TRADE AND EXCHANGE AMONG THE IRON AGE INHABITANTS OF BWINAMBO SITE IN CHINSALI, ZAMBIA.

BY

ELISE MWILA LUMPA

A DISSERTATION SUBMITTED TO THE UNIVERSITY OF ZAMBIA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN ARCHAEOLOGY

THE UNIVERSITY OF ZAMBIA

LUSAKA

2020

DECLARATION

I, **Elise Mwila Lumpa**, declare that this dissertation:

(a) Represents my work;

(b) Has not been previously submitted for a degree at this or any other University; and

(c) Does not incorporate any published work or material from another dissertation without citation.

Signed ……

Date: ……

COPYRIGHT

All rights reserved. No part of this dissertation may be reproduced or stored in any form or by any means without prior permission in writing from the author or the University of Zambia

APPROVAL

This dissertation of Elise Mwila Lumpa is approved as fulfilling part of the requirements for the award of the degree of Master of Arts in Archaeology by the University of Zambia.

Examiner 1

Name: …… Signature: ……

Date: ……

Examiner 2

Name: …… Signature: ……

Date: ……

Examiner 3

Name: …… Signature: ……

Chairperson Board of Examiners

Name: …… Signature: ……

Date: ……

Supervisor

Name: …… Signature: ……

Date: ……

ABSTRACT

Trade and exchange were critical areas of prehistoric people's economic activities as they shaped their societies and adaptation to changing environments. This study explores aspects of trade and exchange among Iron Age inhabitants of Bwinambo archaeological site in Chinsali, Zambia. The site is especially suited for the study being located within the Tanganyika – Nyasa corridor in the north-eastern Zambia, an area that was a hive of trade activities during the pre-colonial period. Archaeological survey and excavation of four sites, revealed evidence of factors indicative of a settlement site such as a perennial source of water, wildlife and smelting kilns. Recovered materials from the excavated areas include local and imported pottery, beads, Metal objects, iron slag, hematite, fragments of shells, animal bones, fragments of human bones, charcoal, ash and burnt clay. Analysis of materials from the site revealed evidence of both local and external contacts stretching as far as the east African coast and Malawi. This is evidenced through similarities in pottery which does not belong to the known pottery tradition of the region in which the site lies. These include the Early Iron Working ware, Ivuna pottery, Proto Swhili Ware, Nkope ware, Kapeni ware and Mwabulambo ware. Cultural flora such as coconut plantations also revealed undisputed evidence of external contacts with the East African Coast. Local exchanges, on the other, were revealed through pottery from Kalambo, Kamnama, Makwe, Chondwe and Samfya. These have revealed evidence that the Tanganyika – Nyasa Corridor involved cross cultural contact characterized by interactions happening at multiple stages. The study concludes by emphasising that the objects of these exchanges were not restricted to exotics but rather a wide range of commodities that included pottery, iron, iron objects and food stuffs. Therefore, the absence of exotic goods in the archaeological record should not in any way rule out possibilities of long distance trade and exchanges. It can thus be inferred that these exchanges happened on a fairly regular basis and were not limited to personal bonds of reciprocity

DEDICATION

This dissertation is dedicated to my mother Maria Chifota Lumpa and my dad Henry Kaunda Lumpa, pillars and sources of inspiration in my life. It is also dedicated to my young brother Henry Kabali Lumpa. This is for you.

ACKNOWLEDGEMENTS

I am eternally grateful for the valuable support I received from the management of The National Heritage Conservation Commission for sponsoring my studies and ensuring that I did not lack anything throughout my studies. I am particularly thankful to our Executive Director Mr Collins Chipote for allowing me to advance my studies, Mr Monday Mungaila for doing all he could to ensure that I received all the support I needed promptly, and our then Acting Regional Director Mr Kelvin Chanda and Regional Director Mr Kagosi Mwamulowe for tolerating my long absence from my work station. Many thanks also go to my supervisor Professor Francis B. Musonda for his constructive criticism, time and patience in guiding me during the process of research, and report writing. He was not only a supervisor but a life coach throughout my studies.

I wish to thank the staff of University of Zambia Library, The National Archives of Zambia (NAZ), Livingstone and Moto Moto Museums, Faith Encounter Centre of Zambia Archives (FENZA) and National Heritage Conservation Commission Documentation Center for their support during the time I was carrying out my research. I am extremely grateful for the assistance and support provided by the staff, former employees and community of Bwinambo Middle Basic School. Special thanks go to Mr Julius Mushoba, Mr Robert Kunda, Mr Cosmos Mupondwe (Deputy Head Teacher), Mr Dillion Simposya (Head Teachaer), Mr Meston Makanga (Makanga Village Headman), Mr Jim Sichembe (Mungu Village Headman) and all respondents for providing valuable information and great assistance during field research.

Lastly and most importantly, many thanks go to my family for their support and prayers, my Physiotherapist and cousin Brenda Shula for ensuring that I recovered speedily. Without her tedious work, this dissertation would not have been possible. I am also very grateful for the encouragement I received from University of Zambia members of Staff and friends. Above all, I thank the Almighty God for the grace and strength I received throughout my studies.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF PLATES

LIST OF MAPS

LIST OF ABBREVIATIONS AND ACRONYMS

BS	-	Bwinambo Site
DEBS	-	District Education Board Secretary
E.I A	-	Early Iron Age
FENZA	-	Faith Encounter Centre of Zambia
GPS	-	Global Positioning System
INESOR	-	Institute of Economic and Social Research
L.I.A	-	Later Iron Age
NAZ	-	National Archives of Zambia
NHCC	-	National Heritage Conservation Commission
PSW	-	Proto – Swahili Ware
TIW	-	Triangular Incised Ware
UNZA	-	University of Zambia

CHAPTER ONE

INTRODUCTION AND HISTORICAL BACKGROUND

The study of economic aspects of the iron age period in Africa is an important part of the archaeology of humankind in a continent that has recorded the longest cultural sequence in the world, from more than four million years ago. According to Musonda, (2013a:2) "archaeologists have particular interest in the study of past economic activities because prehistoric economy is considered to be the essence of prehistoric man's existence". A critical area among prehistoric man's economic activities is trade. Trade as a form of exchange of goods has a very long antiquity stretching as far back as the first millennium A.D. The study of exchange and trade in early societies has hence become an important part of archaeological studies.

However, there is no single concept of trade and exchange in prehistory that has been unanimously accepted. Different scholars have attached different meanings to the terms "trade" and "exchange". According to Polanyi (1975:134), "trade is an activity of acquiring goods that are not available on the spot". In his view, in primitive conditions, different communities met to exchange their goods. Although these meetings do not produce rates of exchange, they presuppose them. Runnels and Ande (1988:92), on the other hand, describe "trade" as being hitherto applied loosely and interchangeably with the term "exchange" to describe the general process of transferring commodities from one person or group to another. Renfrew (2008:45), in trying to differentiate exchange from trade contends that "exchange implies transaction between two agents, with some notion of balance or equivalence between what is given and what is received". This means that

with trade, equivalence is not really the issue but being able to obtain a commodity that is not available to one party is paramount. Renfrew (1969:152) argues that "trade is to be understood in its broadest sense, as a reciprocal traffic, exchange, movement of materials or goods through peaceful means."

Renfrew (1977:72) has also argued that trade is the "procurement of materials from a distance by whatever mechanism". Renfrew's descriptions of trade seem to include the notion of exchange in it, as the term "exchange" is still used as a form of trade. Renfrew and Bahn (2012:347) correspondingly argue that "when referring to material goods and commodities, exchange means much the same as trade". They go on to say that "however, exchange on the other hand is all encompassing as it includes non-material things like information or ideas" (ibid). What is common in all these definitions is that for trade or exchange to take place, goods or commodities have to exchange hands. Trade and exchange therefore encompasses more than goods or commodities but also interactions of different people or groups that are involved in the trade and exchange chain. This study will utilise Renfrew and Bahn's definition of trade that equates trade with exchange.

Discussing the exchange of commodities also means discussing the encounter and interaction of people from different cultural traditions (Renfrew and Bahn 2012:348). Since different cultural groups are involved in the trade and exchange chain, different cultural materials are also moved at an intra and inter regional level. Along with cultural materials, there is also an exchange of ideas. Exchange of goods and information hence underwrites and legitimizes shared social values, while simultaneously offering scope for the latter to be transformed through the accumulation and manipulation of material wealth

(Bender 1981). The terms are hereafter used indiscriminately and assumed to be interchangeable.

At the close of the Holocene/Pleistocene period, Zambia was inhabited by a people whose economy was oriented towards foraging. These people were able to live in this way due to the permanent presence of one or more staple sources of food such as fish, water, animals and plants, and forest products (Clark 1970: 22). This period is conceived as critical for the concentration of population in areas made favourable by the changing climatic conditions in most parts of the world, resulting in early sedentary domestication. However, the whole of southern Africa was assumed to have remained in the hunting and gathering mode until the alleged population explosion that precipitated the Bantu movements after the beginning of the Christian era (Philipson 1976:65-89). It is also assumed that any fundamental change in the economy was feasible after this immigration. This immigration coincided with a period known as the Iron Age.

Fagan (1968: 1- 2) contends that the fundamental economic changes which took place at the beginning of the African Iron Age, led to major alterations in population distribution, settlement patterns, trading practices and social organizations over much of the sub-continent. The major focus of this study is the role that trade played in the economic aspect of the iron age inhabitants of Bwinambo in the previously unexplored Tanganyika- Nyasa Corridor. Roberts (1974:100) argues that to understand how Zambian peoples formed links with traders in touch with markets overseas, we must first consider the trade which they established among themselves. This therefore calls for extensive Iron Age research. However, our knowledge of Iron Age in the Northern region of Zambia (which includes the present day Muchinga, Luapula and Northern Provinces) has lagged far behind

compared to other regions and therefore impedes our understanding of prehistoric trade in this region. In recent years, a number of archaeological sites have been discovered but very few have been excavated. Philipson (1968:191) argues that "until recently, our knowledge of Iron Age inhabitants of Zambia during the first millennium A.D has been largely limited to the southern part of the country with the exception of the Kalambo Falls Site, and of isolated finds of pottery considered on typological grounds to be early, very little has been known concerning the Post- Stone Age archaeology of the area lying to the north and the east of the Kafue river". Musonda (2012:88-89) attributes such disparities in Iron Age research to lack of incentives, poor funding and an inability to attract international scholars to conduct research in the country. Additionally, the centrality of administrative structures favored southern province because the town of Livingstone as the first capital was the base for most of the first archaeologists to work in Zambia from 1905.

Most importantly, from 1905, interest in archaeological work in Zambia was in the Stone Age period. Clark (1990:193) affirms this when he argued that "archaeological work of the 1930's was dominated by archaeological investigations of the stone age sites, rock paintings engravings and collections of ethnographic materials from indigenous communities. Musonda (2012: 89) adds that:

> *"little attention had been paid to Iron Age studies because the period was considered not only recent, but unlikely to contain anything of great interest because present day Bantu speaking populations were thought by most Europeans to be neither innovative nor exciting".*

Because of such misconceptions by colonial officials, Musonda (2012: 92) further states that "the antiquity of local history was rejected because this was contrary to popular European opinion of the time. Africa was the last place to provide evidence to refute the accepted unilinear model for development of human societies". In the Northern region of Zambia, more emphasis in terms of research has been characterized by establishing pottery sequences characterized by changes in vessel form, verification of reports of discovered sites, condition assessments and mere description of sites.

Despite such inadequacies, Iron Age research is very important as this period revolutionized the way of life of Pre-colonial Zambia's inhabitants and served as a great impetus to a more intricate socio-economic system. This is the period that man moved from a hunter-gatherer to a food producer. Philipson (1968) argues that in Zambia and adjacent areas, the Early Iron Age people appear to have been the first to make pots, to work iron and to establish trading contacts with the coast. Roberts (1976:24) using archaeological evidence adds that the commonest remains from Early Iron Age Sites are sherds of earth ware pots, which in themselves are signs of a settled way of life based on cultivation.

Ceramics found in well preserved conditions at Iron Age sites are perhaps the best materials that can be used to interpret cultural contact between two different communities. In line with this argument, Renfrew and Bahn (2012:348) have also argued that, "materials of which artefacts are made can be a better guide than their style to the place of origin of such exchange". Roberts (1976:24) further contends that just like variations in the forms of stone tools enable us to distinguish different stone tool traditions and cultures, so too variations in the shape and decoration of potsherds can be associated with different regions

and periods. Where archaeological sequences are established, these have become useful in the interpretation of changes in vessel form through time [and ultimately patterns of interaction]. Raiconi (2016: 15) argues that:

> "*Social interaction among inhabitants in prehistoric times gives substance and shape to new traditions, and the hybridization denotes precisely three processes of interaction and negotiation between various social groups. The understanding of this process directs our attention to the context situations and the reasons that motivated the populations who came in contact."*

It is important to note that Prehistoric communities were differently endowed, hence it became necessary to engage in trade and exchanges to supplement deficiencies at their destinations. Higgs and Vita- Finzi (1972:202) have observed that technology determined the range of resources which could be exploited and thus affected the shape and size of the economic catchment or territory of the site that as time went on the range and character of exploitation would be modified. Thus as technology changed through time, economic change also took place from those which were characterized by mobility to sedentary economies. This means that with the coming in of more advanced technology in the Iron Age, unlike the Stone Age, Iron Age communities exploited their resources not only efficiently but more than their predecessors did. They were now able to domesticate crops because they had iron hoes to use for agriculture and had pottery to use to store their produce. Apart from that, their fishing capacity was equally more improved as they could now make more durable fishing hooks from metal.

As earlier stated, this new phase brought with it a number of changes among Iron Age communities. Fagan (1968: 1-2) contends that with the new food producing economies

however, trade became far more important, for many requirements of a more complex economy and material culture had to be met from other sources than those available locally. Three basic raw materials, iron, copper and salt were of vital importance to Iron Age farmers. They were responsible for the development of complex inter-regional bartering networks which were based on a comparatively steady, but informally structured demand for raw materials. Wilson (1955:58) argues that to this list we can probably add pottery, for most villagers produced their own pots yet some crafts-men were so skilled that their pots were in great demand elsewhere.

Philipson (1968: 200) has shown that northern Zambia differs from southern Zambia not only in the later survival of Late Stone Age peoples, but also in the rarity of substantial Early Iron Age settlements. Because of this rarity, which in most cases is due to lack of in-depth research, an extensive study of the area is very important in the reconstruction of the Iron Age and all its ramifications. The discovery of the Bwinambo Iron Age site in northern Zambia has added value to our understanding of prehistoric aspects that were hitherto unknown and contributed new knowledge to the existing literature.

Statement of the Problem

Archaeological investigations which began in Zambia at the turn of the twentieth century (Musonda, 2012) have revealed the presence of a large number of archaeological sites out of which very few have been excavated. The Northern region compared to other regions in the country has very few excavated Iron Age sites, thus resulting in very limited knowledge about prehistoric activities of the last two thousand years. One area in which knowledge has remained limited relates to trade networks, exchange and Iron working. The absence of this knowledge has made it very difficult for archaeologists to reconstruct

Zambia's economic past. For instance, there is lack of knowledge regarding when trade could have, started and its economic impact among communities of northern Zambia, as well as the importance of trade and exchange networks along the Tanganyika – Nyasa corridor, which facilitated trade between the East African Coast and the Kazembe Kingdom. The absence of critical knowledge on such important activities as trade networks and exchange needs to be addressed to enhance the reconstruction of Zambia's historic past. Since it has been established based on historical sources that trade existed between the East African Coast and the hinterland, the lack of prehistoric knowledge along the Zambian Tanganyika-Nyasa corridor requires to be addressed through investigations of Bwinambo archaeological site.

Objectives

Main Objective:

To investigate trade networks and exchange as socio-economic activities among the Iron age inhabitants of Bwinambo archaeological site

Specific Objectives:

1. To establish the nature of archaeological evidence relating to settlement of Bwinambo archaeological site;
2. To reconstruct the socio – economic base of the prehistoric inhabitants of Bwinambo archaeological site based on trade and other exchange networks; and
3. To establish the nature and extent of trade/exchange networks in the northern region of Zambia.

Rationale

Archaeological works done by scholars such as Derricourt, Philipson, and Desmond Clark in Luapula and Northern Provinces of Zambia have contributed to our general understanding of the prehistory of the region; but very little, if any, in terms of trade has been undertaken through archaeological investigations. Historians, like Macola, Christopher, Langworthy, Roberts, and Birmingham have long known the existence of trade in this region, but their historical accounts are limited to a period when written records were available through missionaries and explorers. This leaves a huge gap of lack of knowledge on trade activities and exchange networks that may have been taking place in the Tanganyika –Nyasa corridor prior to foreign penetration, a gap which oral traditions cannot fill because none of these inhabitants were alive to narrate what could have ensued during this period. If the inhabitants of the site participated in trade through the Tanganyika – Nyasa Corridor, this study would help determine when trade could have started and the economic benefits derived by inhabitants within the confines of this corridor. Therefore, archaeology would help to create that link with written records. Archaeological research aimed at making a meaningful contribution to the prehistory and history of Northern Zambia is thus imperative and this work is such a one. This study will hence help fill in this lacuna in terms of prehistoric trade in this region and cultural and socio-economic changes that came with contacts with other communities and stimulate further research on ancient trade networks linking the east coast to the northern part of the country.

Theoretical Framework

The study hypothesized that by virtue of the site being located within the Tanganyika – Nyasa corridor which facilitated trade between the East Coast and the trading centers of

the Kazembe, socio-economic practices of its inhabitants were altered by the interaction between them and outsiders. It is therefore driven by the theoretical assumption that foreign material occurs in the material culture of a group of people if there was contact with either people from where the foreign material came from or other people within the same area who may have been in contact with the outsiders from where the materials originated. The study was based on the World Systems Analysis theory (WSA). Hall et al (2011:237) point out that the WSA encompasses several competing theories, all of which emphasize interaction as central to cultural and social change. The theory is based on the basic tenet that past cultures did not exist in pristine isolation. Rather contacts direct and indirect affected groups involved in large networks. This theory was used together with other models for comparative analysis and to pose empirical questions.

Literature Review

Empirical studies presented in the ensuing review of literature informed the study on various issues pertaining to the socio-economics of Iron Age communities, nature of trade that took place, nature and type of archaeological evidence indicative of trade, nature of evidence indicative of settlement sites, pottery descriptions and contextualization of research findings and interpretation across time and space. The literature presented according to themes is broad as it is multidisciplinary; from disciplines such as archaeology, anthropology and history. This literature provided a setting for the study and an in depth understanding of the issues involved. However, it is important to note that there is not much literature on Iron Age settlement sites in the northern region of Zambia and hence the study relied on literature from different regions of Zambia and where necessary, different countries.

Derricourt (1980), Philipson (1977) and Bradley and Robertson (2000) discussed the issue of chronology of Iron Age sites and placement of different cultural traditions across time and space. Philipson's (1977) work titled "*The Later Prehistory of Eastern and Southern Africa*", presents an inter-regional study in which he addressed the question of chronology. His research mainly focused on establishing distinct classification of Early Iron Age sites in distinct pottery styles. These groups are the Kalambo in northern Zambia, Luangwa in north-eastern, Chondwe on the Copperbelt, Kapwirimbwe in central, Kalundu in some parts of southern Zambia, Dambwa in Livingstone and the Kalomo culture in southern Zambia. Philipson's work is vital to the current study as it enables useful generalizations to be made into the nature of the Early Iron Age society in terms of chronology, economy and technology and hence leads to an in-depth understanding of these societies (Philipson 1977:142). With an already established chronological sequence, it becomes easy to put the cultural materials from the archaeological record in a cultural historical framework, that is, placement of where the site may fit within the existing or known ceramic units and their cultural affinities in the general area of study and elsewhere in Zambia and indeed neighboring Tanzania and Malawi.

On the other hand, Derricourt's 1976 excavations in Samfya and Mpulungu, northern Zambia (Derricourt, 1980) have helped to extend the geographical limits of the Kalambo Pottery group and also to confirm its long antiquity from the early 4th century A. D into the 17th century, thus giving the Kalambo Falls Prehistoric Site one of the longest periods of existence of the Early Iron Age in Zambia. This work is important to the current study as it is deemed to belong to the Kalambo group.

Robertson and Bradley's work titled *The African Iron Age without Bantu Migrations (2000)* brought a new insight into the Early Iron Age in central Zambia. They excavated three sites, Muteshi, (dated 1st century A.D), Mondake (dated 7th to 8th century A.D) and Fibobe (dated 8th to 9th century A.D). They suggest that the pre 500 A.D Early Iron Age sites in Zambia represent hunter-gatherer societies, whilst those post 500 A.D represent developments towards social structures. The significance of this work is that it confirms the Early Iron Age as a complex which appeared complete with new characteristics – cereal cultivation portrayed by the carbonized seeds of domesticated plants, metallurgy portrayed by Iron objects and slag, pottery and settled village life portrayed by hut daga at a very early date. The Fibobe site ceramics have also helped to portray the long antiquity of what is now commonly termed as the Luangwa Tradition Pottery.

Works by Fagan (1965), Philipson (1968), Phimister (1976) and Musonda (2013b) give an insight into geographical environments in which Iron Age communities lived and how these environments affected their socio-economic lives. Fagan (1965), in his work *Southern Africa During the Iron Age*, gives an insight into the people of the Iron Age and the geographical environments in which they settled. He traces the transition from the Stone Age to the Later Iron Age and highlights factors that led to interior commercial penetration. This literature based on history and archaeology is balanced and gives a very rich background towards understanding Iron Age economies.

A review of Early Iron Age pottery in Zambia by Philipson (1968: 191-211) has revealed that "northern Zambia differs from the area to the south not only in the later survival of Late Stone Age peoples but also in the rarity of substantial Early Iron Age villages." He observed that "we must imagine that, in this relatively infertile region, a food producing

people would live in smaller groups and be more highly mobile than in the fine farming country to the south" (ibid). Nonetheless, it is important to note that each community adapted to the resources available to them and their socio-economic lives were shaped by those resources. In the event of absence of certain vital resources, such communities did not necessarily have to move to another location but they got involved in barter exchange to supplement their deficiencies.

Philipson's observation that "the Kalambo group is therefore to be distinguished from its contemporaries farther south not only by typology of its pottery, but also by its environment and its reaction thereto" (ibid) is very vital to the current study as his approach served as an eye opener to the regional variants in the Zambian Iron Age. It brings out an important theme of comparative advantages in resource utilization by Iron Age societies, which includes articles of trade and intensity of trade as these were not only dependent on availability of resources but also proximity to sources of raw materials. This approach was vital to the understanding of the nature of trade taking place in northern Zambia and why it developed the way it did and not in any other way.

In line with Philipson's view of regional variants, another work of importance to this study is what Phimister referred to as "varying importance of Iron Age people's economies". Phimister (1976:5) argued that although iron working was common throughout central and southern Africa, smithing and trading in iron were not the same probably because of different environments in which the communities lived. This means that iron working and trade differed in degree among the ethnic groups that mined iron ore. Phimister's argument gives insight to the current study in that it highlights the role of the environment in

determining not only the types of materials traded but also in determining the extent and nature of trade that could take place.

Musonda's (2013b) work titled *Transformation of the Zambian Economy from the Holocene to the colonial Period: Issues of Internal and External Evolution* is another vital study to this work. His paper discusses the role played by prehistoric economies in the course of the country's historical development by addressing dramatic developments through changes that occurred in Zambia from about 10,000 years ago to the onset of colonialism. He cites metallurgical technology, trade and more dynamic economic cultural developments as being a prelude to Zambia becoming part of a world economic system. Even though Musonda discusses trade in general, his work is informative to this study as it also gives an insight into prehistoric economies and sheds more light on how environmental changes influenced the capacity to exploit natural resources available in prehistoric communities.

Works by Roberts (1976) and Clark (1974) were instructive sources of literature as they focused on early trade among precolonial communities. Roberts' (1976) work titled *The History of Zambia* is of vital importance to this study as he outlines the broad patterns in production and trade which underline the confusing variety of pre- colonial political groupings. He also sheds light on the earliest history of the people who live in Zambia today through the use of history, oral traditions, archaeology and in some cases anthropology. The rich and balanced literature chosen by the author helps in making a balanced account of the history of Zambia. Roberts (1976:100) argues that to understand how Zambian peoples formed trade links with traders in touch with markets overseas, we must first consider the trade which they established among themselves.

It is therefore important to examine Early Iron Age settlements as they help us to be able to trace the development of trade and how it evolved. Roberts further states that for most people in Zambia, as elsewhere, the most important items of trade were local products which met people's every day needs: foodstuffs, metal work, pottery, clothing and cosmetics. He argues that there was no money, but some goods such as wire, copper crosses, beads and cloth, were occasionally used as currency, since they were in general demand and could be exchanged for the goods which a buyer really wanted (Roberts 1976: 101). This literature is important to the current study because it informs the study of the possible uses of some items that could be recovered from Bwinambo site.

Further, Roberts provides an insight into possible trade networks among precolonial communities by arguing that the location of the most important resources especially iron and salt, give us some clue to likely patterns of trade in earlier times for such basic materials would long have been in great demand (ibid). He notes that there were only two places in the north-east where salt was produced in any quantity. One was Chibwa marsh, near Mpika. Here there was an abundance of saline grass which yields a remarkably pure salt. This exchange of iron and salt promoted the exchange of other commodities (Roberts 1976:102).

Roberts seems to suggest that the Luangwa valley was a hive of activity as it served as a trade passage between the people to the north and those on the eastern part of the country. He attributes the growth of overseas trade in the north eastern Zambia to primarily a response to the demands for ivory and copper and further states that it was the result of collaboration between the Lunda Kingdom of Kazembe, its Bisa neighbours and the Yao east of Lake Malawi. If this was the case, it is likely that this trade could have existed long

before the Lunda, Bisa and Yao settled in their respective areas. This is hence illuminating to the current study as it helps build up possible trade links that existed in the region under study.

