



**Rock Art and Ancient Material Culture of Cahora
Bassa Dam, Tete Province, Mozambique**

Décio Muianga

A dissertation submitted to the Faculty of Humanities, University of the
Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the
degree of Master of Arts in Archaeology by Research

Johannesburg

2013

Declaration

I declare that this dissertation is my own unaided work. It is being submitted for examination in the Faculty of Humanities, University of the Witwatersrand, and Johannesburg for the degree Master of Arts; and has not been submitted before for examination or degree at any other University.

Décio Muianga

____ day of _____

Abstract

Southern Africa is known for its fine brush painted San rock art that extends from the Southern Cape up to the Zambezi River. North of the Zambezi San rock art stops and the Schematic art zone begins. The latter art is dominated by geometric designs, which were termed Red Geometric Tradition Art and arguably 'BaTwa' groups culturally akin to modern-day Pygmy groups were the authors of this art. No examples of San rock art are known North of the Zambezi. No examples of Red Geometric Tradition art and Nachikufan tools are known south of Zambezi. Although it is easy to walk across the Zambezi because it is often very shallow, it appears to have been a hunter-gatherer frontier. This dissertation considers the nature of this boundary or frontier in the Cahora Bassa Dam area. Theoretical writings on boundaries and borders suggest hypotheses on how the Zambezi River may have operated as a boundary. The results of this research demonstrate that two hunter-gatherer groups with different archaeological signatures occupied both banks of the Zambesi in the the Cahora Bassa Dam area, and that the idea of the Zambezi River being a border separating San and BaTwa hunter-gatheres needs to be re-evaluated in the light of the evidence presented.

For Teresa Mateus

Contents

Abstract	ii
Contents	vii
List of tables	x
List of figures	xi
Acknowledgments	xiv
Chapter I	
Introduction	1
Aims of research	2
Rationale	2
Research method	2
Outline of chapters	3
Chapter II	
Re-discovering Cahora Bassa	4
Location	4
Physical Background	6
Climate	6
Geology	6
Vegetation	8
Archaeological and historical background of the research area	9
Present-Day ethnic groups	16
Chapter III	
Central Mozambican Later Stone Age & Rock Art: an overview	21
Nachikufan	22
Wilton Complex	30
San Rock Art	34
Central African Geometric Rock Art	46
Chapter IV	
Borders and Boundaries: Theoretical Approach	52
Ethnography	52
Borders and boundaries	54

Chapter V

Cahora Bassa: archaeological sites and assemblages	58
The Survey	58
Survey method	59
Survey results	64
Ugezi I	66
Ugezi II	66
Nhantegwe	67
Matumbulira	71
Nhapupu	72
Chidindi	72
Malutha	73
Chissalo I	74
Chissalo II	74
Chissalo III	75
Chissalo IV	75
Mouchiabaka	77
Excavation at rock shelter sites	79
Nhantegwe	79
Charcoal and dating	80
Ceramics	83
Faunal remains	83
Lithics	85
Mouchiabaka	85
Charcoal and dating	86
Ceramics	86
Beads	86
Faunal remains	87
Lithics	89

Chapter VI

Analysis of the excavations and inter -site general comparisons of stone artefacts	92
Nhantegwe	92
North of Zambezi	96
Mouchiabaka	97
South of Zambezi	102
“To which side of the River we throw the Stone?”	103
Chapter VII	
The Rock Art and its place in the Zambezi	107
Zambezi River and the rock art signature in Cahora Bassa Dam	107
Southern margin	108
North of Zambezi	110
Implications of the Cahora Bassa findings	114
Chapter VIII	
Conclusion: Border and boundaries - is it the case of Cahora Bassa?	118
Hunter-gatherer in the CBD	118
Contact zone	119
Broken conventions and permeable frontier	121
Where do we go from here?	122
References	124
Appendix	148

List of Tables

Table 1: Summary of existing soils in the agro-ecological areas of Songo and Degue-Mufa (departamento de Terras e Água-Instituto de Investigação Agronómica - INIA 1982; FAO 1988; Macamo 2006).	7
Table 2: Prehistoric sequences in Southern Africa (Deacon and Deacon 1999)	9
Table 3: Table of radiocarbon dates of Nachikufan main sites in Zambia (Miller 1971: 144)	26
Table 4: Typological composition of Nachikufan industrial phases (Fletcher 2010: 15 - Adapted from Miller 1969a)	27
Table 5: Archaeological sites in CBD	65
Table 6: Results from dating in Lawrence Livermore Laboratories	81
Table 7: Radiocarbon dates from Nhantegwe	82
Table 8: Ceramic distribution and number in Nhantegwe	83
Table 9: Distribution of faunal remains in the squares excavated	84
Table 10: Achatina beads	87
Table 11: Lithic raw materials from Mouchiabaka	90
Table 12: Concentration levels of artefacts of Nhantegwe	93
Table 13: Lithics distribution in the different levels	95
Table 14: Flaked stones from Nhantegwe	95
Table 15: Stone artefacts from Mouchiabaka	98
Table 16: Flaked stone artefacts from Mouchiabaka	99
Table 17: Flaked stone artefacts from Mouchiabaka	100
Table 18: Lithic raw materials from Mouchiabaka	100
Table 19: Charcoal dating results from Nhantegwe excavation	152
Table 20: Distribution of lithics in the different from excavation Nhantegwe	153
Table 21: Flaked artefacts from Nhantegwe.	154
Table 22: Stone artefacts from Nhantegwe	154
Table 23: Nhantegwe excavation levels: Top level (1, 2, 3, 4 - yellow), Middle level (5,6, 7 – green) and Bottom level (8, 9 & 10 – light blue).	155
Table 24: Top level Mouchiabaka.	156
Table 25: Middle level Mouchiabaka.	157
Table 26: Bottom level Mouchiabaka	158

List of figures

Figure 1: The wall of the Hydroelectric Cahora Bassa Dam (Décio Muianga)	5
Figure 2: Map showing the location of Cahora Bassa Dam in Tete province	5
Figure 3: Baobab tree in CBD (Le Baron).	8
Figure 4: Map showing the main sites with the Nachikufan Industry in Zambia (Fletcher 2010: 7)	23
Figure 5: Example of tool types of the main Nachikufan sites (Zambia) and the different phases (Fletcher 2010: 13; From Clark 1950)	25
Figure 6: Microlithic tools from Cavala industry in Nampula province (Adamowicz 1987: 127)	29
Figure 7: Map of the main LSA sites with Wilton technology (Mitchell 2002: 136)	31
Figure 8: Wilton artefacts (Deacon 1984a: 316)	32
Figure 9: Map showing the distribution of rock art in Southern Africa (Smith 1997)	35
Figure 10: One of the first photos of Chinhamapere published by Oliveira (1971)	38
Figure 11: Painting of Chinhamapere (Oliveira 1971)	39
Figure 12: Photo of the kudu in Tomo Re Nguruwe (Oliveira 1971)	40
Figure 13: Rock art sites in Mozambique in the colonial period (Oliveira 1971)	41
Figure 14: Students of Eduardo Mondlane and Wits University visiting Chinhamapere (Saetersdal)	43
Figure 15: Mbuya Gondo performing ritual for the spirits at the Chinhamapere (T. Saetersdal)	44
Figure 16: Image of Kudu in Romo Re Nguruwe (Tore and Eva Saetersdal)	45
Figure 17: Elephant depiction in Romo Re Nguruwe (D Muianga 2006)	45
Figure 18: Chicolone (Smith)	47
Figure 19: Chifumbaze paintings (Madiquida)	48
Figure 20: Rock art styles in Nampula province (Adamowicz 1987)	50
Figure 21: Survey areas demarcated (Google Earth Map 20-06-2010)	60
Figure 22: Sites in the Southern margin of the Zambezi river in the Cahora Bassa Dam (Map by Sandra Gonçalves 02-03-2012)	62
Figure 23: Northern margin of Zambezi river surveyed (Google Earth Map 26-03-2012)	63

Figure 24: Decorated pottery in the Zambezi river (Muianga 2009)	66
Figure 25: The Zambezi river (Muianga 2009)	67
Figure 26: The Nhantegwe rock shelter (Muianga 2009)	67
Figure 27: Concentric circle (Muianga 2009)	68
Figure 28: Concentric circle (Dstrech image)	68
Figure 29: Painting of circles and arbitrary lines (Muianga 2009)	69
Figure 30: Painting of circles and arbitrary lines (Dstrech image)	69
Figure 31: Ceramic sherds found in surface findings in Nhantegwe (Muianga)	70
Figure 32: Flaked quartz found in surface findings in Nhantegwe (Muianga)	70
Figure 33: Quartz outcrop (Muianga)	71
Figure 34: Chidindi open air site and spindle whorl and decorated pieces (Le Baron & Muianga)	73
Figure 35: Rock shelter and Grinding Stone (Le Baron)	73
Figure 36: Chissalo I (Le Baron)	74
Figure 37: Chissalo II (Le Baron)	75
Figure 38: Stone walling in Chissalo III (Le Baron)	75
Figure 39: Iron slags and decorated pottery from Chissalo IV (Muianga)	76
Figure 40: Grain bins bases (Muianga)	76
Figure 41: Map with the location of Mouchiabaka and Nhantegwe in Central Mozambique (Google Earth 2010)	77
Figure 42: Mouchiabaka rock shelter (Saetersdal 2005)	78
Figure 43: Cheap (Saetersdal 2005)	78
Figure 44: Cheap (D-Strech image)	79
Figure 45: 1x1 excavated in Nhantegwe and the respective quadrants (Le Baron)	80
Figure 46: Calibration Curve for Southern Hemisphere	82
Figure 47: Two fragments of decorated potsherds from Nhantegwe (Muianga)	83
Figure 48: Faunal remain percentages - Nhantegwe	84
Figure 49: Raw materials from Nhantegwe	85
Figure 50: Achatin beads from Mouchibaka	87
Figure 51: Faunal percentages from Mouchiabaka	88
Figure 52: Distribution of faunal remains throughout the different levels of square 50x50y	89

Figure 53: Lithics raw material histogram from Mouchiabaka	90
Figure 54: Raw materials from Nhantegwe excavation	93
Figure 55: Quartz artefacts percentage	94
Figure 56: Segment from Nhantegwe, leell 10 (27-30 cm), quadrant A (Muianga)	95
Figure 57: Raw materials distribution in Mouchiabaka rock shelter	101
Figure 58: Segment from Mouchiabaka, 50x50y SW level 3 (Décio Muianga)	102
Figure 59: Scraper from Mouchiabaka, 50x50y SW level 3 (Décio Muianga)	102
Figure 60: Miscellaneous retouched pieces (MRP) from Mouchiabaka, 50x50y level 3 (Décio Muianga)	102
Figure 61: Panels with rock painting from Chimuala, Tete province (courtesy of RARI)	111
Figure 62: Human figures Chimuala, Tete province (image courtesy: RARI)	112
Figure 63: Human figure, Chimuala (Dstrech image)	112
Figure 64: Human figures Chimuala, Macanga district, Tete province (courtesy: RARI)	112
Figure 65: Human figure Chimuala, Macanga district, Tete province (Dstrech image)	113
Figure 66: Animal figure Chimuala, Tete province (image courtesy: RARI)	113
Figure 67: Animal figure Chimuala, Tete province (Dstrech image)	113
Figure 68: Chidura I - Manica Province (Décio Muianga)	115
Figure 69: Bué Simuke, Manica Province (Décio Muianga)	115
Figure 70: Human figure (Dstrech image)	116
Figure 71: Animal figures, Eastern Zimbabwe (image courtesy: Ancila Nhamo)	116
Figure 72: Animal and human figures from Eastern Zimbabwe (DStrech image)	116
Figure 73: Adamowicz 1987: Red Geometric Tradition	148
Figure 74: Adamowicz 1987: White paintings and symbolic art	148
Figure 75: Adamowicz 1987: Rock paintings of Musé (Nampula Province).	149
Figure 76: Adamowicz 1987: Rock paintings at Chakota site (Nampula Province).	149
Figure 77: Formal and informal tools distribution Mouchiabaka.	150
Figure 78: Naturalistic human and animal figures Chimuala, Tete Province (courtesy: RARI).	150
Figure 79: Red Geometric Chimuala, Tete Province (image courtesy: RARI).	151
Figure 80: White concentrical circle (Bantu Painting) Chimuala, Tete Province (courtesy: RARI).	151

Acknowledgments

I would like to thank especially Ben Smith and Karim Sadr for the supervision, patience and guidance during these long years. Thanks for all the staff of the Rock Art Research Institute (RARI) for all the support during my research with high consideration to Azizo Da Fonseca and Sam Challis for the constant motivation. In particular I appreciate the help given by Azizo Da Fonseca and David Duns (SARADA), for supplying images for the project. I am very grateful to Professor David Lewis-Williams, Professor Tom Huffman, Tore and Eva Saetersdal, Solange Macamo, Hilário Madiquida, Joaquim Miguel (DAA- UEM) and Benedito Zavalane (UEM).

