antelope	<i>Hippotragus equinus</i>
	Reedbuck	<i>Redunca redunca</i>
	Suni/Dikdik	<i>Neotrogini</i>
	Buffalo	<i>Syncerus caffer</i>
	Elephant	<i>Loxodonta africana</i>
	Aardvark	<i>Orycteropus afer</i>
	Suid	<i>Potamochoeru spp.</i>
	Equid	<i>Equus burchelli</i>
	Porcupine	<i>Hystriidae</i>
	Hyrax	<i>Procaviidae</i>
	Elephant shrew (two species)	<i>Petrodromus tetradactylus</i>
		<i>Elephantus spp.</i>
	Dog	<i>Canis familiaris</i>
	Mongoose (two species)	<i>Helogale pervula</i>
		<i>Galerella sanguineus</i>
	Civet	<i>Civettictis civetta</i>
	Baboon	<i>Papio sp.</i>
	Wild cat	<i>Felis silvestris</i>
	Monkey	<i>Cercopithecus aethiops</i>
	Monitor Lizard	<i>Varanus sp.</i>
	Leopard tortoise	<i>Stigmochelys pardalis</i>
	Bird	<i>Aves</i>
Fish (common names in Kiswahili)	Ngogogo	<i>Synodontis sp.</i>
	Kambare	<i>Clarias sp.</i>
	Perege	<i>Oreochromis sp.</i>
	Kuyu	<i>Barbus sp.</i>
	Ningu	<i>Anguilla sp.</i>

CHAPTER 7

DISCUSSION AND CONCLUSIONS

7.1 Introduction

In this chapter, the fieldwork data and results of data analyses presented in Chapters 4, 5, and 6, are reviewed with reference to the research objectives stated in Chapter 1. First, the discussion begins by revisiting the practice of the historical archaeology at the Lower Pangani River Basin. Second, the discussion focuses on the archaeological evidence from the studied settlements that is indicative of the nature of their involvement in the nineteenth-century caravan trade. The third section turns to consider the faunal evidence, and focuses on the range of species consumed and the inferences that can be drawn from this material regarding the relative importance of wild to domestic species, and their overall contribution to local diets. Possible reasons for the high frequency of some animal species compared to others are also discussed with reference to the results from similar zooarchaeological studies undertaken elsewhere in East Africa. The fourth section of the chapter discusses issues pertaining to herd management strategies and culling practices operated by the Waruvu inhabitants of the studied island settlements. This is followed by an overall summary and conclusions in the fifth section. Finally, the limitations of the study and proposed areas for future research work are outlined in the final and concluding section.

7.2 The Historical Archaeology of the Lower Pangani River Basin: A Revisit

This study has followed an Africanist perception of ‘historical archaeology’ which differs from other approaches to this sub-discipline more in terms of methods (e.g. Pikirayi 1993) than as regards period and subject matter (e.g. Deetz 1977). Pikirayi’s definition of historical archaeology as ‘the study of sites which can be interpreted with the aid of historical sources such as written documents, oral traditions, and historically datable artefacts’ (1993:36), would thus seem as apt description of the work described here at Lower Pangani River Basin. The region is rich in terms of sources that can be integrated in archaeological works – ranging from oral traditions and histories, nineteenth-century European accounts, as well as material traces of past human activities. All these sources were brought together and cross-referenced with each other in an attempt to understand how the lives of the communities inhabiting this region

would have been transformed following their integration in the economic system that ringed the Indian Ocean.

Nineteenth-century written sources, which are in the form of descriptive reports, maps and images, were integrated in this study as a means for directing us from what is at least a better known period to a less known period. These were compiled by various European observers who journeyed into the region in different periods during the nineteenth century. In this study, written documents were a useful means for, among other things, initially locating the studied caravan halts; understanding the nineteenth-century inhabitants of the region and their socio-economic and cultural practices; and for achieving an understanding of some aspects of the caravan trade itself, including issues such as participants and organisation of the trade, traded items, and trade routes.

Nevertheless, a critical approach to the use and reliance on these written sources remained crucial. By cross-referencing oral historical and archaeological data it is now clear that many of the primary and secondary written sources either underestimated or overestimated - and sometimes completely overlooked - significant aspects of life in the Lower Pangani during the nineteenth century. For example, hunting is not given much attention in the historical texts, yet the zooarchaeological data presented here indicates that this formed an important aspect to the subsistence of nineteenth-century Zigua communities in the Lower Pangani. Another example concerns the misperception of the Zigua island settlements: regarded in some accounts as solely a response to the threat of Maasai cattle raiders, ignoring the importance of these defensible locations as caravan halts. Generally, most of the written texts used in this study tend to lack 'spatial-temporal specificity' of historical events, against which the archaeological data can be tested and cross-referenced.

Oral traditions and histories were integrated in this historical archaeology study, and they proved to be of great importance. These were useful, for example, in locating some sites whose names were either misrepresented in nineteenth-century sources or which have subsequently changed. Oral traditions informed this study about the production and uses of various material cultures within the Zigua community, including issues of potting and uses of pottery, as well as cultural practices surrounding beads. Local people's knowledge was also integrated and useful in the identification of fish taxa in the recovered faunal assemblages; a significant contribution given the absence of reference collections for fish in the region. However, as for written texts,

oral traditions and histories needed to be approached critically, not least because some informants provided contradictory statements and views on some issues; a situation that needed cross-checking to ensure the reliability of this information. Indeed in some cases it became apparent that information provided by local informants had itself been shaped or replaced by written texts; perhaps an inevitable situation as local people's memory of the deep past decreases with the passing of successive generations.

Therefore, this archaeological work undertaken was intended to supplement, cross-reference, and/or correct oral and written sources, and in so doing aimed to bring a new understanding of the caravan trade, and of how the economies of the local communities in the interior would have been transformed following their involvement in this expanding trade during the nineteenth century. Indeed, as discussed below, the new archaeological findings obtained by this study demonstrate that archaeology is capable of making a significant contribution to the picture presented by archival and oral sources. Consequently, this study acts to challenge the perception that historical archaeology "is a very expensive way of investigating something that was already well known" (e.g. Deetz 1991: 1). The following sections provide discussions of the archaeological findings – following the objectives set forth in Chapter 1.

7.3 Evidence for Settlements and Involvement in the 19th c. Caravan Trade

The foremost specific objective of this study was to recover archaeological evidence from a sample of settlements known to have been involved in the nineteenth-century caravan trade. Consequently, excavations carried at Ngombezi, Old Korogwe and Kwa Sigi recovered a variety of traces of human settlement on these islands (Chapter 4). To begin with, the large quantities of daub retrieved from all three sites clearly demonstrate the presence of built structures on the islands. At the main site of Ngombezi, at least two clear phases of house construction and their subsequent collapse are evident from thick layers of daub and postholes exposed during excavation. The alignments of the postholes encountered in all construction episodes at Ngombezi are suggestive of circular houses on this island. This observation is in agreement with the descriptions of the preferred traditional house forms of the Zigua as provided in the nineteenth-century accounts (e.g., Baumann 1891), in recent ethnographic studies of traditional Zigua houses (e.g., Lane 1997), and by oral historical evidence collected by this project from the study area. All houses at Ngombezi today, by contrast, are rectangular in form and typically follow the rural, Swahili or Zaramo commoner layout – a pattern that was

also observed by Lane in the early 1990s (pers. comm. June 2009). On the basis of this evidence, it would appear that the pre-nineteenth century traditional Zigua house form was not yet substantially altered during the height of the caravan trade as a consequence of increased exposure to coastal influence. Thus, the widespread adoption of rectangular house forms would have occurred more recently, quite possibly as a consequence of resettlement during the colonial era as a result of expanding contacts between coastal and inland communities - brought through trade and improved lines of communication as well as population mobility. Whether this was during the period of German or British rule is uncertain; however, and the topic might bear further research by involving additional archival and oral research combined with the study of historical photographs.

Although the calibration of the two radiocarbon dates obtained for Ngombezi main site present broad date ranges, they nevertheless correlate well with the dates of artefacts recovered from associated contexts. The radiocarbon dates thus suggest the earliest recorded deposits at Ngombezi date to the seventeenth or eighteenth century, whilst the collapse/abandonment of the second structure dates to the nineteenth century. More important here is that these dates accord well with the range of artefactual material recovered from this settlement, notably glass trade beads. Moreover, although some of the deposits in the Ngombezi main trench were radiocarbon dated, the broad typological similarities and distribution of cultural materials obtained from all three sites suggests that they may be regarded as broadly contemporary. The dating of these sites is also in general accordance with the limited historical sources that refer to them. The latter, however, tend to suggest that the occupation of the islands on the Pangani around Korogwe area by the Waruvu first took place in the nineteenth century, and as a defensive response to increased cattle raiding by neighbouring Loikop/Maasai, which is known from other sources to have begun in the early decades of the nineteenth century (Jennings 2005). The archaeological evidence from Ngombezi, however, suggests that settlement was rather earlier, which therefore calls into questioning the arguments previously forwarded to account for the creation of these island settlements. Indeed, this is one of the major contributions of this study.

Artefactual assemblages retrieved from the studied settlements are presented in Chapter 5. Local pottery dominates at all three sites. What is notable is that there are parallels with pottery recovered from areas of the Usambara Mountains immediately to the north, and also the South

Pare Mountains to the north-west (Soper 1967). An implication of this is that the Waruvu inhabitants of the studied island settlements interacted regularly with their neighbours resided on the mountains, as well as with the coastal caravans. Several models can be proposed to account for such interaction. The most obvious reason, perhaps, is that the presence of ceramic styles that appear to have originated in the Usambara and Pare mountains is that of trade and exchange. Historians of the region (e.g., Feierman 1974; Giblin 1992; Kimambo 1996) have argued that even prior to the expansion of the long distance caravan trade in the nineteenth century, communities occupying different ecological zones in the wider Pangani Basin held regular markets in certain strategically located villages, at which foodstuff and craft products, including pottery and iron objects were exchanged. The results of Walz's (2010) regional archaeological survey also support this view, and indicate that these exchange relationships, as well as exchange with coastal communities, have a much longer history than had previously been documented.

Oral historical evidence collected by this project from the study area revealed that local people are still aware of such markets, which existed until recently. Kilozo and Makinyumbi markets found in Mombo and Hale wards, respectively, were repeatedly reported by informants of this study to have been large markets where pots were sold. While Kilozo is reported to have been a point of interaction between the Zigua, Shambaa and Pare, the Makinyumbi market served the Zigua, Shambaa and Digo. Although interactions between communities in the Pangani Basin through such regular markets would, perhaps, have slowed down in the later part of the nineteenth century due to the increase in raiding and the slave trade (Lane 2011), slavery as well as other factors such as marriage exchanges and localised famines would also have encouraged population movements, thereby contributing to the spread of material culture styles across the region.

More specifically, Cameron (2008) argues that movements of captives across the landscape can play a significant role in the transmission of cultural practices and eventual culture change. She is of the view that in societies where captives are married, adopted, or fully integrated into their captor's society, they tend not to forget their origins. Cameron cites a range of case studies from Africa (e.g., Harm 1983), North America Southeast (e.g., Anderson 1994), and Europe (e.g., Peterson 1982) to demonstrate that in some societies captives may even introduce new technical skills and/or artefactual styles to their captor's culture. These studies found that in

many cases talented captives were even allowed to become involved in the production of craft goods and other ceremonial objects, which sometimes were used by their owners and masters to enhance their own wealth (*ibid.*). Since it is well known from historical accounts (e.g., Burton and Speke 1858; Krapf 1860; New 1874; Johnston 1879; Feierman 1974; Giblin 1992; Kimambo 1996) that the Pangani River Basin was ‘fluid’ in terms of population movements during the nineteenth century due to factors such as trade, slave raiding and wars, there is a possibility that such factors would have equally contributed to the spread of material culture styles across the region. On the basis of the discussion provided above, consequently, one big lesson gained from this study is that it is difficult sometimes to rely on pottery identifying and defining ethnic groups, especially in border areas (such as Korogwe) where several ethnic groups converge.