Archaeological investigations at the Kalambo Falls prehistoric site by Desmond Clark not only shed more light on the study of the Iron Age sequence of the region but also give an insight into the nature of trade taking place among iron age communities. According to Clark (1974: 39), "the Kalambo Falls Iron Age sequence remains one of the longest in Southern Africa and a yardstick against which we can study other sites". His findings have been very instrumental in demonstrating the very long antiquity of the Early Iron Age of northern Zambia. At this site, Iron Age remains, pottery, burnt clay from structures, grindstones, slag from Iron working and manufactured Iron tools have been found in more recent levels in all excavations. Clark (1974:62) has argued that the only evidence of personal ornaments that has survived are arm/or leg rings, finger or toe rings and a copper earing. He presupposes that the absence of any imported glass beads or any exotic trade goods implies that the area lay aside any regular trade routes to and from the coast but the presence of copper ornaments is evidence of local trade, perhaps with the Katanga where copper was extensively worked in the eighth and ninth centuries (ibid).

Clark has further noted that if more metal was produced than was required for domestic use, it may have been traded with people as far as Safwa or the lake side fishermen of Tanzania neither of whom are known to have smelted, in exchange for some commodities such as salt or fish (Clark 1974:64). Earlier Fagan and Yellen (1968) concluded that Iron implements were traded from Ufipa to Rozwi Rift and gave an insight into the nature and extent of trade that could have been taking place at the prehistoric site and its vicinity.

Much earlier, Hall (1965:8) noted that pottery makers at Kalambo Falls who decorated Situmpa style could have smelted iron, mingled and traded with earlier inhabitants of this region.

In the same vein, Schmidt (1996:62,64) has provided another insight into the cultural and social economics of Iron Age Communities. He contends that apart from surplus production, especially during active smelting times however, local iron products were mostly distributed on an inter and intra village level, connected to an internal and local trade network of transaction in commodities such as cattle, cloth and salt which were exchanged for Iron hoes. Schmidt's argument is a good indicator of the importance of iron implements as articles of trade in these communities and its role in shaping the economic lives of Iron Age inhabitants. Iron was hence both a utilitarian resource and also acted as a medium of exchange that enabled them obtain other commodities.

The literature presented by Clark and Hall enabled the study to compare not only pottery but the nature of activities that were taking place at Kalambo Falls Prehistoric site to those from Bwinambo site because the two sites are in vicinity to each other.

In addition to Clark's findings discussed above, his pottery classification system has been a very useful tool to the current study. Being a very clear and well established pottery classification system, it provided a strong basis for comparisons to be made as the Kalambo Falls pottery is not only one of the largest assemblages of such ware in Zambia but its cultural sequence spans most of the first century A. D, a period when there were major changes in pottery traditions all over Zambia (Clark 1974:30).

Bisson (1976), Fagan et al (1969) and Musambachime (2016) discuss the importance of metallurgy in shaping socio-economic lives of prehistoric communities. Musambachime's (2016) work titled *Wealth from the Rocks* also gives an insight into the economic contribution of metallurgical developments to prehistoric communities and also goes further to itemize how different end products of metallurgy contributed to developments in Iron Age economies. This work is important to the current study as Bwinambo site yielded evidence of iron smelting hence Musambachime's work served as a reference point to activities that would have taken place at the site.

Fagan et al (1969) in their work, *Iron Age Cultures in Zambia, volume 2*, give a detailed overview of Iron Age in Zambia, and southern province in particular in which iron as a metal was significant in the development of prehistoric societies. Of particular importance to this study is the Ing'ombe Ilede Archaeological Site in Siavonga which is arguably the most important site depicting early trade in Zambia. This site informs the current study of what to expect from a settlement site that was involved in both local and overseas trade. It hence served as a lime light to the study both in terms of methodological approaches to the study and also diversity of material culture and its interpretation across time and space.

The study by Bisson (1976) on Prehistoric *Copper Mines in Zambia* is relevant to this work as Bisson addresses a number of issues relating to the importance of both iron and copper in the indigenous Iron Age communities. He contends that the nearly universal characteristic of African material culture is the dichotomy between the use of Iron as a utilitarian metal and copper as an ornamental one. Copper forms an integral part of the ceremonial regalia of high social status in Bantu speaking tribes. He further contends that there is evidence of an extensive network of small scale trade which dates from very

early in the Iron Age (Bisson, 1976: 3). The lack of organised markets did not inhibit trade. Bisson's work will help provide a better understanding of the role played by iron and copper in the development of the indigenous trading systems.

Another interesting source of insights for the current study was works by Roberts (1966), Christopher (1970), Wilson (1975), and Macola (2002) these works give useful information pertaining to possible trade routes that facilitated trade and exchanges.

Roberts (1966) traces the political development of the Bemba to 1900. He argued that it was not until 1885 when an important new outlet for Bemba exports was opened on Lake Nyasa; four years after this the British were making treaties with chiefs all around the northern fringes of the Bemba country (Roberts 1966:218). Consequently, contacts and changes which had evolved over the centuries along the east coast were compressed in Bemba land into the space of a few decades. Roberts's argument was however limited to historical knowledge which did not stretch far back in time in order to arrive at a conclusive picture of trade and exchange activities in this area prior to European influence. He notes that "most of such traders [Swahili traders] like the earliest European visitors, seem to have come and gone without a shadowy trace in Bemba memories, and only a few traders left any written record of their journeys" (Roberts 1966:236). The early traders in Bemba country had first-hand experience in local and regional exchanges taking place among the locals, however if they left insufficient records, to be able to ascertain the kind and intensity of trade and exchange activities based on historical sources alone would be misleading.

Roberts (1966:233) notes that "just as their central position on the plateau meant they were well placed to draw upon the varied resources of the surrounding area, so too it was an

advantage to them in their trade with the Swahili and Nyamwezi". If this indeed was the case, this literature is vital to this work as it would help to establish whether this centrality of Bemba land could have enabled the region to take advantage of trade and exchange activities along the Tanganyika – Nyasa corridor even in prehistoric times.

Christopher's work on the Kazembe and the Tanganyika - Nyasa Corridor is yet another important background study that prompted investigations of the corridor under study. He notes that one area with the apparent potential to produce an important professional trade was the corridor between Lakes Tanganyika and Nyasa. Christopher (1970:202) argues that the local trade corridor involved the exchange over large distances in many directions of a broad range of goods produced by skilled craftsmen exploiting the natural resources of particular regions. He further argues that despite the highly developed trade in this corridor, "the requirements for a 'break through' from local trade tied to subsistence agriculture, to a market-oriented trade are little known…." He further states that a description of the economic activity of the region before the influence of the coastal trade is hampered by the fact that the earliest observations of the corridor peoples were recorded by David Livingstone in 1867 well after professional traders had become common (Christopher 1970: 203). With the site falling within the corridor, this gap in the literature becomes worth investigating so as to establish when this form of trade began using archaeological methods of dating. Christopher's work is beneficial to the current study as it provides a clue of not only possible trade activities taking place in the corridor but also the range of goods that facilitated local trade and hence helps to establish the extent of trade in contributing to the socio- economic life of inhabitants of the corridor. The study

also provides a clear insight of where to start from in terms of local trade routes that the site under study could have benefited from in terms of trade.

Wilson's (1975) work titled *A history of South and Central Africa* acknowledges the existence of other trade routes other than the prominent Zambezi Valley. According to Wilson (1975:63), there was one really important route along which goods flowed to and from the east coast and that was the Zambezi valley. Besides this there was a complex of routes to the north linking Kazembe with the Zambezi valley and the coast. He adds that these routes involved principally the Bisa and Yao. Wilson however does not go further to describe or discuss the kind of trade taking place in the corridor. This corridor is what Christopher (1970) referred to as the Tanganyika – Nyasa Corridor.

Macola (2002) in his work *The Kingdom of the Kazembe: History and Politics in North-Eastern Zambia and Katanga to 1950* traces the origins of the Kazembe Kingdom and its role in the long distance trade. Macola (2002:202) argues that in "the seventeenth and eighteenth centuries, the Lunda empire, situated in south- western Congo, gave rise to movements of people and political ideas that spawned a series of new polities across the Central African landscape from Angola to the Great Lakes, reconfiguring economic relations from the Atlantic to the Indian Ocean." He adds that, one such Lundaized polity, the kingdom of Kazembe, took root in the Luapula valley of what is now north-eastern Zambia. The valley's rich array of resources, including fish, salt, and fertile land had long attracted diverse collections of people to the area, resulting in complex and ever-shifting layers of linguistic, political, and economic interaction.

During the growth of the Central African long-distance caravan trade system, the area's proximity to sources of copper, ivory, wild rubber, and prime slave-raiding territory gave

added impetus for movement into the Luapula valley as groups battled for control over strategic resources and advantageous geographical positions (ibid). Macola's work gives a rich and balanced account of the economic history of the Kazembe kingdom and is informative to the current study as it highlights the role the Kazembe kingdom played in the long distance trade, and the resources that precipitated the trade. The rich and balanced sources of information ranging from ethnography, anthropology and oral traditions from archives stored in museums serve as an eye opener of possible sources to be consulted.

Works by Abungu and Mutoro (1995), Mapunda (2001, 2008) and Katto (2015) address issues relating to coastal – interior connectivity and cultural links that existed in the Tanganyika – Nyasa corridor and beyond. A study of archaeological evidence by Abungu and Mutoro (1995) at a Takwa settlement in Kenya indicative of coastal interior connectivity yielded significant evidence of regional economic relations through a variety of wares from different settlements. The evidence suggests that there were inter – ethnic contacts within and between coastal settlements themselves, on one hand, and interior societies on the other. The findings are informative to this study based on two aspects. Firstly, material evidence such as imported pottery is a useful tool in addressing the issue of coast-interior contact. Secondly, the presence of local pottery in the study area, which shows similar attributes like decorations from neighbouring community directly imply existence of inter-ethnic contact prior to coast interactions. The two phenomena provided a good picture on how to approach the issue of communities' interactions over time.

Mapunda's work in the Ruhuhu basin of Tanzania also formed a good starting point to this study. His approach involved placing archaeological findings of the region in a broader archaeological context, both within the catchment area of Lake Nyasa and farther

east to the Indian Ocean littoral. This approach allowed him to expose socio-cultural and economic dynamics prevailing in the interior of East Africa during the first two millennia A.D (Mapunda, 2001:99). He further developed his study basing on intra- and inter-regional perspective. He attributes communities' interaction in this region basing on shared cultural traits, iron technology being one of cultural traits, which ethnic groups [Matengo, Pangwa, Bena and Kinga] of this area used to share (Mapunda 2001: 99-105).

Mapunda (2001) further maintained that interactions between different cultures are not limited to the eastern shore of Lake Nyasa. Here he reported the immigrants called "*Balowoka*" to mean one who crossed the lake as traders. Oral testimonies recorded by Kalinga (1985 cited in Mapunda, 2001) claim that the motive of original Balowoka was to find ivory, a commodity in high demand along the East African coast in the second millennium. That factor influenced them to cross Lake Nyasa from Manda and settled in the north-central region of what is today the Nyika plateau of Malawi (Mapunda, 2001:108).

In an attempt to address the issue of inter-regional contacts, Mapunda (2001) has explained that some potsherds recovered from sites liJc-4 and liJc-15 bear some morphological and decorative affinities with Triangular Incised Ware (TIW) pottery (Chami, 1994). The TIW tradition has been thought to be a domain of the East Africa Coast (Horton, 1984; Chami, 1994). Based on archaeological evidence, Mapunda (2001: 110) argued that "… it is very likely that the trade and socio-cultural networks within the region and the coast are much older than we sometimes think".

In addressing the issue of connectivity between the Indian Ocean and its hinterland, Mapunda (2008) used Southern Tanzania as the case study. He focused on archaeological

evidence from the Early Iron Age period and insisted that, "this interaction which extended as far south as Zambia and Zimbabwe is evinced by similarities in pottery, iron technology and ritual practices, all of which show that the coast used to share culture with the close and distant hinterland from much earlier than we sometimes think" (Mapunda, 2008:85).

Katto's (2015) study of the coast – interior connectivity is yet another illuminating work to the current study. In his historical archaeological research, he establishes archaeologically socio-economic and cultural links that developed between coastal and interior communities. His approach involved comparing and contrasting the archaeological evidence of coast - interior connectivity obtained from southern Tanzania with evidence from better documented routes in Central and Northern Tanzania. He further compared similarities between pottery found in these settlements with pottery found in some Iron Age sites in Zambia like Kapwirimbwe. This is important to the current study as it serves as a clue into investigating similarities, if any, with pottery from the Northern Region which is in even closer proximity with Tanzania, so as to establish the nature of interactions if any.

Research Methodology

The study was qualitative in nature; however statistical data was used in some instances especially with compilation of recovered artifacts. The field investigations on which this study is based entailed ethnographic inquiry, field reconnaissance and excavations. Ethnographic inquiry incorporated review of both primary and secondary data, and oral interviews. Primary data took the form of observations of pottery from Kalambo Falls Prehistoric site at the Livingstone National Museum and Moto Moto Museum. These enabled comparisons to be made with pottery recovered from Bwinambo archaeological

site based on decorative motifs, colour and fabric. Text primary sources such as journals and note books were also consulted at the Livingstone National Museum, National Heritage Conservation Commission Documentation Centre and National Archives of Zambia. These helped to furnish information on location of the study area, background history of the area and environmental setting. Artefacts recovered from the excavations complimented text based primary data as they added material culture to the study and hence provided a concrete tangible dimension to archaeological evidence.

Both formal and non-formal oral interviews were conducted throughout the four-month study period. This was done so as to ensure the reliability of the information collected from the local people. This was achieved by continuous interaction with the local people so as to enable them become more acquainted with the research material and more conversant with the researcher so as to avoid or reduce skepticism. This also allowed for cross- checking and evaluating information given in different time periods. Brief revisits were also made to informants whenever there was need to do so.

This study used informal interviews to obtain information pertaining to customs and traditions. This method was used in order to collect information from sensitive informants such as women, traditionalists and older men who were not comfortable with formal interviews especially with a female researcher. On the other hand, formal interviews were used to obtain information from key persons in the study area. These were headmen from both villages and the deputy head teacher of Bwinambo primary school. Formal interviews were structured and involved a single informant. Outcomes were more controlled unlike those from informal interviews. Appointments were made prior to the interview date. Additionally, themes for the interview were given to them prior to the interview date.

Themes comprised of subsistence practices (trade, farming, fishing, herding and iron smelting), ethnic beliefs, local beliefs and customs. To ensure that data collected was factual, questions were asked according to each informant's expertise. Two informants both headmen of Mungu and Makanga villages were formally interviewed while seven others were informally interviewed whose ages varied from 25 to 82 years old.

The interviews were conducted in order to obtain information pertaining to the local history of the area from the local people who it was envisaged would elucidate certain aspects of the region's history and to track down related archaeological and historical features through the local people. Oral interviews also enabled the collection and documentation of information pertaining to trade, iron working and pottery making as this helped in facilitating the interpretation of data from site survey and excavation.

Reconnaissance or field survey was yet another important method that was used to aid the discovery of archaeological sites. It serves as an enormous technique in ensuring that ancient sites that cannot be immediately excavated are protected. In this study, site survey was done by prospecting around the site on foot, aimed at locating occurrences of archaeological materials, studying their spatial distribution and examining land use patterns. A designated zone was systematically selected and greater attention to detailed investigations was given to terrain, vegetation, soil colour change and all visible cultural features and artefacts in the area. All archaeological features on the ground were noted in a note book and through photography. The format for recording finds, features and archaeological sites followed the established standard site survey methodologies in archaeology. The baseline for the site survey was outlined after the first day of explanatory work in the area had been completed. Lastly, sites that were located during site survey

were scrutinized for their potential contribution to the goals of the research study. A few that were most suitable were selected for more intensive investigation.

Excavations were also carried out aimed at identification of stratigraphic positions and consequently the relative chronology of the cultural materials. Physical remains of past cultures are used to learn about those cultures. Therefore, in order to convert things of the past into documents of the past, that is, to make statements about historical events from archaeological materials, the precise context in which the 'things' were found must be known. It is their context which changes the 'things' into documents from which historical reconstructions can be made. Hence the methods, as the accuracy of conclusions about the past are directly related to the precision by which materials were formed. The other aim of excavation was finding artefacts that would aid the reconstruction of the socio-economic base of the inhabitants of the area and lastly, to obtain datable materials such as charcoal that is needed to construct an adequate culture history of the area.

To achieve this, zones were chosen for excavation. Each unit or site was excavated by a team of four people: one pick man, one shovel man and ideally two people or persons sieving. When exposing delicate areas, a trowel was rather used, but for the most part of the ground which was extremely hard, a pick was used as the most common digging tool. All the earth removed from a unit was put through a 5.5 mm sieve. This is a very important technique as it tends to standardize the recovery of materials from different parts of the site and also ensures that small artefacts such as beads and teeth are not missed. Sieving also incorporated another technique called floatation. This method was used whenever we came across ashy soil, a sample was taken and put in a bucket, which was given a label marking the exact find spot. Running water of very low pressure was used to fill the bucket

containing the soil sample. The bucket was then slightly tilted so that the water only flowed over one edge. Thereafter, the soil was agitated by hand to break up clumps so as to ensure that all organic material was allowed to float up and over a mesh sieve (actually a mealie meal sieve). The organic material recovered from the sieve along with the label was set indoors to dry for at least 2 days in order to allow the sample to completely dry. Thereafter sorting out of organic material was done in good natural light.

After the dig, cataloging and quantitative analysis was done. All finds from the pits were systematically packed in zip lock plastics with labels of the unit or site number, exact location and date, with charcoal being packed in aluminum foil. All artefacts were recorded in context record sheets with an accompanying note in the field diary. Immovable objects were photographed, wall section drawings and site plans were also drawn. Simple quantitative analysis included counting, weighing and measuring the artefacts.

Lastly, artefacts from the excavated pits were taken back to the University of Zambia for cleaning which included washing. However delicate artefacts such as metal, shells and weathered bones were not washed but brushed using tooth picks and a very soft tooth brush. Details of results of site survey and excavation are provided in Chapter Four.

Secondary sources in form of books, government documents, journal articles dissertations, theses, published and unpublished documents were also consulted from the University of Zambia main library, Livingstone National Museums Library, Moto Moto Museums library, National Heritage Conservation Commission Documentation Center, FENZA and INESOR. Resources from these institutions furnished the study with information concerning prehistoric and Precolonial trade and exchange networks, iron working and the general understanding of prehistoric pottery.

Other methods that completed the above methods of data recovery were the use of the Global Positioning System (GPS) which was used to map the selected areas for excavations. Drawing of soil profiles for each excavated site was also done using tracing paper and graph paper.

Organisation of the Study

The dissertation comprises five chapters. Chapter One presents the introduction and historical background to the study, Chapter Two presents an environmental and cultural profile of the study area, Chapter Three presents excavations at Bwinambo site, Chapter Four presents an analysis of the data collected from field work and lastly Chapter Five is the conclusion of the study.

CHAPTER TWO

THE STUDY AREA

Introduction

This chapter presents the general environmental and cultural profile of the study area. The study of human culture is incomplete without the study of the environment in which humans lived. This is because the environment played a very important role in shaping the socio- economic patterns of human cultures, not only did the environment shape past human cultures, but present societies as well. The socio-economics of every human society is thus largely dependent on the environment. It has already been mentioned that one of the objectives of this study is to reconstruct the socio – economic and cultural patterns that existed among the iron age inhabitants of the research area.

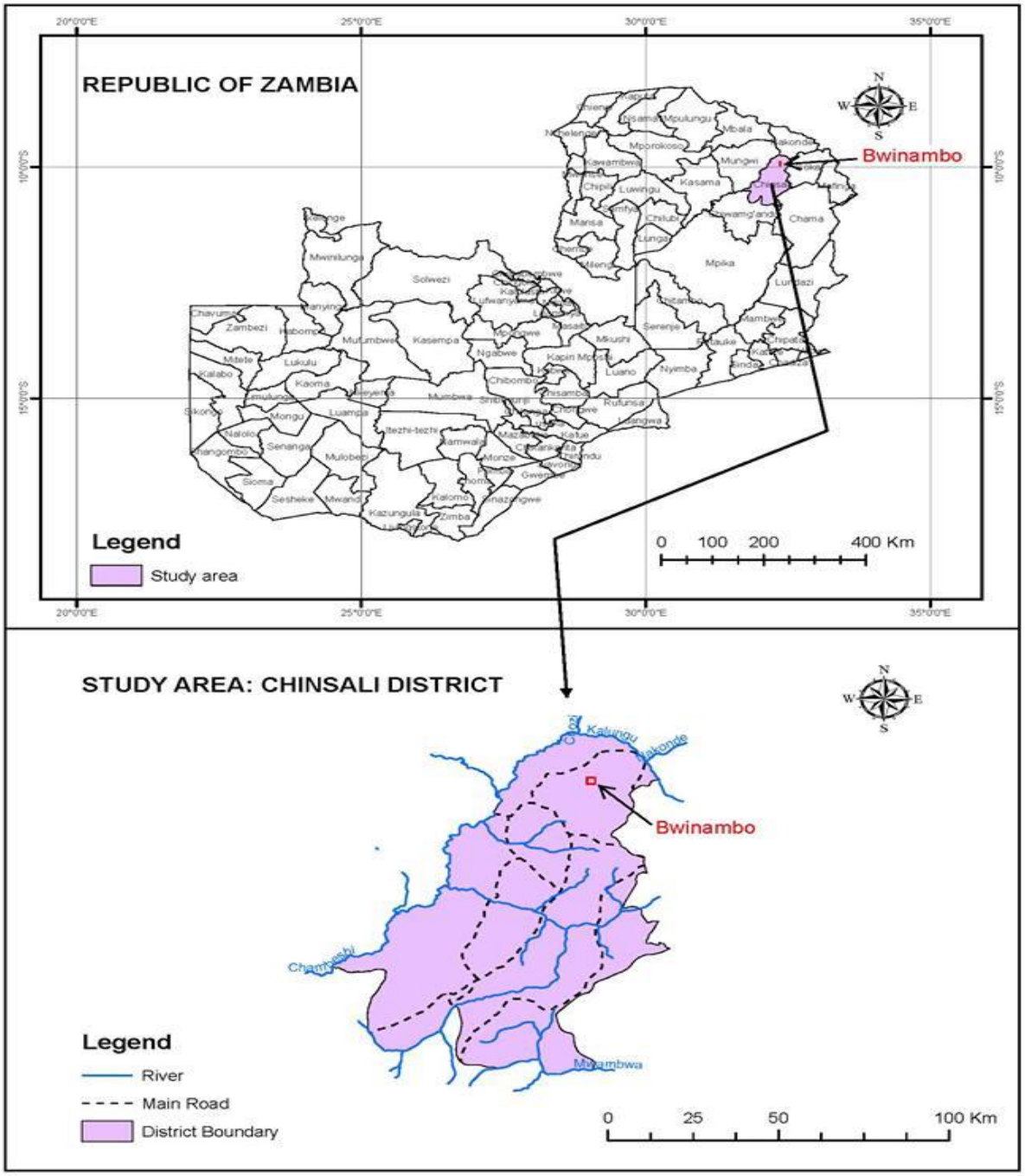
An understanding of the environmental and cultural context of the study area is therefore vital as it enables one to appreciate the setting of the archaeological site. The environment governs human life, latitude, altitude and land forms, while climate determines the vegetation, which in turn determines human and animal life. All these things taken together determined where humans lived or at least they did until recently (Renfrew and Bahn 2012: 223). These factors also determined prehistoric man's land use and exploitation patterns. Ashmore and Sharer (2010) have stressed that the range and variety of implements in a society gives potential clues as to how that particular society dealt with their environment. In the same way, the range of artefacts found in the archaeological record serves as a clue to how past societies exploited their environment and hence help in the reconstruction of past life ways. Many scholars, including Clarke (1968:85-88), Flannery (1968: 65-74), Trigger (1996: 317- 319), Crumley (1994: 2-5) and Watson et al (1984: 113 -154) have suggested that human culture in the past developed as a result of

human adaption to the environment. It is therefore important to describe the environmental contexts which could have affected or conditioned the process of adaptation and change in the area under discussion. The environmental and cultural setting of the study area have therefore been presented here in order to provide an understanding of the region and its ecological setup.

Location

Map 1.0 shows the location of the research area in Chinsali District, Zambia, bordered on the east by the Luangwa River and on the west by the Chambeshi River. The western area is fairly well watered, wooded and flat, with the exception of the north west corner and the portion north of Kasama which is flat, open and marshy (NAZ 55:19). It is in this region that Bwinambo archaeological site is located between Mungu and Makanga villages. The site is situated in a mountainous area, at the foot of the Muchinga Escarpment. Physical features at the site include dambo like grasslands and Bwinambo stream that emanates from the rock outcrops that form part of the escarpment.

Bwinambo site lies at an altitude of 1281 meters above sea level, with geological grids 436053E, 8915446N. It can be accessed using two routes, from Kasama via the Isoka-Mbesuma Road, which branches off to Mulilansolo and from Isoka via the Kantenshi road which joins the kalela/Isoka junction near Chilunda. Bwinambo is 66km from Isoka business town center using the Kantenshi route and 130km from Chinsali town via the Mulilansolo road. According to the Mungu village headman, Mr Jim Sichembe, the site derives its name from the massive number of buffalos that were present in the area in the past, leading to the area being referred to as '*ubwinambao*' (the place of buffalos) in the local language. Later, for unexplained reasons, people started calling it Bwinambo.



Map 1.0. Location of the Study Area (Map Drawn by Garikai Membere – UNZA Geography Department 2019)

Environmental Setting

Climate

Much of Zambia lies in a warm tropical zone, with a well-defined dry season. The factor that determines the distribution of this climate is elevation. According to Sleen (1978: 5), the study area lies in an area with a high rainfall zone, with average annual rainfall of about 1200mm. The rainfalls originate from the moist Congo air which forms a convergence zone with the north easterlies. Part of the convergence zone falls along the Zambezi Congo watershed. Sleen further states that the wet season from November to April has monthly temperatures of about 21°C, with a mean maximum of 10°C, and it has a mean monthly maximum of about 300 mm in January. The dry season has a cool period in June/July with the mean monthly temperature of about 7°C. After June, temperatures rise steadily to the October maximum of about 23°C (*Ibid*). The mountain tops are generally cool throughout the year with the coldest month being July. During Summer, the Valley is hot with the hottest month being October.