I am also grateful to Elias Siderad-Hadad from the iThemba Laboratory for all the encouragement and great support in making the AMS dating possible; Kamelo Sekonya for all the help and support in the sample pre-treatment to date the charcoal samples; George Susino for allowing us to use the Geoluminescence Laboratory to prepare the samples for dating; Tom Brown of Laurence Livermore Laboratory for the enormous support in doing the AMS dating of the charcoal samples.

This project was funded by the University of Eduardo Mondlane (UEM) through the SIDA/SAREC (Swedish International Development Cooperation Agency/SIDA's Department for Research Cooperation), Project: *The Zambezi Valley and the Indian Coast: Changes in Settlement Patterns, Trade and Political Power (0-1900 A.D.)*. SAL & CALDEIRA and PAST (Wits University) for providing funds for fieldwork in Cahora Bassa, Tete Province.

Elias Siderad-Haddad and his family (Celia, Joseph and Sophie) gave much support and encouragement during these long years of work. Azizo, Cynthia, Amaya and Ceidan for the support and shelter on the last phase of the writing of the project. Mark Forssman, Bets Forssman, Tim Forssman and Chris Forssman for all the friendship and help over the last years.

Special acknowledgment for Joel Le Baron, Prudence Mashimbye and Omar Madime for the support during the fieldwork season. Alberto Felani and Nelson Fernando for the guidance and determination during the two fieldwork seasons. My thanks to all of them for help in surveying,

mapping and excavating in Songo under difficult conditions. Emílio Moíses and his family in Songo Town (Tete Province) for the help and accommodation during fieldwork activities.

Thanks also to Anika Solanki (Geology Department at Wits University) for helping identifying the different raw material from the excavations in Songo and Mouchiabaka; Albino Jopela, Victoria Redman, Leila Henry, Leslie Zubieta, Justin Pargeter and Justin Bradfield and Tim Forssman many thanks for the discussions and exchange of ideas; Ena Mafora for the support during crisis.

Euclides Gonçalves and Jane Noah for the friendship and support in different stages of writing of the project. Sandra Gonçalves for thanks for the help in composing and finalizing the maps and also in pushing me to finish writing.

Thanks to my family, Rosa Dias, Jaime Muianga and Cândida Pinto for their patience, love and support.

Special thanks to my wife Célia Ruth with all the encouragement and support (even washing stone tools) to get this project finished.

Chapter I

Introduction

There are in Mozambique and in other parts of southern Africa, sites with hunter-gatherer remains known before the establishment of political structure in the region (Botelho 1934; Chittik 1990; Chami 1994). Only a few of these sites were identified and documented in Mozambique, thus opening up space for archaeology to uncover the treasures of the prehistoric past.

Archaeology is for sure the time machine that can help us to reveal the hidden knowledge of the rich prehistory of the Cahora Bassa Dam in Central Mozambique. Aspects of this prehistory related to hunter-gatherers remain largely unknown and archaeological researchers have a crucial role in understanding the past events with supportive evidence. In this sense, the Zambezi River as one of the major natural resources in the area accommodated different stages of human occupation, especially the Later Stone Age Tradition which is represented by a variety of artefacts made by different groups of foragers. Artefacts of the hunter-gatherer by themselves are informative of the past activities in the area but together with theoretical and analytical background they can provide information and interpretations of the impact of the settlement that goes beyond the Zambezi riverine area.

Southern Africa is known for its fine brush painted San rock art. This extends from the southern Cape up as far as the Zambezi River. North of the Zambezi, San rock art stops and you enter what Desmond Clark (1958) called the Schematic art zone. The art is dominated by geometric designs, which Benjamin Smith (1995, 1997, 2006) termed Red Geometric Tradition Art and argued was made by 'BaTwa' groups who were culturally akin to modern-day Pygmy groups. No examples of San rock art are known north of the Zambezi. No examples of Red Geometric Tradition art are known south of Zambezi. Although you can walk across the Zambezi because it is often very shallow, it appears to have been a hunter-gatherer border area. This project will seek to explore one specific border place: Cahora Bassa, Tete Province, Mozambique and consider the archaeological signature of this border.

Aims of research

This project attempts to explore the boundary or frontier that the Zambezi River represents in the rock art and in the Later Stone Age stone tools in the Cahora Bassa. The specific aims of this study are:

- To analyse the rock art of the Cahora Bassa in order to demonstrate any relationship with San rock art south of the Zambezi and Batwa art north of the Zambezi;
- To demonstrate whether there are any differences in the LSA culture that would suggest a cultural boundary in the research area;
- To determine the nature of the boundary or frontier between the San and Batwa rock art.
- Propose and examine new trends for rock art and LSA research in Mozambique.

Rationale

No one has ever worked at the point of division and contact and explored the specific archaeology of the border area that the Zambezi represents in southern Central Africa. Very little is known about the rock art in the Cahora Bassa Dam or of the Later Stone Age in Tete Province. This project will provide a better understanding of the early inhabitants of the area and how this physical boundary or frontier affects the archaeological data of the area. Therefore, this research will steer archaeological here in a new direction, and help us to consider the extent and nature of variability in Mozambican Rock Art and Later Stone Age material culture.

Research method

In order to provide answers to the research questions of this project, both formal (photography, mapping, GIS, drawings) and informed (anthropological, historical records) methods will be used (Chippindale & Taçon 1998). To produce the data required to answer the research question, the project was planned according to a schedule of four phases:

- Survey of the relevant literature of southern and south-central African rock art and Later Stone Age;

- Fieldwork in Cahora Bassa District (Tete Province) where archaeological sites were identified, documented and excavated;
- Analysis, comparison and interpretation of data recovered in the CBD archaeological expedition;
- Writing the dissertation was the final stage of the project.

The study in the Cahora Bassa District was conducted under permit number: 1/2009 issued by the National Directorship of Heritage (Minister of Culture, Republic of Mozambique) valid until 25/02/2012.

Outline of chapters

This dissertation is divided in eight chapters, which are composed of different subsections. The introductory chapter after following the aims of the study, rationale and research methods establish the basis for the present study. Chapter II describes the natural setting and examines the history of settlement of central Mozambique from the hunter-gatherer period, through the arrival of the Bantu farmers until the occupation by the Portuguese and other groups; showing a dynamic and continuous process that carried out over thousands of years. Chapter III discusses the archaeological approaches and history of research of the San and BaTwa rock art and microlithic stone artefacts. This is followed by Chapter IV, which focuses on the theoretical background on border and boundaries to set up an approach to understand the data investigated in the CBD and adjacent areas.

Chapter V presents all the archaeological data collected from the field surveys and excavations collected in the research area. In Chapter VI, I classify and analyse the microlithic tools according to the technology used and the Later Stone Age industries, correlating the finds with the theoretical arguments presented in other chapters. Chapter VII is dedicated to analyse and interpret the reasons for the depiction of the rock art traditions found on the two margins of the CBD and the implications of these findings on the hunter-gatherer studies. In the last chapter, VIII, I suggest a new way of understanding the CDB and adjacent areas' archaeological evidence as an important component of hunter-gatherer contacts and exploration of the landscape during the prehistoric periods in Central Mozambique.

Chapter II

Re-discovering Cahora Bassa

This Kebrabasa is what I never expected... The scenery is quite remarkable and totally unlike anything that has ever been said of the rapids – David Livingstone, 1865

The insurmountable gorge of Cahora Bassa has been described by early Portuguese travellers and recently by archaeologists and historians that have been trying to understand the process of occupation developed since the prehistoric times, which resulted in mixed groups of people inhabiting the area nowadays. Archaeological and historical records describing the parts of Tete Province and Malawi have contributed to the knowledge of Bantu speakers living in the area until recently, however information about the hunter-gatherer in the same environment is scattered. As part of the research area this chapter sets out the context of the environment and physical characteristics of Cahora Bassa that allowed prehistoric, especially hunter-gatherer and historic groups to settle in the area. Thus it is necessary to look at the different sources of evidence with major focus to archaeology and history to understand how the process of settlement took place.

Location

David Livingstone was the first European to see the gorge of *Kebrabasa* in the 19th century (which means in local dialect “an end of work” due to the impossibility to navigate down Zambezi River in that specific point). Cahora Bassa Dam (Fig. 1) built in 1970’s changed the gorge from one of towering rapids to a large lake with an area of 250 square kilometres.

Situated in the Lower Zambezi, the Dam is located about 644 km from the mouth of the Zambezi River and 130 km North West from Tete city (Middlemas 1975; Isaacman & Sneddon 2000).



Figure 1: The wall of the Hydroelectric Cahora Bassa Dam (Décio Muianga)

The archaeological sites (Later Stone Age and Rock Art) investigated on this project are located on the surroundings of the dam wall and also downstream in the Lower Zambezi River (Fig 2). They are below and east of the wall of the dam.

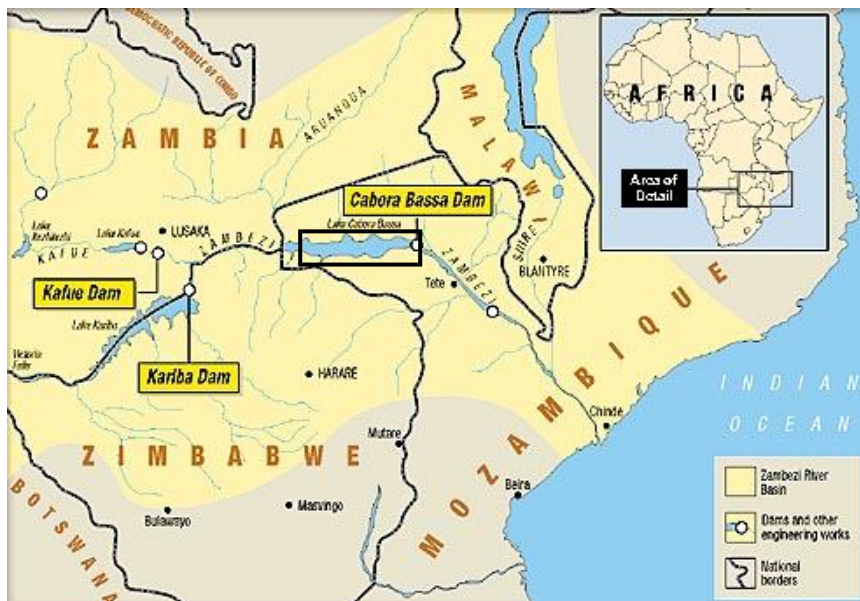


Figure 2: Map showing the location of Cahora Bassa Dam in Tete province

Physical Background

Climate

The Mozambican climate is affected by factors such as exposure to sunlight, the warm Indian Ocean current, seasonal winds, rainfall, and topography. Along the Lower Zambezi/ Western Zimbabwe border the major climatic unit is the Semi-Arid biome. The climate in the research area is tropical and dry but varies according to the altitude and latitude (Ministério da Educação 1986; Sinclair 1987; Morais 1988).