Apart from pottery, the presence of bivalve shell beads and cowry shells at the studied sites also signify the existence of trade relations between the studied settlements and coastal communities. Researchers who have worked along the coastal sites of East Africa such as Kilwa, Mafia, Manda, Shanga and on Pemba island (e.g., Chittick 1966, 1974a, 1974b; Chami 1994; Horton 1996; Flexner *et al.* 2008) have frequently encountered shell beads in the earliest levels that date to between the seventh and twelfth centuries. These studies indicate that in the lower deposits at the sites they excavated glass beads were extremely rare. Similarly, although we are dealing here with much later sites and assemblages, a similar trend was noted at all three sites. Specifically, as discussed in Chapter 5, the highest concentrations of bivalve shell beads at all three sites were in the lower layers. In these layers, European glass beads were either completely missing or found in very small quantities.

So far, the implication gained from the discussion above is that the studied island settlements on the Pangani were already established long time before the expansion of the nineteenth-century caravan trade. Of particular note is that over 99 percent of the glass beads recovered from the study area is hand drawn and typically either cylindrical or barrel-shaped. According to bead analysts (e.g., van der Sleen 1967; Brain 1979; Wood 2000, 2005; DeCorse *et al.* 2003), such features are characteristic of European glass beads that were manufactured prior to the 1900s, most of which were made in Venice. Also, these island communities were not isolated; instead, they were already connected in a web of regional systems of trade and exchange that had already been developed well before to the nineteenth century. This is indicated by a range

of artefactual evidence, notably pottery, shell beads and cowry shells, and is given further support by the results obtained by other researchers (e.g., Soper 1967; Walz's 2010) who have surveyed the region.

To explore this point further, the ensuing discussion focuses on the glass trade beads. As presented in Chapter 5, these beads were a later introduction at the studied settlements. Thus, their first appearance at these sites could be considered as marking the start of their engagement in the long distance caravan trade. Kimura and Shenkere (2009) assert that European beads first appeared in Africa in the seventeenth century. Historical sources indicate that glass beads were part of cargoes brought into East Africa during the nineteenth century, and were used in the interior as currency - mainly for acquiring provisions along the trade routes. In some cases, the beads were used for acquiring slaves and ivory. Primary historical sources (e.g., Burton and Speke 1858; Burton 1860; Stanley 2006) and secondary sources (e.g., Harding 1962; Prestholdt 2004; Pallaver 2009) have shown that different types of glass beads were valued differently between places, and this was determined mainly by their colour and shape. These sources point out that local people's 'tastes' in glass beads also changed dramatically from time to time and across space. This situation, therefore, necessitated that coastal traders had to consult regularly with returning caravan leaders, traders and porters, about the kinds of beads being demanded by among the populations living in the interior, so that relevant orders could be placed with the points of manufacture and shipment (Prestholdt 2004).

The spatial-temporal distribution of different varieties of glass beads allow further interpretations and inferences to be drawn regarding the social and economic practices at the studied settlements during the nineteenth century. For example, the dominance of white cylindrical glass beads ('oyster white') at all three studied island settlements accord with the observations made by Richard Burton (1860) who in the nineteenth century noted that this variety was in more plentiful supply and was considered the least valuable. This means that those beads were affordable nearly everywhere (also see Kimura and Shenkere 2009: 377). Because cylindrical white glass beads dominate the lower levels at these settlements, this may suggest that initially the occupants of the studied settlements were passive participants in the emerging trading systems of the nineteenth century, essentially taking whatever was available to them. However, the later appearance of Indian red beads (said to be of the intermediate value)

could also suggest that over time inhabitants became more active participants in this trade, and were perhaps increasingly able to specify the bead variety or varieties they desired. Additionally, the later incorporation of other bead types could signify the widening inclusion of different varieties of European glass beads into local people's daily socio-economic and cultural practices, such as for personal adornment, ritual performances, and spirit-medium-ship (Chapter 4).

Ethnographic studies in Africa (e.g., Hallpike 1972; Stine *at al.* 1996; Kimura and Shenkere 2009), and oral historical evidence collected by this study (Chapter 5) indicate that different types of glass beads can serve different purposes. Beads are mostly worn by women and children and certain types have cultural and symbolic importance. In terms of personal adornments, beads, especially small annular ones are often used to make necklaces, bracelets, anklets, waist ornaments and rings (Kimura and Shenkere 2009). In Ethiopia among the Konso, for example, drawn blue-green beads are worn by women as necklaces, though the same may also be borrowed by the women's brothers to wear while attending ritual dances (*ibid.*). Additionally, it is reported that among the Konso, mothers and grandmothers wear drawn blue beads either in double or single strands, the number of strands indicating whether a women has both sons and daughters or either of the two (*ibid.*). On the other hand, while girls wear strands of beads around their waist, young boys wear a necklace of white beads or cowry shells (*ibid.*: 377). Thus, there are some similarities between the use of beads among the Konso and as documented ethnographically during this project among the Waruvu and the Zigua in general (Chapter 5).

Generally, it appears that there are three principal preferred colours of beads, namely white, red, and black, which have different connotations. The colour white has some implications with death as well as for warding off evil influences (Kimura and Shenkere 2009). As oral historical evidence of the current project revealed, this protective role may account for why young boys wear white necklaces. This role provides another explanation for the dominance of white beads in the studied bead assemblages. Specifically, because protection against evil forces is an ongoing requirement in the community, there would be a constant demand for this variety of bead. Regarding the colour red, Kimura and Shenkere (2009: 378) note that red often has associations with food such as meat and blood, and is thus considered a good colour. For example, among the Konso, Indian red-on-green beads have a direct association with

foods such as red sorghum. The positive evaluation of red coloured objects may thus account for in the popularity of red beads in bead assemblages (*ibid.*).

Although Halpike's (1972) study indicates that black beads can be associated with rain, this variety was not encountered in the study area. Additionally, local informants appeared not to be very familiar with black beads. Regrettably, local informants at the study area of this project were not knowledgeable about the possible uses of blue beads. However, Kimura and Shenkere (2009) observed this variety to have been used in ritual practices among the Konso of Ethiopia; thus, the two scholars argue that this variety was expected to be found very rarely in excavation. A similar observation on the use of blue beads is reported by Stine *et al.* (1996) who encountered them in several Afro-American sites, and argued that in these contexts they were being used as charms.

Archaeologists have been using the presence of imported glass trade beads and other trade items to gauge the wealth and economic standing of past communities and the degree of their participation in international trade networks (Wynne-Jones 2009). In the context of this project, since the approximate value and price of each variety of glass beads is known from nineteenth century records (e.g., Burton and Speke 1858; Burton 1860; Stanley 2006), it is possible to roughly rank the studied settlements. All three settlements appear to have had the cheapest beads (white cylinders) as well as moderately valued glass beads (Indian red). Of the three settlements, however, the most expensive bead variety, the *sam sam*, was recovered at Kwa Sigi only. Although the studied sample is small, it could suggest that the settlement of Kwa Sigi had a better economic standing than either Ngombezi or Old Korogwe. Furthermore, since it is well known that glass beads were obtained mainly through exchange for food provisions, it is also possible that more Kwa Sigi was better placed to supply the caravans than the other two settlements - although other factors such as the size of the caravan halt, political influence on trade, and actual proximity to the trade route, may also account for differential distribution of varieties of glass beads between settlements. Moreover, it needs to be recalled that Kwa Sigi is not singled out in the nineteenth-century sources as having been more prominent than either of the other two villages, so at this stage it would be wise to be cautious about inferring differences in economic status.

The main research question for this project was oriented towards the reconstruction of subsistence strategies, with particular focus on animal economies practised by communities

situated along the nineteenth century caravan trade routes in the Lower Pangani River Basin. Chapter 4 and the preceding discussion show that the archaeological records associated with this period were relatively well-preserved at all three studied sites. Indeed, the longest dated sequence encountered at Ngombezi was helpful for examining the nature of the animal economy practiced during both the period before and after the introduction of European glass beads at these sites, and hence for tracking whether there were changes to these as the settlements became more intimately involved in the nineteenth century trade network. The discussion that follows picks up on these points.

7.4 Animal Economy Practiced at the Caravan Halt Settlements

7.4.1 Species Consumed: composition and comparison

Inventories of animal species consumed at the studied settlements have been presented in Chapter 6, which shows that at all three sites both domestic and wild animals were all being consumed consistently. At Ngombezi and Old Korogwe where the longest archaeological sequences were encountered, such a mixed consumption of wild and domestic resources is evident from the time when these settlements were first inhabited until their abandonment. **Figure 7.1** compares the proportions of terrestrial domestic and wild animal species consumed at Ngombezi main site during three phases of the occupation of this settlement. The figure indicates that in each phase domestic species comprise approximately two-thirds while the non-domestic component (fish excluded) forms one-third of the faunas consumed.

A further break down of species consumed (both domestic and wild species) per phase of the Ngombezi settlement is provided in **Figure 7.2**. While domesticates consumed were chicken, caprines and cattle, the wild component comprised mainly rodents, antelopes (especially of the medium size), and elephant shrews; yet, other species are represented but in much less abundance. Fish also formed an important dietary component at all these settlements (see Chapter 6). Following the composition of domestic and non-domestic species (e.g., see Figures 7.1 and 7.2 for Ngombezi main site), the most important question is to determine between the two (domestication and hunting), which one was the main economic base of the community studied. To address this question, the current study adopts the approach used by Gifford-Gonzalez *et al.* (1980) and Prendergast and Mutundu (2009), with regard to their investigation of much earlier transitions from hunting to herding in eastern Africa. These authors argue that

it is not simply the presence of domestic stock but their relative abundance compared with wild taxa at archaeological site that is the best indicator of the importance of herding (*ibid.*).

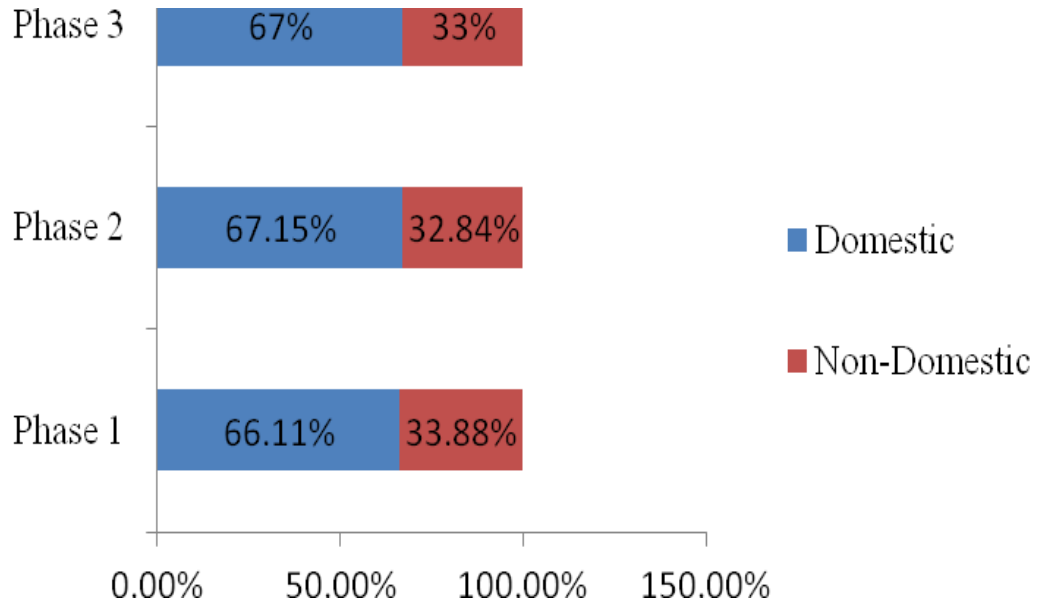


Figure 7.1: Composition of domestic and wild animal species per phase of settlement occupation, Ngombezi main site.