The research area is well watered with streams, dambos and rivers. The Bwinambo stream, which is a perennial source of water for many residents in the area flows through the site. This stream has, however, been disturbed by water pipes which have been connected from its source to provide piped water to the local community. Besides Bwinambo stream, is the Kalungu River which is part of the drainage system of the Chambeshi River. The Kalungu River flows in the north – eastern direction and flows northwards to its confluence with the Chambeshi River (NAZ 55: 10). The Chambeshi River originates in the Mbala highlands, with its course mainly over the high plateau and the mountainous areas, on the north-eastern part of Zambia. The dambos on the other hand, form the head waters of plateau streams, retain water and continue to maintain stream flow well into the

dry season. Musonda (1983:25) argues that dambos are important because they determine the location of sites for rural settlements and that "modern village settlements have tended to cluster near dambos because they provide a perennial water supply".

Soils

Soil characteristics are mainly due to climatic factors, parent rock material and topography. The decisive factor in Zambia is rainfall, which has affected the degree of soil weathering and leaching (Markel 1971: 26). Unlike most of the regions in north eastern Zambia which have sand soils developed under high leaching intensity, the study area has loam-clay and sand soil which has moderate to low amounts of humus. In these soils, "the clay content is generally higher: from the coarse grained surface soil to sub soil, soil textures change from clays to sandy clays or sandy loams…" (*ibid*). Soil colour therefore, ranges from dark gray to dull gray and grayish brown associated with the gleisoil and acrisols, to reddish brown and yellowish brown hue associated with the ferralsols (Veldkam 1987). The reddish tint in the ferralsols is indicative of the presence of iron compounds in the soil. According to the Food and agriculture organisation (FAO 2015) soil classification system, "the colour of the feralsols is related to the kind of iron minerals with goethite producing yellow colours and haematite red colours". The red coloured ferralsols are common on the plateau.

The gray colour in the aforementioned soils is indicative of low amounts of humus. According to Sichinga (2012), these soils are characterised by soil acidity, low bases retention capacity, low soil organic matter, low general soil fertility and soil degradation. The top spoil has a sandy texture with angular grains of about 1-22mm and can thus be described as sharp sand. In addition, large amounts of humus similar to those found in the

Chipoma Falls area signified high levels of decomposition. Chipoma Falls is located in Chimbele village, on the Chimanabuwi River, 38 kilometers from Chinsali central business area (NHCC 2008). The type of humus found at the site, can be categorized as mull humus which is dark coloured and ultimately mixed with mineral matter. However, the dambo areas within the study area are underlain by acrisols. These are mainly represented by silty sands which are well graded with a relatively wide range of grain sizes. The study area therefore has pockets of both areas with moderately fertile soil and poor soils moderately suitable for most crops due to their coarse texture and silt content.

Vegetation

Vegetation cover over the entire territory is related to factors discussed above such as climate and soils. These and many other factors are interrelated and play a major role in determining the vegetation type in any particular region. The vegetation around Bwinambo archaeological site is characterised by grassland interspaced with miombo (Brachystegia) woodland. The miombo woodland covers over half of Zambia, mainly over the plateau and escarpment country, and is characterised by *Brachystegia, Julbernadia and Isoberlina* species (Markel 1971:24). This vegetation type is made up of a mixture of shrubs, relatively slow-growing trees of moderate height and knee-high grasses. Where the canopy is closed, short grasses occur. According to the National Conservation Strategy for Zambia (GRZ 1985), "most of the trees in this vegetation type are actually deciduous in nature". Storrs (1979) gives a detailed description of the tree species common in the miombo woodlands as *Brachystegia spercifomis, Isoberlina angolensis, Uapaca kirkiana, Julbernardia globiflora* and *Julbernardia paniculata*. This conforms to the tree species found at Bwinambo archaeological site, with the majority being Brachystegia. It is this

tree species that has suffered depredations of charcoal burners and has been destroyed over large areas by shifting cultivation.

Along river courses, the common vegetation type is the Riparian forest. This vegetation type is interrupted in places by dambo-like grasslands which are wide grassy margins of a river. Where the concentration of trees increases, riparian forest culminates into *mushitu* forests (NHCC 2008). According to the local people, the *mushitu* is a very thick vegetation zone with very tall trees and is known to harbor huge serpents like pythons and cobras. These snakes may have been attracted to this forest by the numerous small bird species that thrive in the area. *Mushitu* forests can easily be seen when looking over the area from the highest point of the escarpment as patchy green areas along river courses. According to Storrs (1979), some of the common tree species in this ecosystem are *Syzygium cordatum* (Water Berry), *Syzygium owariense, Gardeniai Imperialis* (Wild Gardenia) and other species like *Mwengele* and *Mubanga.* According to the local people, *Mubanga* is a very rare tree found along rivers as well as in the *mushitu* forest- proper.

In some places, between miombo woodlands and riparian forests and between chipya woodlands and dambo areas, is a transitional zone which is characterized by open Uapaca forests dominated by *Uapaca kirkiana* species. This is a popular habitat for small game like grysbok, impala and duiker. The research area also has a great variety of grasses. Among them are *Setaria homonyma. Elusine indica, Digitaria milanjiana, Digitaria ternata and Dactyloctenium aegyptium.* Additionally, there is 2-3metre tall grass known as Elephant Grass (*Hyperrhaenia*) (NHCC 2008). This type of grass is common in places that have been disturbed by human activity such as settlement and cultivation. They are good indicators of old settlements. Other species found in the disturbed areas of the study

zone include *Rhynchelyrum repens*, locally known as *Sensele* and *Cyperus esculentus* (and *C. rotundus),* locally known as *Indao*. Forest trees cover the whole area of rock outcrops except where bare ridges, protruding in many places, show that the main rock floor is never underneath. Rocky areas are well endowed with medicinal plants like *Aloe Vera.* On the other hand, a creeper that produces sour fruits locally known as *mateke*, is very prominent.

The miombo woodlands support a rich diversity of wildlife. During an interview with the Headman of Makanga Village, Mr Meston Makanga, it was revealed that Bwinambo area is home to a variety of animals, the most common being Grysbok (*katili*), porcupines, cane rats, *inengo, impelembe, insefu*, velvet monkeys, baboons, and bush pigs. Mungu village headman, Mr Jim Sichembe added that "big game such as roan antelope, kudu, eland, buffalo and elephants, including the common duiker were common in the area until 1952". The reduction of game animals in the area was attributed to an increased human population and increased use of guns for hunting.

Modern Settlement in The Nyasa- Tanganyika Corridor

Map 2.0 shows the broader physical area in which the Bwinambo archaeological site is located which is referred to as 'Nyasa-Tanganyika corridor' because it is a passage between lakes Nyasa (Malawi) to the south and Tanganyika to the north (Mapunda 1995: 40). The corridor straddles three countries, Tanzania, Zambia and Malawi. Taking Lake Mweru and Lake Rukwa as boundaries on the west and east, the main ethnic groups inhabiting the area include the Bwile, Tabwa, Lungu, Mambwe, Namwanga, Nyiha [Nyika], Safwa, Bungu, Nyakusa and the Bemba (Christopher 1970:202).

The Major ethnic groups that make up the present day community of Bwinambo are the Bemba and Namwanga or Winamwanga, although there are other smaller ethnic groups like the Bisa and the Mambwe. The local people call this mixture of ethnic groups '*ichilunda ba bemba'* (meaning an inclusion of other ethnic groups among the Bemba). The mixture of the Bemba and the Winamwanga came about due to the proximity of Chinsali and Isoka which are traditional areas for the two ethnic groups respectively. The Winamwanga are however in the minority though they are the principal ethnic group in Isoka District compared to the Bemba- speaking groups.

According to Richards (1939:18), "…the Bemba live in small communities, the average village consisting of 30 -50 huts. Each village is a kinship unit under the rule of a headman who is appointed by the chief of the district and is responsible to him" The current settlement pattern in the area has more or less followed the same trend, where a village community consists of a relatively smaller number of huts under the leadership of a headman for easy administration. However, because of population growth there has been an increase in the number of huts per village. Although contemporary Bemba houses are rectangular, usually with two bedrooms and a living room, Bwinambo has incorporated the neighbouring Lungu, Mambwe and Namwanga architecture of building circular houses with conical roofs.

The nature of settlement pattern led Clark (1974:3) and Wilson (1958: 46-49) to suggest that some social and cultural transmission between North- eastern, central and southern Africa took place through this area. Christopher (1970:202) states that this corridor was one area with the apparent potential to produce an important professional trade. He points out that:

> *"the local trade of the Corridor involved the exchange over large distances in many directions of a broad range of goods produced by skilled craftsmen exploiting the natural resources of particular localities. On the western boarder of this region of rich local trade stood the economically and politically sophisticated kingdom of the Kazembe, linked with the kingdom of Mwata Yamvo in the west and the Bisa and the Yao in the east in a market oriented trade - reaching to both the western and the eastern coasts".*

In line with Christopher's argument, writers on pre-colonial trade in Mwata Kazembe's kingdom such as Macola (2002), Chama (2012), Roberts (1976) and Cunnison (1967) have tended to place emphasis on international and long distance trade which is shown to have been fundamental in the expansion of the kingdom. The reference to Kazembe's capital as a trade center by Christopher (ibid) or "the meeting point of trade routes" by Robert (1971: 4) clearly suggests a hive of trade activities taking place in the corridor in pre-colonial times. However, this is as far as written records can inform us.

The renowned trade between Mwata Kazembe's kingdom and the East coast passed through this corridor and yet little is talked about the benefits of this trade network to the corridor people. This can largely be attributed to the manner in which history has been written. Chama (2012: 6) questions the extent to which theories in other fields of study can be used in explaining the role of trade and tribute in Mwata Kazembe's kingdom whilst maintaining the historical value of historical research which is rationality. One thing that comes out clearly is that for historical explanation to be rational, it must not be based on inferences only but should encompass historical facts of how events actually occurred, how and when.

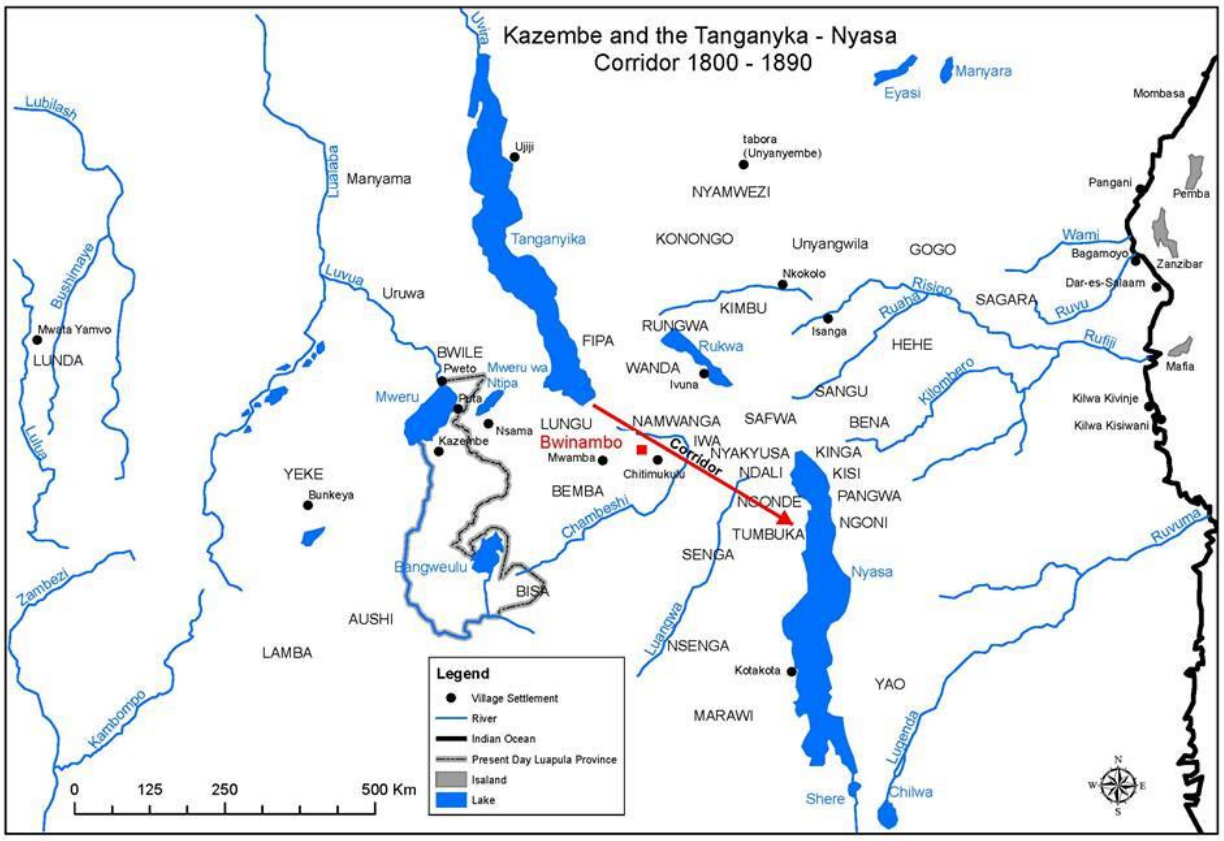
Unfortunately, the pre-colonial history of Zambia was written from 'the top', that is, of prominent figures leaving out the commoners. Plekhanov (1959: 40) argues that 'historians are in the habit of paying attention to the brilliant, clamorous and ephemeral manifestations of human activity, to great events and to great men instead of depicting the great and slow changes of the economic conditions as well as social institutions". Historical discussions on trade in this corridor seem to have put more emphasis on its control by chiefs or kings and less on trade activities by ordinary people. Where ordinary people are mentioned, they are simply depicted or downgraded to mere vessels of trade goods than participants in trade activities. This is the case for the Bisa who played a major role as carriers of Ivory and Copper from Mwata Kazembe to the east coast and the Portuguese colony of Mozambique (Alphers, 1975: 124,178).

Roberts (1976: 109) emphasized the central role of Mwata Kazembe in trade organization to the extent that even Mwata Yamvo's goods had to be carried to Kazembe's kingdom to be exchanged for salt and copper. Even though there is evidence to prove the monopoly of Mwata Kazembe over this trade, other scholars like Gordon (2006) counter reacted Roberts (1976) argument on the monopoly of Mwata Kazembe. In explaining the patronage networks in pre-colonial Mwata Kazembe's kingdom, Gordon (2006: 19) argues that "the monopoly of a few traders or trading lords over imports from the Indian Ocean helped to sustain their privileged positions". When writers stress the monopoly of trade by the Kazembe, one example that is given is that of Mwata Kazembe forbidding his subjects from trading. Cunnison (1961:73) indicated that Kazembe forbade "his subjects on the pain of death to trade" with Portuguese expeditions. Macola (2002:135) on the other hand, argued that "commoners were prevented generally "under penalty of

death from bartering foodstuffs with foreigners", while Langworthy (1972:62) writing on the Portuguese expeditions that were not allowed to cross into Angola argued that they were not allowed to trade with anybody else except the representatives of Mwata Kazembe. Wilson (1975:63, 65), nonetheless, argues that "… there was an active 'trade chain' system among the people of northern Zambia and South- West Tanzania, through what is now called the Lakes Tanganyika –Nyasa Corridor". He adds that over the commercial world of what is now north –eastern Zambia, the Bisa reigned supreme.

What is evident from the four arguments above is that these prohibitions signal that they were done to prevent something that was on going, as no one can forbid what does not exist. This means therefore that, different people from different societies took part in this trade. Although Roberts (1970: 717) argues that much of the exchanges of goods was not trade at all because it was not organised by individuals with purely economic motives, he recognizes that individuals were involved in these exchanges. It is therefore important to note that the basic principle determining this kind of trade was demand and supply. As such everyone was a trader: potters, fishermen, black smiths and hunters all traded for various reasons. This meant that bartering of goods did not necessarily indicate the existence of market in this corridor, but rather it shows that before 1890, the economy of Mwata Kazembe was multi centric in which markets were simply any place "where people met and traded their goods" (Musambachime 1976: 82 -83). Trade therefore did not necessarily have to be organized. This scenario was completely different from Ing'ombe Ilede where there was a trade market. If Mwata Kazembe tried to monopolise trade in this corridor, he simply took advantage of an activity that was already in existence, long before the establishment of his kingdom.

Whether or not trade as an economic activity was significant enough to affect the economies of these corridor peoples is what this study has addressed. There is a serious lacuna in terms of the economic activities, that is, trade and exchange that took place in this corridor way before written records, when the administrative units that are now existing where nonexistent, when boundaries between the three territories, that is Zambia, Tanzania and Malawi, were only defined by natural boundaries such as rivers and rock outcrops and way before the establishment of kingdoms. This lacuna can only be filled by resorting to archaeological methods to cover up the bare bones of history. According to Dymond (1974), one of the peculiar fascinations of archaeology is that it sheds light on the lives of the submerged majority as well as on the ruling of the small minorities since it is more concerned about groups of people or societies and how they interacted with their environment.



Map 2.0 .The research area in relation to the Tanganyika-Nyasa Corridor (Source:Christopher 1970, with my own additions).

Economic Activities

The contemporary inhabitants of Bwinambo subsist on farming, animal husbandry, fishing, hunting and petty trading. However, some income is also earned through some part-time jobs like charcoal burning and crafts such as carpentry.

Farming

Farming is the mainstay of the local people's economy, as most farming zones around the area have loam soil which has moderate amounts of humus. During site survey, it was observed that the major crops grown include cassava, maize, millet, groundnuts, sweet potatoes and beans. Tobacco is also grown along the Muchinga Escarpment. In terms of

agriculture, the hoe remains the traditional implement of cultivation and the *'mputa'* the traditional garden. Evidently, farming has always been the prime occupation of Bwinambo and surrounding areas. This can be seen from the number of farms that were established in the research area in colonial times. Presently, gardens are not only cultivated far from the village, but a number of households have maintained backyard gardens, however, millet is grown on the plateau. The local people are shifting cultivators, that is, they clear a fresh strip of bush each year to make fresh gardens (Richards 1939:18-19). During an interview with the local people at Makanga village cooperative, it was revealed that farming in this area is principally a subsistence activity rather than a commercial enterprise, but in good years (dictated by rainfall amount and distribution), farmers often manage to produce surpluses of maize, millet and beans, which earn them money.

Animal Husbandry

ın addition to farming, the local people also raise animals for both subsistence and commercial purposes. These include cattle, goats, pigs and chickens. Cattle are the most important livestock both economically and culturally. Cattle are predominant and their history seems to match that of human settlement during the Iron Age, as fauna remains indicate that they were present at a number of Iron Age settlement sites; remains have been noted in excavations at Kalambo Falls by Clark (1974), Ivuna (Fagan and Yellen 1968) and Ing'ombe ilede (Fagan et al 1969).

Hunting

Meat is the most preferred by the local people as it is considered a delicacy, as numbers of game are increasingly diminishing. Modern Sikapizye, one of the hunters in Makanga village indicated that "bush meat is acquired through hunting, trapping and scavenging,

with cane rats and duikers being hunted through the use of snares". Numerous game trails and traps were observed during field reconnaissance. Sikapizye further added that "monkeys, roan antelope and kudu are however hunted by gun as these have proved to be difficult to trap". Elias Sinyangwe, another hunter from the same village added that "even though it seems easy to hunt and mount snares for animals, not everyone goes to hunt as it is reserved for the skilled and is usually a game of chance because of increasingly diminishing game". Even though the local people keep a lot of cattle, it was observed that they rarely slaughtered for consumption. Most cattle owners reserve their cattle for commercial purposes and not as a source of meat for their households.

Fishing

According to the local people, fishing is a seasonal activity mainly done in the Chambeshi and Kalungu Rivers, mostly at the end of the rainy season when most streams, rivers and ponds have subsided. Along both rivers, a great deal of net and line fishing takes place, especially as the river level goes down after the rainy season. During field work, it was observed that bartering also goes on, with fish being exchanged for other types of foodstuffs, with the Nyika. There is of course a great deal of pool fishing as the dry season advances, and in the river line areas this activity contributes considerably to the economy and diet of the villages concerned. Although a small segment of the population practice fishing, it has better yields than hunting as it yields more meat per person than hunting does.

Trade and industry

The development of a marketing system for agriculture produce has put more hard cash in circulation among the local people. Through cooperatives, local farmers are empowered

to sale their agricultural produce mostly to the Food Reserve Agency at the local depots in the area. Nevertheless, there exists a body of employable labour which is on the lookout for unskilled employment during the dry season. These are dependent mostly on government projects such as grading of roads and building of rural schools**.**

According to the 2010 census, the province is one of the major suppliers of hardwood and soft wood. The hard wood is used in building and construction, and bee keeping (GRZ 2014: 1). The endowment of the research area with such resources has enabled some local people to engage in small scale carpentry as a source of income.

During field investigations, it was observed that local people were still involved in barter exchange as earlier mentioned. They have special market days on which various traders from as far as Tanzania and surrounding areas meet to trade in goods. Chunga market, about 13km from Bwinambo archaeological site is one such market where trading is actively done. Besides the main market day, another market day for local people is organised in Mungu village 3km from Bwinambo. During the market day, local people from the research area trade with neighbouring villages. Exchanges in food stuffs not available in either locality are done as well as trading using money. According to the local people, this has proved to be advantageous especially during the dry season when food is scarce in the area, as their villages are located far from the towns where different commodities can easily be obtained.

Previous Archaeological Work at Bwinambo

This study stems from a preliminary assessment report by Billiard and Lumpa (2012) following reports of a possible archaeological site. Bwinambo archaeological site was initially investigated by a team from National Heritage Conservation Commission

(NHCC) in April 2012, after receiving a report from a Mr Mwanaliti, a former teacher at Bwinambo Middle Basic school. He reported finding human bones that had been exposed during the 2010-2011 rainy season, some of which had bracelets on them.

NHCC staff and the current researcher visited the site to verify the reports and carry out a preliminary assessment. A rescue excavation of an exposed human skeleton and a clay pot was conducted. “The skeleton consisted of a skull, shoulder blade, rib cage, hand bones, leg bone and toe bones. Other parts of the skeleton may have been washed away due to soil erosion (see figures 1.0 and 2.0). This was evident from the shallow depth at which the skeleton was found” (Lishiko and Lumpa 2012).

Figure 1.0. Human bones consisting of a skull, shoulder blade and rib cage (source: author).

Figure 2.0. Shows the Skull from the rescued Skeleton (source: author).

Conclusion

This chapter has highlighted the socio-economic, environmental and cultural setting of the study area. It has been shown that the location of Bwinambo is characterised by diverse natural and cultural resources. It is this diversity in resources that played a vital role in the choice of the location of settlement by prehistoric peoples that inhabited the area. All these parameters of climate, soil fertility, drainage system and vegetation cover have something to do with not only the establishment of sites but also abandonment of settlements. According to Kwekason (2010: 90), the interplay between the environmental parameters and cultural factors tends to determine the patterning of a particular concentration of human and other populations in a particular favourable area.

Additionally, diversity in cultural and natural resources also plays a major role in determining the socio- economics of the people inhabiting a given area. This is true of the economic activities of the current inhabitants of the area which are largely tied to

available resources. Ecology therefore helps us to understand why prehistoric people developed as they did and not in any other ways. Documentary evidence on the other hand revealed that the corridor in which the study area lies was a hive of activity in terms of trade in precolonial times. If indeed trade flourished in this corridor, it could have still flourished through Bwinambo which was strategically positioned between the east coast and the Kingdom of Mwata Kazembe. This hypothesis is in consonant with Fagan's (1969: 2) argument that pre-colonial trade was crossed with "complex inter- bartering networks which were based on comparatively steady but informally structured demand for raw materials". If this was the case, this study should be able to reveal evidence from the corridor to show that there was trade in the area during prehistoric times.

CHAPTER THREE

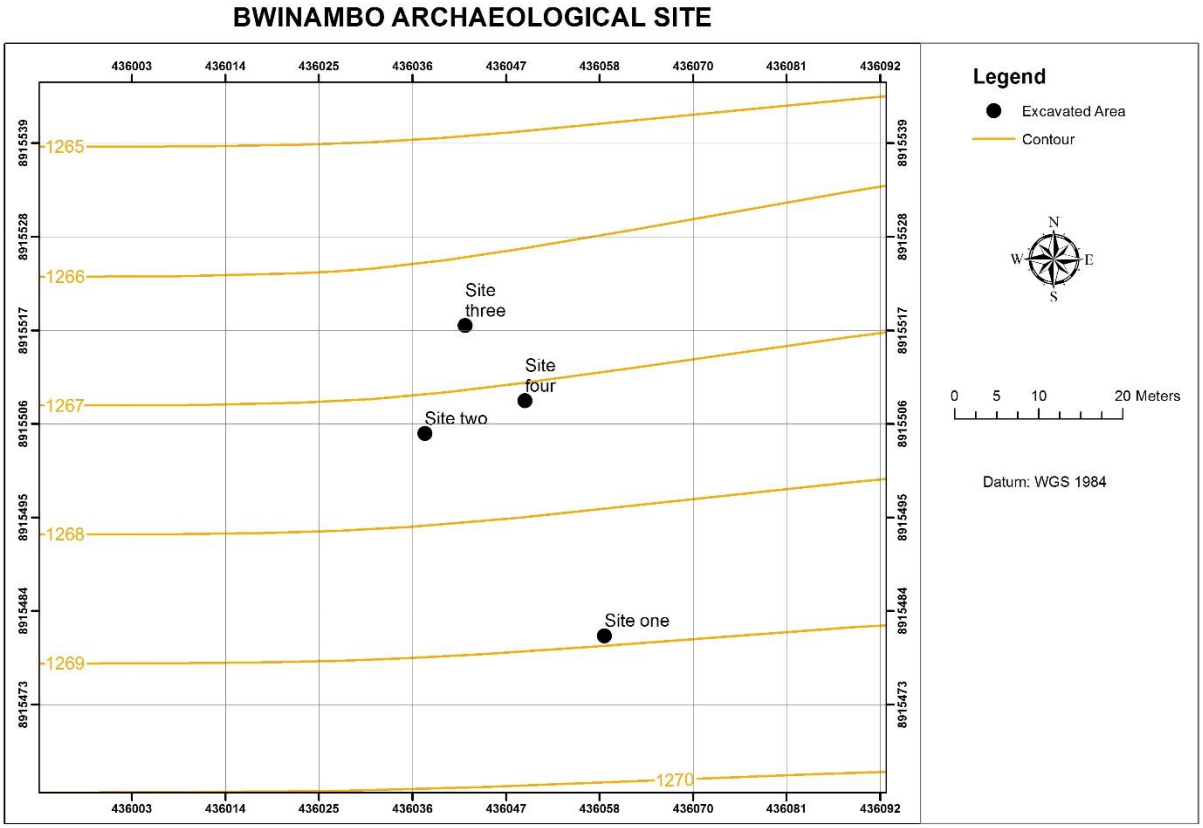
EXCAVATIONS AT BWINAMBO

Introduction

This chapter presents field work results from land surveys conducted in 2017 at Bwinambo archaeological site and surrounding areas. It is divided into three sections, field work schedule and surface survey, excavations and synthesis of the chapter.