The temperature of Cahora Bassa Dam varies between two distinct seasons: dry and cold (tropical winter – June and July are the coldest months in winter), and hot, humid and rainy from October/November until March/April. The annual average temperature for the highlands fluctuates between 20°C to 22°C, with a minimum around 7°C to 13°C and in summer with the maximum amongst 25°C to 30°C (Wild & Fernandes 1967; Sinclair 1987; Morais 1988; Bannerman 1993). The mean annual rainfall along the escarpment varies between 600 to 1000 mm. In rainy seasons, sometimes with storms and floods, the annual precipitation can reach more than 1500 mm in the mountains.

The Zambezi River which flows into the Indian Ocean has a fluvial regime that is extremely irregular and the flow fluctuates with the alternation of dry and rainy seasons. Between January and March is the high-water flow (floods are common in the Zambezi River every year) and the low-water flow in the winter is around June and August (Morais 1988).

Geology

In terms of physical characteristics, Central Mozambican geology presents several bedrock compositions and a number of different soil types. The geological formation of the Zambezi River drainage is of Precambrian origin and the overlying Triassic to Jurassic Karoo and post-Karoo formations (Real 1966; Morais 1988).

The middle and late Precambrian formations (sedimentary and igneous) consist of granites and the Frontier Series of the Mozambican System (also known as Mozambican Belt) that comprises

mineral resources such as schist, mica, granite and quartz schist (Afonso 1976; Macamo 2006). One of the most common mineral resources (Appendix 1) in the area is the granite, which varies in appearance from shades of grey to almost white. Also found in the area are coal, iron, copper, fluorite, manganese, vanadium, titanium, magnetite with smaller deposits of bauxite and chrome (Real 1966; Middlemas 1975).

The soils within the Zambezi River drainage area are very heterogeneous (Missão de Fomento e Povoamento do Zambeze 1960). Around the CBD the soils are dominated by the Unit I (denomination used to differentiate different types of soils), and the soil group is labelled *lithic soils* (Table 1 see summary of soils adapted from Macamo 2006: 99). Following the 1988 FAO classification these soils are designated by *Eutric Leptosols*, due to the minor occurrence of deep red clay soils with the symbols VG and VM (Departamento de Terra e Água/Instituto de Investigação Agronómica – INIA 1982; Macamo 2006). The climate and vegetation are affected by variations in the altitude (Bridges 1978).

Symbol	Soil group	Soil features	Geology	Topography Slope (%)	Depth (cm)	FAO class	Vegetation	Farming facilities/short-comings
I	Lithic soils	Fine sandy brown soil on altered rock	Precambrian granite	Mountains >30%	0-30	<i>Eutric Leptosols</i>	Open Miombo wood	Erosion risk
VG	Red clay soils	Deep brown and red clay soils	Precambrian granite	Wavy 0-8 higher hills and plates	>100	<i>Ferric Lixisols</i>	Miombo type Open forest	Germination conditions; erosion risk
VM	Red soils	Fine sandy clay soils	Precambrian granite	Wavy 0-8 higher middle hills	>100	<i>Ferric Lixisols</i>	Miombo type Open forest	Germination conditions; erosion risk
WK	Shallow soils on calcareous rock	Clayish, sand, brown soils deeply moderate and calcareous	Karoo sedimentary outcrop rock. Cretaceous or Tertiary	Wavy 0-8 Hills	Generally < 100	<i>Calcaric Cambisols Or Eutric Cambisol</i>	Woodland	Solidity

Table 1: Summary of existing soils in the agro-ecological areas of Songo and Degue-Mufa (Departamento de Terras e Água-Instituto de Investigação Agronómica - INIA 1982; FAO 1988; Macamo 2006).

Vegetation

The predominant vegetation composition in southern Africa is the Zambezian Domain. In Tete Province, around Songo village, the vegetation is characterized by *Colophospermum mopane* woodland and scrub woodland. The other types of trees that are typical are the *Adansonia digitata* (Baobab), *Andropogon sp.*, *Setaria sp.*, *Cenchrus ciliaris*, *Combretum spp*, *Cordyla Africana*, *Acacia spp*, *Ziziphus abyssinica* (Missão do Fomento e Povoamento do Zambeze 1960). In Tete Province, we found the largest concentration of Baobab trees in the entire country (Fig. 3).

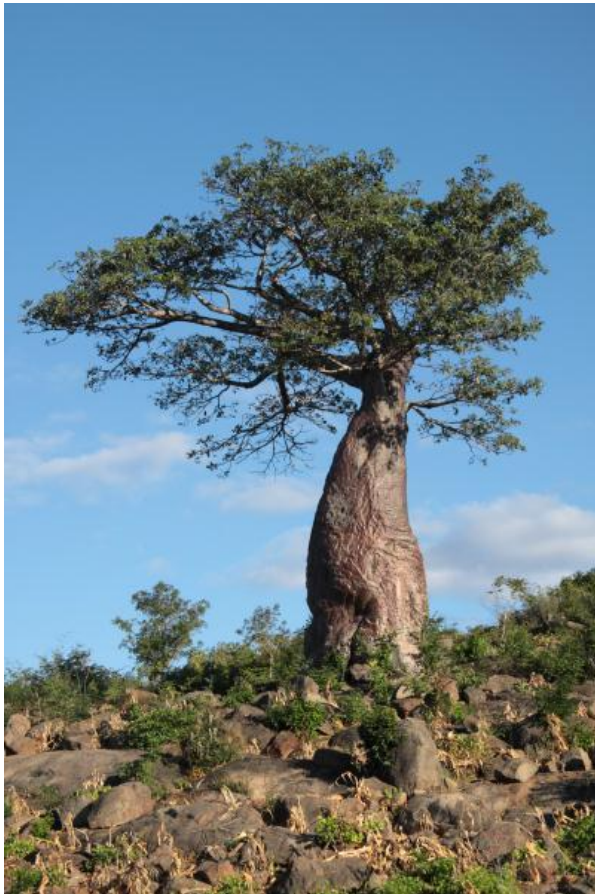


Figure 3: Baobab tree in CBD (Le Baron).

Along the 250 km of extension of the artificial lake in Cahora Bassa, the most widespread vegetation component is the *Miombo* woodland (Sinclair 1987; Morais 1988; Macamo 2006). The common species are the *Brachystegia spiciformis*, *Julbernardia globiflora* and *Isoberlinia*

(Morais 1988; Smith & Allen 2004). These species have the versatility to adapt to both highlands and lowlands in Tete province (Morais 1988).

In the CBD, vegetation has been increasingly affected by deforestation. Thus, many indigenous plants and fauna are in serious risk of disappearing and problems of soil erosion are evident in the majority of the research area putting in risk the prehistoric sequence of the different phases of occupation in CBD. The level of disturbance of open air sites is high due to farming.

Archaeological and historical background of the research area

The different phases of occupation are represented by the great amount of known archaeological evidence within and around the CDB, that are related to the Iron Age Period, however the prehistoric sequence of the area is older according to Stone Age finds in southern Africa in the last 80 years. The prehistoric sequence established by Goodwin and Van Riet Lowe (Goodwin & Van Riet Lowe 1929) to show the culture-stratigraphic stages of Stone Age (Table 2), is still broadly the one being used for southern Africa by the majority of the archaeologists.

2000 years ago – Present	Iron Age + Historical times
22,000 – 2000 years ago	Later Stone Age (LSA)
250.000 – 22,000 years ago	Middle Stone Age (MSA)
2,500,000 – 250,000 years ago	Early Stone Age (ESA)

Table 2: Prehistoric sequences in Southern Africa (Deacon and Deacon 1999)

Aside from minor regional variation the Stone Age sequence is generally similar all over southern Africa. The Earlier Stone Age (ESA) and Middle Stone Age (MSA) are characterized by the use of cores and the production of flakes to produce large bifacial tools and handaxes, while the Late Stone Age (LSA) technology is dominated by microlithic tools and blades, often associated with San rock art and sometimes with San burials. The Later Stone Age (LSA) thus provides a link with historical times (Deacon & Deacon 1999). In southern Africa the LSA covers the last 20,000 years (Deacon & Deacon 1999) and in Central Mozambique, along the eastern side of the Zimbabwe Escarpment (Manica Province) C14 dates from 4800 BP to 500 BP

from excavated rock shelters demonstrate a hunter-gatherer presence in the area (Saetersdal 2004).

The history of occupation in southern Africa especially south of the Zambezi is intimately associated with San who are autochthonous to the region. They had an economy based on hunting and gathering and they left rich deposits of archaeological artefacts including Wilton microlithic tools and rock art from 22,000 to 2000 years ago. From about 2500 years ago, with the emergence of Khoi-speaking groups, herding was introduced to the area as well as a distinct kind of rock art characterised by handprints and geometric designs (Hall & Smith 2000; Kinahan 2000). South of the Zambezi before 2000 BP – 1500 BP, when the Bantu-speaking groups arrived, all the evidence suggests that only Khoi-San speaking groups were found in the region (Mitchell 2002; Phillipson 2002; Deacon & Deacon 1999)

The land north of the Zambezi river was also occupied by a different group of hunter-gatherer denominated Batwa which also made rock art, the Red Geometric and Red Animal Tradition, and the Nachikufan microlithic industry that spans from between $16,715 \pm 95$ bp and 200 ± 100 bp (both uncalibrated, Miller 1971: 143-146; Smith 2006). Both hunter-gatherer groups left an important archaeological record in Mozambique (see Chapter III) and especially along the Zambezi River.

Along the Zambezi valley the first evidence of Early Farming Communities (or Early Iron Age – EIA), was found by Carl Wiese in 1909, in the Chifumbaze rock shelter, in north east Tete Province in Central Mozambique (Phillipson 2002). The Chifumbaze Complex dated from the first millennium AD and this ceramic tradition is part of the Kwale branch, Urewe tradition that is widespread spatially from the Great Lakes region to southern Africa (Huffman 1989a; Sinclair et al. 1993; Phillipson 2002; Mitchell 2002). With the emergence of Early Farming Communities in the research area the hunter-gatherer way of life was gradually replaced. Settled villages, iron smelting and the introduction of cattle and farming technology were the new cultural characteristics implemented in the settlement pattern of the area (Pwiti 1996; Mitchell 2002). After the arrival of the early farming communities gradual transformations, which include migration and movements of different groups, in the economic and social organization in the

Zambezi Valley might have contributed to the emergence of the Late Farming Communities connected to trade, urbanism and the state formation process (Macamo 2006).

In Central Mozambique, the Late Farming Communities are characterized by the construction of stone enclosures in Mozambique probably initiated around the 13th century AD until the invasion of the Nguni, which came from Zululand in the 19th century AD. Some of these settlements were integrated within the Mutapa political sphere (Pikirayi 1993). Later as part of the interaction between local population and Portuguese, the Zambezi Valley accounted the existence of settlements, such as the *prazos*, *feiras* and fortress (Pikirayi 1993; Liesegang 1996; Newitt 1997; Macamo 2006). Most of the information related to this period was obtained from ancient historical written records available for East Africa.

The first known written sources of eastern regions of Africa especially of the present-day Mozambique territory are Graeco-Roman and these are very scarce and they date before the 5th century AD. Further north of the Zambezi, Late Farming Communities archaeological evidence are related to the origins of the Swahili group between 4th and 10th century AD in the Tanzanian coast. From the material culture evidence (Triangular Incised Ware [TIW]) found in Tanzania and along Mozambican coast until Inhambane, including parts of the Zambezi Valley, illustrates the extension of occupation of this specific group in East Africa seashore (Chami 1994; Ekblom 2000, 2004; Juma 2004; Macamo 2006). The Swahili in East Africa had farming and fishing as sustainable activities but also gradually engaged with a maritime lifestyle that allowed trade connection with different regions in the Indian Ocean (Duarte 1993; Chami 1994; Macamo 2006).