As shown in Chapter 6, the proportions of domestic stock *vs.* terrestrial wild species at Ngombezi, Old Korogwe and Kwa Sigi are generally high. Such compositions imply that these societies were largely reliant on herding, probably coupled with crop cultivation as historical accounts reveal (although the archaeological evidence for crop cultivation has yet to be studied). Yet, at these communities, hunting and fishing supplemented significantly the meat supply. The following section discusses these two major groups of animals consumed at these settlements, beginning with the domestic animals and then the wild species.

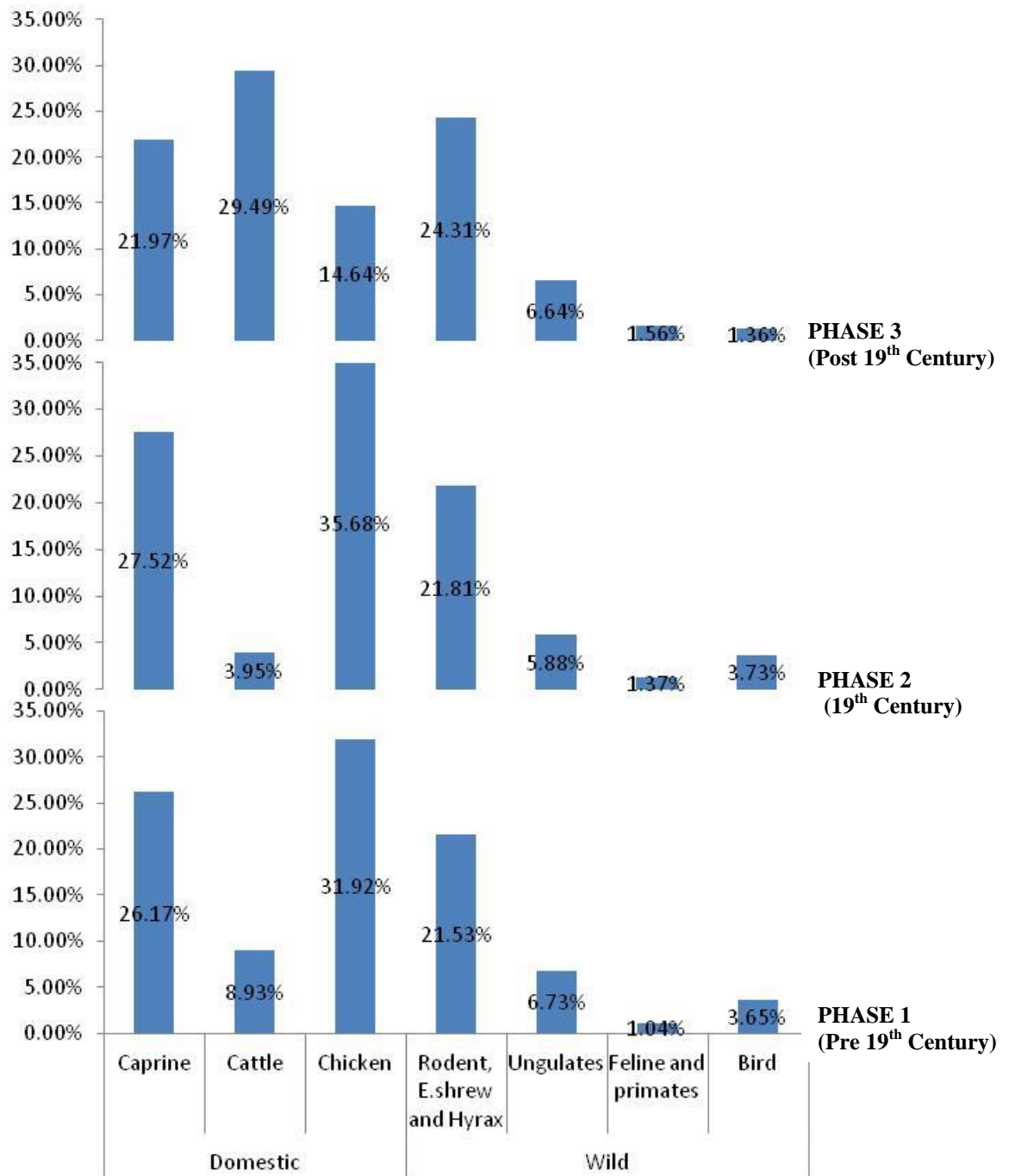


Figure 7.2: Comparison between domestic and wild animal species showing their contribution to the overall diet for each of the settlement phases at Ngombezi.

7.4.2. Domestic Stock

Chicken, sheep/goat and cattle are three domestic stocks raised and consumed at the studied caravan halt settlements. The contribution of each of these in the diet at each site has been presented in Chapter 6. The discussion that follows focuses more on each of these – attempting to address key zooarchaeological questions set for this study. To start with, the avian stock (chicken) is discussed before mammalian stock (cattle and sheep/goat).

The contribution of chickens to diets has generally been neglected in many archaeological studies that focus on the recent past, perhaps because it is assumed that chicken are not valued to the same extent as mammalian stock such as sheep, goat, and cattle in most societies. This study, however, revealed significant consumption of chicken at all three settlements. As an African scholar, the scale of this dietary contribution was not unexpected. In many parts of Africa, it is common to find chicken in almost every household, especially in rural areas. Unlike other mammalian stock, chickens are an important instant supply of meat in the event of an unexpected shortage of the savoury component of a meal, especially when a family receives a guest or guests unexpectedly. Chickens are also less expensive to keep because they do not occupy or need large amounts of space, and in several contemporary African households, chickens sleep all over the house, including under the bed. Chickens roam around and feed themselves, and unlike mammalian stock, they always seem to survive even during periods of drought and famine. Because chickens reproduce quickly, they can also withstand a high off-take rate. A note needs to be made that the contribution of chicken in the diet comes from the meat itself as well as eggs. Richard Burton (1859) indicates that chickens were also part of the provisions obtained along the caravan trade routes through exchange for glass beads. It is likely therefore that a proportion of the glass beads introduced to the studied settlements were obtained through exchange for chickens.

As stated above, the studied assemblages revealed the dominance of domestic faunas – suggesting that herding was the main undertaking at these sites rather than hunting. Yet, one key question needs to be addressed on whether these animals were herded by the inhabitants of these settlements or whether they were acquired from neighbouring pastoral communities such as the Maasai for immediate consumption. This is important because studies in East Africa have shown that domestic stock may be acquired by farming communities from pastoralists in exchange for services, but typically through trade, and also even through theft

(Mutundu 1999:54). In addressing this issue, two lines of evidence are used: one involving the study of the mortality profiles of domestic stock, and second by examining the body parts and elements representations in the assemblages (*ibid.*).

Faunal analysts (e.g., Gifford-Gonzalez *et al.* 1980; Marshall 1990b; Marean 1992; Mutundu 1999) have indicated that age profiles are useful in distinguishing archaeological faunal associated with the acquisition of animals through exchange from those associated with herding; the former being more restricted than the latter. This study reconstructed the age profiles for both cattle and caprines, and as discussed below, the culling patterns suggest that these animals were managed primarily for sustaining herd growth. This indicates that cattle and caprines were herded at the studied settlements. Once again, it has been argued that primary access to domestic animals is often indicated by a skeletal representation that includes both high and low utility parts (*ibid.*). This is true for the studied assemblages as both high utility parts (e.g., scapulae and upper limbs) and low utility parts (e.g., lower limbs and metapodials) were consistently represented in the faunal assemblages for both cattle and caprines - suggesting primary access to these animals. But *why* and *how* domestic animals were being managed? These issues are explored in the following sections.

7.4.2.1 Herd Management Strategies and Culling Practices

Zooarchaeologists reconstruct age profiles of domestic herds such as those of cattle and caprines in order to infer herd management strategies and the culling practices followed by the herders (Reid 1996). To serve similar purposes, this study reconstructed age profiles for cattle and caprines by using a large sample of faunal specimens from the main trench at Ngombezi. For cattle, long bone elements were used, while for caprines both long bones and dental materials were studied (Chapter 6). Patterns of epiphyseal fusion for cattle suggest more than half of the animals died at an adult age and over 36 months. As with cattle, over 60 percent of caprines were allowed to survive up to over two years, a majority reaching their adult and aged stages. The foremost implication that can be drawn from such patterns is that culling practices were in operation at Ngombezi rather than natural mortality, with a higher proportion of animals being killed either in their middle ages or towards the end of their lifespan.

The age profile for cattle also suggests that possibly some adult cattle died away from the site, that is, they were consumed where they died. This can be proposed because there was an observed tendency for the proportion of fused to unfused long bone epiphyses for cattle to

increase from the younger to the old age cohorts. Theoretically, this is unexpected unless some long bone elements that might have been used for age estimation were missing due to preservation bias. This, however, is unlikely to be the case because the fragile bones of young animals were found to be as equally well-preserved as those from older individuals. Alternatively, such an under-representation of some long bone elements of cattle might be explained in terms of spatial differentiation of refuse disposal on the site, that is, some of these elements did not find their way into the midden samples investigated as part of this project. Differential access to meat from differently aged animals may therefore result in uneven spatial distributions of elements from younger and older animals. This has been observed as well by Caroline Thorp (1995) with reference to faunal material from Zimbabwe Tradition sites, leading her to argue that such patterning may arise where elites have access to the tender meat of young animals, while the poor have to make do with the meat from older animals. Similar observations have been reported by Reid (1996, 2004) who notices that the social and political stratifications within a society can be reflected in animal exploitation patterns.

In order to interpret the nineteenth century herd management practices in the Lower Pangani River Basin, it is instructive to compare the studied material with the practices seen among the contemporary agro-pastoralists in Africa. To do so, this study benefited from detailed information concerning agro-pastoral herd management practices, including herd sizes, their age and sex structure, as well as resources obtained from domesticates. This information has been collected by agricultural economists, socio-cultural anthropologists and veterinarians (e.g., Bishop 1974; Doran *et al.* 1979; Barret 1991). Nonetheless, this study acknowledges that there are inherent difficulties in gauging how representative existing studies might be of any given area, and how exactly comparable recent agro-pastoralist herd management practices are, to those followed even in the relatively recent past, owing to the likely influence on the former over time, by changes to the cash economy, land use, patterns of disease control, climate and security.

Studies among modern traditional agro-pastoralists societies in eastern and southern Africa have shown that cattle are typically regarded as a 'store of wealth' (de Wilde 1967; Lele 1975). In due regard, cattle are managed for herd growth and continuity, and only secondarily for the production of large quantities of milk, blood, and meat (Doran 1979). Therefore, several communities would regard cattle as a kind of 'savings account' from which 'withdrawals'

(marked by the slaughter or disposal of an individual) are made only for special social or ceremonial occasions, or for emergency needs such as payment of school fees whenever other means of earning cash have failed (*ibid.*). Bishop (1974) for example, noted that Swazi cattle are not sold for slaughter below the age of three years, and that the majority are marketed when they have exceeded five years of age.