The work reported here was carried out over a period of two months, starting early October 2017. It began with a preliminary survey of the study area during which areas for in-depth investigation were identified and future access was successfully negotiated with the local community. To this effect, permission was obtained from the District Education Board Secretary (DEBS) at the Ministry of Education in Chinsali, the Head teacher for Bwinambo Middle Basic School and Headmen of Mungu and Makanga Villages. Arrangements to obtain casual labour were made with the help of headmen from both villages and the terms and conditions discussed and agreed upon.

Subsequently, the area surrounding Bwinambo Middle Basic School was selected for in-depth investigation on the basis of oral interviews and earlier archaeological surveys, test pit and rescue excavations conducted by the National Heritage Conservation Commission (NHCC) in 2012. A total of four excavation units (referred to as sites in this work) at various parts across the study area were identified and mapped. Map 3.0 presents a site plan of the area showing sites selected for excavation. Subsequently, excavations were carried out for two weeks in October, 2017. Oral historical information was also obtained during the same period.



Map 3.0. Excavation Site Plan (Map drawn by Garikai Membere, UNZA Geography Department).

Archaeological investigations began with a surface survey which was conducted in several areas of the study area around Mungu and Makanga Villages. The aim was to locate, identify and record the distribution of archaeological sites on the ground in relation to their natural surroundings. According to Fagan (2005:176), "archaeological survey is argued to be one of the most important components of the archaeological investigation, for it is concerned with the archaeological record of ancient settlement patterns, with ancient people's imprint on the land". This process was guided by the research hypothesis and objectives rather than conducting a general quantitative survey. This ensured a wider range of samples in both space and artifact diversity than the examination of the whole

research area. The prime research area was approached using consistent, predetermined methods to ensure that all parts of the prescribed area were examined using random sampling techniques rather than attempting to identify all possible sites within Bwinambo. This approach leaves room for other interested researchers to work there and test the interpretations by this work. Surface survey for this investigation was done by walking around the study area. This was aimed at locating artefacts or other man- made materials and features which could serve as principal surface indicators of an archaeological site. Foot survey enabled the scrutiny of the topography of the study area and the relationship of human settlement to the landscape.

Visibility of surface finds was affected by factors such as vegetation, ploughing, soil and water erosion, as well as the nature of the artefacts themselves. According to Fagan (2005: 122), "it is important to note that wind and water erosion or even burrowing of animals have assisted archaeologists in revealing materials which were otherwise buried beneath the sub soil to the surface". Surface finds, therefore, do not reveal the original depth at which these artefacts could have been buried but only assist in providing the range or diversity of artefacts that could be found at the site.

According to Fagan (2005:123), "vegetation is used as an indicator of settlement as plants tend to grow more lushly in an area where the sub soil has been less disturbed. Sometimes specific grasses or trees are associated with archaeological sites". He adds that "soil marks resulting from exposure of distinctive soil types on the surface were widely used to trace exhausted agricultural land" (Fagan 2005:134). These factors contributed greatly to surface survey of the possible settlement area or areas of activity. Lastly, surface survey also included oral traditions obtained by way of interviews, these have been potentially

important in African archaeology. According to Kwekason (2010: 94), “memories passed on from one generation to another are important in many cultures, as stories, songs and epics recover rules and important events in a community, as well as locating sites. Although they do not go back a long way in time, they show the existence of African unity in ancient times”. Oral traditions in this study proved useful in locating other sites within the study area such as smelting kilns, caves, coconut plantations and a hot spring which could have been associated with the research prime area.

General surface finds provided preliminary information on the types of artefacts present at the site, which consisted of pot sherds, iron slag, haematite, burnt clay, animal and human bones. Controlled surface collection was carried out, this involved random sampling of mainly diagnostic artefacts. These were useful in providing a general view of artefact diversity at the site, activity areas and cultural associations represented by the site before conducting excavations.

Interviews were conducted to obtain oral historical information that would furnish preliminary interpretations of materials found at the site, as well as the meaning of various observed and recorded phenomena in the study area. A total of ten people resident in the study area were interviewed, three from Makanga Village aged between 32-80, two from Mungu village aged between 45-80 and five from Bwinambo aged between 32-76. Explored issues included settlement history (occupation and abandonment) of the study area, inhabitants of the study area and cultural contexts of various classes of findings that were notable from the surface.

At one of the interviews aimed at establishing when the area was settled, two of the oldest elders from Makanga village, Mr. Meston Makanga and Mr Darrius Sinyinza explained

that the exact period when the area was settled was not known, however, they mentioned that from time in memorial, the Bemba under chief Nkole Mfumu inhabited the area (details of settlement history have been discussed in chapter 2). However, little is known about the people who inhabited the area before them. This information collaborated with the information obtained from the village headman of Mungu Village and stories by local people who were present during excavations. Abandonment of the area by earlier inhabitants was largely attributed to suspicions of witchcraft and later people relocating to the bomas in search of employment.

In an attempt to locate more sites in the area, local people were asked if they had seen artefacts elsewhere similar to those found at the Bwinambo site. Mr Meston Makanga revealed that there was a cave on top of the escarpment that had very small corroded iron hoes and pottery and some rock paintings. He further mentioned that the iron hoes were similar to the ones that were washed by the rains into the main road at Bwinambo school. The headman of Mungu village added that before the school was built, there was what looked like a rubbish pit near the school area with a lot of pottery and animal bones, but it was disturbed by construction of houses in the area. He added that there were also reports of a few rock paintings on some rock outcrops on the escarpment. However, the rock paintings could not be verified because of the distance factor. Golden Sikapizya also revealed that during hunting sessions, he had encountered remains of iron smelting kilns with artefacts [iron slag] similar to what was at the site scattered around the kiln area (See figures 3.0, 4.0 and 5.0)

Figure 3.0. Remains of Iron Smelting Kilns (source: author).

Figure 4.0. Fragments of Iron Slag and a Tuyere (Source: author).

Figure 5.0. Caves on top of the Muchinga Escarpment (source: author).


Figure 6.0. Source of Bwinambo Stream disturbed by the water Tank on the *right (source: author)*

Figure 7.0. A Section of Mungu Stream with a Hot Spring (source: author).

Oral interviews also revealed the presence of water bodies such as Bwinambo and Mungu streams (see figures 6.0 and 7.0) and the Kalugu River. The presence of these water bodies Sis a good indicator of necessary conditions for human settlement in the area.

One of the most important features of past human settlement in the area that benefited from site survey was the presence of coconut trees located at Chunga about 7km from Bwinambo (figure 8.0). According to Cook (1910:271), many scientific text books and works of reference support the popular idea that the coconut palm is specifically adapted to tropical sea coasts and is confined to maritime regions. In Central Africa, coconuts are known to be indigenous to the East Coast. The first written reference to the coconut palm in East Africa is thought to be in the "Periplus of the Erythraean Sea" written about AD 60. The Periplus mentioned that the town of Rhapta, believed to have been located somewhere on the coast of present day Tanzania, traded in coconuts (Schoff 19I2:323). Although the reference to coconuts in the Periplus has been taken as evidence of the introduction of the coconut to East Africa by Hindu merchant-seafarers sometime in the 7th to lst century B.C. According to Schoff (1912:323), Hichens (1938:1-34) and Hourani (1951:131), it can equally well be explained simply as the opening up of trade between the two regions where coconuts already existed.

However, It is not suggested here that the early coconuts were present in large numbers or spread over extensive lengths of coastline and were certainly not found naturally anywhere in the hinterland (Schuling and Harris 1994:5) . In Zambia, early coconut palms have been observed in some sections of areas where slave routes passed, these are Mbala and Mweense (Mwata Kazembe's Kingdom). The history of coconuts in areas far from coastalines is interwoven with the history of people travelling long distances. Their importance in the study area therefore lies in the fact that they are indicative of external interactions between the hinterland and the East African Coast.

Figure 8.0 Coconut Plantation at Chunga (source: author)

The survey resulted in the decision to excavate four areas which have been designated as Bwinambo site 1, site 2, site 3 and site 4. This however did not imply that the four excavated areas were separate entities outside Bwinambo but were within the large Bwinambo site.

Selected portions of the general site were laid down using a grid system of 1metre squares to aid in accurate recording. This was achieved using 3, 30 meter tapes, 2 of the tapes measuring one meter each formed a V shape while the diagonal line that completes the triangle meets one of the other tapes at 1.414 meters forming a right angle (see figure 9.0). This was done in order to maintain correct measurement of all squares. These were then

systematically opened to uncover chronological sequences of cultural material and hence cultural dynamics of the region. Occasionally, square pits were extended on either side beyond the pit boundaries to affirmatively clarify concentrations of remains in the wall or in order to get a full view of an artefact.

Figure 9.0. Gridding in progress (source: author).

Excavations followed arbitrary levels of 10 centimeter (cm) spits and in a few instances 20cm spits whenever change in soil colour was not easily discernible. This approach is used when there is a little discernible stratigraphy or variation in occupational layers and hence is arguably the best option when natural lawyers are not visible or indeterminable based on colour variations (Fagan 2005:160-163; Musonda 1976:69).

All materials from each excavation level were screened through a 5mm wire mesh sieve to ensure recovery of all artefacts including animal bones and any other finds left behind by ancient inhabitants of the site (see figure 10.0). Wall sections were drawn at the end of the excavations as different layers were easily distinguished after the soil had dried and

walls were thoroughly cleaned. All section lines were oriented north-south and soil colour description was guided by the Munsell soil colour chart and the RGB colour values.

Figure 10.0. Wet and Dry Sieving of Soil (source: author).

The sampling approach in this work followed the probability approach whereby all reliable samples of data were used to represent a much larger population (Renfrew and Bahn 2012; Fagan 2005). Portions of the site or even artefacts recovered in this regard were selected to serve as a representative sample of the larger area. Recovered artefacts, unique contexts and sections were recorded in a detailed context register.

Bwinambo Site One (BS1)

Figure 14.0 shows the location of BS1 in the south –west area of the school, 10 meters from a gully on the west side, on geological grids 9°48' 37.89806" S and 32°250. 9017" E. It is important to note that the area at which this excavation unit was mapped was already 1 meter below the original ground of the school area (see figure 11.0). This was revealed by Mr Robert Kunda, a teacher at Bwinambo School, who indicated that the original level of the ground could be traced from the school foundation wall, as previously, the school

had no stair cases, but because of high levels of soil erosion, the foundation wall was dug up, necessitating the building of stair cases. This information explains the depth of the pit as compared to other sites.

Figure 11.0. Foundation Wall of the School in 2017 (top) and 2012 (bottom) respectively (source: author)

A 4 x 2m area was gridded designated as A, B, C, D, E, F, G and H (see figure 13.0) but only a 2 x 2 m square was chosen for excavation (A, B, E and F), each side of the square

measuring 1meter in length. A total of six levels were excavated, with concentration of the excavation in three squares namely A, B and E. The pit was therefore excavated in an L shape without breaking the thin wall between squares A and E (see figure 15.0). The thin wall was deliberately left for purposes of following changes in soil colour from the other half of the trench as not all squares could be excavated because the soil was compacted and extremely hard to dig. The deepest point of the pit measured 61cm. It was decided to end excavations at 61cm because at 50cm, the soil became sterile.

Figure 12.0. BS1 1m Grid Squares (source: author).

Figure 13.0. Exposed Potsherd supported by a Flat Stone in Square A (Source: author).

.

Figure 14.0. BS1 Excavation in Progress (Source: author).

Figure 15.0. BS1 Complete excavation (source: author).

Stratigraphy.

Figures 16.0 and 16.1 show stratigraphic profiles for BS1. These were drawn at the end of context analysis to provide clues to site formation processes that created and transformed the deposits. BS1 had three distinct layers, based on changes in soil colour and texture, designated as layer I, II and III. Table 1.0 presents a summary of recovered artefacts from all levels of BS1. Of all the levels, the second level yielded the largest number of artefacts while level III produced nothing at all. It is important to note that they were some minimal differences in the layering of soil in the northern and western wall as some layers spilled over to another layer.

Layer I

This layer was approximately 30cm thick and consisted of three arbitrary levels of ten centimeters each. It was characterised by light loose grey clay soil forming the top soil. The loose clay soil was approximately 4cm thick from the top. This was followed by compacted pale grey soil, with patches of light brown soil (sand) from approximately 4cm to 30cm on the western wall and compacted greyish soil on the northern wall. The pale grey soil dominated the trench and spilled off to about 6cm on the left corner of the western wall in Squares A and B. Finds in this layer included decorated and undecorated potsherds, iron slag, burnt clay and fragments of charcoal from soil found inside what looked like an intentionally broken pot which was supported by a stone (figure 12.0). This pattern of disposing the pot by intentionally breaking it seems to have been a tradition as it was observed in BS4 as well. This trend was also observed by Clark (1974: 19) at Kalambo falls, he contends that:

> "*in the sand soil, that had slumped some 8 to 12 feet, below the top of the cliff, was also found some small complete pot and the greater part of two large, undecorated pots which appeared to have been intentionally broken…. Both these pots seemed to be resting on two fragments of a large thematically grind stone and in the other a smaller, flat grindstone…. The circumstances in which the pottery was found suggested the possibility of finding burials".*

However, the excavation revealed no bones indicative of a burial site. Nonetheless the possibility of a burial site could not be completely ruled out due to the nature of artefacts that had been recovered from the site earlier, soil acidity, and soil erosion.

Layer II

This layer measured 20cm thick and was excavated in 10cm arbitrary levels. It consisted of light brown tinted clayish soil. However, from about 30cm in square B, the light brown tinted clayish soil spilled over to the second level by about 20cm in some parts and less than 5cm in others. Finds in this layer included a burnt animal bone, iron slag, decorated and undecorated potsherds and fragments of charcoal.

Layer III

This layer was approximately 10cm thick and consisted of the last six arbitrary levels thus reaching the find depth at 60 cm. Soil colour and texture in this layer differed in the western and northern wall. In the northern wall, the soil was made up of yellowish brown loose soil which was easier to work out, the western wall on the other hand, consisted of pale brown compacted soil. After 50 cm, the soil was sterile with no artefacts being recovered.

Table 1.0. BS 1: Distribution of Artifacts by Level.

LEVEL	DEPTH	POTTERY SHERDS	BONES	SLAG	OTHERS
0 (Surface)	0cm	14	_	4	2 (burnt clay)
1	0-10cm	8	_	_	_
2	10-20cm	25	_	5	1 (burnt clay)
3	20-30cm	18	_	_	
4	30-40cm	12	_	2	1 (burnt clay)
5	40-50cm	7	1(burnt bone)	2	_
6	50-60cm	_	_	_	_
TOTAL		84	1(burnt bone)	13	4(burnt clay)

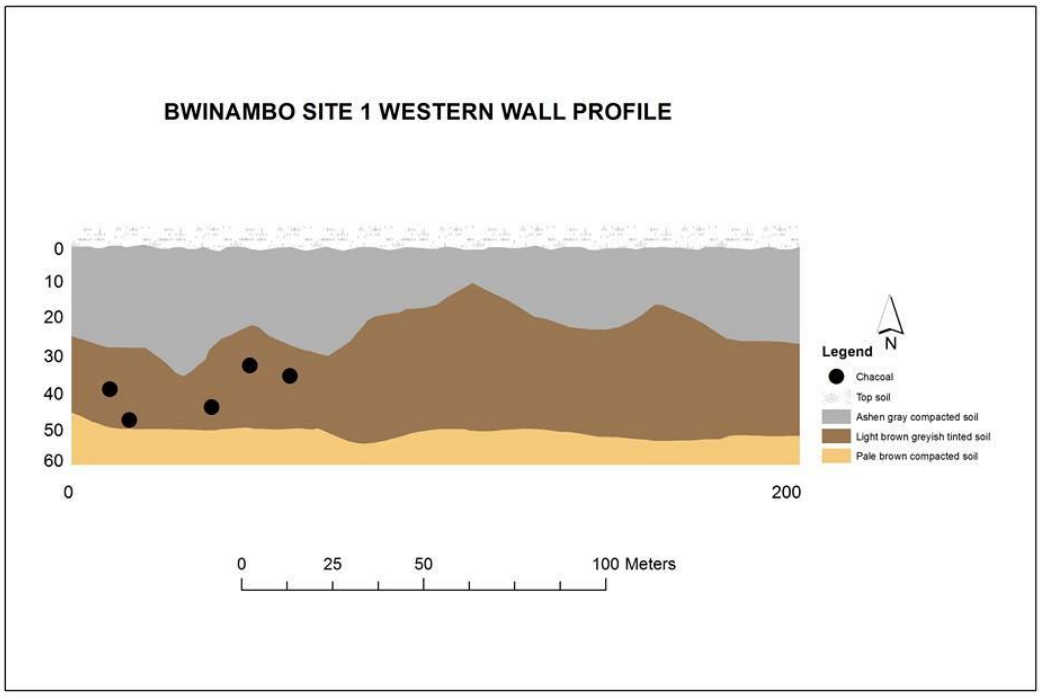


Figure 16.0 BS1 Western Wall Soil Profile (Map drawn by Garikai Membere, UNZA Geography Department

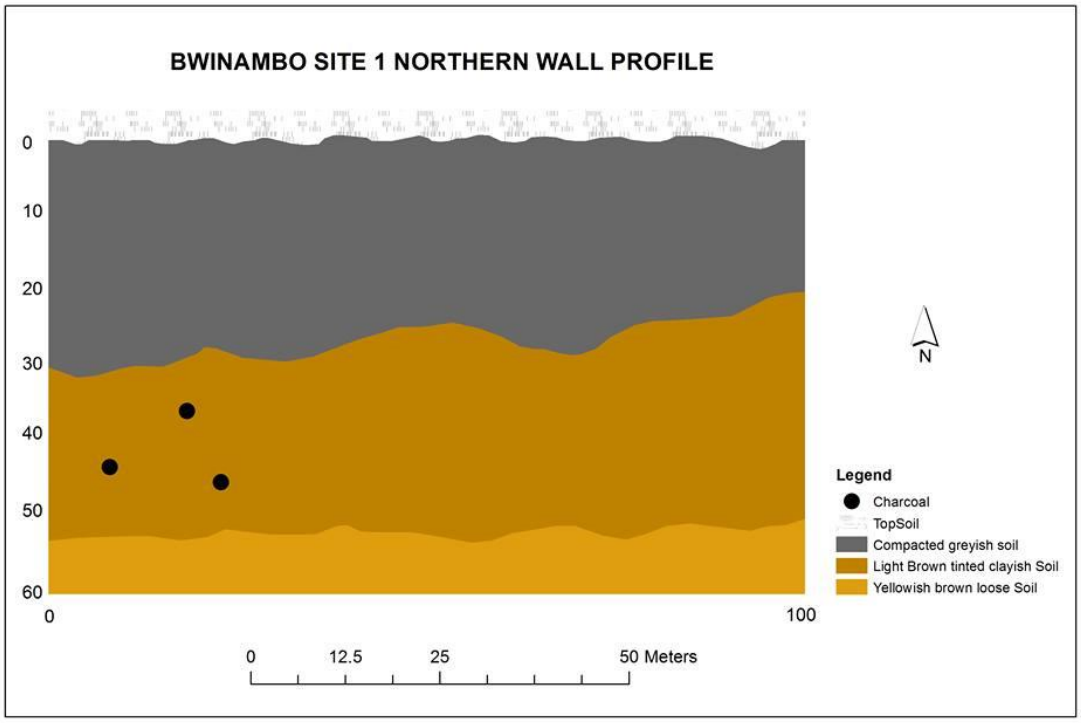


Figure 16.1. BS 1 Northern Wall Soil Profile (Map drawn by Garikai Membere, UNZA Geography Department).

Bwinambo Site Two (BS2).

Figure 17.0 shows the location of BS2 on what appeared like a passage for water or a slope from the school going southwards towards the main road and the teachers compound on the southern area of the school, on geological grids 9°48' 37.11226" S and 32°25' 0.21382"E. BS2 was chosen following a report by Mr Cosmos Mumpondwe (deputy head teacher) who indicated that "because of soil erosion caused by the 2012 rainy season, he saw a human skeleton with exposed ribs lying in a vertical position and exposed teeth". He later asked some pupils to break the skeleton and rebury. Coincidentally, this also

happens to be the stretch where the National Heritage Conservation Commission (NHCC) carried out a rescue excavation in the same year.

A 2 x 3meter area was gridded but only a 2 x 2meter square unit could be excavated leaving out a 1 x 2m square unit due to compact soil occasioned by the October sun. The 2 x 2m square unit was excavated using arbitrary levels of 10cm spits except for one instance between 50cm and 70cm where an arbitrary level of 20cm spit was used. The final depth of the excavated pit was reached at 1meter. It was decided to end the excavation at one meter because there were no artefacts found below the 70cm depth.

Figure 17.0 Gridding of BS2.

Figure 18.0. Excavation of BS2 in Progress.

Figure 18.1 Complete Excavation of BS2.

Stratigraphy

Figures 22.0 and 22.1 illustrate stratigraphic profiles of BS2, which revealed three distinct layers based on changes in soil colour. Just like at BS1, layering of deposits at this site was not uniform in the north and eastern wall probably due to soil erosion. The stratigraphy revealed four major soil colours ranging from dark grey, light ashen grey, yellowish brown to pale brown. The composition of the soil included clay and sand soil. Table 2.0 shows a summary of recovered artifacts from all levels of BS2. In this excavation unit, levels 0- 5 yielded more cultural materials which were diminishing from levels 6 to 9 with levels 6, 8 ,9 and 10 not yielding anything at all. Of all excavated units, BS2 yielded the most cultural materials with a wide variety.

Layer I

This layer measured 40 cm in thickness and was excavated in arbitrary levels of 10cm. It consisted of ashen grey, light grey and light brown soil. However, wide margins in the layering of soil were also noted. In the eastern wall, soil colour was divided in half, with the first half comprising of ashen grey soil and the other half compacted grey soil. Soil colour ranged from a thin layer of light dark grey soil on the surface from 0-3cm and ashen grey from 3 -30cm with light brown soil inclusions and traces of red pan bricks. The pan bricks seem to have been thrown in to bury gullies that were formed during the rainy season and were concentrated in levels 20 -30 cm. Layering of deposits was also affected in the eastern and northern wall. This posed a great difficulty in sorting out artefacts. Analysing of artefacts from this site hence took into consideration other means of grouping artefacts that could have spilled over to another level like similarities in

potsherds that seem to have been broken from the same vessel. In the northern wall, layer one consisted of only half of level 1(5cm).

Layer II

The approximate thickness of this layer was 60cm, and it was excavated in 10 and 20cm arbitrary levels. It was affected by the inconsistency in layering of layer one. In the norther wall, it comprised of seven and a half levels, from half of level 1 to level 8 and in the eastern wall it comprised of levels 3 to 7. Soil colour included dark grey with light brown patches (clay/sand) which was compacted. This layer produced the most artefacts of all layers in this trench. It was characterised by a large number of pottery, bones and bigger pieces of slag.

Layer III

This layer was approximately 30cm in thickness and consisted of three arbitrary levels of 10cm each. Layer 3 was consistent in both wall profiles with slight variations of about 20cm going into layer 2 in a few sections. Soil colour ranged from very fine brown to pale brown sand soil and pale brown less compacted soil. This layer comprised of sterile soil with no finds.

Figure 19.0. Fragments of a Human Bone (source: author).

Figure 20.0. Fragments of Animal Bones (source: author).

Figure 21.0 Iron Slag (source: author).

Table 2.0. BS2: Distribution of Artifacts by Level.

LEVEL	DEPTH	POTTERY	HUMAN BONES	ANIMAL BONES	BEADS	IRON SLAG	HAEMITITE	WIRE	CHARCOAL	SHELLS
0	0cm	12	2	_	1	20	1	_	_	_
1	0-10cm	20	13	_	1	3	_	_	_	_
2	10-20cm	7	1	6 (4bones, 2 teeth)	_	7	1	_	_	6 (frags)
3	20-30cm	1	6 (1 rib and 1 toe)	21	_	3	1	_	_	_
4	30-40cm	2	_	9	_	_	_	1	_	_
5	40-50cm	8	_	28	_	3	_	_	_	_
6 -7	50-70cm	9	_	1	_	_	_	_	10 pieces	_
8	70-80cm	_	_	_	_	_	_	_	_	_
9	80-90cm	_	_	_	_	_	_	_	_	_
10	90-100cm	_	_	_	_	_	_	_	_	_
TOTAL		59	22	65	2	36	3	1	10	6

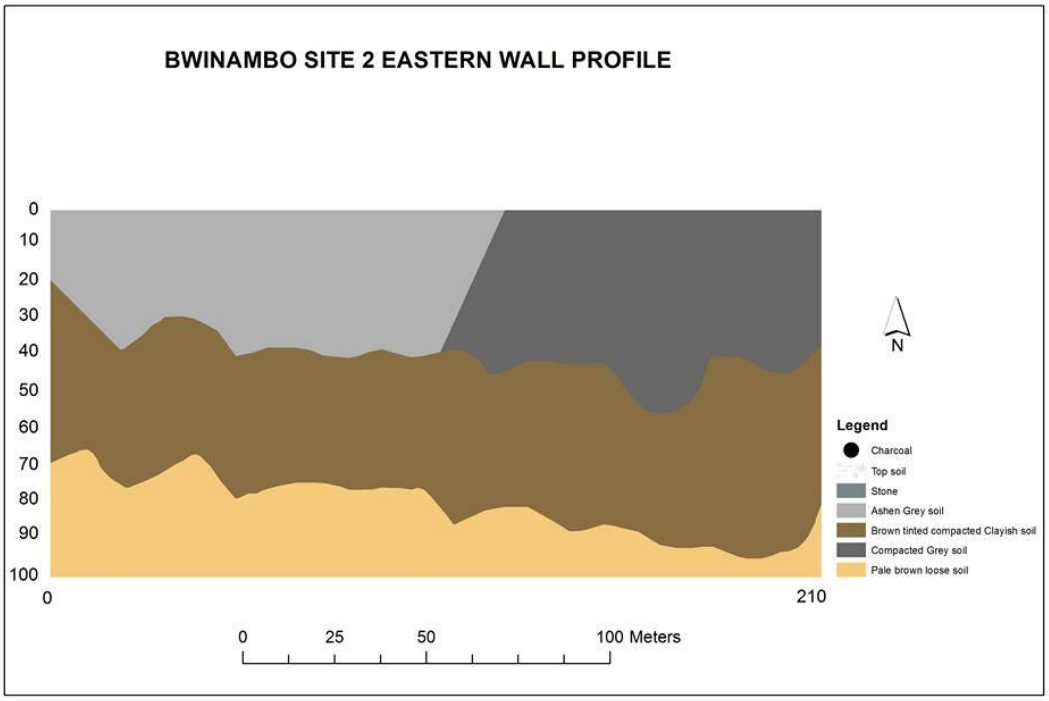


Figure 22.0. BS 2 Eastern Wall Soil Profile (Map drawn by Garikai Membere, UNZA Geography Department).