Integrated in these dynamics the Arabic and Asiatic sources provided information from the Zambezi Valley and other areas of the Mozambican coast. From AD 900 -1000, the geographer Al Masudi referred to Sofala in Mozambique. Around 1154, Al-Idrisi's map illustrated Sofala and Zanj as one of the regions of east Africa, which included Barbara (up to Mogadiscio in Somalia), places where the Muslim presence was known (Trimingham 1975; Horton 1984; Chittick 1990). Sofala referred by the Arabic sources in the present Mozambique apparently represents the area from Cabo Delgado (north Mozambique) to south Vilanculos Bay (Inhambane Province) where

trade activities linking the Indian Ocean took part (Trimingham 1975). Although, the Arabs and Swahili established trade activities along the Mozambican coast, only in the 12th century did the geographer Al-Idrisi refer to Sena (Tete Province) in the Zambezi as part of the inland penetration of these groups and also gave information about trade links in East Africa (Trimingham 1975; Serra 1986).

In East Africa, the contacts between the Late Farming Communities and Arabs contributed to the intensification of complex trade activities, represented by gold objects found in the inland exchange with glass beads and other goods from the coast, and consequently by cultural interactions along east African coastal and inland territories. Arab trade began to decline gradually after the arrival of the Portuguese in the Mozambican coast in the end of the 15th century and beginning of the 16th century AD (Macamo 2006; Wood 2011).

In the 16th century the Portuguese arrived in the Zambezi Valley and the early travellers and missionaries provided the first information and written sources about the inland territories of central Mozambique, where they witnessed and described the expansion of the Zimbabwe construction into the Zambezi Valley (Rita-Ferreira 1982). After the arrival in the valley the Portuguese noticed that the region was an important Swahili trade centre and that the local ruler, the Mwenemutapa, was said to have had fabulous wealth in gold. In their efforts to reach the Mwenemutapa, the Portuguese established in 1531 two settlements in the upper Zambezi which were Sena and Tete. Progressively they established and spread the *Praço* system (Portuguese land tenure, in Latin *placitum* – the thing leased) until it was officially abolished in 1930's (Newitt 1973, 1997). The *Prazos* constituted the main vehicle of the Portuguese expansion on to the inland territory and they were involved in the trade of ivory, gold and slaves and other goods such as beads and fabrics (Isaacman & Isaacman 1975, 1983; Isaacman 1979; Pélissier 1984; Macamo 2006). These institutions were composed of a mixture of Goans, Europeans and persons of mixed descent with African population and also functioned as a social economic entity. The most important of the Portuguese settlements within the Zambezi Valley were Tete and Sena (16th century) but other archaeological and historical sites were Degue Mufa, Lupata, Mitondo, Mafunda, Nhacufula, Fukeza, Missongue, Chiramba Sança, Bompona Casse, Zambel e Ngombe

(personal discussions with James Bannerman and Solange Macamo on the stone walling's and early Portuguese settlements of central Mozambique: 2011/2012).

The *Prazos* led to the promotion of Afro-Portuguese interactions, which resulted later in the 17th century on the formation of the Muzungo society (Isaacman & Isaacman 1991; Newitt 1997). As part of the penetration in the inland territory, the Portuguese travellers encountered Great Zimbabwe (1300 – 1450 AD) describing the structure of the capital of the state and sociopolitical characteristics of the Shona leadership. Later with the decline of Great Zimbabwe and the emergence of the Mutapa State (1500 – 1750 AD) the Portuguese also got involved in trade activities of the 16th century in the areas controlled by the Mutapa's in northeast Zimbabwe and parts of central Mozambique (Manica and Tete Provinces). They also noticed the existence of trade activities between the Swahili and the Mutapa, and also the Khami State was involved in this trade activities at large scale involving products such as gold, ivory, cloth, beads and other materials (Macamo 2006; Huffman 2007; Wood 2011).

Simultaneously with the events reported in Central Mozambique part of the dynamic interaction involving Africans, Europeans, Asians, between 1835 and 1865 the Zambezi area was affected by the *Mfecane* (movement of the Nguni people caused by political or environmental events) that originated in Natal, South Africa in 1815. Chief Zwangendaba crossed the Zambezi River (on foot due to low tide of the river) around 1835 (November) near to the Portuguese outpost of Zumbo heading north, while the second group of Nguni led by Ngwana Maseko used a different route crossing (using local canoes) near Tete settlement in 1839. Ngwana Maseko's group later settled in north east of Tete Province and south of Malawi in 1865 forming the area known as Angonia (Angonia District in Tete Province) becoming a patrilineal group in the northern Zambezi (Poole 1930; Newitt 1997). Apart from stone structures other archaeological evidences such as rock art were also reported by Portuguese in this period.

The oldest reports about rock art in Mozambique are dated from 1721, when the viceroy of India requested that the Portuguese Royal Academy of History provide information about the history of the Portuguese colonies. Initially they were looking for towers or stone walled structures in the area of Sofala that might have been built by foreigners in ancient times, as well as

inscriptions in Greek or Hebraic. This inquiry was answered by the Catholic ecclesiast, Father Manuel de Santo Tomás, who was living in Sofala. He reported that there was no such stonewalling in the area, but he noticed the existence of paintings of animals, such as dogs, camels, tables, and inscriptions in rock shelters (Botelho 1934). This report is the first mention of the existence of rock art in central and southern Africa (Willcox 1963). It also serves to demonstrate that rock art is older than the Portuguese occupation of central Mozambique.

The existence of the Cahora Bassa gorge was known from old Portuguese documents written by traders and missionaries, however, David Livingstone in the second half of the XIX century (around 1853 – 1856) was the first European explorer who located it. The word Cahora Bassa comes from the word *Kebrabasa*, which means in local dialect ‘an end of work’. His African guides told this word to Livingstone when they refused to cross the gorge because navigation was impossible (Livingstone 1865; Middlemas 1975). On his second trip to the area in 1858, after surveying the resources (minerals, water, potentiality to navigation, etc), he concluded that the Zambezi River had enormous economic potential. The authorities in London, however, were not impressed by Livingstone’s reports and for that reason they never took any action in the area (Middlemas 1975).

In 1936, Santos Júnior (1940, 1950) began working on the prehistory of central Mozambique within a project called *Missão Antropológica* (Anthropological Mission). During the Santos Júnior project, the first site with rock art was found in Manica Province (San tradition) together with lithics, in the district of Mavita in November of 1945 (Carvalho 1946).

Santos Júnior (1950) visited eight rock art sites (Cazula, Chiuta, Luia, Chicolone, Chifumbaze, Pembere, Cachombe and Deseranhana) in Tete Province and described them as dominated by geometric forms and also, in some cases, with animal forms. Lithics were collected at Chicolone, Lunguice, Marissa and Zumbo and these were associated with the Wilton culture (Santos Júnior 1937, 1950). Oliveira (1971) subsequently mentioned the existence of another red tradition of rock art with depictions of animals and geometrics in the north of Tete Province.

In 1956 the engineer Alberto Abecassis Manzanares, was sent by the Portuguese government to survey the Zambezi region. Manzanares concluded that the gorge was ideal for a hydroelectric project as well as irrigation, exploration of rich deposits of minerals, agriculture, livestock, fisheries, forestry, flood relief and navigation (Middlemas 1975).

The Portuguese colonial authorities intended to use the Cahora Bassa Dam to transform the economic and social development of Mozambique. The dam was expected to benefit the minority Portuguese community and extend their dominance in the colony. They also hoped to use the dam to attract international investment, to sell energy to South Africa and other countries in southern Africa that needed such power capacity due to the developments of the industry sector (Middlemas 1975; Isaacman & Sneddon 2000). Before and during the construction of the dam, different teams of technicians surveyed the area.

In the 1970s, with the construction of Cahora Bassa Dam (CBD), the geologist Miguel Ramos did archaeological rescue work in Songo between 1972 and 1973 (Ramos 1979, 1980). Ramos conducted survey and excavations and archaeological remains were found, such as lithic tools, pottery and pieces of slag from iron smelting. The construction of Cahora Bassa, apart from drastically modifying the landscape of an immense area, also put at risk or destroyed forever an enormous amount of historical-archaeological evidence in Central Mozambique (Macamo 2006). The archaeological work was conducted mainly by enthusiastic amateurs who informed the public about the existence of their finds but failed to make any significant research advances beyond simple description (Muianga 2006).

Research into Iron Age and stone enclosures of the Zimbabwe Mutapa Culture has been intensively undertaken in the area in the past thirteen years by Solange Macamo (2006) and this constitutes the primary archaeological contribution to our understanding of the early and late farming communities and the trade connections with the Indian Ocean. The information produced by this project managed to reconstruct the organization of the major settlements in the Zambezi Valley before and after the Asian and European penetration.

Present-Day ethnic groups

In Mozambique there are several larger and smaller ethnic groups of which the major are the Shangani (of Nguni origin) in the south (Maputo and Gaza provinces); the Chopos and Bitongas along the southern coast of Inhambane and Gaza provinces; the Tsonga and the Shona-speaking groups of Manica and N'Dau in the central inland (Sofala and parts of Manica province), the Chuabo in Zambezia province and two large Macua groups (Macua Meto and Macua Lomwe); the Yao and Maconde in the North (Departamento de História da UEM 1982; PNUD 2000). In Tete province, the upper Zambezi is densely inhabited by the Chewa and Sena speakers. The interior of the province is also inhabited by a significant number of Ngoni, Shona, Lunda, Chewa speakers (Smith 1995; PNUD 2001; Macamo 2006).

Chi Chewa is probably the dominant language in Tete province and its speakers also dominate central Malawi and eastern Zambia (Zubieta 2009). The Chewa speakers, however, are not the first inhabitants of south-central Africa. Hunter-gatherer groups were already present in the area and were identified by different names such as *Akafula*, *Amwandionerapati*, *Amwaniwonerakuti*, *BaTwa* and *Nlukuwewe* (Mgomezulu 1978). According to physical descriptions, they were characterized as short, 'little people,' shrewd and nomadic (Werner 1925; Metcalfe 1954; Nurse 1974). They, nevertheless, are commonly known as *BaTwa* and they inhabited the region from the LSA into historic times according to microlithic artefacts found in Zambia (Clark 1959, 1970; Miller 1969b; Phillipson 1976; 2002; Musonda 1983) and in Malawi (Mgomezulu 1978; Juwayeyi 1981).

The *BaTwa* people interacted with the Chewa ancestors (farmers), and their sacred sites became the location of important shrines and sacred mountains (Miller 1969b; Schoffeleers 1973, 1992; Musonda 1983). Similarly the San in the Drakensberg were known for their healing and rain-making powers. The *BaTwa* according to some farmer groups in south-central Africa (Schoffeleers 1992: 262) were connected with the spirits and had names such as *Zinzimu* and *Zinyau* (powerful spirits).

Mgomezulu (1978: 320) supports the idea that the relations between hunter-gatherer and EIA populations in Central Malawi (Linthipe/Changoni) are best characterized as co-existence. First, because of the continuity in the cultural record at all the sites he excavated. Secondly, in rock shelters with hunter-gatherer artefacts, there were also found small numbers of Nkope sherds and bones of domestic animals (sheep/goat and cattle). Therefore, the presence of the two cultural items can also be the result of an exchange of goods, perhaps a temporary client relationship between the two groups, or perhaps hunter-gatherers stole them from the farmers. Thirdly, the stone tool technology was found continuously until the end of the 17th century AD (Phillipson 1977).