In connection with the 'store of wealth' concept, Doran and his colleagues (1979: 42) came up with five propositions concerning herd management practices among agro-pastoralists societies in Africa. They argue that: 1) if cattle must be sold to meet specific cash needs, the minimum number will be sold; 2) factors that increase the market value of cattle will enable the owner to meet his/her cash needs by selling fewer animals; 3) a cattle owner may thus be interested in improved production and hence will seek the highest priced markets precisely because this means that s/he can sell fewer cattle and thereby maximise his/her relative wealth; 4) when the risk attached to holding wealth in the form of drought, stockowners will become more willing to sell; and finally, 5) cattle sales will tend to increase during times of low rainfall in order to compensate for crop failure. These propositions seem to suggest that cattle off-take is related inversely to cattle price and rainfall. Thus, under normal circumstances, herds would always be made up of large proportions of adult females. In such a management regime, more food is contributed to human subsistence through milk and blood rather than meat.

There are two major culling strategies consistent with a pattern of herd management for growth namely 'early off-take' and 'late off-take' strategies (Dahl and Hjort 1976; Meadow and White 1979; Reid 1996). Early off-take involves slaughtering young male animals that are surplus to the growth needs of the herd when they are still calves. This happens particularly when resources are in short supply and male calves are competing with valuable female calves for milk; and with female cattle for forage (*ibid.*). With a late off-take strategy, younger males surplus to the growth needs of the herd are slaughtered when they are close to maximum body weight, which is commonly attained, for example, by East African zebu, at about forty months (Dahl and Hjort 1976). At this body weight the greatest food gains of both blood and meat are attained (*ibid.*).

How might these observations help to interpret the faunal assemblages of the current study? Because the studied assemblages do not consist of neonates (calves), it is possible that a late off-take strategy was commonly practiced at the studied settlements, rather than early off-take.

Given that animals aged between 1 and 2 years are underrepresented in the studied fauna it is quite possible that a late off-take strategy was practiced. Indeed, it seems quite likely that an appreciable amount of animals of this group were being killed away from the study sites; an interpretation that accords well with the nineteenth-century travelers who saw livestock being driven from the Ruvu Valley (the study area) for sale in coastal towns of Tanga, Pangani and Saadani (e.g., Burton and Speke 1858: 199; Johnston 1879: 546).

This is to say, if the interpretation made above is correct, it is safe to suggest that the majority of the cattle materials in the studied sample belonged to older cows (i.e. female cattle) that were culled when they were no longer productive. Elsewhere in the region, studies among the Turkana pastoralists have shown that infertile cows may be culled in their sixth or seventh year, while fertile cows may only be slaughtered at their thirteenth year (Dyson and Dyson 1982). Future verification of this argument would need to find ways to accurately identify the sex of the archaeological fauna; until this can be done, the proposition above must be considered unproven.

For caprines, their age structure is presented in Chapter 6. As well this has been compared with the expected mortality derived from death rates for modern caprines in East African pastoral herds (Dahl and Hjort 1976). And based on this comparison, it appears that the age categories for caprines in the Ngombezi sample differ considerably from those expected through natural mortality. While the natural mortality for the reproductive age class (between 12 and 48 months) is expected to be less than 26 percent (*ibid.*), the studied dental sample and long bone epiphyses show the rates of 82 percent and 76 percent, respectively. This suggests, as with cattle, the Ngombezi caprine mortality derived from culling practices rather than from natural mortality.

As for cattle, most of the small stock herds among contemporary East African pastoralists are managed primarily for growth. Spencer (1973) reports that the growth rates for small-stock herds are very high, ranging from 18 to 40 percent per annum. He observes that among the Samburu small-stock herds grow four times as fast as cattle herds, and an off-take rate of 16 percent a year is normal for small stock. However, he noted that if females surplus to herd growth needs are slaughtered along with old females, the off-take may only be as high as 32 percent (*ibid.*). Dahl and Hjort (1976), report that the usual pattern of pastoral small-stock management is to maximize off-take for meat, thus allowing males for slaughter to reach fully

maturity. However, these authors also note that if grazing or meat is in short supply, males may be slaughtered at younger ages (*ibid.*). In their study, Wilson *et al.* (1981) noted that the majority of males in Maasai herds in Kajiado district (Kenya) are killed on reaching their maximum weight at about 36 months, while very few females over five years old are kept in the herd. By reserving female stock, the Maasai can ensure increased multiplication of animal herds.

The study by Wilson and his colleagues (1981) in Kajiado district indicates that the growth rate of female caprines declines fairly rapidly after first parturition, while males tend to stop increasing in weight at maturity about three years old. This study also revealed that castrates continue to gain weight after full body size has been reached -owing to the deposition of fat. As with the cattle sample the sex of the caprines in the studied faunal assemblages was not determined. Nonetheless, the number of adult sheep and goats at the sites may indicate a pattern of taking older and heavier animals, presumably males. If so, this would indicate a relatively low stress situation since these animals were left to grow.

However, the very fast growth rate of small-stock, combined with their small size, results in them being slaughtered much more commonly than large stock (Marshall 1990a: 236). As discussed above, small stock is often slaughtered for guests, for meat, as well as in ceremonial contexts, but they appear to have less ritual and social value than cattle (Gulliver 1955; Arhem and Rodgers 1981). According to Schneider (1979), among East African pastoralists, small-stock may be exchanged for goods such as grain, pottery or wild animal products. Dahl and Hjort (1976) note that small-stock herds have also been used to build up cattle herds after a drought because caprine herds increase much more quickly, and once herds have recovered, surplus stock can be exchanged for cattle.

In summing up, the general patterns of herd management at the study area, as reconstructed (from a large sample of aging material from Ngombezi main site) is suggestive of those of modern agro-pastoralists in a relatively unstressed situation. There are similar off-take patterns for cattle and caprines at these sites since the animals slaughtered were principally adults and a few were young adults. With unstressed situation, therefore, male animals were left to attain the maximum weight before slaughtered, while females were left to increase the herd size until when they reached their unproductive ages.

In terms of herding techniques, unfortunately very limited clues are provided in the historical sources about nineteenth-century herding techniques in the Lower Pangani. However, modern herding techniques may provide some insights regarding the nineteenth-century practices. Badenhorst (2008: 217) indicates that many contemporary pastoralists in Africa would divide and aggregate livestock herds and flocks according to age, sex, species and/or productivity. He argues that this helps to reduce competition for food between livestock, increases niche utilisation and takes full advantage of feed resources (*ibid.*). An alternative explanation for this is given by Niamir (1991: 2-3) who argues that herd and flock splitting in Africa is due to a lack of herders to look after the animals.

As cited in Badenhorst (2008: 218), Coppolillo (2000) observed among the Sukuma of Tanzania that adult cattle herds are tended during the day, whereas caprines and calves are left untended around villages during day time. On the other hand, Badenhorst (2008: 217) notes that the Datoga of Tanzania herd calves with caprines, and adult cattle with donkeys. Badenhorst is of the view that these herding groups are not static as the composition may vary according to season, available grazing and water, and the age structure of animals. Sieff (1997) observed among the Datoga as well, that some herds/flocks may remain in proximity to the household, while others may be herded far away at outposts.

It is therefore possible that, one or a combination of the discussed approaches above would have been used for herding cattle and caprines in the Lower Pangani River Basin. However, with regard to the island settlements, the nineteenth century written account by Oscar Baumann (1891) indicates that mammalian stocks were taken to cross the Pangani River daily for grazing outside the islands, and that they were returned back home during the evening. With this, it is possible therefore, to speculate that only adult and young adult animals were involved in crossing the river. This implies further that calves would have been left on the island for grazing, either under the care of a family member or not.

7.4.3 Wild Animals Consumed and Hunting Techniques

Based on the present day local environment surrounding the study sites, a wide range of wild animal species would seem to have been available for exploitation by the inhabitants. The available habitats around the sites include open grassland, wooded grassland, savannah woodland, montane forest, and river edges and marshes, and all would have been home to several wild species (see **Table 7.1**). The relative importance of the latter zones (i.e., riparian

vegetation and marshes) is reflected in the faunal assemblage. Essentially, the Pangani River and its tributaries probably offered positive affordances to a variety of wild animals because of readily available water and nutritious riparian vegetation throughout the year. All these factors would have attracted wild game to the environments where human settlements were situated. It has been shown in Chapter 6 that the studied assemblages are all dominated by small sized animals, specifically rodents and elephant shrews. These are followed by the medium sized antelopes, and then a few large ungulates. The following discussion on the dietary contribution of wild species thus centres largely on these major groups.

7.4.3.1 Small Mammals and Dietary Contribution

Small mammals, especially rodents form the majority of the mammalian wild taxa consumed at all three settlements. Taken together, small mammals (rodents, elephant shrews and hyrax) form 67.14%, 89.9%, and 82.7% of the wild mammalian component at Ngombezi, Old Korogwe, and Kwa Sigi, respectively. This is a very significant contribution of small mammalian fauna, and is the largest ratio ever reported from archaeological research in East Africa. Indeed, this finding was unexpected in this study; therefore, this aspect warrants more discussion.

Probably one of the most intriguing questions concerns the domination of rodents in the studied wild faunal assemblages. This study speculates that one of the reasons could be the presence of habitats and environments near the study sites that would have attracted them, and so enhanced their availability and abundance. With regard to this, there are various studies on rodents (e.g., Baptist and Mensah 1986; Lynwood 1994; Jori *et al.* 1994) that have indicated that these animals are commonly available in great abundance in natural and culturally modified settings. For example, grasscutters - the most abundant rodent species in the studied assemblages across all three sites - are reported to prefer areas near rivers and streams or marshes because in these areas a range of edible plants (such as grasses, herbaceous legumes and tuber crops) are available (*ibid.*).

Table 7.1: Habitats of Mammalian Species Identified

<i>COMMON NAME</i>	<i>NGO</i>	<i>OK</i>	<i>KS</i>	<i>HABITAT AND FEEDING STRATEGIES</i>
Black rat	6	7	1	Around human habitations (Omnivore)
Cane rat	816	157	44	Near river/marshes/streams (for greater species), dry ground in moist savannah or grassland (for lesser species) (Mixed –grazing and omnivore)
Giant rat	130	6	9	Variety of savannah habitats e.g., abandoned farms (Omnivore)
Common Duiker	175	24	12	All habitats except rainforests and deserts (Browser)
Grant gazelle	31	3	-	Mixed shrub woodlands and savannah plains (Mixed-herbivore, grazing, browsing).
Hartebeest	23	1	-	Savannah woodland and grassland (Grazers)
Impala	63	8	2	Savannah woodland with light bush (Mixed-browsers, grazers).
Suni/Dikdik	11	2	2	Woodland/forest ecotone (Browser)
Buffalo	3	-	3	Open woodlands, needs shade (Grazer)
Elephant	1	-	-	Lowland forest (Mixed)
Cat	8	-	-	Human settlement (Carnivorous)
Dog	1	-	-	Human settlement (Carnivorous)
Mongoose	19	2	1	River edge/ marshes (Carnivorous)
Civets	11	-	-	Savannahs (Carnivorous)
Baboon	2	-	-	Savanna and semi-arid habitats (Mixed –omnivorous, carnivorous)
Monkey	13	-	-	Woodland along streams, rivers and lakes (Mixed – omnivorous, carnivorous)
Elephant shrew	228	22	10	Variety of habitats – semi desert, savannahs and coastal rainforest (Insectivorous)
Bush pig (Suid)	32	13	2	Forest, thicket, dense riverine growth (Omnivorous)
Hyrax	15	1	2	Dry savannah to dense rainforest (Herbivorous)
Aardvark	7	-	-	Dry and wet climate –nocturnal animal (Insectivorous)
Equid (Zebra)	6	-	-	Savannah grassland (Grazer)
Monitor Lizard	1	-	-	Kopjes
Tortoise	1	1	-	Valleys, open grassland and kopjes
Roan	2	1	-	Savannah woodland, mixed bush and grasslands (Mixed – browser, grazer)
Warthogs	-	-	-	Savannah woodland and open forests (Grazer)
Reedbuck	-	7	-	Tall grass and reed beds near water (Grazer)
Porcupine	1	-	-	Most habitats especially hilly/rocky (Herbivorous)

Note Abbreviations: NGO =Ngombezi; OK =Old Korogwe; KS=Kwa Sigi

Furthermore, it is argued that rodents are adaptive to newly deforested areas where food and commercial crops are grown, as well as to secondary savannahs formed as a result of deforestation (*ibid.*). Generally, their abundance, in comparison with other members of the local fauna, may thus be accentuated in areas of human activities in the form of land clearance, as well as the cultivation of crop plants, which may further aid in attracting them to areas of settlement (Martin *et al.* 1961; Linares 1976; Stahl 1978; Rea 1979:10). Additionally, Stahl (1982) argues that since rodents are usually found in runways immediately beneath the ground or on ground surface, this facilitates their capture.