.

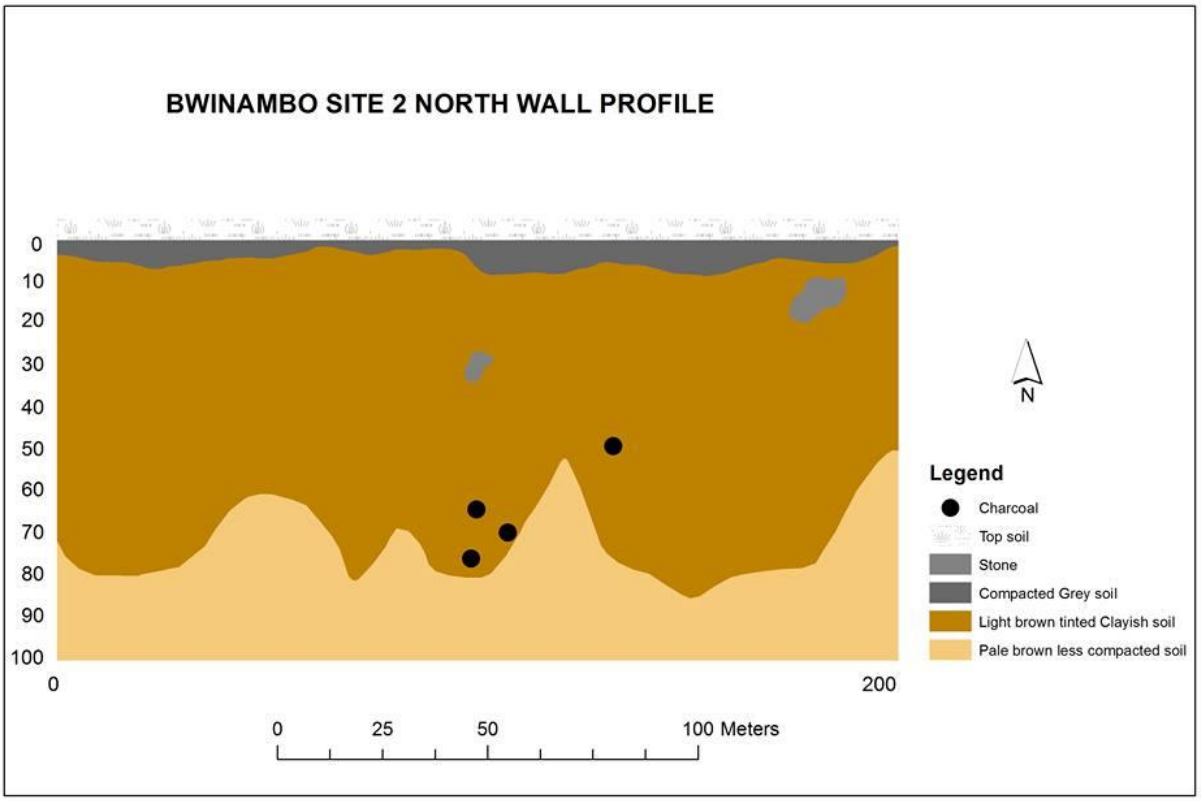


Figure 22.1. BS 2 Northern Wall Soil Profile (Map drawn by Garikai Membere, UNZA Geography Department).

Bwinambo Site Three (BS3).

Figure 24.0 shows the location of BS3, which consisted of the main pit located 6 meters south of BS2 and about 4 meters from the main road on geological grids 9°48' 0.5254" S and 32°25' 0.05264 E and a test pit (Figure 23.0). BS3 like BS2 was chosen because it lay within the area that was reported to have a reburied skeleton in a vertical position. Since the extent of the gully in which the skeleton was seen could not be clearly seen, it was decided to excavate a test pit before the main pit in order to ascertain the extent of the

gully as BS2 clearly showed no evidence of a gully. The test pit measured 1x 1 m square unit and was excavated at 20cm spits.

Figure 23.0 Location of BS3 Test Pit (source: author).

BS3 test pit comprised of light grey compacted top soil with a thickness of 50cm. Below 50cm depth, the soil texture changed to very loose pallid grey soil and at 80cm depth, the soil colour changed to pale brown less compacted soil. The composition of the soil in the test pit did not reveal any infill. It was therefore decided to locate the main excavation pit 1meter south of the test pit. Finds from the test pit included a large animal bone at 20cm, burnt clay and iron slag. Small animal ribs were found at 50cm and an unidentified bone at 1meter depth. The test pit yielded no finds between 60 cm to 90cm, necessitating the

excavations to stop at 1meter depth. It was however not found necessary to draw profile sections of the test pit because of the shallow nature of the deposit and lack of clear changes in soil colour.

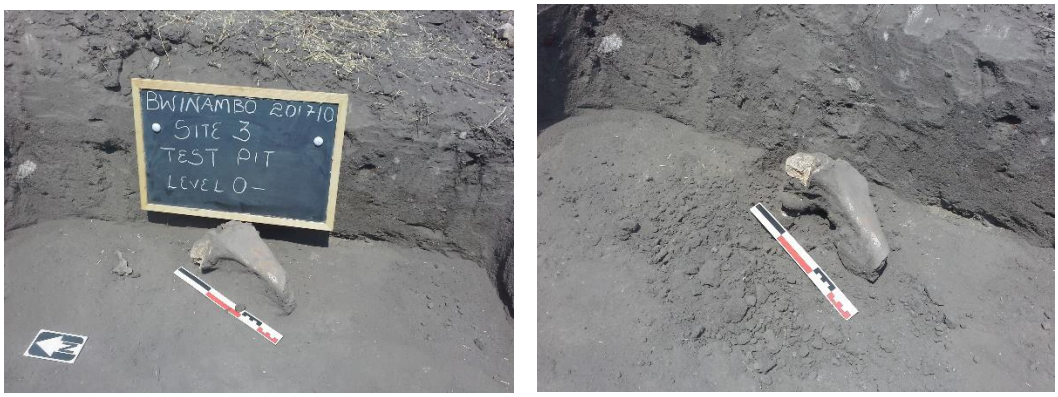


Figure 23. 1. large animal bone found in levels 0 – 20 cm (source: author).

An area measuring 4 x 3m area was gridded at BS3 main pit designated as squares S, T, U, V, W, X, Y, Z measuring 1m each in length but only a 3 x 2 m area (T, U, V, X, Z) was excavated in stages using arbitrary levels of 10cm depth. In the excavation plan below (figure 25.0), the brown squares represent areas where the major excavation was focused up to 1-meter depth, the yellow patches represent an extension of the excavation to ascertain the extent of cultural materials and infill soil, these where only excavated up to 40cm because the soil was cemented clay soil that was extremely hard to dig. On the other hand, the grey represents an unexcavated area where only the plough soil was removed. Finds included pottery, slag, haematite, metal artefacts, fragments of human bones, charcoal, animal bones and fragments of shells.

Figure 24.0 Location of BS3 Main Pit (source: author).

SQ V	SQ Z
SQ U	SQ Y
SQ T	SQ X

Figure 25.0. BS3 Excavation plan (source: author).

Figure 26.0 BS3 Excavation in Progress (source: author).

Figure 27.0. BS3 Full Excavation (source: author).

Stratigraphy

Figure 28.0 shows the soil profile of BS3 excavation of the main pit which comprised of three stratigraphic layers based on changes in soil colour. Three distinct layers were discernible from this site designated as layers I, II and III. Table 3.0 shows a summary of recovered artifacts from all levels of BS3. Soil colour ranged from pale grey, light brown infill soil to pale brown. However, only one section drawing was done as it had the clearest view of strata.

Layer I

This layer measured approximately 20.5cm in thickness. It comprised of the first two levels excavated at 10cm arbitrary levels. However, some layers slipped into the second layers in a few sections. Variations were very minimal on the northern wall which was the main focus of the excavation. Soil colour was pale grey compacted soil. Recovered artefacts included pottery, slag, haematite and fragments of shells.

Layer II

This layer was approximately 20cm thick and was excavated using 10cm arbitrary levels. It consisted of levels 3 and 4 with a small section slipping into layer 3. This layer comprised of infill soil which confirmed the existence of the gully at this spot. Soil colour was light brown infill soil similar to the soil along the main road. It however yielded the most artefacts which constituted pottery, slag, corroded wire and animal bones. Analysis of materials from this layer took into consideration the difficult task of making comparisons with cultural materials from other sites, so as to draw a distinction between artefacts that belonged to this layer and those that could have been deposited when filling up the gully.

Layer III

This layer measured approximately 50cm in thickness and was excavated using 10cm arbitrary levels. Soil colour was pale brown loose soil. Recovered artefacts from the 50cm thick deposit included pottery, slag, animal bones, corroded wire, fragments of charcoal and shells. Below 60cm depth, the pit had sterile soil which was not yielding any artefacts and hence it was decided to stop excavations at 90cm.

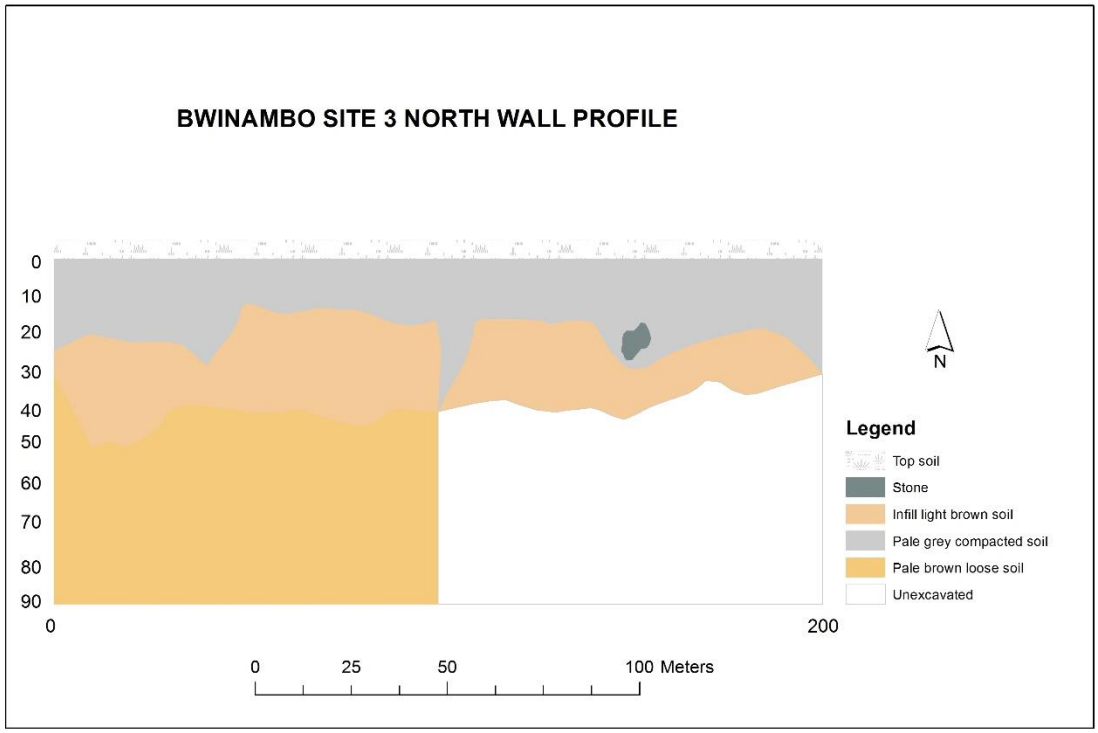


Figure 28.0. BS3 Northern Wall Soil Profile (Map drawn by Garikai Membere, UNZA Geography Department).

Table 3.0. BS3 Distribution of artifacts by Level

LEVEL	DEPTH (cm)	POTTERY	SLAG	HAEMITITE	WIRE	ANIMAL BONES	HUMAN BONES	SHELLS	CHARCOAL
0	0								
1	0-10	5	5	1					
2	10-20	10	2					1	
3	20-30				1	11			
4	30-40	8	2		2	09			
5	40-50	7	2	1	1	04			5
6	50-60	3	1					1	
7	60-70								
8	70-80								
9	80-90								
TOTAL		33	12	02	04	23	00	02	5

Bwinambo Site Four (BS4)

Figure 29.0 shows the location of BS4 plotted at the highest point of the site on geological grids 9°48' 36.98867" S and 32°25' 0.59286" E. At this site, a 3 x2 m area was gridded and excavated using arbitrary levels of 10cm each and consisted of 12 levels. BS4 was especially chosen because it is less disturbed as compared to BS1 and BS3 which have lost almost one meter of the soil and hence would serve as a reference point in terms of stratigraphy. The plough soil for this excavation unit was dark grey, a combination of loose loam soil. BS4 though being the least disturbed had the least cultural materials.

However, it yielded a variety of pottery types and decorations. These will be discussed in detail in chapter four. As can be seen from Table 4.0, levels 1 and 7 produced the least number of artefacts, most artefacts came from level 5 and 6. However, artefacts diminished from levels 7-10, with levels 8,9,10 and 12 not yielding anything. The final depth of the excavation was 120 centimeters in square A and D which was the deepest point of the excavation. On the other hand, squares B, C, E and F were excavated up to 90-100 centimeters respectively, so as to compare soil stratigraphy with the other excavation units that were more disturbed. It was decided to end exaction at 120 centimeters in only a section of the pit because soil became sterile.

Figure 29.0. Location of BS4(source: author).

Figure 30.0 Excavation of BS4 in Progress at 20-30cm (source: author).

Figure 31.0 BS4 Square A and D Full excavation -120 cm (source: author).

Figure 31.1. BS4 Squares B, C, E and F Full Excavation, 90cm – 100cm (source: author).

Table 4.0 BS4 Distribution of Artifacts by Level.

LEVEL	DEPTH (cm)	POTTERY	SLAG	HAEMITITE	CHAR COAL	ANIMAL BONES	HUMAN BONES	METAL ARTEFACT
0	0							
1	0-10					1		
2	10-20	2				2		
3	20-30	2				5		
4	30-40	3				6	4(ribs)	
5	40-50	3			5(fragments)	9		1
6	50-60	11				1	2	
7	60-70	1						
8	70-80							

9	80-90							
10	90-100							
11	100-110	6						
12	110-120							
	TOTAL	28	00	00	05	24	06	01

Stratigraphy

Figures 33.0 and 33.1 show stratigraphic profiles of BS4. This site produced three stratigraphic layers designated as Layer I, II and III. The layering of soil was uneven on the western and eastern wall. Table 4.0 presents a summary of recovered artifacts from all levels of BS 4.

Layer I

This layer measured roughly 30cm in thickness and was excavated using 10cm arbitrary levels. It comprised of levels 1 to 3. The layering of soil was uneven in both the eastern and western walls with wide variations, with some sections slipping into layer 2. Soil colour ranged from ashen grey to compacted grey soil. Occurrences of cultural materials were absent from plough soil to about 10 cm, after 10cm; small fragments of pottery were recovered from 10-30 cm depth. The soil was generally hard to work with and formed big lumps. These were carefully broken to fine soil that could be easily dry sieved, where the lumps were too hard to break, wet sieving was done so as not to disturb or break the tiny artefacts that could be in the lumps.

Layer II

This level measured approximately 70cm thick and was excavated using arbitrary levels of 10cm depth. It comprised of 7 levels, from levels 4 to 10; soil color ranged from light brown tinted clayish soil to grey soil. On the right part of the eastern wall, layer 2 is completely absent 60cm into the wall. It is this layer that yielded a large number of artefacts between 30cm and 60cm. Artefacts recovered from this layer include fragments of charcoal, pottery, animal and human bones.

Figure 32.0. Pot Sherd Anchored by Stones (source:author).

Layer III

This layer measured 10 cm in thickness and was excavated using 10cm arbitrary levels. It comprised of the last two levels on the western wall and the last level on the eastern

wall. This is because the western side of the trench was excavated at 120cm while the eastern corners were excavated down to 100 cm depth. Soil colour ranged from pale brown to light brown tinted clayish soil. At 1meter depth, no artefacts were recovered, it was therefore decided to stop excavation at 120cm.

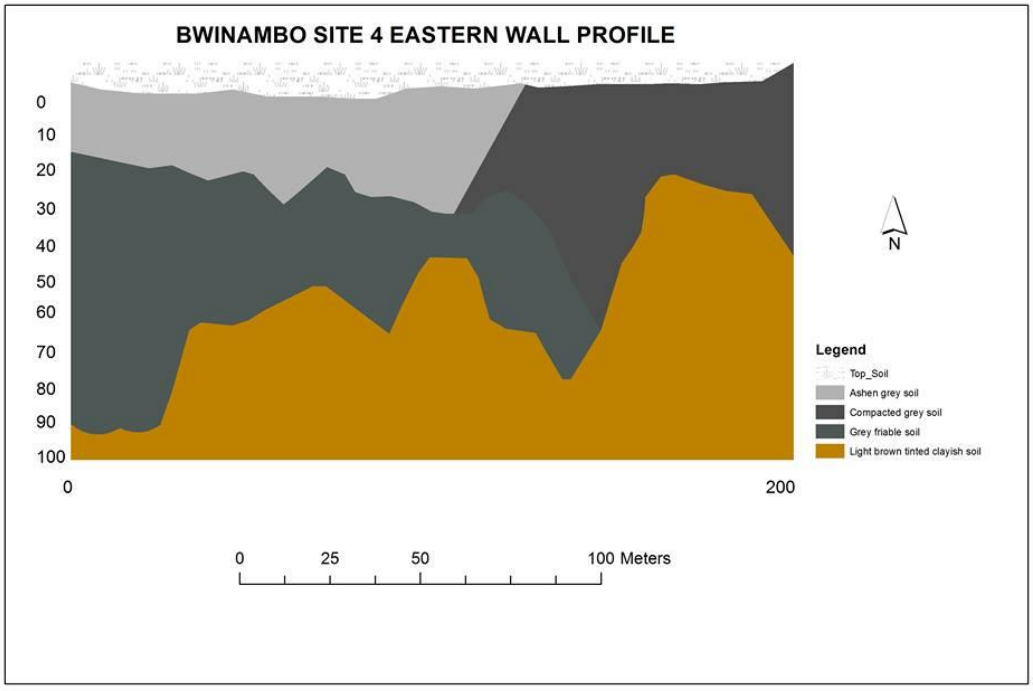


Figure 33.0. Site 4 Eastern Wall Soil Profile (Map drawn by Garikai Membere, UNZA Geography Department).

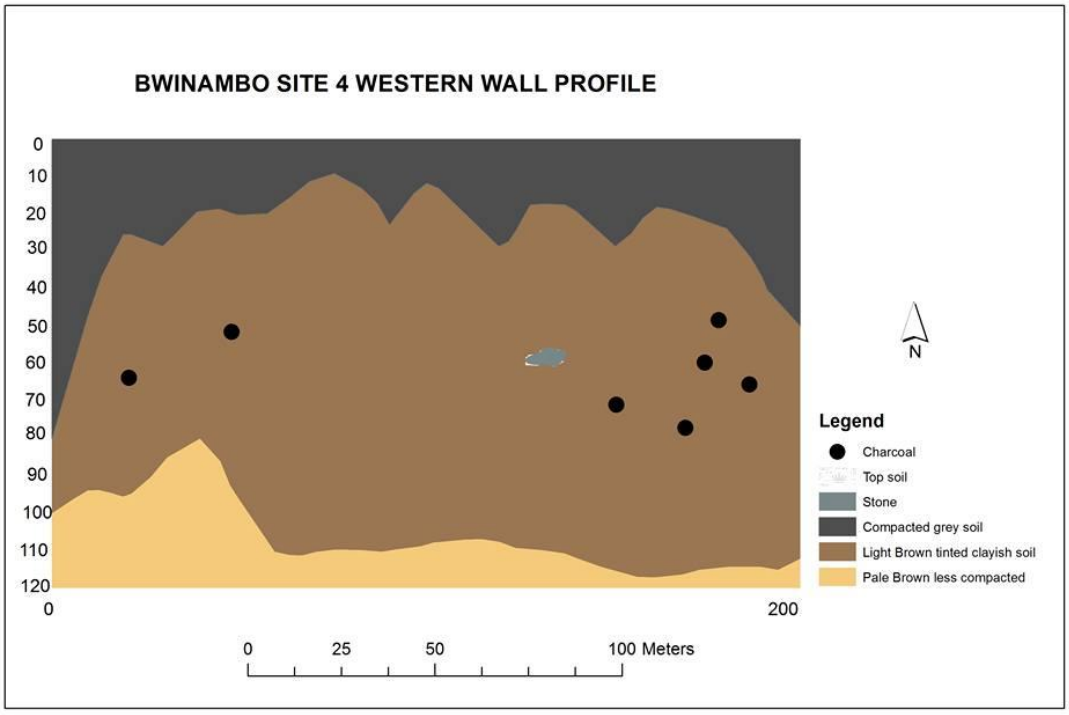


Figure 33.1. BS 4 Western Wall Soil Profile (Map drawn by Garikai Membere, UNZA Geography Department).

Conclusion

This chapter has presented field work results obtained through surface and subsurface survey investigations. Generally, all sites revealed similar cultural artefacts although quantities differed across the sites. Despite variations in the layering of deposits, one thing that is notable is that all excavated areas had three stratigraphic layers perhaps because of their proximity to each other and second layer in all four sites had the highest level of concentration of cultural materials, pottery being dominant. This implies that this was the occupational level with the most activity. Pottery was in abundance because it is better preserved unlike other artefacts such as sea shells and bones. Pottery was mostly found in association with fragments of charcoal. However, there were no significant amounts of

ash recovered from any of the sites. The presence of pottery, charcoal, animal bones, some of which were burnt may perhaps point to use of fire, cooking and eating practices were probably undertaken in the same place. Concentration of large animal bones also points to high levels of technology in use by inhabitants of the site. Their ability to hunt large animals could have been made possible by acquiring better hunting tools like guns obtained through contacts with other people. Cultural materials obtained from each site in relation to strategic layers and also cultural flora in the vicinity of the study area will hence aid further analysis and discussions to be undertaken in line with the research objectives.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

Introduction

This chapter presents an analysis of data obtained from excavations conducted at Bwinambo sites 1, 2, 3 and 4 as presented in chapter three. Particular attention is placed on pottery, describing the general composition of assemblages, analytical procedures together with methods used, ceramic typology and decoration attributes. ceramics were by far the most frequent at the site largely because they are more resistant and durable in different conditions of soils than other synthetic materials. This work hence focused more on pottery to establish the cultural historical placement of the site within the existing/known ceramic units that bear spatial relationships and their cultural affinities. Other finds such as iron ores, bones, beads, shells and miscellaneous artefacts are also analysed.

Analysis Procedures and Methods

All potsherds recovered from Bwinambo site were thoroughly cleaned with a soft brush before they were separated into decorated and undecorated categories. These categories were further grouped into diagnostic and undiagnostic pottery. Attributes of each piece were then recorded in a pottery attributes form, after which they were bagged in Zip lock plastics with clear labels. The data recorded for each sherd included contextual information, pot sherd fabric, body part of the vessel, decoration type /types, their placement and rim direction. These attributes were particularly useful in aiding the understanding of pottery traditions represented at the site and time period for their appearance. Most importantly, decorations were helpful in trying to understand cultural interaction across time and space in the Tanganyika -Nyasa corridor. Fabric on the other

hand, was determined by a fresh break of a small section of the sherd with a pliers so as to reveal the type of clay and tempering material used. This was easy and did not need laboratory analysis as most tempering materials were visible to naked eyes. For a few samples that were not very obvious, a simple magnifying lens was used.

Ceramics Analysis

Figure 34.0 presents some analytical attributes of pottery, these vary and depend on the purpose for which the point is being made. Common methods of pottery analysis have been discussed in detail by scholars such as Shepherd (1971), Rice (1981) and Sinopoli (1991) and these are useful in pottery classification. In this study, decorations, decorative techniques, motif placement, shape, rim morphology, fabric and temper are combined to define different assemblages identified at the site.

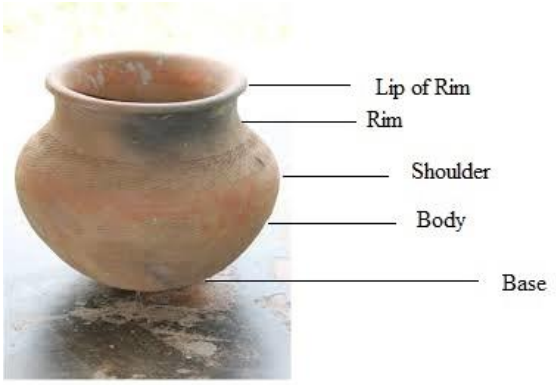


Figure 34.0. Analytical Parts of a Pot.