In Central Africa the earlier farmer communities who had domesticated cattle, goat, sheep, and lived in villages and used iron, are generally designated as part of the Chifumbaze Complex (named after the rockshelter in Mozambique: Phillipson 1976, 2002; Huffman 1989, 2007). The evidence of the first Early Iron Age groups in the area is the arrival of Nkope ware. Nkope pottery is commonly found in Malawi, Mozambique, Zambia and Zimbabwe. In the EIA, this patrilineal Bantu-speaker group settled in the region coming from east Africa around the 3rd century AD (Sinclair et al 1993; Phillipson 1976, 1977; Mgomezulu 1978; Juwayeyi 1981). Nkope ware is part of the Chifumbaze Complex and was first recorded from two sites in the north-east of Tete Province in Mozambique by Carl Wiese, a German anthropologist, in 1909 (Staudinger 1911; Santos Junior 1955; Phillipson 1976). Nkope pottery has been dated from the 3rd century AD until 800 AD.

The existence of a considerable number of villages found and the occurrence of pottery in rock shelters is one of the most significant representations of the Chifumbaze Complex in south-central Africa (Phillipson 2002). An interesting aspect is that, pottery belonging to the Chifumbaze Complex was found in rock shelters together with stone tools and rock paintings made by hunter-gatherer throughout the first millennium AD (Phillipson 1976, 2002; Huffman 1989a, 2007). For further discussions on possible interactions between farmers and hunter-gatherer see Chapters III and VIII.

Archaeology demonstrates that central stream patrilineal Eastern Bantu speaking groups, interacted with matrilineal Western Bantu speaking groups at the end of the first millennium AD. According to Huffman (1989b: 173), this interaction persisted for a few centuries, based on the analysis of the pottery. The Eastern Bantu speakers, fewer in number than the Western Bantu speakers, were quickly absorbed by the Western Bantu-speaking groups.

There are substantial differences in the way in which the society of both Bantu-speaking groups functions. The fundamental differences relate to the beliefs about biological descent (Huffman 2007; Zubieta 2009). The eastern Bantu speakers accentuate the father's blood (Hammond-Tooke 1974); in contrast the western Bantu speakers emphasize the importance of the mother's blood. In addition, from the archaeological point of view, Huffman (1989a, 1989b, 2001, 2007) recognizes from the village layout and shape of the houses certain characteristics that allow identification of western matrilineal and eastern patrilineal groups. Eastern Bantu speakers have villages with circular houses arranged around a central cattle kraal. This system is defined as the Central Cattle Pattern (CCP), in which the central symbol for wealth is the cattle and the marriage is arranged by payment (Huffman 2001). The western Bantu speakers, by contrast, have villages with rectangular houses arranged in a linear street pattern. The central symbol of wealth for these matrilineal groups is metal and marriage is arranged by service.

Around 1000 AD there was a decline in the Chifumbaze pottery which confirms that the eastern Bantu speakers were absorbed by the western Bantu speakers (Phillipson 1977; Smith 1995). Related to the western Bantu speaker is the Luangwa Complex (Late Iron Age, 1000-1900 AD) which is the most widespread of the recent pottery tradition, extending from almost all over Zambia to southern parts of the Democratic Republic of Congo (Lubumbashi) and also parts of Mozambique (Tete province), Malawi and Zimbabwe (Phillipson 1977, 2005; Huffman 1989a; Smith 1995; Zubieta 2009). The Luangwa pottery tradition is thus seen as one which rapidly replaced those of several distinct Early Iron Age groups over the whole of the eastern half of Zambia as well as in neighbouring areas at a date early in the present millennium and which has continued with comparatively little range or regional differentiation into recent times (Phillipson 1977: 10). The western matrilineal Bantu speakers are related predominantly in the CBD area to the ancestors of the Chewa people that live in Tete Province in the present.

This pottery tradition was made by the Chewa, Nsenga, Ngoni, Tumbuka, Soli, Lala, Lamba, Bisa, Bemba, Lungu, Mambwe and northern Lunda and the Luapula people. Luangwa tradition is a unified pottery tradition, exclusively made by women, which shows remarkably little variation over a wide area in south central Africa (Phillipson 1977: 7).

In south central Africa the material culture is clearly identified by archaeologists as belonging to different groups but also a division between patrilinear and matrilinear groups. The matrilinear groups related to Lunda (mostly in Zambia) and Chewa (Mozambique and Malawi) people that inhabited north of the Zambezi River while the patrilinear Shona [except the Ngoni the only patrilinear group in north Zambezi – (based in the Angónia District in northeast Tete Province)] people are dominant south of the river. This division materialize the Zambezi Valley as a political and cultural system (identity) boundary between Bantu groups (Isaacman 1979; Serra 1986; Macamo 2006). Thus the Bantu groups of northern margin of the Zambezi are related to the Luangwa Pottery Tradition which replaced Early Iron Age groups (Chifumbazi Complex) and the Chewa language is part of the western Bantu language (Phillipson 1977; 2005; Smith 1995; Mann & Dalby 1987).

The Chewa people progressively occupied the area and political organizations were also established within this process. On the historical times, Schoffeleers (1973: 47) divides the Chewa history in four periods:

- a) Proto-Chewa history or Proto-Maravi (main clans: Banda & Mbewe), c. 1200 – c. 1400
- b) Maravi formation (main clan: Phiri), c.1400 – c. 1600
- c) Flourishing of the Maravi Empire, c.1600 – c. 1750
- d) Foreign (European) intrusion and decline, c. 1750 – c.1892

The proto Chewa period, which began in 1200 AD and finished around 1400 AD, suggested by Schoffeleers (1973) shows that they had relation with other ethnic groups in the area. The Chewa were not isolated in the landscape after their arrival, they were in contact and absorbed influence from many other groups. Groups such as the Nsenga, Bemba, Yao and Ngoni have been recorded as part of those contacts (Zubieta 2009). For instance the Nsenga and Bemba are matrilinear

groups that practice girls' initiation although it is possible that it was adopted, modified or influenced Chewa rituals. In addition, some Yao and Ngoni groups (patrilineal and originally from Zululand in the actual South Africa) had arrived in the area in the 19th century also adopted the rituals practised by matrilineal societies (Zubieta 2009).

The riverine territory which stretches inland along the lower Zambezi as far west as the Luangwa confluence in Mozambique has been inhabited continuously from the LSA until the present days and multiple interactions contact have taken place between hunter-gatherer and also farmers. The different groups left their signatures on the landscape through their material culture and rock art. In the next chapter we shall see a review of the previous work pertinent to the study of later stone age and rock art on both sides of the Zambezi River in Mozambique with the intention to build an accurate image of the hunter gatherers in the research area in the past.

Chapter III

Central Mozambican Later Stone Age & Rock Art: an overview

We know more about stone tool technology simply because stones survive better in the archaeological record, ...having the potential to provide information on the extent of learned as opposed to innate behavior's – Lawrence Barham & Peter Mitchell 2008

It seemed plausible that the rock art had been deliberately positioned to enhance the power of the place for generations of shamans of the rain. The pieces of the puzzle were beginning to fall into place – Janette Deacon (Deacon & Deacon 1999)

The LSA artefacts and rock art have been recognized as the main feature of ancient hunter-gatherer research in southern Africa. This chapter concentrates on those sites south and north of the Zambezi River where researchers found patterns that associate present-day Mozambican territory with relevant archaeological finds. Mozambique is geographically located in southern Africa, where well-known Stone Age sites with great archaeological significance have been discovered. Mozambique constitutes a link between southern and east Africa, because it is also part of the Rift Valley where valuable and the oldest archaeological and anthropological finds of the process of human evolution were discovered, but also due to evidence of the occupation by two distinct groups of hunter-gatherer and ultimately the territory was used as one of the routes of Iron Age Migrations (Adamowicz 1984, 1987; Meneses 1988, 1999, 2004; Smith 1995; Saetersdal 2004; Muianga 2006; Macamo 2006; Huffman 2007; Zubieta 2009).

Although there are more than 200 excavated sites associated with the Stone Age in Mozambique, detailed studies regarding the hunter-gatherer period are lacking (Meneses 1988). The LSA and rock art in the two margins of the CBD have distinctive characteristics that have been studied on the last fifth years of research in southern Africa, though, it is necessary to look at the different

features of the material culture of the hunter gatherers in Mozambique in the following sections of this chapter.

Nachikufan

The dominant material culture north of the Zambezi River for the hunter-gatherer groups is the Nachikufan Complex, and is representative for south central Africa especially in Zambia. The Zambian sequence of the microlithic industry is one of the best known in sub-Saharan Africa (Sampson 1974; Phillipson 1977). The LSA assemblages found in Northern and Eastern Zambia were assigned to the Nachikufan Industry by Desmond Clark in 1950 (Clark 1950). The first finds came from Nachikufu Cave, then later at other places such as Nsalu Hill Cave, Bimbe wa Mpalabwe Shelter, Mwela Rock shelter, Chifubwa Stream Shelter and Leopard Hill Cave (Fig. 4), as well at sites in southern Malawi (Clark 1959a; Miller 1969b; Momezulu 1978; Juwayeyi 1981; Musonda 1983).

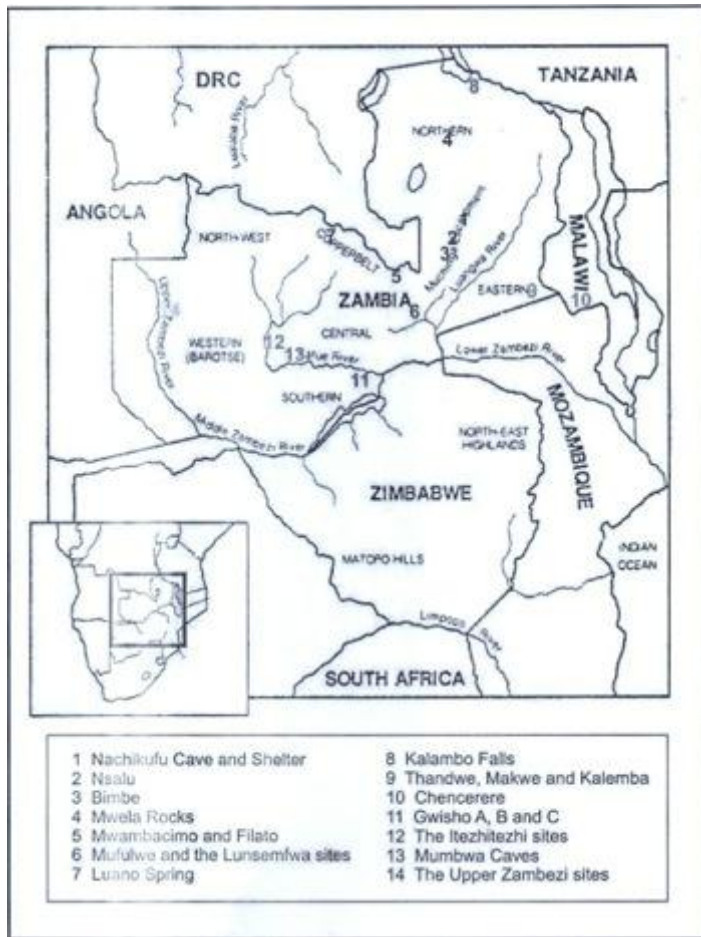


Figure 4: Map showing the main sites with the Nachikufan Industry in Zambia (Fletcher 2010: 7)

The earliest evidence of the LSA culture was collected during the 1940s by F.B. Macrae and D.G. Lancaster from several surface sites in North-eastern Rhodesia (now Zambia). The LSA artefacts were identified based on common similarities with the Smithfield N found in South Africa (Clark 1950). Clark (1950) noted that these sites with LSA artefacts also had schematic/geometric rock art.