Secondly, the dominance of smaller mammals in the studied faunal assemblages can be explained in terms of the differences in butchery practices used to process smaller and larger mammals as it has been reported by some archaeologists (e.g., Brain 1981; Musonda 1991). It is shown in Chapter 6, for instance, that the skeletal elements of small sized animals exhibit fewer signs of processing compared to those from medium and large sized animals. According to anthropological interpretations, larger animals are subjected to heavy butchery for various reasons including the ease of carrying large dismembered mammal carcasses, and the slicing up of large sized elements to fit into cooking pots (Mutundu 1999: 52). Consequently, most of the smaller mammals' skeletal elements are likely to survive and be positively identified because they have been less subjected to heavy processing. Additionally, studies have shown that smaller animals can be carried intact to human settlements for consumption without any transport constraints (e.g., Brain 1981 and Mutundu 1999). Thus, eventually a large portion (if not the whole carcass) of small sized animals would usually reach residential sites (see also Bunn *et al.* 1988; O'Connell *et al.* 1988 with reference to hunter-gatherers proper).

The third reason for the dominance of rodents is related to biological aspects of these animals. It is noteworthy that smaller mammals such as rodents and elephant shrews have a higher reproduction rate than larger species, and therefore can quickly replace their population size even in situations of high exploitation (Jardin 1970; Den Hartog and de Vos 1973; Stahl 1982; Walker 1995:45). This factor may explain why rodents did not seem to decline in terms of their exploitation from the time when these settlements were established until their abandonment. As shown in Figure 7.2, the quantity of these animals remained stable during all three phases of the settlement occupation and contributed significantly to the diet (just over 20 percent in each phase).

But what do we know about the consumption of rodents by contemporary communities in Africa? The dietary contribution of rodents to modern populations, especially in Africa has been well studied. It has been reported that in Africa rodents are a significant source of food and animal protein for humans, and are appreciated for their palatability (Ajayi and Olawoye 1974; Ntiamoa Baidu 1998). Farmers in Africa hunt rodents for two main reasons, one is because they destroy their food crops, and the second is because rodents provide an alternative source of meat. A study by Assogbadjo and his colleagues (2005) on the importance of rodents as a human food source in Benin indicates that grasscutters (*Thryonomys swinderianus*) and giant rat (*Cricetomys gambianus*) are the most collected species by villagers near Lama Forest. Their study also found that more than 53 percent of the village population preferred rodent meat than the meat of other wild animals (*ibid.*). Following these findings on the dietary contribution of rodents, the authors remind us that in order to understand the contribution of wildlife to the food of local populations in villages we must not focus only on the big game (*ibid.*).

A study in West Africa by Malaisse (1997), reports that the nutritional value of rodents is similar to that of beef and chicken. The author notes as well-that, due to higher reproduction rates, many rodent species populations are able to cope with recurrent hunting without extinction (*ibid.*). In due regard, Malaisse argues that the consumption of rodents, especially grasscutters and giant rats by the modern African population does not always signify subsistence stress (*ibid.*), a view shared by local people in areas around the study sites - as collected through oral - historical interviews during this study. The observations presented above concerning rodents could generally apply as well in explaining the cultural contexts of rodents in the studied faunal assemblages at the three caravan halt settlements investigated as part of this project.

Elsewhere Peter Stahl (1982) notes that the contribution of small mammals to prehistoric diet has generally been underestimated in archaeological studies even in cases where their remains are fairly well represented. In his review paper titled *On Small Mammal Remains in Archaeological Context*, Stahl argues that the dietary contribution of small mammals has been constantly overshadowed by larger mammals, with several scholars referring to them as “remote” (citing Munson *et al.* 1971:419) or "a nuisance rather than an actual source of food itself" (citing Parmalee *et al.* 1972:37). Stahl provides two lines of arguments to suggest that small mammals, especially of the *Orders Insectivora* and *Rodentia* [such as rodents and elephant shrews] may have

been important elements in prehistoric diet. His first argument is built on his analysis of a number of dissected specimens of these mammals, which showed a consistently high ratio of edible meat to total weight, suggesting that approximately 67 to 76 percent of the live weight for species of these sizes is edible (1982: 827). Still, Stahl is optimistic that this figure can be revised upwards in cases where small specimens could have been consumed whole. Secondly, Stahl is of the view that the abundance of such animals under natural conditions, compounded by their artificial increase in areas associated with human activity, is another factor in support of their potential value in prehistoric diet (*ibid.*).

This study recovered remains of black rat (*Rattus rattus*) as well. The possibility that black rats could have died naturally at the sites rather than being human food refuse has been considered by this study. Indeed, the frequency of black rat in the assemblages is too low for them to be considered to have been a regular part of the food brought to the sites for human consumption. Additionally, this assertion is also supported by the fact that none of the black rat bone was found to have any cut or burning marks. However, this does not deny the fact that rats and mice have long been consumed by humans. Juwayeyi (2008) has shown that in Malawi these are often consumed by humans, and that they are captured usually by boys who dig or smoke them out of their burrows. Juwayeyi asserts that because rats always live in large colonies, at any one time they can be captured in great abundance, and can therefore contribute enough meat for human consumption (*ibid.*).

7.4.3.2 Medium and Large Sized Wild Mammals

The vast wooded grassland west and south of present day Korogwe Town would have been home to a wide range of medium sized species such as impala, warthog, gazelle, zebra, roan, reedbuck, aardvark and hartebeest. It should also be considered that at the time the sites were occupied, and prior to the expansion of human population and activities such as cultivation and deforestation, some animals that are now rare or absent in areas surrounding the study sites, are likely to have been present and even abundant. It is also possible that the movement of several of these wild species would have been constrained following the establishment of the Saadani National Park (1966), which is located about 120 km south East of Korogwe.

As most of the wild ungulates present in the assemblages were identified largely from their postcranial elements, the rarity of their cranial material could be due to their dietary insignificance as the cranial elements contain little meat. As cited in Juwayeyi (2008), Perkins

and Daly (1968) argue that after a kill and initial butchering of a carcass, hunters are likely to take back to their residence only the meaty parts from these bones, including the tongue. However, one surprising outcome of this study was the large number of phalanges and metapodials from medium sized ungulates represented, since these also have little meat on them. Oral information collected in areas around the study sites pointed out that after killing an animal, hunters would remove the head and give it straight to the hunting dogs that accompanied them. This could be another reason why cranial elements of wild animals are underrepresented. With regard to the overrepresentation of phalanges and lower limb bones, this might be because, as Brain (1981) has argued, in dismembering carcasses for easy transport back to a home base or settlement, the lower limbs and phalanges are often retained to act as handles attached to the skin in which the rest of the carcass is wrapped.

The wild mega fauna (of cattle size and above) in the studied faunal assemblages include elephant (only 1 specimen from Ngombezi) and buffalo (6 specimens in total from Ngombezi and Kwa Sigi). This suggests that such large animals were rarely consumed at these settlements compared to small and medium sized animals. The most likely explanation is that such big game was scarcely found for hunting in areas around the study sites. Their scarcity around the study area in the nineteenth century could have been due to the expansion of human settlements in the area at the time. For example, while on his way marching from Tongwe to Usambara (to visit Chief Kimweri), Richard Burton commented on the lack of big game: “We were not fortunate enough to meet with a single specimen....None will live where the land is peopled” (1858: 207). However, the presence of an elephant tibia in the Ngombezi assemblage is indicative that elephants had not completely disappeared from this landscape when this deposit was formed. Isotope analysis completed on the tibia (Coutu 2011) revealed that this elephant was local to the region, as its isotope results were consistent with elephants roaming on geology and consuming vegetation in a habitat matching the Lower Pangani Basin. A few skeletal elements of buffalo at these sites may also suggest that these animals were intermittently available in nearby areas, and/ or some were hunted from distant areas for consumption. Due to the sparse element representation for both elephant and buffalo at both sites suggest that the kills could have been distributed among hunters and/ or between settlements.

With regard to hunting techniques, this is a specialised activity among many Bantu-speaking communities, and it involves skill in stalking routines, tactics, timing and a clear understanding of prey behaviour. As shown in **Table 7.1**, a range of wild animals exploited at the study sites have specific behavioral and spatial characteristics. Thus, hunting each of these species would have involved different tactics. For rodents, hunting techniques vary depending on the size of animal, vegetation, and season. The most likely hunting techniques that would have been used (as commonly seen today) include chasing them with dogs, trapping, and the use of bush fires (Asibey 1974; Lynwood 1994; Juwayayi 2008). Asibey (1974) reports that in West Africa grasscutters are commonly hunted by young people in small groups, and this involves lighting bush fires to disturb the animals and flush them from the bush, allowing them to be chased by dogs. On the other hand, giant rats are dug from their burrows with hoe after directing heavy smoke into their burrows to suffocate them (Juwayeyi 2008). Kingdon (1974) argues that smaller animals such as rodents, elephant shrews and several others can be hunted relatively easily because their movements are somewhat predictable. Unlike the medium and larger sized animals, the paths used by smaller animals are easily identified by footprints as well as dung deposits (*ibid.*).

As cited in Manyanga (2000: 88), Crader (1984) observes that in Africa small bushy species such as cane rats, elephant shrews, duikers, suni and dikdik, are often caught by using snares, traps and nooses. It is further argued that because the habitats of these animals impair their visibility, this allows their prey to follow their tracks easily (*ibid.*). Additionally, Walker (1995) suggests that smaller animal species are easy to trap because they tend to have restricted mobility, and their movements within small territories are traceable from the pattern of defecation middens. Oral traditions collected in the study area indicate that hunting of smaller animals can be undertaken by an individual or a group while also performing other activities in the bush, such as farming or grazing.