General Composition

Table 5.0 presents the total number of potsherds recovered from Bwinambo divided into two broad categories, namely decorated and undecorated sherds. From a total of 204

recovered potsherds, 59 (29%) were decorated while 145 (71%) were undecorated. However, 78 (38%) potsherds were diagnostic while 126 (62%) were undiagnostic. Comprehensive analysis was done on diagnostic potsherds, nonetheless, it is important to note that for other aspects such as fabric and temper, undiagnostic potsherds were also included. In addition, general site surface finds were included in determining the range of pottery decorations, but were not included in the tabulations of totals for recovered potsherds as these were restricted to potsherds recovered from excavations.

Table 5.0 Inventory of Potsherds Recovered from Bwinambo.

Site	**Total number of Potsherds Recovered**	**Decorated Potsherds**	**Percentage**	**Undecorated Potsherds**	**Percentage**
1	84	06	7.1%	78	93%
2	57	24	42.1%	33	58%
3	35	20	57.1%	15	43%
4	28	09	32.1%	19	68.%
TOTAL	**204**	**59**	**29%**	**145**	**71.1%**

Results of Pottery Analysis

Fabric and Temper: Majority of the ceramics totaling 195 (95%) were made of fine clay tempered with sand and mica and only 20 (4%) were tempered with quartz. From oral interviews, it was learnt that micaceous clay was readily available at the site while quartz could have been externally sourced as tempering material. Manufacture of pottery could not be deduced as pottery making was no longer practiced because all the people with knowledge of the art had either died or were no longer living in the area.

Firing Conditions and Colour: Firing is the application of heat to vessels. According to Rice (1987: 81), the firing atmosphere affects vessel colour, hardness and porosity. Sinopoli (1991: 30) defines differences in firing atmosphere on the basis of air circulation and especially the presence of oxygen in the firing chamber. He argues that "when oxygen is present, an oxidizing atmosphere exists, if there is little oxygen present, a reducing atmosphere is present". Vessel colour therefore depends on the oxidizing and reducing environment. Majority of the potsherds were fired light to dark brown, suggesting incomplete oxidization according to shepherd (1956: 106). Other colours included light grey uniform exterior suggesting that the clay was oxidized or it was reduced.

Other potsherds were fired to a combination of light and dark grey suggesting that they were partially oxidized. Shepherd (ibid) attributes this to firing conditions being inadequate for full oxidization. Another category represents those that were fired to grey – black. Rye (1981:81), argues that vessels with broad apertures are fired upside-down so that ash can insulate their rims and cause them to cool more slowly thereby preventing the rims from cracking due to different cooling rates. That may as well result in 'reduction' of the interior and rim surfaces, making them grey or black while the remainder of the surface seems 'oxidized.'

Rim and rim direction: Tables 6.0 and 7.0 present the total number of potsherds with rims and rim direction respectively. Six rim types or forms were observed, these are simple rounded, squared, everted, inverted, rim bands and beveled. According to Fagan as cited in Clark (1974: 33) an inverted rim is turned inwards while an everted rim is turned outwards with fingers. Beveling on the other hand is achieved by the use of perpendicular or channeled lines on the rim surface, however other types of rims are sometimes

decorated with stamped or incised motifs. Rim bands occur when the outside edge of the rim is raised to form either a convex or flat band around the pot. Kwekason (2011) has stated that rim direction and thickness are important as they are among the important criteria that aid comparative analysis between one tradition and another.

Ceramic typology: Analysis of pottery types was based on only diagnostic potsherds with clearly defined shapes. These are potsherds with rim and neck, rim, neck and shoulder or neck and shoulder. Analysis of the total diagnostic potsherds from the site produced 7 shapes (see table 8.0).

Table 6.0 Potsherds with Rims

Category	Total
Rim	11
Rim and neck	6
Rim and body	28
Rim, neck, and shoulder	3
Rim and Shoulder	3
TOTAL	51

Table 7.0. Rim End Direction

Rim Direction	Total	Percentage
Simple Rounded	27	53%
Squared	15	29%
Everted	3	6%
Inverted	2	4%
Rim bands	2	4%
Beveled	2	4%
TOTAL	51	100%

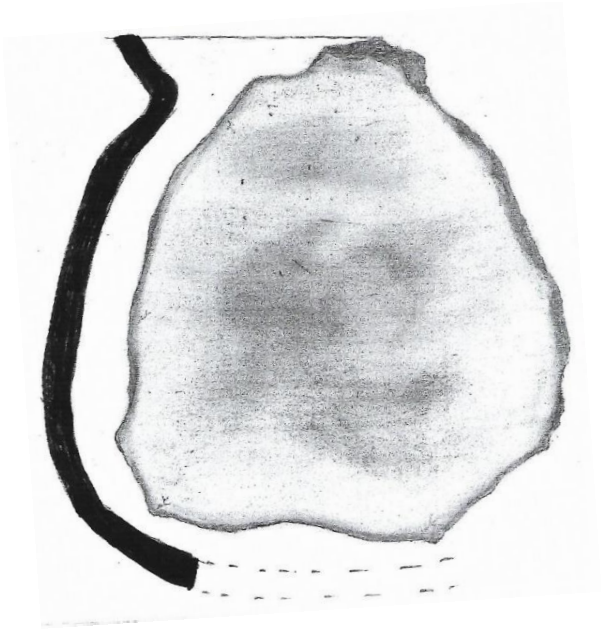
Table 8.0. Ceramic Types/ Shapes and their numbers.

CODE	**SHAPE**	**TOTAL**	**PERCENTAGE**
1	Shouldered pot	**10**	**17%**
2	Open bowl	**38**	**64%**
3	Globular vessel	**02**	**03%**
4	Spheroidal bowl	**03**	**5%**
5	Straight sided vessel	**04**	**7%**
6	Hemispherical bowl	**01**	**2%**
7	Beaker	**01**	**2%**
TOTAL		**59**	**100%**

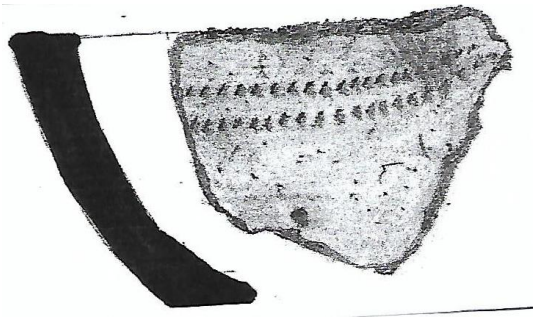
There are several models that are used for determining pottery vessel forms. This study utilised models by Fagan (1969) and Philipson (1976). Fagan, as cited in Clark (1974: 31-2) developed a model for pottery reconstruction from Kalambo Falls Prehistoric site that adopted shape classes like hemispherical bowls, spheroidal bowls, shouldered pots, globular pots, straight sided pots and Gourd –shaped vessels. Philipson's (1976:21 -23) model on the other hand adopted shape classes like open bowls, in-turned bowls, necked vessels, globular vessels, convergent mouthed vessels, carinated vessels and beakers at sites in Eastern Zambia such as Kamnama Early Iron Age village and Makwe Rock shelter. Analytical results obtained from the use of the two models are more less the same. Nonetheless, a percentage of indeterminable body sherds existed, based on this, the percentages of each shape category should be considered as a rough sketch of vessel forms represented at Bwinambo site.

Plate 1.0 below shows reconstructions of seven potsherds representing the most common pottery categories from Bwinambo site. These categories are comparatively similar to those found at Kalambo Falls in northern Zambia (Clark 1974:32), Kamnama in Eastern Zambia (Philipson 1976:42 – 44), Ivuna salt pans in the Rukwa region of Tanzania (Fagan and Yellen 1968: 23) and Mbande hill in Malawi (Robinson 1972:58-60).

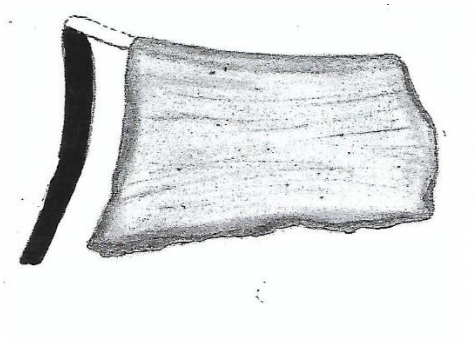
Plate 1.0. Pottery Shape/ Categories



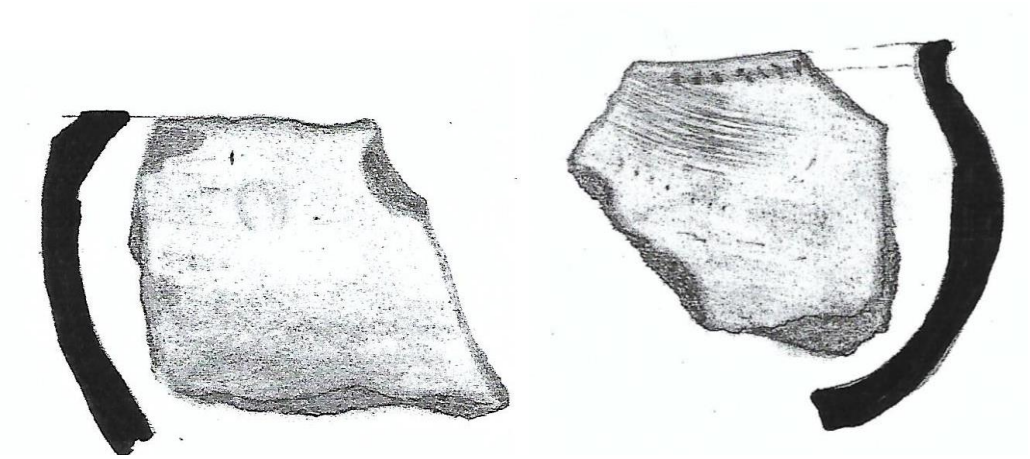
1. Shouldered Pot



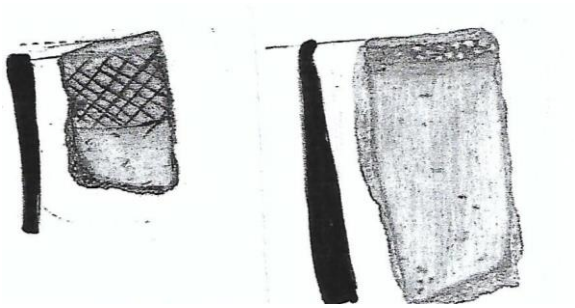
2.Open Bowl



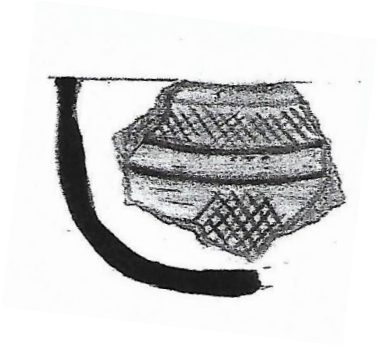
3. Globular Vessel



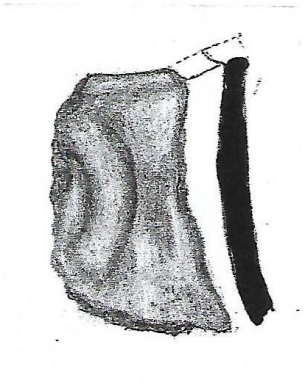
4. spheroidal bowls



5. Straight sided Vessels



6. Hemispherical



7. Beaker

Decoration Type and Placement

There is no one single way of describing pottery decorations, different scholars have described decorations differently depending on their experience. However, in order to model pottery classification of the existing typology, this work adopted the typology proposed by Clark (1974) and Philipson (1976). 14 categories of pottery decorations (A to O) are described below.

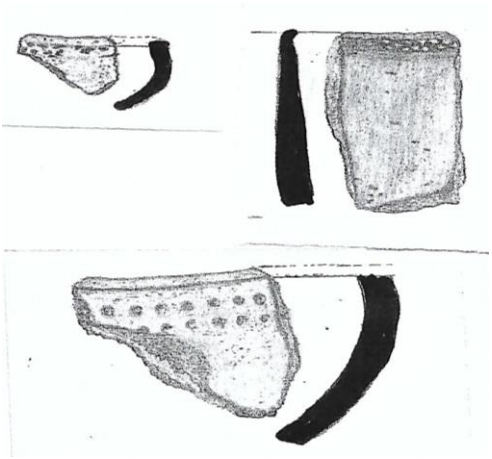


Plate 2.0 Category A.

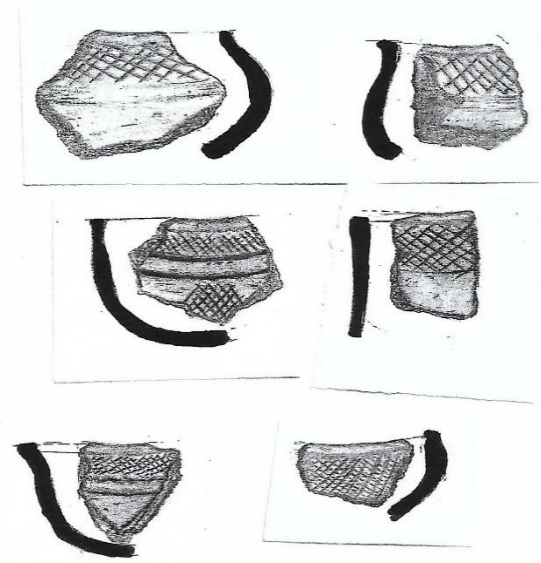


Plate 3.0 Category B.

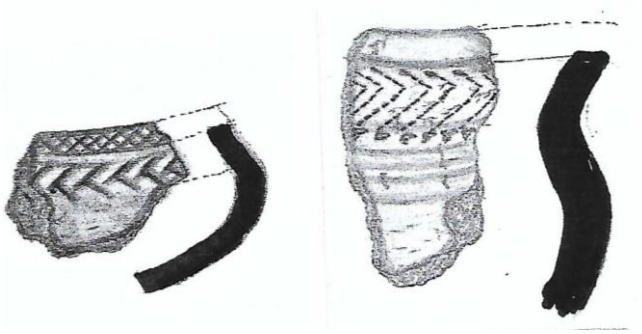


Plate 4.0 Category C.

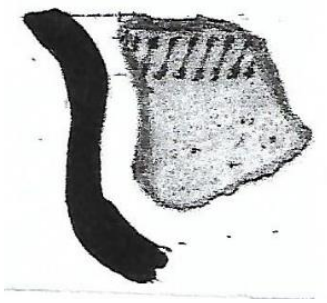


Plate 5.0 Category D.

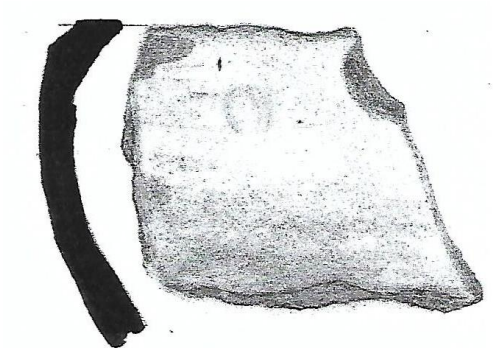


Plate 6.0 Category E.

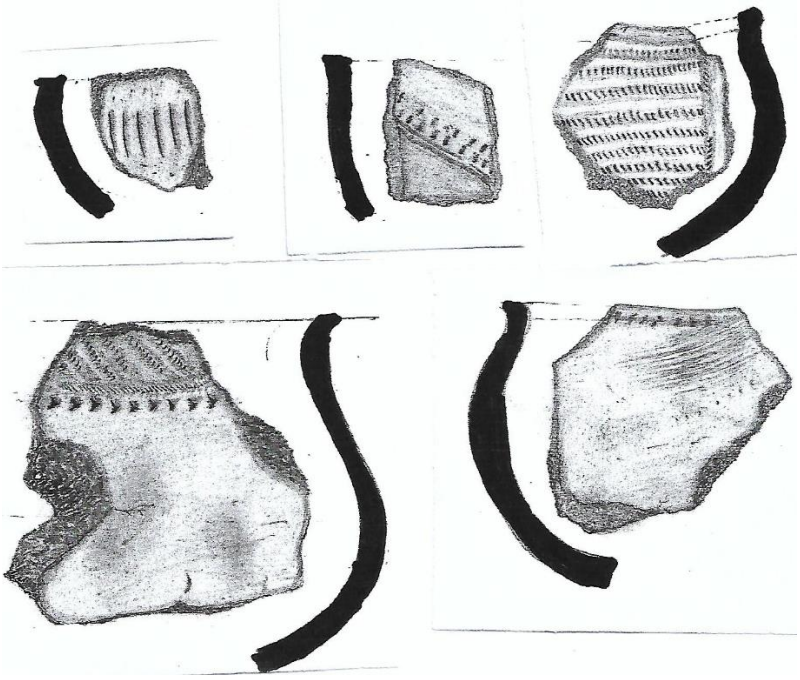


Plate 7.0 Category F.

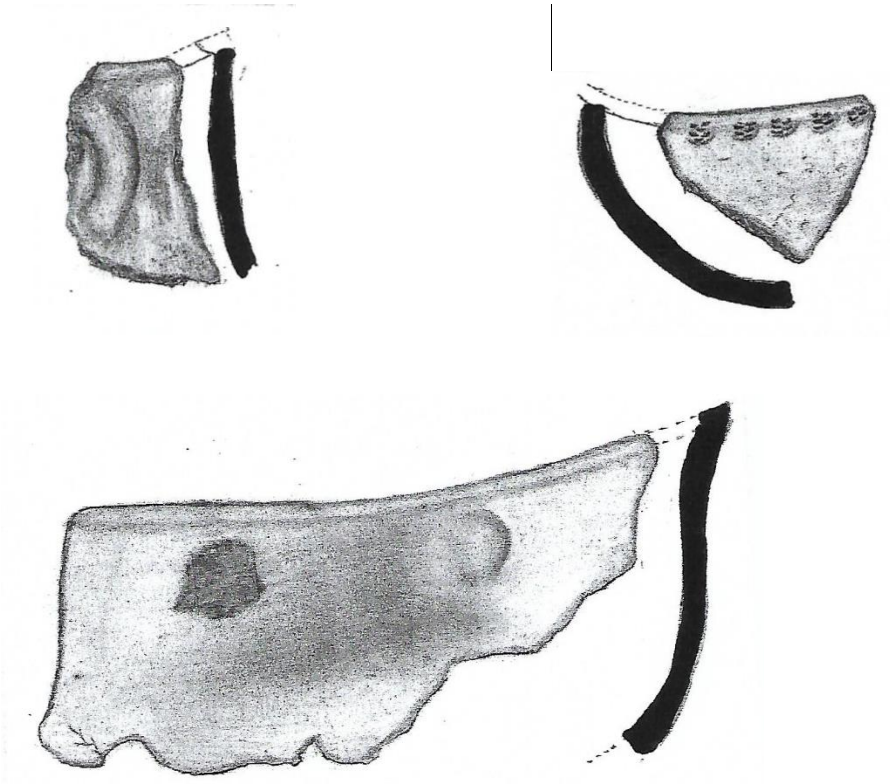


Plate 8.0 Category G

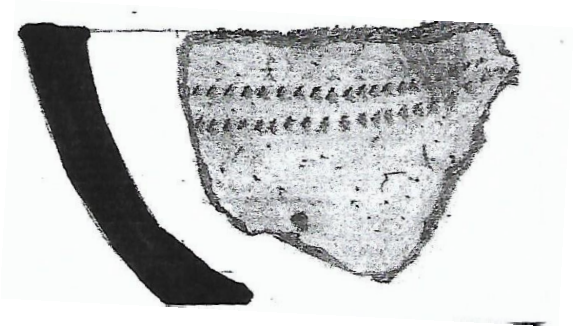


Plate 9.0 Category H.

Plate 10.0 Category I.

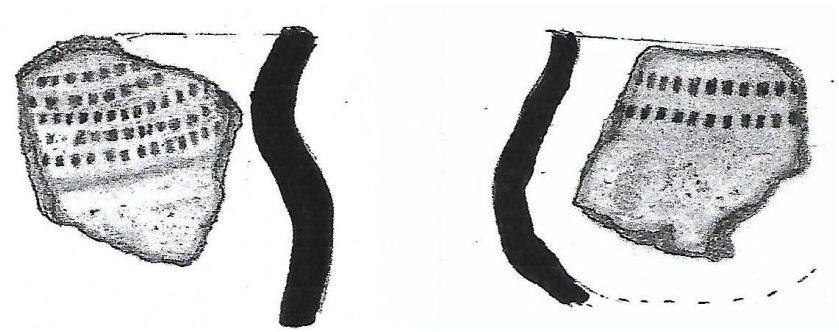


Plate 11.0 Category J.

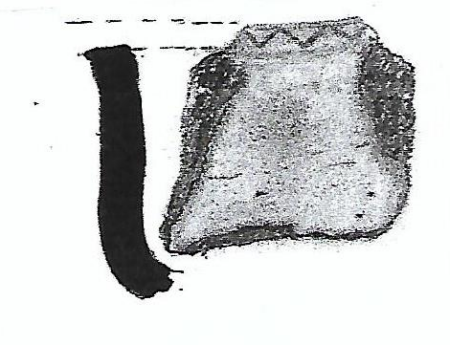


Plate 12.0 Category K

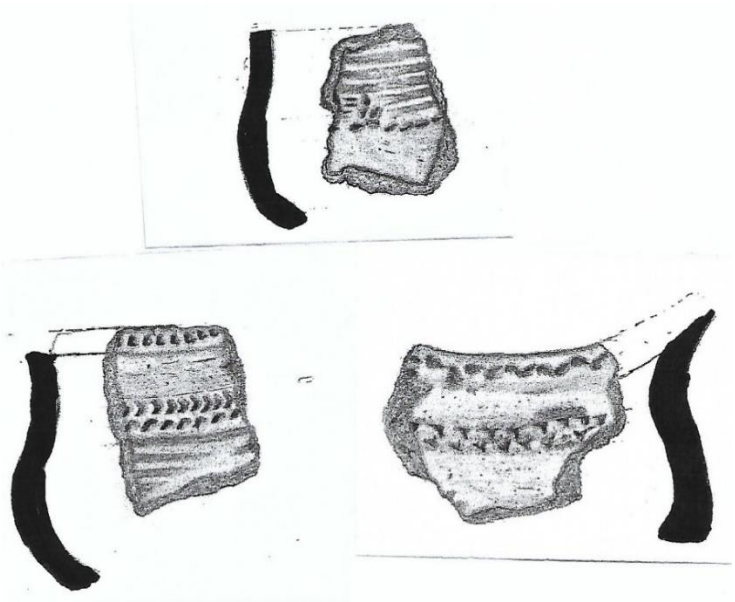


Plate 13.0 Category L

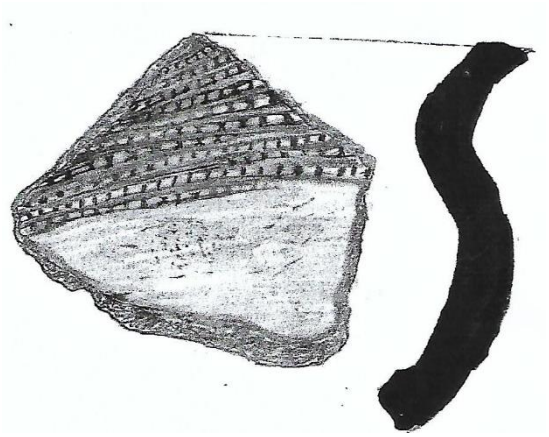


Plate 14.0 Category M.

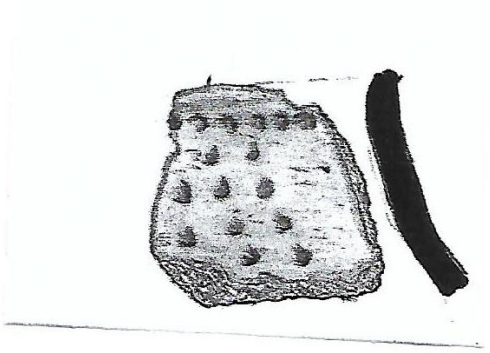


Plate 15.0 Category N.

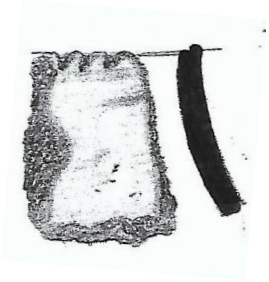


Plate 16.0 Category O.

Table 9.0. Decoration Placement.

Position of placement	**Total**	**Percentage**
On the rim of necked pots	4	7%
On the body of undetermined shape	14	24%
On the body of bowls	7	12%
On the shoulder of pots	2	3%
On the rim of bowls	5	8%
On the rim-band of open bowls	2	3%
On the rim of undetermined shape	9	15%
On the neck of undermined shape	10	17%
On the rim and neck of necked pots	2	3%
On the rim of straight sided pots	3	5%
On the rim of a beaker	01	2%
TOTAL	59	

Category A: *Comb- Stamping*: applied by use of linear multi toothed stamp, it also included punctuates produced individually using a straw like instrument. In some instances, punctuates were closely packed on rim bands. This decoration technique was mostly applied on the body of bowls and rim of straight sided vessels. A total of 15 potsherds had this kind of decoration though 12 of these had an undetermined shape.

Category B*: Criss – Cross Hatching*: Simple hatching consists of one array or more of less drawn lines while cross hatching is produced by two superimposed arrays of drawn lines running at different angles, placed on the entire circumference of the neck of vessels. In some instances, cross-hatching was delineated by one or two channeled lines and below the channeled lines, cross hatching motifs in triangular form. This was by far the most common decorative technique with a total of 20 potsherds. Only 6 of these potsherds had an undetermined Shape. This technique was also applied on top of a flattened rim of a bowl in category C.

Category C: *False Relief Chevron*: Achieved by carefully placing of triangular straight lines or dotted lines in a chevron form on the rim of bowls or necked vessels. These appear in only two potsherds. One of which had a combination of other motifs. False relief chevrons appear in between a line of channeling and a single line of comb stamping below it lines of channeling on the neck of the potsherd.

Category D: *Oblique lines joined by comb stamping*: This technique was applied on only one potsherd. Oblique lines are not used to delineate the two lines of comb stamping but are rather joined by comb stamping on both ends of each oblique line.