In terms of settlement type the majority of Nachikufan sites are located in rock shelters. The area is characterized by Miombo woodland (dominated by *Julbernardia* and *Brachystegia*). The large quantities of tools such as heavy and hollow scrapers, weighted digging-sticks, grindstones, pestles and spokeshaves (possibly made from polished adzes), may suggest extensive woodworking in northern and eastern Zambia (Clark 1950; Miller 1969a; Juwayeyi 1981; Musonda 1983; Fletcher 2010). The majority of the Nachikufan sites were located within the

woodlands of the Muchinga Escarpment suggesting dependence on hunting of small animals and gathering wild fruits, roots and nuts. They used bow and arrow technology with transverse heads of stone and points of bone, stone headed knobkerries and later introduced polished stone axes as weapons (Clark 1959: 198, 1970: 175-178; Fletcher 2010:12).

The first classification system of the Zambian LSA artefacts was made by Clark (1950) and it formed the basis for Miller's (1969a) typology. Miller's typology began the first broad classification system for LSA stone tools in Zambia and Malawi. Clark (1950: 80) initially described the Nachikufan cultural succession according to the following phases:

Middle Stone Age – A trace (largish and crude);

Nachikufan Industry I – Very small microlithics, bored stones, end and side scrapers and choppers;

Nachikufan Industry II – Large trapezes, triangle and semi-circular microlithics Smithfield N types of scraper, bored stones and polished axes;

Nachikufan Industry III – Small lunates, bored stones, polished axes, pottery and a trace of iron;

Bantu – Bisa/Lala (Present surface)

Miller (1969a) maintained the original three-phase sequence, but divided Nachikufan II into two parts: IIA and IIB. With regard to raw material, the Nachikufan assemblage is dominated by quartz, particularly crystal (clear) and milky quartz. . Other raw materials include schist, phillite, dolorite, magnetite, haematite, gneiss, cherts, white-vein quartz and mudstone (Clark 1950; Musonda 1983; Miller 1969b; Juwayeyi 1981).

Nachikufan I (Fig. 5) begun as early as 16715 ± 95 BP (Leopard Hill Cave) and finished before 6310 ± 250 BP (Mwela Rocks). In some areas it may have lasted longer than in others. The industry is characterized by tiny pointed backed bladelets, some large scrapers and choppers, together with great abundance of bored stones and grinding equipment (Miller 1969b, 1971; Sampson 1974). In some sites convex chunk scrapers are common (Miller 1969b). Compared to Nachikufan IIA, the Nachikufan I has more pointed backed bladelets and trapezes.

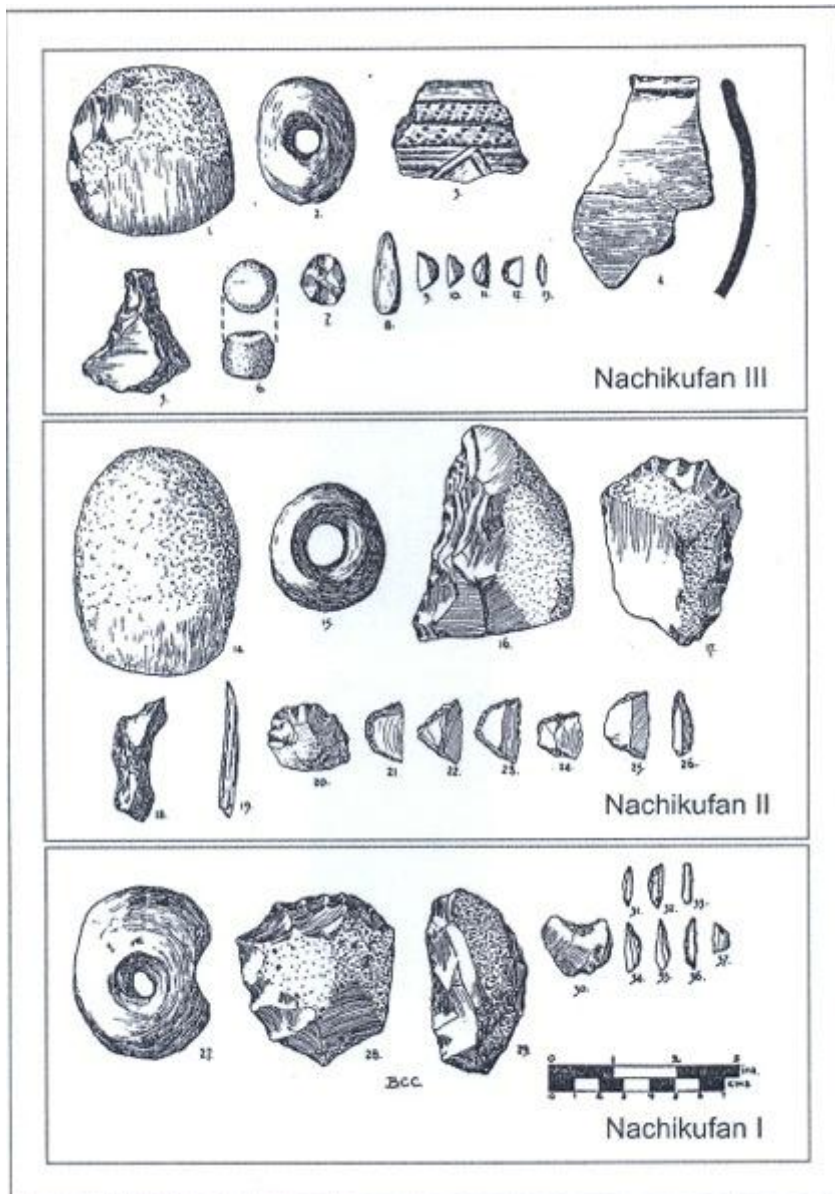


Figure 5: Example of tool types of the main Nachikufan sites (Zambia) and the different phases (Fletcher 2010: 13; From Clark 1950)

The advent of Nachikufan II did not represent the abandonment of all elements from Nachikufan I. This is evident from the backed bladelets developed during the Nachikufan I that continued in use during Nachikufan II. These forms became more common despite the fact that deep segments and geometrics were also introduced (Miller 1969b).

The Nachikufan IIA consists predominantly of backed flakes rather than backed bladelets, truncated flakes and is marked by the introduction of polished axes and also a shift towards the use of shorter and broader flakes (Miller 1967, 1969a; Fletcher 2010). There is an increase in the proportion of scrapers, but other tools were retained; for instance the bored stones, pestles, rubbers and grindstones (Miller 1969a; Sampson 1974).

The change from Nachikufan IIA to IIB, according to Miller (1969a) is the result of internal developments in the industry. This is one of the aspects that require further study because not enough research has covered this shift.

The Nachikufan II described by Clark (1950) was designated by Miller (1967, 1969a, 1969b) as IIB. The Nachikufan IIB was dominated by deep crescents (segments) and other geometrics; none the less there is variability in the proportion of scrapers in different sites (Miller 1969a, 1971). The dates for phase IIB (Miller 1971) range from 5630 ± 200 BP to 4830 ± 320 BP as derived from Nachikufu Cave (see table 3 for dates of the Nachikufan main sites).

<i>Site</i>	<i>Depth cm</i>	<i>Industry</i>	<i>Lab N^o</i>	<i>Date BP</i>
Nachikufu Shelter	60-90	NIII/IA?	Y-796	200 ±100
Nachikufu Cave	15-30	NIII/IA?	Y-618	300±200
Nachikufu Shelter	150-210	NIII	Y-799	1060±100
Leopard's Hill Cave	30-38	NIII	SR-141	2865±95
Leopard's Hill Cave	38-50	NIII	UCLA1429C	3500±80
Nachikufu Cave	45-60	NIIB	Y-619B	4830±320
			Y-619A	5000±200
Nachikufu Cave	75-90	NIIB	Y-791	5630±200
Mwela Rock Shelter	75-90	NIIA	Y-805alk	7200±200
			char	7320±200
Mwela Rock Shelter	90-105	NIIA	Y-625	8640±240
Leopard's Hill Cave	100-120	NIIA	UCLA 1290	9700±85
Nachikufu Cave	90-105	NIIA	Y-620B	9720±550
Chifubwa Stream	165-200	Post NI	C-663	6310±250
Mwela Rock Shelter	135-210	NI	Y-808 char	10820±340
			alk	11700±280
Leopard's Hill Cave	180-190	NI	SR-138	16715±95

Abbreviations: Y-Yale; SR- Salisbury; Rhodesia; C – Chicago; UCLA – University of California at Los Angeles.

Table 3: Table of radiocarbon dates of Nachikufan main sites in Zambia (Miller 1971: 144)

The Nachikufan III is characterized by the predominance of small segments as the main tools, together with most of the previous Nachikufan tools (Fig. 7). The appearance of pottery and iron is first recognized here and it might have been the result of trade between hunter-gatherer and the first farmers (Clark 1959; Miller 1969a, 1969b). The Nachikufan III artefacts in general (see Table 4 with the typological composition of Nachikufan industrial phases), appear to be smaller than those of Nachikufan II (Miller 1969b).

There are two dates for the Nachikufan III and they come from Nachikufu Cave, 1060 ± 100 BP and Leopard Hill from 3500 ± 80 BP. The levels excavated in Leopard Hill, that provided dates do not have any evidence of pottery or metal whereas those in Nachikufu Cave have the artefacts of the Iron Age (Miller 1971).

Industrial phase	Characteristics	Reference
Nachikufan I	High frequencies of backed bladelets. Low frequencies of deep and eared segments and geometrics. Large scrapers and chopper forms. Bone points. Utilised pigment.	Miller 1969a: 437-443
Nachikufan IIa	Abundant backed and truncated flakes. Increased frequencies of deep and eared segments and geometrics. Convex chunk scrapers dominant scraper type. Few concave scrapers. Polished stone axes. Shorter, broader flakes.	Miller 1969a: 443-450
Nachikufan IIb	High relative frequencies of deep and eared segments and geometrics. Convex chunk scrapers dominant scraper type. Decrease in "miscellaneous" scraper forms. Possible increase in concave scraper forms. Increase in "crushing and grinding equipment". Bone points. Pigment.	Miller 1969a: 450-452
Nachikufan III	Higher relative frequency of plain segments. Overall decrease in micro lithic dimensions. Low relative frequency of convex chunk scrapers. Increase in convex flake scrapers. Decrease in discoïd and pseudo-discoïd cores, increase in single and double platform types. Pigment, bone points, awls. Snail shell beads. Pottery, iron, copper wire and other trade goods.	Miller 1969a: 452-459

Table 4: Typological composition of Nachikufan industrial phases (Fletcher 2010: 15 - Adapted from Miller 1969a)

Through a combination of analyses of the published material in the Nachikufan, Sampson & Southard (1973: 79) concluded that there is little difference between phases I, II [A and B] and III. For instance, the collections from Nachikufan III are very similar to the ones from the earlier phases and it is difficult to separate them typologically. The ranges of all kind of tools tend to overlap throughout the Nachikufan period (Sampson & Southard 1973). This supports the argument presented in Chapter II that Nachikufan hunter-gatherers had a long sequence of occupation in this territory continuing into the period of Iron Age settlements. Evidence of interactions between hunter-gatherer and farmers is well-known (Miller 1969b; Mgonezulu 1978; Musonda 1983).

According to Phillipson (1977), when looking at these industries, it is possible to observe family resemblances between all of them because they have typological similarities (Fig. 6). For this reason they refer collectively to the Nachikufan Complex. The Nachikufan II and III show a closer resemblance to the pre-ceramic and ceramic phases of the Zambian Wilton (Sampson 1974). Nachikufan assemblages were originally considered to be an adaptation to woodland environments (Clark 1950; Miller 1969; Phillipson 1969), while Wilton was associated with savannah environment (Clark 1970; Sampson 1974). Clark (1950: 94-96) concluded that stages II and III of the Nachikufan culture originated in the northwest of Zambia in the Congo basin and spread in a southwards direction.