By contrast, medium and large sized animals such as gazelles, impala, and buffalo, are more gregarious, run faster, and their movement is less predictable (Mutundu 1999: 52). Studies among the Hadza in East Africa (e.g., Bunn *et al.* 1988; O'Connell *et al.* 1988) and the !Kung San of South Africa (e.g., Lee 1979) have shown that hunting these species is accomplished using bows and arrows, and often requires group effort in tracking and stalking. Some species such as elephants, bongo and buffalo are also known to be dangerous to hunt (Haltenorth and

Diller 1980). Unlike small animals, the medium sized and larger species found in open habitats would most likely have been hunted using projectile weapons such as arrows and spears, while the more gregarious ones would have been driven into traps. Koponen (1988: 252-5) provides a brief discussion of some of the hunting techniques as used in different parts of Tanganyika during the late pre-colonial era. As informants of the study areas repeatedly reported as well, in the past large pits were dug along animal trails and then sharpened sticks were driven into the bottom of the pit. The opening of the pit was then camouflaged with twigs and grass and thereafter animals were stampeded towards the pit, or hunters simply waited for animals to fall into the pit as they grazed or went to watering places. One additional source of information concerning nineteenth-century hunting techniques in the Lower Pangani River Basin comes from Oscar Baumann (1891) who briefly mentions that toward the end of the century guns were also being used to hunt larger animals.

7.4.4 Patterns of Consumption and Butchery Practices

The main source of evidence concerning butchery practices and animal consumption patterns at the studied settlements can be derived from: i) elements frequency and fragmentation, and ii) evidence of cut and burning marks. The latter is observable on the surfaces of the studied specimens. To further understand the patterns of bone surface modifications observed by this study, these are compared below with the results obtained by other researchers working on the faunal assemblages from other sites of eastern Africa, including studies by Marshall (1990a) on *Pastoral Neolithic* faunal assemblages from Ngamuriak in south-western Kenya, and by Mutundu (1999) on the late nineteenth- and early twentieth-century faunal assemblages associated with Mukogodo hunter-gatherers adopting herding in north-central Kenya.

With regard to elements frequency, this was only investigated for domestic stock, i.e., cattle and caprines (Chapter 6). Elements representation in the studied assemblages appear to reflect butchery and culinary practices rather than structural properties of bones, such as density, the relative times at which long-bone epiphyses fuse, and disarticulation rates. Generally, all three sites yielded higher proportions of caprine than cattle mandibles, maxillae and teeth. This situation is unlikely to be caused by preservation bias against cattle material. Instead, most likely this is due to human butchery and distribution practices. A similar situation was noted by Fiona Marshall in her study of the Ngamuriak faunal assemblage, an early pastoralist site in south-western Kenya (1990a). Marshall argues that cattle mandibles were likely to be broken

up to obtain marrow more frequently than those of caprines, and this would have affected the survival and elements frequencies (*ibid.*: 238). Alternatively, Marshall also acknowledges that differences in elements frequencies could be due to differences in the spatial location of butchery or carcass distribution practices between cattle and caprines at Ngamuriak, such that cattle cranial elements did not find their way into the main midden sample (*ibid.*).

Proportionally more caprine than cattle metapodials, phalanges and hind limbs, are also observed in the Ngombezi and Old Korogwe faunal assemblages. As with cranial elements, this probably reflects human butchery practices. At Ngamuriak and Lemek North East, Marshall (1990a) found cattle tarsals, metapodials and phalanges consistently present in proportions equal to or slightly greater than those expected from a whole carcass. Marshall attributed this to site function, concluding that these were settlement sites (*ibid.*: 238). At Sambo Ngige, another Pastoral Neolithic site in the same area, Marshall observed a higher proportion of cattle to caprine teeth and higher proportions of caprine to cattle tarsals, metapodials, phalanges and sesamoids. This prompted her to argue that this site was smaller and could have been a special activity ceremonial or meat-feasting site (*ibid.*). Generally, elements representation in the studied assemblage suggest that although differential preservation of different elements, the recovery rate and sampling of deposits are all factors which may influence elements frequencies in bone assemblage, in these cases they appear to have had insignificant impact. Since preservation bias against small animal bones is not evident, elements representation thus reflects normal culinary and butchery practices as it might be expected among agro-pastoralists, with more caprines than cattle being killed.

Cut marks and burning marks were investigated as another line of evidence in understanding the butchery and culinary practices of the nineteenth-century communities that inhabited the studied settlements. This involved examination of specimens of both domestic and wild species. This aspect of the study revealed that there are strong patterns in the studied assemblages from all three sites. A striking difference between smaller and larger animals was evident in terms of frequency, location, and intensity of cut marks. In the first place, cut marks appear to increase with an increase in animal size; the highest proportion occurring on bone elements of the medium and large-sized animals (size classes III and IV) rather than on those of smaller animals (sizes I and II). Most of the cut-marked bone elements of large sized animals are multiple and randomly oriented, while those occurring on bone elements of smaller

animals are single and perpendicular to the long axis of the bone. Several other studies of bone cut marks in eastern Africa (e.g., Bunn and Kroll 1986; Marshall 1990a; Mutundu 1999) have reported similar patterns, and these have been used to guide the interpretation of the studied assemblages.

For instance, Mutundu (1999: 57) notes that the location and intensity of cut marks on smaller mammal bones is consistent with cuts resulting from skinning or disarticulation of the carcass, while those occurring on large sized animals result from filleting. A similar observation is reported by Marshall (1986; 1990a) in her analysis of Pastoral Neolithic faunal assemblages, and she interpreted this trend to be the result of filleting of high meat bearing areas. A high incidence of cut marks on long bone shafts in large sized animals is also clearly noticeable in the studied faunal assemblages of this study - suggesting that these marks are also indicative of filleting. More generally, the results concerning the patterns of cut marks obtained by this study are consistent with those obtained by several other fauna analysts (e.g., Yellen 1991; Gifford-Gonzalez 1989; Marshall 1990a; Mutundu 1999) who have noted that there are differences in butchery patterns and culinary practices between smaller and larger sized animals. They argue that these differences must be taken into account when studying the patterns of frequency, location of cut marks, and their meaning in terms of human behaviour (*ibid.*).

The proportion of burnt bones in the studied assemblages was higher for smaller and medium sized animals than for large animals. The most commonly burnt elements for small animals were mandibles and limb ends, while for the medium-sized animals these were foot bones and phalanges. Marshall (1986) likewise found a similar pattern among the bovids in her Ngamuriak study. She recorded a higher proportion of burnt bone elements of small-sized compared with large-sized bovids. As in this study, she also recorded the highest incidence of burning on small bovids occurring on limb ends. Marshall commented that such a pattern results from filleting large animal limbs, while smaller animals would have been more frequently roasted with the meat on the bone (*ibid.*). Her observation is consistent with the burning of elephant shrew's mandibles and lower limb ends evident in the studied assemblages from all three sites. O'Connor attributes this to spit roasting, arguing that small sized animals like elephant shrews would have been thrown into fire to roast without being butchered (personal comm. May, 2010).

7.5 Summary and Conclusions

This study began as an investigation of the subsistence strategies of local communities situated along the main nineteenth-century caravan trade route that passed through the Lower Pangani River Basin, North-eastern Tanzania. The aim of the study was to examine a sample of historic archaeological sites that spanned the period prior to the expansion of the caravan trade in the late eighteenth century up to its decline in the early twentieth century. A key research question was whether the archaeological evidence indicated that the expansion of the caravan trade transformed local agronomic systems as many historians of the region have argued. Particular emphasis was given to evidence relating to animal economies, and whether these changed over time, since these are archaeologically accessible.

The study involved several processes: 1) an initial review of various historical accounts (both primary and secondary sources) about the nineteenth-century caravan trade in the Lower Pangani River Basin, 2) a subsequent archaeological survey of areas near Korogwe Town, aided by the use of oral information and relevant historical sources, aimed at locating sites that were involved in the nineteenth-century caravan trade, 3) the excavation of three such settlements – all situated on islands in the Pangani River – so as to recover suitable samples of faunal and artefactual material for analysis, 4) the collection of oral historical evidence from local people on various issues related to the topic under study, and 5) detailed analysis of the faunal and artefactual assemblages and their interpretation in the light of the main research questions and previous debates concerning the impact of the nineteenth-century caravan trade on local agronomies.

In summary, this study has made several contributions to the historical archaeology of East Africa, and Tanzania in particular. Specifically, it has managed to locate and undertake extensive excavations at three island settlements that served as caravan halts during the nineteenth century. These excavations uncovered features, structures, artefacts and a large assemblage of faunal remains. Taken together, the analysis of this data has added to current knowledge of this period of Tanzania's past, as illustrated in the following summary.

With regard to the first objective, uncovering the archaeological evidence of the settlements that were involved in the nineteenth-century caravan trade, excavation undertaken by this project uncovered features, structures, artefacts, and features – all these signifying the presence of human settlements on the studied islands (Chapters 4, 5, and 6). Of particular interest are

the cultural materials (and to some extent the radiocarbon dates) obtained from these sites, both of which clearly indicate that these island settlements were established by the late seventeenth century, or much earlier (also see Biginagwa 2009). This contradicts the nineteenth-century view (e.g., New 1874: 318; 1875: 416) that these Zigua (or Waruvu) island settlements were built only in response to Maasai raiding along the valley in the 1830s (for a similar argument, see also Walz 2010: 174). Therefore, this study has demonstrated how archaeology is a more reliable source in composing history - compared to other sources such as written and oral accounts.

The cultural materials suggest that even prior to the nineteenth century these island settlements had already been drawn into regional trade and exchange systems with neighbouring mountain communities such as the Shambaa and Pare, as well as with coastal towns such as Tanga, Pangani and Saadani. The wide distribution of specific cultural materials, notably local pottery, bivalve marine shell beads and cowry shells, provide the main basis for this assertion. Indeed, this assertion accords with the historical writings by Kimambo (1996) that during the nineteenth century, especially before the intensification of the caravan trade, communities of different ecological zones in the region were in a constant interaction in terms of trade and exchange.

As the material evidence presented and discussed in Chapter 5, eventually these settlements were incorporated into a larger trade network that linked them with communities further into the interior, with the Swahili dominated towns along the coast and on Zanzibar, and ultimately with the Atlantic world. The evidence for this is the later introduction to these sites of the imported trade items such glass beads, and muskets, and probably several other items that do not survive longer in the archaeological record, such as cloth. However, at none of the excavated sites do imported coastal trade goods dominate the artefactual assemblages. Two important points emerge when these assemblages are compared with those from other nineteenth-century sites such as Kwa Fungo near Muheza, and Mgoli on Pemba Island. According to Lane (2011: 300) the first thing is that these materials “exhibit distinctive patterning which is suggestive of the maintenance of stylistic boundaries between different communities, and that these boundaries were drawn along ethnic’ lines”. Secondly, the variability in the densities and range of imported items suggest that the occupants of different

caravan halts had differential access to European trade goods. For example, whereas beads were scarce at Kwa Fungo, they were plentiful at the three studied sites of this project.

Alternatively, one could argue that the differences in terms of material types found at these sites is an indicator of the degree to which local peoples' 'voices' were heard within a large international trade network – in the sense that the presence of particular types might tell us more about what they wanted to acquire, rather than what was being brought to them for exchange. For example, while imported ceramics were present at both Kwa Fungo and Mgoli, only two pieces of imported wares were recovered during the entire course of the current project. Both came from Ngombezi, while none were found at either Old Korogwe or Kwa Sigi. More generally, on the basis of the evidence from the studied settlements, it can be said that although the widespread movement of peoples through trading and slavery during the nineteenth century may have meant that the residents along the main caravan trade routes had an awareness of other cultural groups in the wider east African region, the archaeological evidence suggests that they do not appear to have identified completely with these other groups, choosing instead, to retain their preferred material traditions. This is evidenced by the similarity between the majority of the excavated ceramics and recent Zigua pottery - despite the presence of Shambaa graphite coated bowls among other non-local earthenware ceramics. In other words, there is a general lack at the studied settlements - of evidence to suggest a widespread influence of the coastal forms of lifestyles - despite the fact that these settlements were in regular contact with the coastal communities through the caravan trade.