Category E: *Dimple Impression*: This decoration appeared on the body of a spheroidal bowl. It appears to have been executed before firing of the vessel.

Category F: *Incisions*: These are decorations done with a sharp point or blade, mostly as a series of short, diagonal, horizontal lines or nicks on the lip of the potsherd. Incisions appear with a combination of other motifs such us one or two lines of channeling, a single line of false-relief chevrons and wiping. Wiping is achieved by use of a flexible object

such as a grass, drawn lightly across the soft surface of clay probably before it dries up. Incisions appear more prominently on 5 potsherds although they are used in other decorative techniques such as channeling (see Category M).

Category G: *Applied Decorations*: According to Philipson (1976: 23), these consist of mammillations or ribs raised above the surface of the vessel wall produced by affixing of additional pieces of clay. In this category, 3 potsherds had affixed decorations of a handle, bosses and lugs. The bosses were then adorned with irregular comb stamping.

Category H: Triangular Stamping: Applied on 1 bowl which consists of two horizontal lines of triangular stamps.

Category I: *Rectangular Stamps*: Applied on 1 potsherd consisting of irregular horizontal lines of rectangular stamping.

Category J: *Square Stamping*: Applied on 2 potsherds, consisting of horizontal lines of irregular stamped squares.

Category K: *Zig-Zag lines*: These were achieved using a sharp object on the top of the rim of a bowl to give it a beveled rim.

Category L: *Grooving*: This consisted of both thick and thin grooved lines. On the first vessel are grooved channeled horizontal lines followed by irregular grooved lines of incisions. The second vessel has a flattened rim top with a horizontal line of thickly grooved lines of incisions, with channeled horizontal lines on the outer rim and below a horizontal line of thickly executed false relief chevrons and below them a horizontal line of thick lines of incisions. The third vessel bears Zig-zag like lines placed on the outside rim of a thick shouldered vessel with an externally thickened rim, these are accompanied

by two horizontal lines of triangular incisions just below the rim, followed by channeled lines both thin and thick placed on the entire circumference of the vessel wall.

Category M: *Channeling*: The most common feature of this techniques were horizontal lines used to delineate boundaries to other motifs. However, this particular vessel was separated from incisions because channeled thin lines appeared to be the most prominent feature of the vessel with very thin lines of point incisions placed on top of channeled lines. A total of 3potsherds were adorned with this decorative technique, on the rim of shouldered pots.

Category N: *Cuneiform Punctuates*: one vessel with a thin wall had diagonal lines of what Kwekason (2010) refers to as cuneiform punctuates. These were placed on the body of a bowl without any bordering.

Category O: *indented/ denticulate*: one vessel was found bearing tooth like decorations on the edge of the lip of the vessel.

Imported Ceramics

A total of 14 potsherds (plate 17.0) believed to have originated from outside the area were recovered from the site. Identifiable pieces represent open bowls, spheroidal bowls, hemispherical bowls, a beaker, straight sided vessels and necked pots. In plate 17.0, potsherds A to M were found at Bwinambo site but have attributes that bring them close to pottery traditions from elsewhere as they do not occur in the known existing pottery assemblage of this region which is attributed to belong to the Kalambo group of pottery. Potsherds A, D and F have attributes that bring them close to pottery from the Ivuna salt pans in southern Tanzania. Clark (1974: 33), argues that lugs, spouts and handles are unknown in this industry. Mapunda (2010:11), on the other hand attributes the presence

of bumps or longish wavy horizontal applications (ribs) to be a unique feature of the Ivuna tradition, which has been dated to between 1200 and 1400 AD. However, these were also noted by Robinson (1972: 60) as Kisi ware. Robinson argues that pottery with point impressions, moulded nipples or bosses appear to have close affinities with pottery made by the Kinga and Kisi of Malawi.

Potsherds H to M similarly have close affinities with pottery from Ivuna in terms of vessel form, fabric and decorative techniques. According to Fagan and Yellen (1968: 14,16), the fabric is moderately fine, with natural gritty inclusions and some specks of mica. The surfaces of the vessels are patchy, varying from a bright, brick red through brown and grey and occasionally wholly black pots. Decorative techniques include channeling in bands below the rim, dotted ribs, stamped motifs and diagonal lines of incisions.

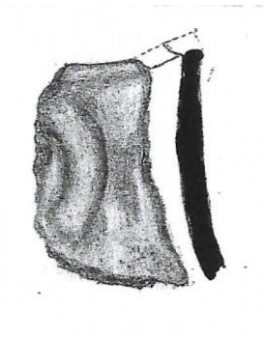
With the majority of imported ceramics coming from Ivuna salt pans, this occurrence could imply that inhabitants of Bwinambo may have frequented Ivuna salt pans in search of salt, resulting in exchanges of ideas on pottery manufacture. As potters came in contact with each other, it could also imply that inhabitants of Ivuna and Bwinambo traded in pottery among other things. Fagan and Yellen (1968: 1) argued that "salt was a valuable commodity in Iron Age Africa, and the localities where it was extracted are few in number and assumed considerable importance as centers of regional trade". This then could be the possible explanation for the presence of pottery with attributes from Ivuna at Bwinambo despite the distance between the two sites.

Pot sherd B has close affinities to Early Iron working from Makasaka, Kilwa Island. Its common feature is comb stamping that forms a band of parallel oblique lines, broad grooves and a single row of impressions is the common decoration on their pottery, and

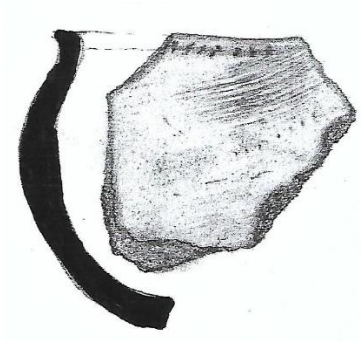
is usually around the rim but in a few instances along the shoulder (Kwekason 2010: 233). Potsherd E, on the other hand, has close affinities with Nkope variant of the southern end of Lake Malawi. Both B and E have parallels in the Nkope variants which have been dated to about 320 AD in Malawi and eastern Zambia.

Another representation of Tanzania ware is pot sherd C which has close affinities with Proto Swahili ware from Mnanag'ole and Rushingi. According to Kwekason (2010: 168) Proto- Swahili ware has been dated to the late 11^{th} to early 12^{th} century. Potsherd G has close affinities to Kapeni ware. According to Robinson (1972: 61), pots are mainly globular with short vertical or flared necks, but there are also carinated pots. He describes decoration techniques of this tradition as frequently bold with some of the vessels demonstrating considerable neatness and care. According to Robinson (ibid), radio carbon dates from Kapeni hill show a date of 1235 ± 75, a date that falls within the period A.D 1000 -1400. This period is important because it shows accelerated cultural changes. According to Philipson (2005: 274), in most areas of modern Zambia and Malawi, there was a series of pronounced and apparently sudden changes in pottery styles around the eleventh century A.D. In Eastern and much of northern and central Zambia, this pottery tradition that was a break from the Chifumbaze tradition was called the Luangwa tradition.

Plate 17. 0. Decorative Categories of Imported Pottery.

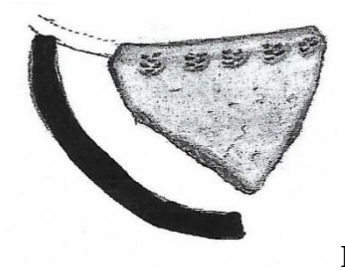


A

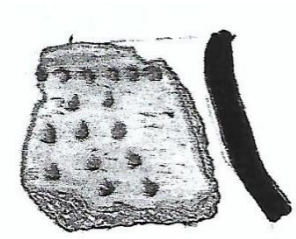


B

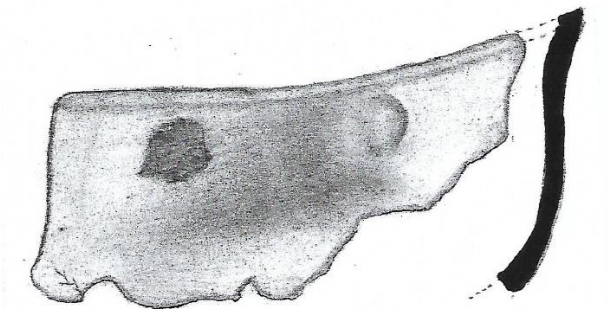
C



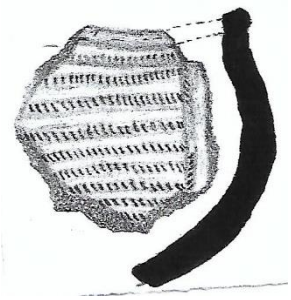
D



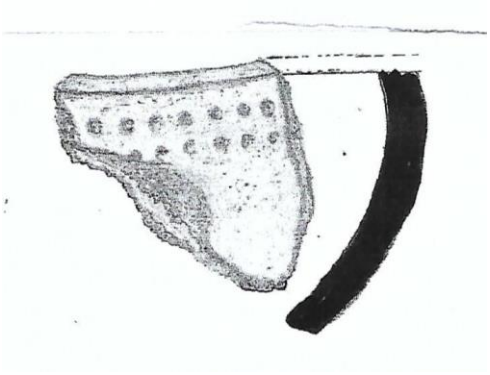
E



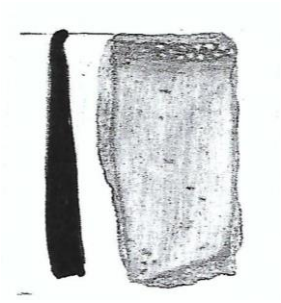
F



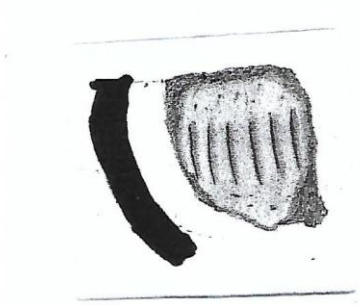
G



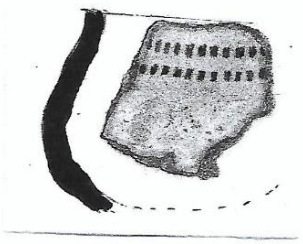
H



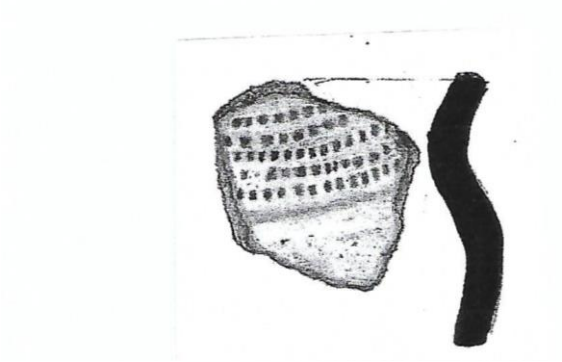
I



K



L



M

Local Pottery

The Bwinambo pottery assemblage is characterised by a combination of pottery from Kalambo Falls which accounts for 85% of the undecorated open bowls with simple rounded rim profiles and a distinct type of pottery that is not comparable to any known ceramic assemblages in the region. This type of pottery has been named Bwinambo pottery after the type site. It is characterised by point impressions executed on top of deeply grooved channeled lines (Plate 18 .0 b) and with dimple impression on the body of a pot that seems to have been executed while the clay was still wet by use of a finger and a combination of motifs (Plate 18.0 a). Decorative techniques also included oblique lines of point impression on grooved lines, below them a horizontal line of false relief chevrons separated by a thick grooved channeled line with point impressions executed on top of it. It also includes circular stamping executed with a straw like instrument while the clay was still wet. These decorative techniques are distinguished from the Kalambo Falls assemblage because the decorative motifs are not separated by channeling as is the case with the Kalambo Falls pottery.

A **B**

Plate 18.0 Bwinambo Late Iron Age Pottery

C **D**

Plate 19.0. Bwinambo Early Iron Age Pottery.

Slag

These were the second largest finds after pottery. Iron slag was noted in large quantities in all excavated pits. Their presence in large amounts at the site is indicative of evidence of iron smelting at Bwinambo. Mapunda (2010: 155) points out a general difference between refining slag and smelting slag. He argues that, "the colour and luster differences reveal that smelting slag is generally black and has a powdery or sooty surface, whereas refining slag is dark brown and has a smooth glassy luster". Despite the large quantities of iron slag recovered during excavations, no tuyeres or smelting equipment were found in a stratified position except that the tuyeres were found lying around a smelting kiln.

Plate 20.0. Rusty -orange iron slag

Plate 20.1. Refining Slag

Plate 20.2. Bloomery Slag.

Haematite

Haematite was found at all the Bwinambo sites and recovered in bigger cakes at BS2. Haematite is the oldest known iron oxide mineral that has ever formed the earth and is wide spread in rocks and hills (Cornwell and Schwertmann 1996: 4,26). It occurred in different varieties at the site, that is the kidney ore and specularite, and was coloured black to steel grey, brown to reddish brown and rust-red. Musambachime (2016:89) argues that "very large bodies of high grade haematite, occurred in various parts of the country in primarily shallow or surface deposits containing a lot of gangue that acted as a natural flux, and some of these were mined on a large scale".

It seems probable that smelting was done within the settlement area from the large number of iron ores recovered from the excavation. This trend was also noted during excavations at Dambwa by Daniels and Philipson (1969: 38) who were quick to suggest that "the taboos which later came to surround the smelting of iron were not in existence at any rate in their now recent form". This could have been the case with Bwinambo site. Smelting took place within the settlement area and later shifted to the plateau after taboos associated with smelting became enforced. This explains the remains of smelting kilns on the escarpment in Makanga Village, 3km from Bwinambo site.

Plate 21.0. Black Haematite.

Plate 21.1. Specularite Haematite

Iron Objects

Recovered iron objects were few and in a poor state of preservation. Among the iron objects that were recovered was an iron adze blade, which was found at 30 - 40cm depth in square C of BS4. The adze was produced by hammering a small rectangular piece of iron into the appropriate size. Four bodkins of different sizes were also recovered. Two of these came from BS3, square Z, at 10-20 cm depth and from square V, at 30-40 cm depth. From BS4, one bodkin was recovered at 30-40 cm depth. All the bodkins seem to have been made from drawn wire hammered at a tempering point. Additionally, a needle was recovered from BS3, square u. The needle is a small piece of tempering wire which is separated from the bodkins by virtue of the size and a flattening to its upper end. It bears a small depression at this flattened area, which was probably for an eye, but could have been closed up due to corrosion. Lastly, an iron bracelet fragment was recovered from BS2 square R at 30-50cm depth. The bracelet is slightly more than one third of the circumference of the whole bracelet and seems to have been just a circlet of iron wire.

Plate 22.0. Iron Bodkins and a Needle (far right).

Plate 22.1. fragment of an iron bracelet (Bangle)

Plate 22.2. Iron Adze

Bones

A sizeable sample of bone fragments were recovered in a poor state of preservation. The state of the bone was due to the acidic nature of the soil which is unsuitable for bone preservation and other organic matter. However, it was possible to make a few generic identifications. Identifiable bones were recovered from BS 2, 3, and 4 which included teeth of big bovid animals, animal and human ribs, animal jaw bone and human toe bones.

Plate 23.0 Tibia of a Bovid Animal.

Plate 23.1. part of the Tibia Bone End.

Plate 23.2. Unidentified Animal Bones

Plate 23.3 Animal Teeth (Bovid)

Plate 23.4. Human Ribs.

Plate 23.5. Human Tarsals.

Plate 23.6. Unidentified Human Bones

Small Finds

These included fragments of charcoal, ash, shells and beads.

Charcoal and Ash

The presence of remains of charcoal and ash in the deposits is evidence of utilization of fire on site. Close examination of pot sherds with dark exterior surfaces revealed the possibility of the vessels having been used for purposes of cooking. Additionally, burnt fragments of bone were also recovered. This evidence points to use of fire for cooking purposes by inhabitants of the site. Unfortunately, charcoal samples could not be subjected to absolute dating due to lack of dating facilities and financial resources. Huge concentrations of charcoal and ash were noted at BS4 at 40-50cm depth in association with the Kalambo and Nkope type ware.

Shells

Fragments of sea shells were recovered at Site 3 from 10-20 cm depth in square V and from 10-50cm depth in squares X and Z. These were found in association with late iron age pottery with close affinities to Kalambo ware and Bwinambo pottery. From levels 30

to 50cm, sea shell fragments were found in association with pottery with close affinities to Nkope ware from southern Malawi and Mwaravambo ware north of Karonga. According to Trubitt (2003: 243 -244), marine shell is no ordinary faunal material. Winters (1968) adds that "prized for their shapes, colours and shininess of their natural forms, shells are symbolically linked with water and the sea, and their value increases with distance from the coast".

Shells could have been used in their natural form as part of the diet of the inhabitants of the site, or modified for diverse items, mainly ornamental. However, no ornamental artefacts made out of these raw materials were found at the site. Nonetheless, we cannot rule out other possible uses of shells such as for smoothening clay pots or even as vessels that could have been used for serving food. This is evidenced from Kalambo Falls where fragments of fresh water mussel (Unio shells) showed possible rubbing of an edge such as results from use as a pot smoother (Clark 1974: 48-49). The possibility of ornamental artefacts from shells could not completely be ruled out due to the disturbed nature

Plate 24.0. Fragments of Unio Shells

Beads

Two small red beads were recovered from site 2 at levels 0 – 10 cm, one “Indian” red and dark red. Both beads are barrel shaped (convex profile) and seem to have been manufactured by drawing. Wood (2005: 51) contends that drawn beads are made by creating a hallowing or 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 in small bead lengths which may be rounded by heating. The small collection of beads made it impossible to carry out complete analysis and generalize the possible bead assemblage that could be found at the site. However, one thing that is clear is that the beads were not of local origin and could only have been brought at the site through external interactions. The size of the beads seems to be the ones that were used simply as adornment or decoration mostly by women who may have preferred smaller beads.

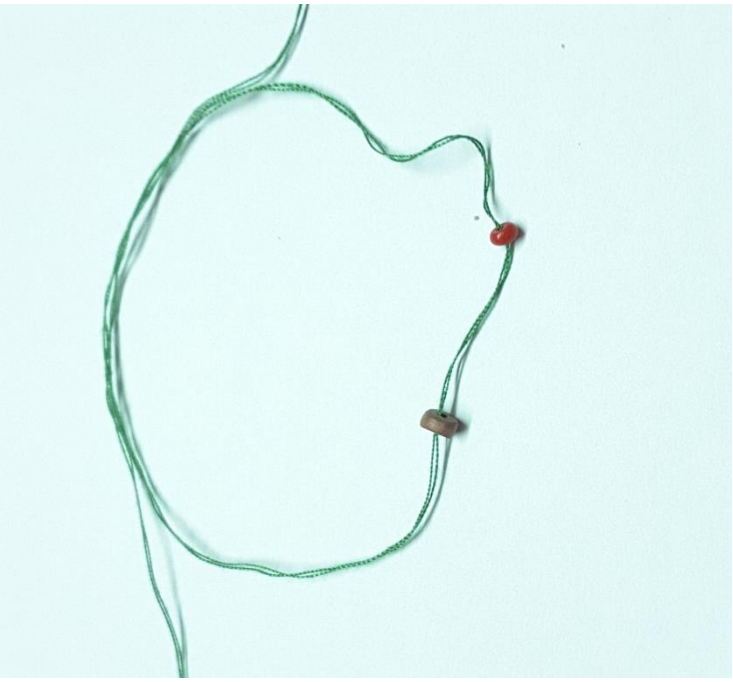


Plate 25.0 Barrel Shaped Red Beads.

General Chronology

General chronology involved the measurement of time and ordering of chronological relations among artefacts, sites and other features through the analysis of pottery. Relative chronology was utilised to check with both already defined types and existing dates of similar types within the Tanganyika – Nyasa corridor and surrounding areas. Despite the depth at which pottery and other cultural materials were found, cultural sequence of the types rather than depth at which the material was found has been useful in defining relationships of the sites.

In Chapter 3, it has been shown that three stratigraphic zones were excavated throughout the site at Bwinambo. At all the four excavated sites, the third layer yielded Early Iron Age pottery. BS1 revealed Early Iron Age pottery with close affinities to Kalambo Falls pottery from 50-60 cm depth. Pottery sherds in this category consisted of mainly undecorated bowls with thin walls, while pots had thick walls with roughly executed incisions. The dominant decorative technique was comb stamping, followed by criss-cross hatching separated by one or two lines of channeling and incisions. These were found in association with iron slag.

From BS2, the third layer (50-70 cm) also yielded pottery with close affinities to the Kalambo type ware with zig-zag incisions on the top of a flattened rim, horizontal stamps of squares, criss-cross hatching below it lines of channeling, diagonal incised lines with a single line of channeling and blow it point impressions. Alongside Kalambo pottery was what has been named Bwinambo pottery. These were found in association with ash and animal bones.

From BS3 at 40-60 cm depth, the pit yielded Kalambo and Bwinambo pottery with circular stamps, a dimple impression on the body of a pot and a single smooth line of channeling

executed with point impressions which was different from deep grooved channeling. This decorative technique is similar to Kapeni ware from Malawi as described by Robinson in Pachai (1972: 61) figure 4.3g. Robinson argues that incision, grooving and point impressions are the usual methods of decoration of this pottery tradition. Acoording to Robinson (Ibid), Kapeni ware on the north bank of the Nyanyangu river has been dated to 1235±75v(SR-221). He further argues that these dates confirm the archaeological evidence which suggests the period AD 1000 -1400, adding that there would appear to be some close affinity between Kapeni pottery and that from the northern early iron age sites such as Phopo hill and Mwaramvambo. There are also close affinities with early Natal coastal pottery. These artefacts were found in association with sea shells and some metal artefacts.

From BS4, the earliest stratigraphic layer was from 100 -120 cm depth. This layer yielded undecorated bowls with close affinities to Kalambo pottery in terms of thin walls and paste, pottery with close affinities to Ivuna pottery from the Rukwa region of Tanzania in terms of vessel form, colour and decorations. Additionally, it also yielded pottery with nicks on the lip and wiping on the body of a shouldered pot. This pottery tradition has close affinities to early iron ware from Masakasa, Kilwa island in Tanzania as described by Kwekason (2010: 163).

The second stratigraphic layer was from 30 – 50 cm depth in BS1, 30-70cm depth in BS 2, 20-30cm depth in BS 3 and 30 to 100cm depth in BS 4. In all four pits, this layer reveals a continuation of Kalambo Falls ware and Bwinambo falls ware, with a single sherd of a bowl with two horizontal lines of triangular stamping with close affinities to the Chondwe group of pottery from central Zambia as described by Philipson (1977: 133), figure 47, and between levels 30 to 50 cm depth, there is an improvement in the execution of decorations

in both pottery traditions as they become more elaborate and neat. There is also a general change in the thickness of walls for vessels to thinner ones.

The third and most recent layer was from 0-30cm depth in BS1, 0-30cm depth in BS2, 0-20cm depth in BS3 and 0-30 cm depth in BS4. This layer yielded undecorated bowls with thin walls with close affinities to the Kalambo type ware and pottery deemed to belong the Bwinambo Later Iron Age.

Based on these relative dates, the chronology of Bwinambo site and the Tanganyika –Nyasa corridor indicates continued human interaction (trade and exchanges) among corridor peoples and surrounding areas from the Early Iron Age. This matches with other known archaeological data in eastern and southern Africa. The research hypothesis has hence been verified accordingly.

Conclusion

This chapter has presented a detailed analysis and interpretation of various categories of archaeological artefacts recovered from excavations and observed phenomenon. The analysis of pottery revealed decorative attributes with close affinities to pottery from Tanzania, Malawi and the Northern, Eastern and Central regions of Zambia. This Information proved vital in examining trade and exchange networks that existed among these inhabitants which is discussed in Chapter 5. Analysis and interpretation of fauna remains such as iron ores, animal and human bones and fragments of shells enabled a reconstruction of the interaction of man with his environment and also the range of exploitation of resources available. Additionally, recovered archaeological artefacts produced evidence that pointed to economic activities of the inhabitants of the site. A more

detailed interpretation and discussion of these findings in relation to the research objectives of this study are presented in the ensuing chapter.

CHAPTER FIVE
CONCLUSION

The purpose of this study was to trace trade and exchange patterns among the Iron Age inhabitants of Bwinambo and its impact on their economic system. The study explored several aspects of the economic activities by the inhabitants of the research area. However, in order to show that these activities did not take place in a vacuum but existed in a cultural setting, the study established that there were critical factors that enhanced trade and exchange networks in the region such as the establishment of permanent settlements, iron working activities and movements of people between the East African coast and the hinterland.

Despite the absence of radiocarbon dates due to lack of adequate and suitable dating facilities in the country and region as a whole, there is sufficient evidence to suggest that the site was occupied for a considerable period of time. This is perhaps because the site was located in a suitable area where people could easily access water, food sources and interact with other peoples in the surrounding area. An understanding of the settlement area was very significant in the understanding of human interaction with the environment. This was possible due to the application of the direct observation method in research to understand the present local environment.

From the evidence available, Bwinambo site has exhibited good factors that were conducive for human settlement such as water bodies found in Bwinambo and Mungu and a number of dambos both within the site and in proximity to the site. It is however important to note that, the current water patterns at the site could not have been the same

throughout the period of occupation. Drewett (1999: 163) has argued that "water sources can however change, with rivers meandering across flood plains and springs drying up through climate change or even local water pumping". Bwinambo is no exception to such changes. It can therefore be assumed that water sources could have actually been more than they are at present with disturbances such as the erection of a water tank and climate change which could have led to a number of dambos drying up.

There is strong evidence to suggest that there were plenty of food sources in the area surrounding the site, especially considering that there was abundance of animal bones and also the endowment of the forests within the site with edible vegetables and fruits which made up the diet of the inhabitants. In addition, artefacts such as potsherds which occur in significant quantities are an indication of a settled way of life as settled communities unlike hunter-gatherers are linked with accumulation of material possessions. This is a significant conclusion which many archaeologists would agree with. For example, Philipson (1977: 110) has argued that "people who are constantly on the move in search of food will have relatively few material possessions other than those which can easily be transported…. even clay pots are usually avoided, in preference for the much lighter wooden vessels…." Evidence of pottery remains throughout the Bwinambo site should therefore be considered as undisputed evidence of a settled community. The presence of charcoal, ash, burnt bones and potsherds at the site is good evidence of use of fire for cooking and roasting of meat, as well as storage. Animal bones suggest that hunting was practiced and that game was an important food item in the diet of prehistoric societies and played a significant role in trade and exchange.