The only known excavation north of the Zambezi in Mozambique during colonial times was done by Santos Junior (1947) in Riane (Nampula Province). No excavation reports are however available and the artefacts were subsequently taken to Portugal (Adamowicz 1987). Very little information regarding the LSA in this region exists. Recent publications by Rodrigues (1999, 2006, 2007) on the analysis of the material collected by Santos Junior on the 1930's and 1950's in Central and Northern Mozambique does not reveal any new indication about the technology and typology of the material culture of the hunter-gatherers, it is thus, descriptive and inconclusive for the present research.

In Nampula Province, Adamowicz (1987) found microlithic tools (made on quartz) which were denominated as Cavala Industry (dates span from 5000 B.C. to A.D. 600). This industry (Fig. 6)

was considered culturally distinct from Nachikufan IIB/III and Wilton. Adamowicz (1987) argues that in Nampula both Cavala and Nachikufan tool users used the same environment and were distributed in the same area.

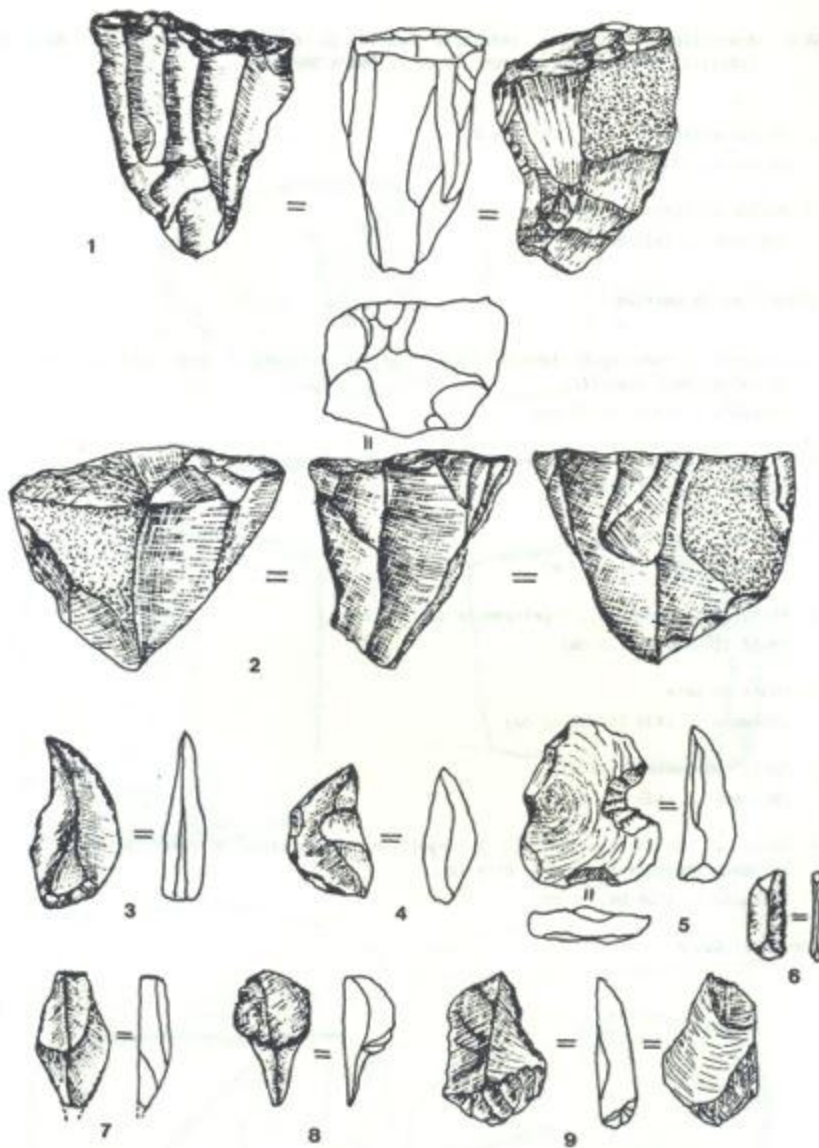


Fig. 6
Utensílios líticos da Indústria Cavala

Figure 6: Microlithic tools from Cavala industry in Nampula province (Adamowicz 1987: 127)

Most of the material culture collected by Adamowicz (1987) during the *CIPRIANA 81/85* project in Nampula remains unpublished and this is the only systematic work done in the area that includes the Nachikufan industries. For this reason, the archaeological publications on the Nachikufan industry of the neighbouring countries are crucial to understanding the LSA of north Mozambique if similarities are to be recognized.

Wilton Complex

South of the Zambezi early microlithic tools are assigned to the Oakhurst complex (Sampson 1974; Wadley 2000; Mitchell 2002; 2005), in a period contemporary with Nachikufan 1 from 12,000 and 8,000 BP. Before the Oakhurst industry the Robberg microlithic complex dominated in southern Africa. This is dated from around 20,000 to 12,000 BP. It is associated with bladelet production, rare backing, few scrapers and an extensive number of unretouched bladelets (Sampson 1974; Deacon 1984 a & b; Deacon & Deacon 1999). With the coming of the Oakhurst complex from 12,000 BP the stone tool industries of southern Africa became microlithic (Sampson 1974) with hornfels used at sites in the interior and quartz/quartzite more common on the coast (Deacon & Deacon 1999; Mitchell 2002; Phillipson 2002). Another typical feature was large multiplatform cores as well as large scrapers on side-struck flakes. Alongside these appear D-shaped, round- or end-scrapers and large, thick backed, adzes. A few blades are also part of the Oakhurst complex (Sampson 1974; Deacon 1984; Wadley 1987; Phillipson 2002). Retouch and backed pieces become rare and there are no segments (Thackeray 1983; Wadley 1987).

The nonexistence of tools of the Oakhurst north of the Zambezi indicates that this industry did not extend into Zambia, where the Nachikufan was already present and developed (Miller 1969a; Barham & Mitchell 2008). The connection between the Nachikufan and the Wilton has not been studied yet and the extent of how the two industries might have influenced each other is also unknown.

The Wilton industry (Fig. 8) is generally found and identified in Zimbabwe, western Zambia, southern and central Mozambique, Botswana, Namibia, Swaziland, Lesotho and the western and southern parts of South Africa (Sampson 1974; Deacon 1984a; Barham & Mitchell 2008). The

Wilton in southern Africa (Fig. 7) is present in different types of environments that vary from arid desert through semiarid, thornveld, bushveld, savanna, riverine woodland and high mountains. Sampson (1974: 322) suggests that this is the result of different strategies for exploring resources in the types of environment indicated. The environments were occupied by the hunter-gatherer, according to the availability of water and this had implications on the degree to which band organization in a certain territory was nucleated (Barnard 1992).

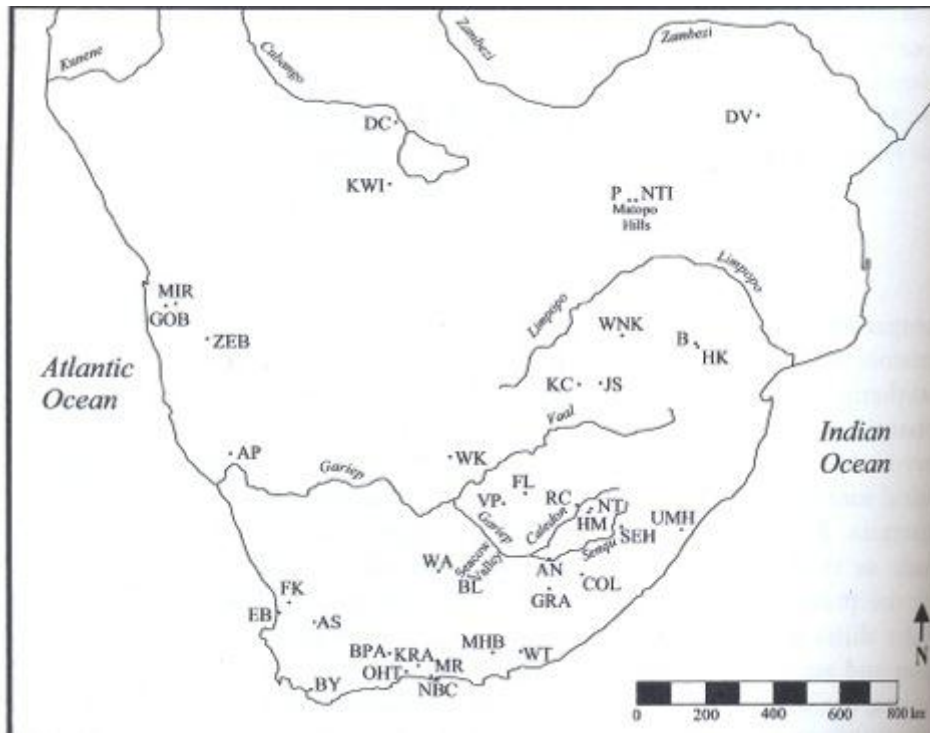


Figure 7: Map of the main LSA sites with Wilton technology (Mitchell 2002: 136)

South of the Zambezi, the Wilton assemblages (Fig. 8) are rich in small scrapers, backed microlithic (especially segments, backed points, bladelets, etc.), ornaments (ostrich eggshell beads), polished bone tools, wood and shell artefacts (Deacon 1984b).

The main dates for the Wilton span from 8000 – 4000 BP (in some parts of southern Africa it spans until late 1800's) and the raw materials diverse according to the different environments but the predominantly used are: quartz (crystal and milky), lydianite, crystalline pebbles, quartzite, opalines, tuffs, sandstone, hornfels amongst others (Deacon 1984b).