The second specific objective of documenting the range of animal species consumed at the studied island caravan halt settlements has also been met. In Chapter 6, it was shown that domesticates and several species of wild animals as well as fish, were all being consumed at these settlements. The taxonomic diversity of prey consumed ranged from small sized animals (such as elephant shrews, rodents and duikers), to medium sized animals (like gazelles, impala, aardvark) and large game (such as buffalo, hartebeest and elephant), although the latter were only consumed very rarely. This wide range of wild animal species and fish would have supplemented domestic animals as sources of food. Such an unexpected abundance of wild species would thus suggest that any pressure on meat supply (if any) during the climax of the caravan was met by hunting and fishing.

The evidence indicative of human consumption of these animals are mainly in the form of cut and burning marks. While cut marks are prevalent on large and medium sized animals, most elements with burning marks belong to small sized animals. The main observation central to addressing the study objectives, however, is that at the main study site of Ngombezi where the longest dated sequence was encountered, the consumption pattern of mixing domestic stock and wild species seems to have been of long standing and did not change in any significant manner from the initial occupation of the site - before the expansion of the caravan trade in the nineteenth century - up to the point when the site was abandoned in the twentieth century.

Determining herd management strategies and culling practices of a sample of communities situated along one of the main caravan trade routes was also central to this study. This was attempted in an effort to establish whether there were any changes to herd management strategies introduced or adopted by these communities in response to increased opportunities for exchanging domestic stock for imported commodities. The mortality profiles for cattle and caprines were thus reconstructed using a large sample of aging specimens obtained from Ngombezi, of which the results are presented in Chapter 6. Generally, the majority of domestic stock was found to have reached maturity at the time of slaughter: over 3 years for cattle, and over 2 years for sheep and goat. This implies that herds were managed at these settlements for growth and continuity. Culling practices seem to suggest that there was little or no consumption pressure placed on domestic stock that would have led to the slaughter of young animals. As such, it is suggestive that live animals would have had other socio-economic values to the local communities of the studied settlements, such as for blood, milk, dung, traction power, and symbolic value, rather than for meat.

In summary, the zooarchaeological data analysed for this thesis have indicated diverse forms of subsistence strategies followed at all three sites with regards to animal economies. Local communities were able to raise domestic stock for various uses, and in terms of their food consumption their diet also included a variety of terrestrial wild animal species as well as fish, most likely from the Pangani River. Such a strategy would have enabled local communities to overcome subsistence stress (if any) caused by the expanding caravan trade in the nineteenth century. On the basis of the evidence presented here, these communities do not appear to have adjusted their subsistence strategies significantly as the caravan trade expanded (cf. Kjekshus 1996). This is contrary to the arguments made by some historians, ecologists and geographers

(e.g., Koponen 1988; Håkansson 2004) that the growth of the caravan trade led, almost inevitably, to agricultural intensification. This study, the first of its kind to approach the nineteenth-century caravan trade in East Africa from a zooarchaeological perspective, has demonstrated the utility of this approach. Further comparative studies of other settlements along the main routes and further from it, are now needed so as to place the Waruvu island settlements around Korogwe into a broader regional perspective.

7.6 Limitations of the Study and Proposed Future Research Direction

Like several other archaeological studies of this nature, this study encountered some limitations. It is worth mentioning them here so that they can be considered when proposing future research work that might supplement the current study. Firstly, this study was initially designed to explore the consequences of the expansion of the nineteenth-century caravan trade on local people's agronomic systems – for both crop and animal production in areas crossed by the nineteenth-century caravan trade routes. However, because of time constraints this study ended up focusing only on animal economies. It is therefore recommend that future research should also focus on the archaeobotanical evidence so as to produce a more holistic view of the impact of the ivory trade on the local agronomy.

Secondly, initially it was intended to find out the extent to which settlements in different locations were linked to the nineteenth-century caravan trade, and to determine the scale of their participation in this. This was to be achieved by testing the variations in the density, quality and quantity of exotic materials between a sample of settlements mentioned in the historical sources as having been the caravan trading stations or halts, and comparing these patterns with the evidence from those sites which either do not feature in the historical sources, or were situated at some distance from the main caravan routes. In the event, however, because of the quantity of material recovered from the excavations, and especially the size of the ceramic and faunal assemblages from Ngombezi, the current study had to be limited to an investigation of just three island settlements located on the Pangani River. Without a broader comparative study, it is difficult to assess just how representative these sites and the assemblages they contain are of the kinds of impacts (or lack thereof) created by the expansion of the caravan trade. It is thus, recommended that future studies should focus on regional survey and comparative studies of sites in the neighbouring areas so as to establish broader patterns.

Thirdly, for a long time historians have perceived the island settlements on the Pangani River and those of the hill top as refuges of the *Zigua* against Maasai raiders, and that these were only established during the nineteenth century. Contrary to this, the current archaeological study has shown that the origins of some of these island settlements date at least to the late seventeenth century. On this basis, it would seem worthwhile to now extend archaeological investigations to some of the contemporary hilltop settlements with a view to establishing their chronology and ascertaining their alleged role as refuge settlements.

Finally, this project is aware of a long term plan by the Korogwe Town Council to lease the island of Ngombezi to an investor who has expressed interest in building a hotel on the island. Given the archaeological potential on this island - as partially revealed by this study - a case can be made for proposing that total excavation of the mound and thorough recording be undertaken as a rescue measure before the destruction of the archaeological resources takes place. Based on the results of this study, it can also be argued that the materials that are likely to be retrieved will not only be invaluable for research purposes, but could also be used for educational purposes for both the current and future generations.

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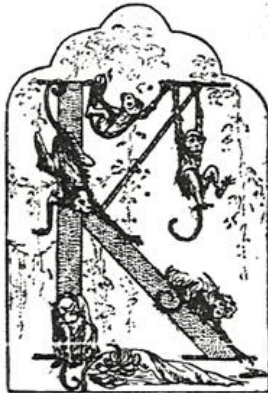
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A TONED PIECE OF A 'NEWSLETTER' THAT WAS FOUND AT MAGILA MISSION STATION DURING THE FIELDWORK ENTAILING AN ARTICLE REPORTING THE INCIDENCE OF BURNING OF THE KWA SIGI VILLAGE

ments for amputation, the only remedy, and was far from any help. But he had a Snider rifle. With this he got a friend to blow off his finger for him, and he is now getting better.

JAMES S. WIMBUSH.

S.S. "C. J.," LAKE NYASA,
October 4th, 1898.



THE BURNING
OF KWA-SIGI
VILLAGE.

WA-SIGI, one of our prettiest island villages of the river Pangani, has been destroyed by fire. The name may be a familiar one to the numerous subscribers to *AFRICAN TIDINGS* who read their magazine from cover to cover, for mention has been made of it from time to time in its columns. The river there divides into two main streams, one broad and lake-like, the other narrow and rapid. Standing where the river divides it was a picturesque sight, enhanced by the numerous cocoa-nut palms in the background waving majestically above the native huts. Alas, the scene has been changed; and the ruthless flames of fire have demolished both huts and palms. The fire occurred by a woman injudiciously putting some oil near to a fire, and the flames catching the oil leapt up beyond control. Fortunately it does not take very long to build huts, but the natives have experienced a serious loss of food; for the Zigwas have the foresight to put by a reserve stock sufficient for six months. It is remarkable that there are so few conflagrations of a similar nature, considering how near the huts are to one another—it is difficult to squeeze oneself

between two huts sometimes—and also how inflammable is the material of the hut, mud and sticks and a thatch of dried grass. At Kwa-Sigi the Mission has a stone house, and the school there has lately been restarted after having been temporarily closed. The chief of the town is most friendly and respectful, and Kwa-Sigi should prove a fruitful field for a native priest some day. There are numerous villages built on the islands and on the Shambala mountains in the near vicinity.

W. H. KISBEY.

KOLOGWE, November 1st, 1898.

WHIT-MONDAY AT MAGILA.



ON the Monday after Ascension Day, a great event took place at Magila—a Christian wedding. It may seem strange to mention this as a rare event, but so far the women and girls have not had the same chances as the men and boys, and too often when there is a wedding, the bride is only a hearer or catechumen. But on this occasion the bride, like the bridegroom, was a Christian. Until her marriage she belonged to the Magila Girls' School, and the wedding of a girl in the first class was an excuse for a school treat much too good to be missed. In the following week, Monday and Tuesday being Holy Days were of course holidays, and it was decided that Whit-Monday should be the girls' Siku Kuu (festival).

When the morning arrived, we spread out on a big table in the sitting room a goodly array of presents from the well-furnished store-cupboards. Friends in England have been very good in keeping up the supply, and we could feel a pleasant confidence that the shelves we cleared would be filled up again for the next Siku Kuu. About 11.0 the children arrived, but the first thing on the programme was a meal, and that meal was not cooked. Sitting still and waiting seems to come easy to the African child,