The presence of tuyeres, remains of smelting kilns, slag and haematite in fairly large quantities is a clear indication that iron smelting was an important economic and technological activity at Bwinambo site. Iron has been found in many parts of Africa (Bocoum 2004) and was a major item of trade in prehistoric societies and as such, it is reasonable to suggest that it contributed to the economy of Bwinambo inhabitants. The local production of iron undoubtedly enhanced interactions among different peoples and communities and allowed them to participate in the trade and exchange chain that was going on with people from the East African Coast. Fagan and Yellen (1968:13) have argued that:

> *"if more metal was produced that was required for domestic use, it may have been traded to peoples such as Safwa or the lakeside fishermen in Tanzania, neither of whom are known to have smelted, in exchange for some commodity, such as salt or fish, in the same way that iron implements were traded from Ufipa into the Rukwa Rift*"

Similarly, the situation at Bwinambo could be likened to exchange and trade networks that took place at Ing'ombe ilede (Fagan et al 1969 :143) where inhabitants traded with people from the East African Coast using local resources. The Ing'ombe ilede site in the middle Zambezi valley, which flourished as a trading center in the late fourteenth and early fifteenth centuries, has shown that trade in raw materials was well established in the Zambezi valley by the end of the first millennium (Fagan 1971:230). These included sea-shells, glass beads and salt. This trend is assumed to have also taken place among the inhabitants of Bwinambo where iron artefacts such as hoes could have been used both for domestic use and as articles of trade.

Analysis of archaeological materials from Bwinambo site suggests that trade and exchange between the inhabitants of the area and those living in the Tanganyika – Nyasa Corridor had a very long antiquity. The trade that existed before the 19th century most likely included items such as pottery, iron, sea shells, salt and beads. The period before 19th century was characterised by heightened trade between the East African Coast and its hinterland. This regional trade was conducted as far as the Kazembe Kingdom (Christopher 1970; Macola 2002; Richards 1976; Chama 2012 etc.) and it was from this that the inhabitants of Bwinambo became part of this huge exchange network. This conclusion is supported by similarities in pottery forms over a large area including Bwinambo.

Bwinambo pottery has exhibited strong affinities with pottery from surrounding areas in terms of vessel form, fabric and decorative techniques. Investigations by Kwekason (2010) in the southern coast of Tanzania, Mapunda (2010) in the Rukwa region of Tanzania, Katto (2015) in southern Tanzania, Robinson (1976) in Northern and Southern Malawi, Robinson and Sandelowsky (1968) in Northern Malawi, Clark (1974) in Northern Zambia, Philipson (1976,1977) in Northern and Eastern Zambia, and Derricourt (1980) in the Luapula province of Zambia have revealed the presence of pottery that bears close similarity to those from Bwinambo site. If indeed this was the case, it shows that the inhabitants of Bwinambo enjoyed some form of interaction with their neighbours over a large area that could have promoted some form of exchange and trade in a wide range of items. Undoubtedly, the extent of interaction would clearly demonstrate that the community of Bwinambo was not in pristine isolation but was part of a large community that covered some parts of present day Tanzania and Malawi. As Katto (2015: 88) has

argued “the reason for pottery similarities among such separate communities could be attributed to movement of people or ideas and technology”. This however does not necessarily point to the actual migration of people from one place of settlement to another but it implies trade and exchange of actual pots and exchange of ideas and technology through interaction. Others have suggested that “similarities of design elements between groups was proportional to the direction and intensity of social interactions between members of these groups (Rice 1987:252). It is therefore evident that from the evidence gathered from Bwinambo, trade and exchange played a very important role in bringing these communities together.

The long distances covered in the trade and exchange chain could perhaps be an explanation for the presence of the coconut plantations at Chunga which are indigenous to the East African Coast. Coconuts could have been brought in by traders from Tanzania as they eased mobility patterns of these prehistoric groupings by being a ready source of water and food over large distances. This is evidenced from the areas in which they are dotted in Zambia, most of which were traversed by early traders such as Mbala and Mwata Kazembe’s Kingdom. Their innumerable working utilities and direct uses as food and drink could have also amused the local inhabitants at Bwinambo who may have readily exchanged their local products with them. Coconuts hence may have been also used by the Bwinambo community who traded over longer distances after learning of their use by traders from the East Coast.

The study has established that pottery forms at Bwinambo are similar to pottery from Ivuna (Fagan and Yellen 1968: 40- 43) in southern Tanzania despite the long distance between the two sites. This similarity can only be sufficiently explained if contacts existed between

the two communities facilitated by exchanges involving salt which was an important commodity at the Ivuna site. Fagan and Yellen (1968: 3) have argued that "salt was a valuable commodity in Iron Age Africa and the localities where it was extracted are few in number and assumed considerable importance as centers of regional trade". Salt having been desired and a much sought commodity undoubtedly enhanced trade and exchanges between the two sites and hence played a vital role in the economies of the inhabitants of the two areas. The Ivuna Salt Pan was therefore an important place in the provisioning of food resources to far flung areas such as Bwinambo as well as the exchange of technological ideas in areas such as iron smelting and smithing and also skills in pottery making which the inhabitants of Bwinambo possessed.

In discussing pre-colonial trade and exchange networks particularly in situations involving excavated material, there would likely be a tendency to put emphasis on the presence of exotic goods to prove that indeed trade took place. It is through these circumstances that archaeologists are able to gauge the intensity of trade activities in a particular area. This approach disadvantages trade in local items such as iron objects and pottery which could have also been traded over long distances. The similarities in vessel form and decorative style discussed above, over a large area in North-eastern Zambia and surrounding areas including the Tanganyika –Nyasa corridor, is indicative of trade in local items that was either enhanced or benefited from long distance trade involving goods from the East African coast.

According to Chapman (2008: 335) "communities emphasized exotic things much to the neglect of comparable and adequate local sources". It is important to point out that prehistoric trade and exchange in simple local resources was just as important as exotic

articles of trade in that these local resources were at the time vital for the survival of local communities involved in such exchanges. Christopher (1970: 203) has observed that "a description of the economic activities of the region before the influence of coastal trade is hampered by the fact the earliest observations of the corridor peoples were reordered by David Livingstone in 1867 well after professional traders from outside had become common".

It is therefore important to study prehistoric trade and exchange in its own right without comparing it to trade goods in the 19th century trade if its importance is to be appreciated. This is because communities are not static, needs keep changing and so were articles of trade. What was viewed as important in 19th century communities can never be comparable to what was viewed as vital in pre 19th century societies and hence to call prehistoric trade as "primitive trade" is a lack of understanding and appreciation of evolving societies. Bisson (1976:86) has argued that "this error stems not simply from a lack of knowledge of the considerable historical and archaeological evidence, to the contrary, but also forms a basic misunderstanding of the importance that prestige rather than subsistence spheres played in the development of indigenous trading systems". It is therefore imperative to note that, whatever form trade and exchange took in prehistoric times, it is such trade that determined the capacity of prehistoric societies to take part in the 19th century long distance trade. Roberts (1976: 101) contends that patterns of local exchange and industry shaped and sustained the trade routes between the African interior and the coast. It is this local trade therefore that paved a way for 19th century caravan trade. Vansina (1962: 376-377) has argued that long distance trade involved more than a passing on from market to market of goods coming from distant places but involved direct trade over long distances by

caravans. Trade was conducted using currencies, standards of values and means of payments for services in extensive use.

This study has attempted to place trade and exchange in the prehistoric context in which they were important activities in the socio economy of the inhabitants of Bwinambo. Through the world systems analysis theory, it has been proven that indeed these inhabitants were not existing in isolation but were part of a large community that was involved in trade networks along the Tanganyika – Nyasa Corridor. By means of evidence from sites such as Kalambo Falls where pottery assemblages have been securely dated and arguably to that found at Bwinambo site, it can be concluded that Bwinambo site could have been settled between the 3rd century A. D and the first half of the 12 the century.

This work breaks away from the established migration and diffusion school of thought by attributing the presence of foreign material such as sea shells and imported pottery at the site to trade and exchange rather than movements or migration of people to these areas This type of exchange could have also made it possible for technology to be shared among different communities without necessarily warranting the actual movement or relocation of groups to a new area. It is the exchange of ideas that could have influenced an almost uniform Early Iron Age pottery in terms of decoration motifs.

This work having been conducted in the North –eastern region of Zambia which is less explored sheds light on what was previously unknown in terms of the prehistoric socio – economies of not only Bwinambo but the region as a whole since this community did not exist in isolation. Cultural assemblages recovered from the site have also helped to place the site in an existing historical cultural framework of the Kalambo group of pottery with

minor differences as there was a local development of pottery which is the Bwinambo pottery alongside the Kalambo group.

It is hoped that extension of this research could help refine some of the observations made in this work and consequently help to develop a model of socio-economic dynamics and trade networks in the research area thereby bringing about a proper reconstruction of the history of this area. Further new knowledge on trade routes that linked this area to eastern Zambia could be obtained so as to prove the current notion that this area was impassable.

BIBLIOGRAPHY

SECONDARY SOURCES

BOOKS

Alphers, A, Edward (1975) *Ivory and Slaves in East Central Africa: Changing Patterns of International Trade in the Later Nineteenth Century (*London: Heinemann).

Ashmore, W and Sharer, R.J (2010) *Discovering Our Past: A Brief Introduction to Archaeology*. 5th edition (New York: McGraw-Hill).

Banning, E (2002) *The Archaeologists Laboratory: The Analysis of Archaeological Data*. (Now York: Kluwer Academic Publishers).

Bocoum, H (ed.) (2004) *The Origins of Iron Metallurgy in Africa. A New Light on its Antiquity.* UNESCO.

Clark, J.D (1974) *Kalambo Falls Prehistoric Site Volume 2.* (Cambridge: Cambridge University Press).

Clarke D.L (1968) *Analytical Archaeology* (London: Methuen).

Crumley, C. (1994), *Historical Ecology: Cultural Knowledge and Changing landscape*,

(Santa Fe: SAR Press).

Cornell, R.M and Schwartmann, U (1996) *The Iron* Oxides*: Structure, Properties, Reaction and Uses, 2nd edition* (Germany: VCH Publishers).

Cunnison, Ian (1967) *The Luapula Peoples of Northern Rhodesia: Custom and History in Tribal Politics* (Manchester: Manchester University Press).

Drewett, L.P (1999) Field Archaeology: An Introduction. (London: UCL Press).

Dymond, D, Percy (1974) *Archaeology and History: A Plea for Reconciliation* (London: Thames and Hudson).

Fagan, B (1965) *Southern Africa During the Iron Age (Ancient Peoples and Places)*, Vol.4(London: Thames and Hudson).

Fagan, B.M. (2005), *In the Beginning: An introduction to Archaeology*. (New Jersey:

Pearson-Prentice Hall).

Gordon, M. David (2006) *Nachituti's Gift: Economy, Society and Environment in Central Africa* (Wisconsin: Wisconsin University Press).

Hourani, G.F (1951) *Arab Seafaring in the Indian Ocean in Ancient and Early Medieval Times* (New Jersey: Princeton University).

Langworthy, H.W (1972) *Zambia before 1890: Aspects of Precolonial History* (London: Longman Group Ltd).

Macola, Giacomo (2002) *The Kingdom of the Kazembe: History and Politics in North Eastern Zambia and Katanga to 1950* (London: Transaction Publishers).

Mapunda, B (2010) *Contemplating The Fipa Iron Working* (Kampala: Fountain Publishers).

Musambachime, M (2016) *Wealth from The Rocks: Mining and Smelting in Precolonial Zambia* (United Kingdom: Lighting Source UK Ltd)

Phillipson, D.W. (1976*), The Prehistory of Eastern Zambia*. (Nairobi: British Institute in Eastern Africa).

Phillipson, D.W. (1977), *The Later Prehistory of Eastern and Southern Africa* (London:

Heinemann).

Philipson, D, W (2005) *The African Iron Age 3rd Ed* (Cambridge: Cambridge University Press).

Renfrew, C (2008) *Prehistory: The Making of Humankind* (New York: The Modern Library).

Renfrew, A.C and Bahn, P (2012) *Archeology: Theory, Methods and Practice 6th edition* (New York: Thames and Hudson).

Rice, P (1981) *Pottery Analysis: A Sourcebook* (Chicago: Chicago University Press).

Richards, Audrey (1939), *Land Labour and Diet in Northern Rhodesia: An Economic Study of the Bemba Tribe.* (London: Oxford University Press).

Roberts, A (1976) *A History of Zambia* (London: Heinemann).

Ryle, O (1981) *Pottery Technology: Principles and Reconstruction* (Washington DC: Taraxacom).

Schmidt, P.R, (1996) *The Culture and Technology of Iron Production* (Orlando: University Press of Florida).

Schoff, W.H (1912) *The Periplus of the Erythraean Sea* (New York: Longman and Green).

Shepherd, D (1971) *Ceramics for the Archaeologists* (Washington Dc: Smithsonian Institute).

Sinopoli, C (1991) *Approaches to Archaeological Ceramics* (New York: Springer).

Storrs, A. E.G (1979) *Know your Trees: Some of the Common Trees Found in Zambia* (Ndola: The Forest Department).

Trigger, B.G. (1966), *A History of Archaeological Thought*, (Cambridge: Cambridge University Press).

Watson, P.J; S.A. Le Blanc & C.L Redman (1984), *Archaeological explanation: Scientific Method in Archaeology 2nd ed*. (New York: Colombia University Press).

Wilson, Derek (1975) *A History of South and Central Africa* (Cambridge: Cambridge University Press).

Wilson, M (1958) *Peoples of the Nyasa- Tanganyika Corridor* (Cape Town: University of Cape Town).

CHAPTERS IN BOOKS

Chapman, J (2008) "Approaches to Trade and Exchange in Earlier History (Late Mesolithic-Early Bronze Age)", in A. Jones (ed.) *Prehistoric Europe: Theory and Practice,* Pp.333-335. (Oxford: Wiley –Blackwell).

Christopher, St John (1970) "Kazembe and the Tanganyika- Nyasa Corridor 1800- 1890" in Grey and Birmingham (Eds.), *Precolonial African Trade: Essays on Trade in Central and Eastern Africa Before 1900* (London: Oxford University Press).

Daniels, S.G and Philipson, D.W (1969), "The Early Iron Age Site at Dambwa Near Livingstone", in Brian Fagan, S.G Daniels and *D.W Philipson, Iron Age Cultures in Zambia (Ing'ombe Ilede, Dambwa and The Tonga),* (London: Chatto and Windus).

Fagan, B. M (1971) "Zambia and Rhodesia" in Shinnie, P.L (ed.) *The African Iron Age* (Oxford: Clarendon Press).

Flannery, V.K (1968) "Archaeological Systems Theory and Early Meso-America" in B.J Meggers (ed.) *Anthropological Archaeology in the America*, 142, pp.67 -87.

Higgs, E.S and Vita – Finzi (1972) "Prehistoric Economies: A Territorial Approach" in E.S Higgs (Ed) *Papers in Economic Prehistory* (Cambridge: Cambridge University Press).

Renfrew, C (1977) "Alternative Models of Exchange and Spatial Distribution "in T.K Earle and J.E Erickson (Eds.) *Exchange Systems in Prehistory* (New York: Academic Press).

Robinson, K.R (1972) "The Early Iron Age in Malawi: A Brief Account of Recent Work "in B, Pachai (ed.), *The Early History of Malawi* (London: Longman).

Markel, R (1971) "Vegetation and the Forest State" in Davies, D, Hywel (ed.), *Zambia in Maps* (London: University of London Press).

Plekhanov, Georgi, (1959) "The Role of the Individual in History", in Gardner, Patrick (ed.), *Theories of history* (New York: The Free Press).

Polany, K (1975)" Traders and Trade" in J.A Sabloff (ed.) *Ancient Civilisations and Trade* (Albuquerque: University of New Mexico Press).

Winters, H. D. (1968). "Value systems and trade cycles of the late Archaic in the Midwest", In Binford, S. R., and Binford, L. R. (eds.), *New Perspectives in Archaeology*, Aldine, Chicago, pp. 175 -222.

DISSERTATIONS AND THESES

Bisson, Michael, (1976) *Prehistoric Copper Mines of Zambia.* PhD (Anthropology) Thesis, University of California.

Chama, Meldad (2012) *Tribute, Trade and Power: An Historiographical Study of Mwata Kazembe" Kingdom Before 1890.* M.A Dissertation: University of Zambia.

Jennings, B (2013) *Travelling Objects, Changing Values: Trade, Exchange, and Cultural Influence for the Decline of the Lake Dwelling Tradition in The Alpine Region During the Bronze Age.* PhD Dissertation (United Kingdom: University of Basel)

Katto, P (2015) *Coast – Interior Connectivity During the Caravan the Nineteenth Century: Archaeological Evidence of the Caravan Trade from Southern Tanzania*. M.A Dissetation: University of Dar es Salaam

Kwekason, A.P (2010) *Holocene Archaeology of Southern Coast Tanzania*. Phd Thesis (University of Dar es Salaam: E and D Vision Publishing Limited).

Mapunda, B.B (1995), An *Archaeological View of the History and variation of Iron Working in Southern Tanzania*. PhD D University of Florida.

Musambachime, C. Mwelwa, (1976) '*Changing Roles: The History of the Development and Disintegration of Nkuba"s Shila State to 1740*', M. A. Dissertation, University of Wisconsin.

Musonda, F.B (1976) *The Later Stone Age in Ghana in The Light of Excavations Along the Voltain Scrap*. M.A Thesis, University of Ghana.

Musonda, F.B (1983), *Aspects of the Prehistory of Lusemfwa Drainage Basin in Zambia, During the Last 20,000 years*. PhD Thesis (Anthropology): University of California.

Phimister, I.R, (1976) *A History of Mining in Southern Rhodesia to 1953*. PhD (History) Thesis, University of California.

Raiconi, Marcella (2016) *Travelling Objects: Cross- Cultural Exchange and Interaction in the Western Mediterranean in the Early Iron Age*. PhD Thesis, University of Leicester.

Robert, Andrew (1966) *A Political History of the Bemba (North – Eastern Zambia) to 1900*. PhD Thesis, University of Wiscosin.

Wood, M. (2005). *Glass beads and pre-European trade in the Shashe-Limpopo region.* MA Dissertation. University of Witwatersrand.

JOURNAL/ARTICLES

Abungu, G. and Mutoro, H. (1995) "Coast-interior settlements and social relations in the Kenya coastal hinterland" In Shaw, T., Sinclair, P., Andah, B. and Okpoko, A. (eds.). *The Archaeology of Africa: Food, metals and towns*. (Pp. 694-704). USA and Canada: Routledge.

Bender, B (1981) "Gatherer- Hunter Intensification" in Sheridan, A and Bailey, G.N (eds.) *Economic Archaeology,* British Archaeological Reports. Oxford, pp 97-118.

Cook, O. F (1910) "History of the Coconut Palm in America" *in contributions from the United States National Herbarium*, Vol.4. No.2, pp I –VII,271 -342, IX-XIII. S

Fagan, Brian (1966) "The Iron Age of Zambia, *Current Anthropology*, Vol. 7. No.4. pp 453-462. The University of Chicago Press on behalf of Wiener- Gren Foundation for Anthropological Research. Stable: URL: http://www.jstor.org/stable/180292. Accessed 18-06-2017.

Fagan, B. and Yellen, J. (1968) "Ivuna Ancient Salt Working in Southern Tanzania ". *Azania*. 3: 1- 43.

Fagan, Brian. M, “Early Trade and Raw Materials in South Central Africa” in *Journal of African History*, Vol.10. No.1(1969), pp 1-13. Cambridge University Press. Stable: URL: http:/www.jstor.org/stable/179559. Accessed 18-06-2017.

Hall, T.D, Kardulias, P.N, and Chase-Dunn, C (2011) “World Systems Analysis and Archaeology: Continuing dialogue. *Journal of Archaeological Research,* Vol.1, pp 121-143.

Mapunda, B. (2001) “The Archaeology of the Ruhuhu River Basin, Eastern Shore of Lake Nyasa” in *Studies in the African Past* 1:98-112.

Mapunda, B. (2004) “East African Slave Trade: Unravelling Post-Abolition Slave Coverts in the Interior of Southern Tanzania” in *Utafit*i 5:60-76.

Mapunda, B (2008). “The Indian Ocean and its Hinterland”, *Indian Ocean Archaeology 5*: pp 85-96.

Musonda, F.B (2012) “100 Years of Archaeological Research in Zambia: Changing Historical Perspectives” in *South African Archaeological Bulletin* 67 (195), pp 88-90.

Musonda, F.B (2013a) “Ethnicity and Ethical Issues in Archaeological Interpretation: The Case of Chakelula Iron Age Site “in *South Africa Archaeological Bulletin* 68 (197), pp 52 -62.

Musonda, F.B (2013b) “Transformation of the Zambian Economy from the Holocene to the Colonial Period: Issues of Internal and External Evolution” in *Journal of Humanities*, Vol. 10, pp 90-122, University of Zambia.

Philipson, D. W (1968) “The Early Iron Age in Zambia – Regional Variants and Tentative Conclusions”. *Journal of African History,* Vol.9. No.2.pp 191- 211. Cambridge University Press. Stable: URL: http://www.jstor.org/stable/179559. Accessed: 23-05- 2017.

Renfrew, C (1969) “Trade and Cultural Process in European Prehistory” in Current *Anthropology* 18: 151 -169.

Roberts, Andrew, “Firearms in North-Eastern Zambia Before 1900,” *Trans African Journal of History,* 1, 2(1971): 3-21.

Roberts, Andrew (1970), “Pre-colonial Trade in Zambia,” *African Social Research,* No. 1, pp715-746.

Robertson, J.H and Bradley, R (2000) “The African Iron Age Without Bantu Migrations” in *Journal of History in Africa,* Vol.27, pp 287 -323.

Robinson, K.R and Sandelowsky, B (1968) “The Iron Age of Northern Malawi: Recent Work, *Azania: archaeological Research in Africa, Vol.3. No. 1.*

Runnels, C and T.H Van Ande (1988) “Trade and the Origins of Agriculture in the Mediterranean” in *Journal of Mediterranean Archaeology* Vol1., No.1, pp 83-109.

Trubitt, M.B (2003) “The Production and Exchange of Marine Shell Prestige Goods*”, Journal of Archaeological Research, Vol.11. No.3.*

Schuling, M and Harris, H.C (1994) “The Coconut Palm in East Africa.1. East African Tall. *Principes,* Volume 38.No. 1, Pp 4 -11.

Vansina, J (1962) “Long Distance Trade Routes in Central Africa” in Journal of African History Vol 3, No. 3, pp375-390.

MONOGRAPHS

Derricourt, R (1980*) People of the Lake: Archaeological Studies in Northern Zambia, Zambian Papers No.3*, (Oxford: Manchester University Press).

Hichens, W (1938) Khabar al-Lamu. A chronicle of Lamu by Shaibu Faraji bin Hamed al-Bakariy al Lamu. *Bantu Studies* 12: l-34.

PRIMARY SOURCES

GOVERNMENT DOCUMENTS

FAO (2015) *World Reference Base for Soil Resources 2014: International Soil Classification System for Naming Soils and Creating Legends for Soil Maps* (Italy: FAO).

GRZ (1985), *The National Conservation Strategy for Zambia*. IUCN

GRZ (2014) 2010 *Census of Population and Housing: Muchinga Province Analytical Report.* (Central Statistics Office: Lusaka).

National Heritage Conservation Commission (2008). *Chipoma Falls Management plan 2008 - 2013.*

Sichinga, Stalin (2015) *A Report on Status, Priorities and Needs for Sustainable Soil Management in Zambia.* Ministry of Agriculture and Livestock.

Sleen, L.A Va (1978) *A Very Detailed Soil Survey of the Chinsali Farmer Training Center, Northern Province. Soil Survey Report NO. 95*. GRZ.

Veldkam, W. J (1987) *Soils of Zambia.* Soil Survey Unit, Department of Agriculture. (Lusaka: Mount Makulu).

UNPUBLISHED DOCUMENTS

Lishiko, B and Lumpa, E (2012) *Bwinambo Archaeological Site: Preliminary Report*. (National Heritage Conservation Commission: Kasama).

NATIONAL ARCHIVES OF ZAMBIA (NAZ)

NAZ. *Chinsali District Note Book*,55/2 (1904-1963).

ORAL INTERVIWES

Private Interview with Meston Makanga (78 years) at Makanga Village on Friday 13th October, 2017.

Private Interview with Modern Sikapizye (27 years) at Makanga Village on Friday 13th October, 2017.

Private Interview with Siyinza Darrius (80 years) at Makanga Village on Friday 13th October, 2017.

Private Interview with Whiteson Sinyangwe (55 years) at Bwinambo on Friday 13th October, 2017.

Private Interview with Mumpondwe Cosmos (36 years) at Bwinambo on Tuesday 24th October, 2017.

Private Interview with Kunda Rboert (43 years) at Bwinambo on Tuesday 24th October, 2017.

Private Interview with Jim Sichembe (73 years) at Mungu Village on Thursday 26th October, 2017.

Appendix: Excavation Recording Form

1. Site Name---------- 2. Coordinates---------- 3. Estimated Site Time Frame---------- 4. Trench No: ----------Trench Size----------; Orientation---------- 5. Level No: ----------; Depth (in cm) ---------- 6. Means of Excavation: ---------- 7. Screen Size: ---------- 8. Soil Texture: ---------- 9. Soil Color: ---------- 10. Feature (s)/Disturbance (s) ---------- ---------- (Please sketch overleaf). 11. Cultural Material Recovered---------- ---------- ---------- 12. Sample Taken and Reason (s)---------- ----------; Sample No: ---------- 13. Photo Taken/Targeted Object: ---------- ----------; Photo No---------- 14. Any Comments: ---------- ---------- 15. Excavator's Names (Initials) ----- ---------- 16. Recorder's Name (Initials): ---------- ---------- ---------- 17. Date: ----------; Time: ----------; Weather----------