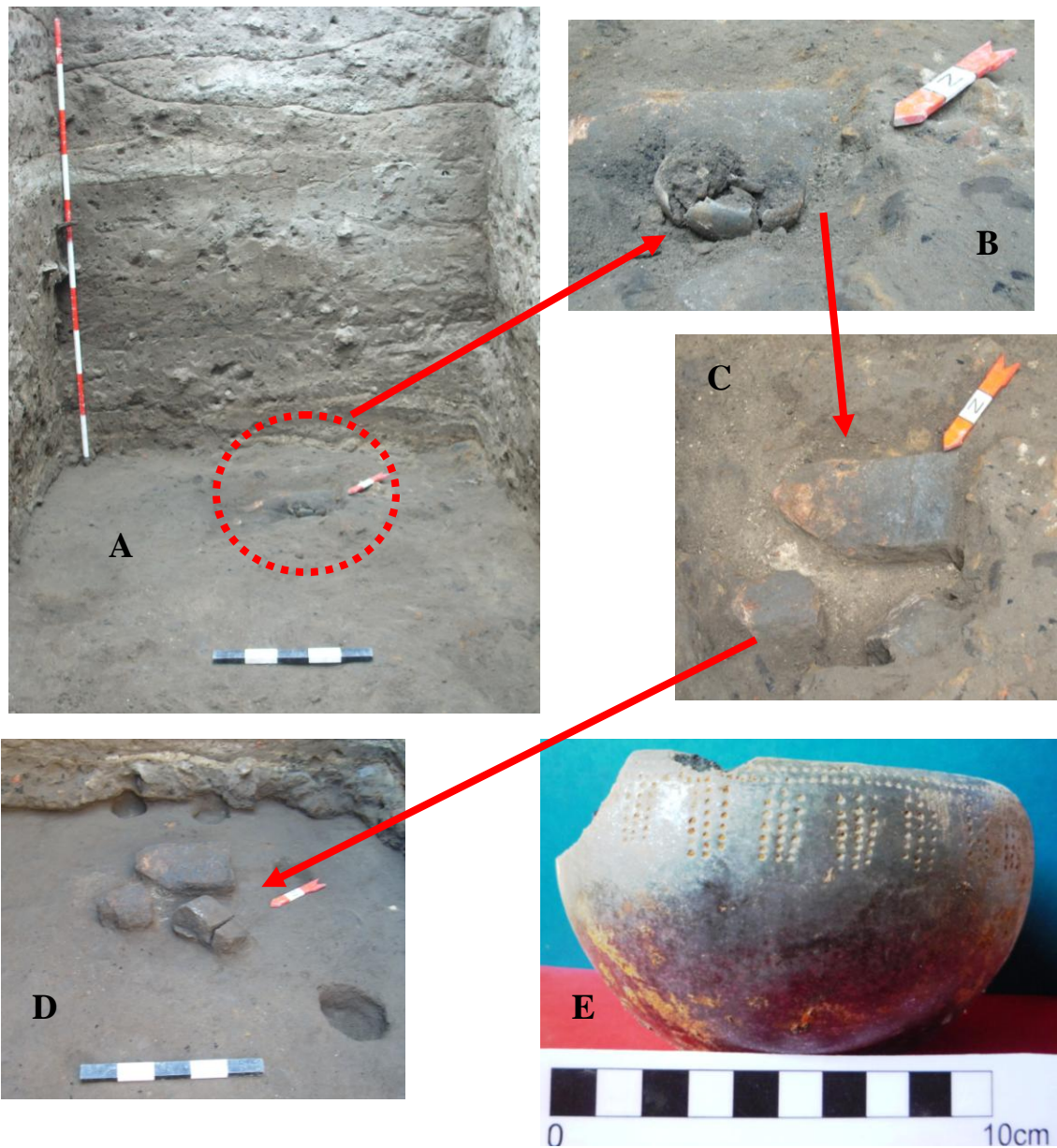
APPENDIX B

**EXCAVATION OF THE NGOMBEZI MAIN TRENCH IN PROGRESS
(APPROACHING TO THE END ~330CM)**



APPENDIX C

STAGES OF EXPOSING A HEARTH DURING EXCAVATION OF THE NGOMBEZI MAIN TRENCH



Plates: **A**-concentration of charcoal fragments and ashes noticed during excavation; **B**-a graphited bowl filled with soil deposit partially exposed; **C**- three stones exposed after removing the vessel; **D**-a clear view of a hearth and circularly arranged postholes. **E**- nearly complete bowl after cleaning and conjoining pieces. Author's photo, 2008

APPENDIX D

AN ANNOTATED LIST OF INFORMANTS INTERVIEWED

1. Juma Hadji Msengi (69). He was interviewed twice at Old Korogwe village, the first interview held on August 21, 2009 and the second one was on November 18, 2011. He is a Zigua (Mruvu) in tribe, born at Old Korogwe Island. He is a retired fisherman and currently engaged in farming activities. His long time fishing experience made him acquainted with various species of fish found in the Pangani River, as well as fishing techniques and gears. Mr. Msengi was hired during the 2009 field research to give a tour to other abandoned island settlements on the Pangani River. In this research, Mr. Msengi was useful in the identification of fish species in the excavated fish bones (Chapter 6). Additionally, he informed this study about the uses of beads by Zigua.
2. Ali Mgunya (106). He was interviewed alone at Bagamoyo village on September 1, 2009. Mr. Mgunya speaks a Zigua language and very little Swahili. In interviewing him the author had to be accompanied by a translator, Mr. Faraja (27). Mr. Ali was born at Zavuza Island on the Pangani River. His father was given the name Mgunya at his birth because he was born the period when trading activities in the Lower Pangani areas, brought by coastal traders (called Wagunya), were at the peak. Mr. Mgunya was useful in giving the history of the island settlements on the Pangani, as well as hunting activities. Interestingly, at his age Mr. Mgunya requested the author to provide him with aphrodisiac medicine, upon his next return to the research area.
3. Andrea Hassan Chambo (83). He was interviewed alone at Maurui village on November 21, 2011. Mr. Chambo is a Zigua by tribe (Mruvu) and was born at Maurui Island on the Pangani River. He attended his middle school education in 1948, but could not finish because he secured an employment to work in a colonial groundnut plantation scheme in Kongwa district, Dodoma region until independence. He then resorted to fishing and farming. Mr. Chambo remembers well the flood events that happened in the years 1936, 1947 and 1956; arguing that all these had a contribution for the abandonment of several Zigua Island settlements on the Pangani River. Mr. Chambo was also a good informant on fish species and fishing techniques in the Pangani River.

4. Margaret Mgya (103). She was interviewed alone at Ngombezi village on September 9, 2009. She is a Zigua, born at Magunga village at Korogwe. She came to Ngombezi Island in 1940s when she got married. She was a good informant on matters pertaining potting techniques and pottery uses among the Waruvu. Mrs. Mgya is a potter, a skill she learned when she was at the age of twelve. She described and also showed to the author various types of Zigua ceramic vessels and their uses. She displayed her competence in knowing the sources of raw material for pottery making in the Lower Pangani area, as well as historically-known market places where pottery were taken to, for sale.
5. Samwel Magembe (69). He was interviewed alone at Kilole village on September 5, 2009. He is a Zigua (Mruvu), born at Kilole, a village near Old Korogwe Island. He is a retired primary school teacher, but has been involved in agricultural activities, particularly orange farming at Michungwani village. He also remembers well the flood of 1956, which brought disasters on the island of Ngombezi and Kwa Sigi. Mr. Magembe admitted to have some idea about the history of the caravan trade but through reading some history text books when he was in Secondary school.
6. Mr. Samwel Muganga (75) and Mr. Peter Chando (77). They were interviewed all together at Ngombezi village on November 19, 2011. They are all Zigua (Waruvu) born at Ngombezi village. They grew together and managed to develop a long term close friendship. These two informants were identified and highly ranked by villagers as experts of the history of the Waruvu in the village. To date, they are engaging in farming activities. While young boys, the two had opportunity to witness families abandoning the islands of Ngombezi and Kwa Sigi, especially in 1940s. The two were resourceful in providing information pertaining to habitation of the island settlements on the Pangani River, herding management and culling practices among the Zigua, and stories about the Wagunya traders from the coastal towns of Tanga and Mombasa.
7. Christopher Hella (71). He was interviewed alone at Msambiazi village on September 3, 2009. He is a Zigua (Mruvu), born at Kwa Sigi. He now lives at Msambiazi, a village next to Kwa Sigi. Mr. Hella held the position of administrative officer at the Institute of Development Management (now Mzumbe University) until 1999 when

he retired from work. He is well informed about the history of island settlement on the Pangani River; history of missionary activities in the region; livestock keeping among the Zigua; potting techniques as well as fishing activities in the Pangani River. Mr. Hella presented to the author (from his own home library) an invaluable piece of toned newsletter titled 'AFRICAN TIDINGS' (1898), on which an article that reports the incidence of burning of the Kwa Sigi village appears (Chapter 3).

8. Mr. Said Degela (79) and Mrs. Mwanahawa Degela (72). The married couples were interviewed all together at Ngombezi village on September 7, 2009. Mr. Dengela was born at Maurui village and later his family moved to Ngombezi in 1947 - following floods that happened the same year. Mr. Degela claims to remember very well a story from his father, about disastrous flood called '*ngolo*' in Zigua language that happened at Maurui Island in 1936. While Mrs. Degela was very resourceful in providing information pertaining issues of pottery making and the uses of beads among the Zigua, his husband (Mr. Degela) was conversant in explaining animal economies practiced by Zigua.
9. Fr. Charles Mukuzi (82) and Mr. Geldart Mhina (64). The two were interviewed together at Magila Mission station on September 3, 2009. Fr. Mukuzi is a Digo from Muheza while Mr. Mhina is a Zigua from Handeni. Fr. Mukuzi has been serving at the station as a priest since 1960s, while his colleague Mr. Mhina has been involved with religious activities since 1970s, holding several leadership positions in the Church. Both were resourceful in narrating the history of the missionary activities at the Magila since the first time Krapf visited the area in 1848. Fr. Mukuzi informed the author that there were some useful documents that would have been helpful in this study but were all destroyed when the nuns were shifting their residence from Magila to Kwamkono. The two are of the views that slave raiding activities during the nineteenth-century did not reach Magila and the surrounding areas because of the spread of Christianity.
10. Daudi Simon Mwangoto (81). He was interviewed alone at Msambiazi village on September 5, 2009. He was born at Kwa Sigi and he is a Zigua (Mruvu) in tribe. He is a farmer and fisherman. He seemed to know better the history of the area, especially the colonial period – notably matters related to plantation agriculture in

Korogwe. However, he was not that much helpful in this study because he demanded some payments before being interviewed.

11. Saada Ali Mgunya (age not known). She is a wife of Mr. Ali Mgunya. She was born at Kwa Mgumi Island and later married to Zavuza village by Mr. Mgunya (Respondent no. 2). She was very resourceful in providing information pertaining potting, pottery uses, as well as beads.
12. Mr. Shaibu Ali Hussein (106). He was approached for interview on August 6, 2008. He is a Zigua (Mruvu) by tribe, born at Ngombezi Island and made his livelihood through farming and fishing. He claimed to be a close friend of his age mate Mr. Mgunya (respondent no. 2). His knowledge about the history of the Zigua seemed promising and he had promised to provide detailed information few days later after he would have recovered from sickness. Sadly, when the author revisited his home in September 2009 (during the last field season), he found that Mzee Shaibu Ali Hussein had passed away.

APPENDIX E

A LIST OF A VARIETY OF RIM FORMS AND PROFILES CONSIDERED DURING POTTERY ANALYSIS

1	Flat/squared off (no profile)
2	Gently in-turned & flat/squared off
3	Gently in-turned & pointed straight out
4	Gently in-turned & right angle
5	Gently in-turned & rounded
6	Gently out-turned & angled inside, rounded out
7	Gently out-turned & flat, grooved
8	Gently out-turned & flat/squared off
9	Gently out-turned & folded (angular)
10	Gently out-turned & folded grooved
11	Gently out-turned & oversized folded
12	Gently out-turned & pointed
13	Gently out-turned & pointed straight out
14	Gently out-turned & right-angle
15	Gently out-turned & rolled
16	Gently out-turned & rounded
17	Right angle
18	Sharply in-turned & flat/squared off
19	Sharply in-turned & folded (angular)
20	Sharply in-turned & rolled
21	Sharply in-turned & rounded
22	Sharply out-turned
23	Sharply out-turned & flat/squared off
24	Sharply out-turned & folded (angular)
25	Sharply out-turned & folded grooved
26	Sharply out-turned & folded, crease below
27	Sharply out-turned & pointed
28	Sharply out-turned & rolled
29	Sharply out-turned & rounded
30	Vertical flat/squared off
31	Vertical folded (angular)
32	Vertical folded grooved
33	Vertical oversized folded
34	Vertical pointed
35	Vertical pointed straight out
36	Vertical right angle
37	Vertical rolled
38	Vertical rounded
39	Vertical "T" shaped
40	Vertical thickened in

APPENDIX F

**ADDITIONAL IMAGES OF POTTERY OF SPECIAL FEATURES DISCUSSED IN
THIS DISSERTATION**



Different styles of *Decoration Category 'A'*
(Punctated Impressed Dots) occurring on
graphite coated bowls

Note: See Plate E, Appendix C (above) for
another additional style



APPENDIX G

POTSHERDS OF 'CERAMIC TYPE 2' SHOWING BREAKS CONSISTENT WITH
COIL CONSTRUCTION (?)



APPENDIX H (1)

ADDITIONAL IMAGES OF DECORATED POTSDHERDS FROM THE STUDY SITES
OF THE CURRENT PROJECT WHICH ARE IDENTICAL TO SOPER'S
(1967) POTTERY GROUPS 'B' AND 'D' FROM SOUTH PARE AND THE
USAMBARAS



A) Decoration similar to Soper's pottery Group B from South Pare (1967:27, Plate III)

APPENDIX H (2)



B) Decoration similar to Soper's pottery Group D and those he terms as from 'recent Sambaa sites' (1967:27, Plate V and VI)