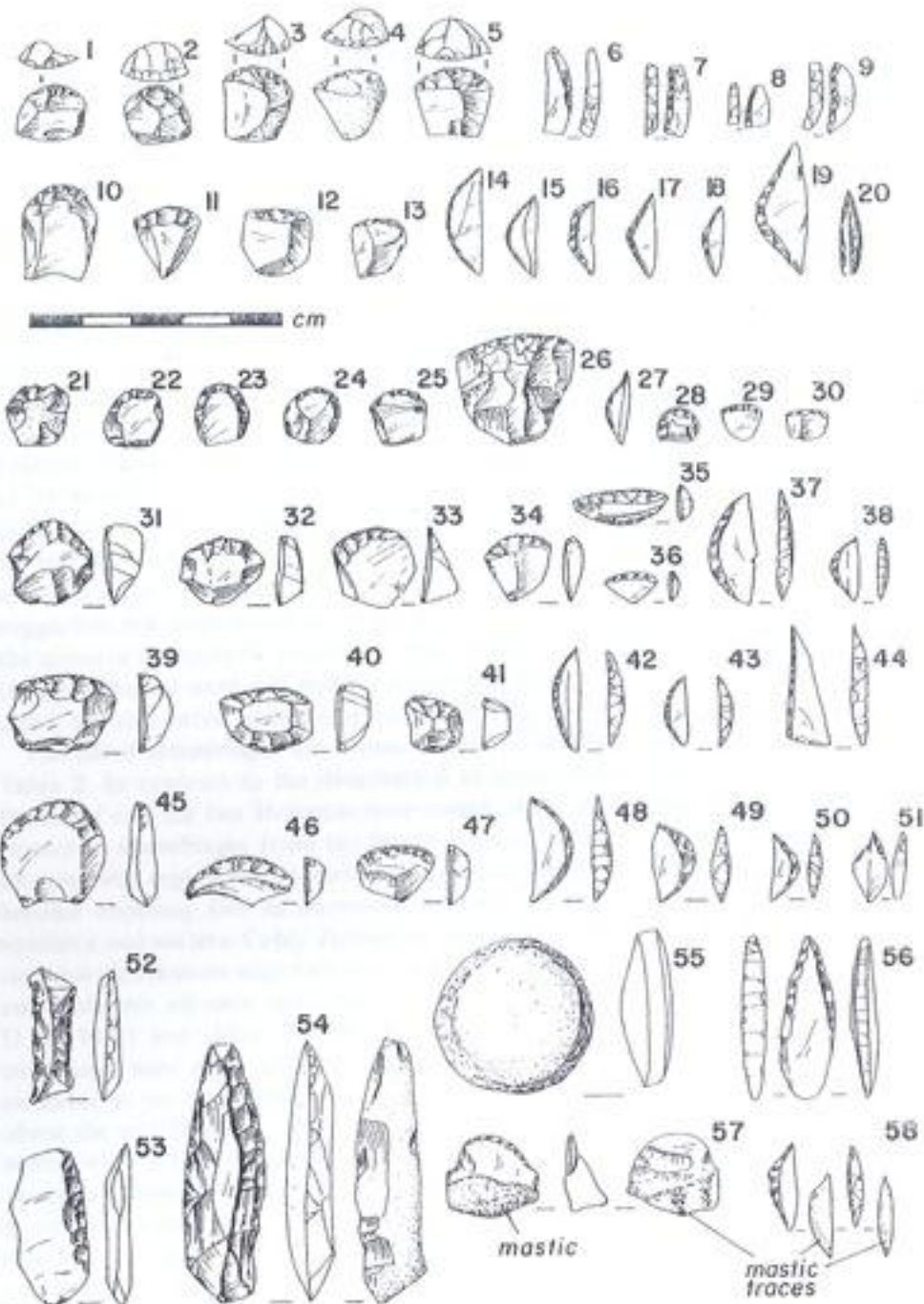


Figure 5. Stone artefacts from Holocene microlithic assemblages in southern Africa. 1-9: Glen Elliott level VIII (after Sampson 1967a: 18-22); 10-20: Diana's Vow (after Cooke, C.K. 1979a: Fig. 17); 21-30: Pomongwe (after Cooke, C.K. 1963: Fig. 17); 31-38, 52, 56: Boonplaa Cave (after Deacon, H.J. *et al.* 1978); 39-44: Wilton name site, layer 3F (after Deacon, J. 1969, 1972); 45-51: Nelson Bay Cave, BSC unit (after Deacon, J. 1978: Fig. 7); 53, 54, 57, 58: Melkhoutboom (after Deacon, H.J. 1976). Scrapers: 1-5, 10-13, 21-26, 28-36, 39-42, 45-47, with mastic: 57. Backed microliths: 6-9, 14-20, 27, 37, 38, 42-44, 48-50, with mastic: 58. Borers: 51, 56. Adzes: 52-54. Milled edge pebble: 55.

Figure 8: Wilton artefacts (Deacon 1984a: 316)

In terms of subsistence of the foragers in the areas where Wilton industries are widespread, it is known from ethnography and archaeology that plants and meat were crucial in the diet of the hunter-gatherers. A wide range of plants can be found in different environments but the majority of calories in the diet came from vegetable food (75%) and the rest from meat (25%) (Lee 1979; Deacon 1984a; Deacon & Deacon 1999). The plants gathered are: underground roots, rhizomes, bulbs, corms, tubers, seeds, fruits (marula and others), berries, nuts, steems, leaves, melons, cucumbers, etc. There is good evidence for hunting of small animals (birds [their eggs], dassies, rats, hares, mice's, frogs, tortoise, lizards, impala, bushbuck, duiker, etc) and less evidence for big bovids (zebra, wildebeest, buffalo, elands, kudu, etc) (Deacon 1984b; Walker 1995; Deacon & Deacon 1999; Mitchell 2002).

In Zimbabwe a local variant of the Oakhurst complex identified in the Matopos Hills was termed Pomongwan (Sampson 1974; Walker 1995). Dated from 12,000 to 8000 years ago, it was characterized by scrapers, rare backed tools and bone matting needles (Sampson 1974; Mitchell 2002; Phillipson 2002). The existence of the Pomongwan as a variant of the Oakhurst complex might have been the result of a local interaction network of hunter-gatherer north of the Limpopo River (Mitchell 2002), especially in Zimbabwe and probably in parts of Central Mozambique.

Interaction between san hunter-gatherer and Bantu farmers in southern Africa (south of the Zambezi River) has been extensively studied and well documented. On the archaeological deposits and also on the rock art these contacts were identified by researchers and the LSA artefacts are still present as part of the material culture even after the arrival of the Bantu farmers in southern Africa and Mozambique is not an exception (Dowson 1998; Saetersdal 2004; Van Doornum 2007, 2008).

The LSA material found in the Vumba area of Manica Province, Mozambique, in recent rock shelter excavations (Chinhamapere II, IV and Mouchiabaka) is very similar to that found from the same period in Zimbabwe and northern South Africa (Saetersdal 2004). The findings are characterized by a classical Later Stone assemblage (dominated by quartz) that contains also a few potsherds from the Early and Late Iron Age communities in the area (Saetersdal 2004). The formal tools found in Chinhamapere are: backed tools, backed flakes, lunates, points, scrapers,

wedges, and borers. The dates span from about 3000 years ago almost until the present. The LSA material is attributed to San-speaking people, who were also responsible for the paintings in the Vumba Mountain region (Macamo & Saetersdal 2004; Saetersdal 2004). At the moment in Central Mozambique, this is the only contribution to our understanding of the LSA sequence of this area.

Phillipson (2002) suggests that advances in microlithic technology proceeded at different speeds in various areas of southern Africa. I will be working on the alleged border or frontier between the southern African lithic industries and the central African Nachikufan industries. Thus, I believe that exploring the CBD area will allow me to test if the Zambezi River has any meaning as a cultural boundary in the Later Stone Age archaeology of the region.

San Rock Art

South of the Zambezi River, southern Africa is dominated by San rock art (Fig. 9) that has been accepted by the majority of researchers as essentially religious. It is a very widespread and characterized by regional variability in the repertoire of the humans and animals depicted (Vinnicombe 1976; Lewis Williams 1981; Dowson 1988; Garlake 1995; Blundell 1998; Deacon & Deacon 1999; Eastwood 1999; Hollmann 2002; Saetersdal 2004).

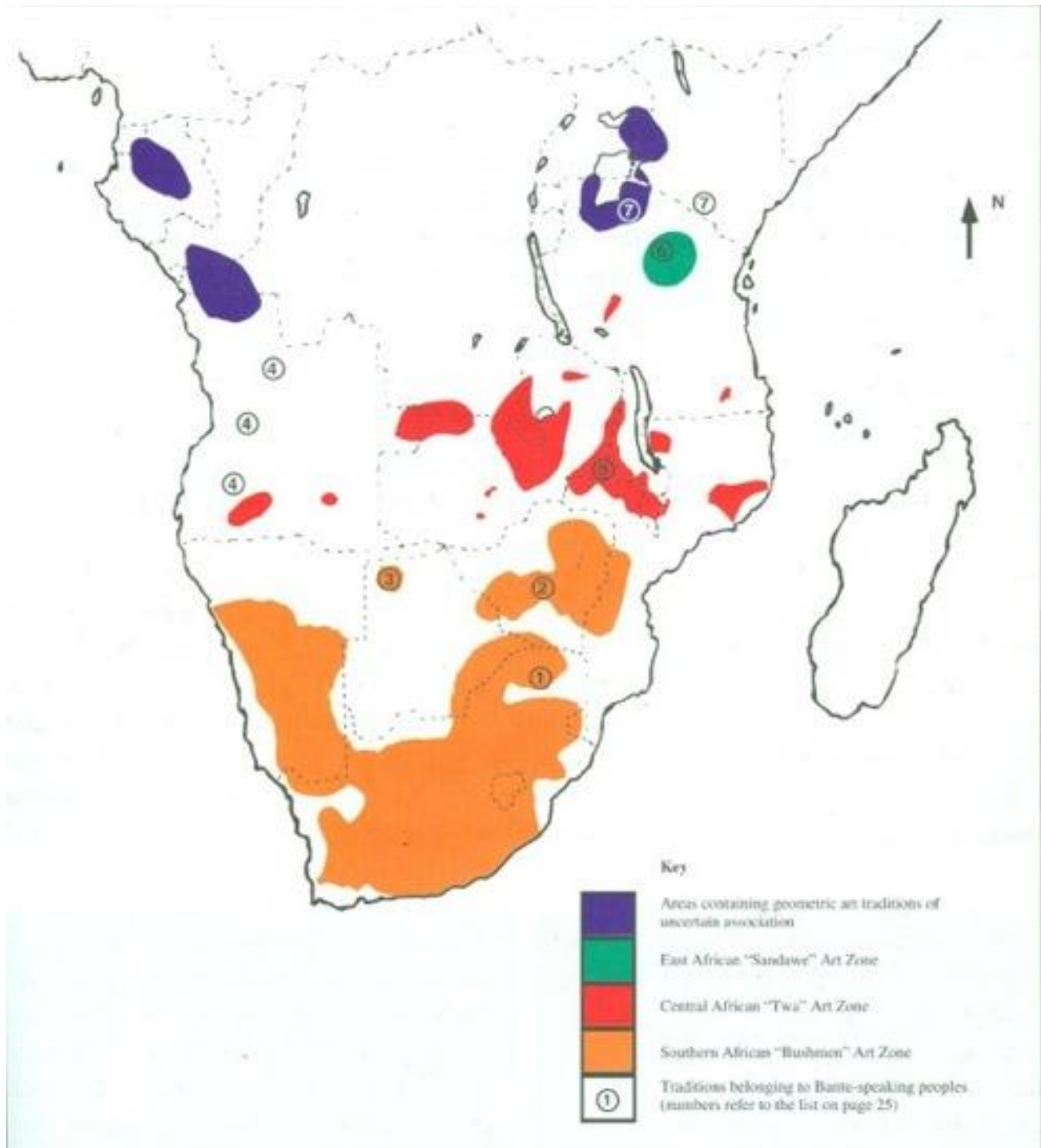


Figure9: Map showing the distribution of rock art in Southern Africa (Smith 1997)

In Mozambique rock art research started in 1936, when Santos Júnior (1940, 1950) began working on the prehistory of central Mozambique through a project titled *Missão Antropológica* (Anthropological Mission). Morais (1988: 41) indicates that archaeological research in Mozambique during this short period of time, developed as result of the influence of prominent

researchers in the neighboring countries such as Van Riet Lowe (1948) and Henri Breuil (1944) in South Africa.

It was during the *Missão Antropológica* project, that the first site with rock art in Manica, in the district of Mavita in November of 1945 was found. According to Pires de Carvalho (1946: 38) before Santos Júnior found the rock art in Mavita, the local people reported the existence of rock art in the ridge of the Vumba Mountains to the Portuguese authorities. Pires de Carvalho¹, after locating Chinhamapere rock shelter together with his team, made the first drawings of the paintings (Alfredo da Conceição made a copy of the paintings), a brief description of the area and the paintings (Carvalho 1946: 38-43).

The discovery of Chinhamapere aroused the attention of the colonial authorities; however the drawings of the paintings made by the team of Pires de Carvalho misrepresented the rock art at the site (Saetersdal, 2004: 126-131). Only a few paintings were included in the drawings and many were left out.

By the end of the 1940s, Van Riet Lowe (1948: 3-15) mentioned the existence of many sites with rock art found in Mozambique. He also noted that Mozambique and Zimbabwe as neighbouring countries had the same tradition of rock art. Later this idea was accepted and the tradition was identified as the San rock art that covered a large area south of the Zambezi River.

In 1951, Alberto (1951: 132-133) published an article about the prehistory of Mozambique, in which he reports the existence of rock art in the Manica, more specifically Chinhamapere. The site was considered one of the most important for the archaeological research in Mozambique in the 1950s. The same author also mentioned the fact the Lereno Barradas did research in the Manica district during the same time.

Various articles referring the existence of rock art in Manica were published in a scientific journal for the Mozambican colony designated *Boletim da Sociedade de Estudos da Colónia de*

¹ According to Guerreiro, Pires de Carvalho was a mining engineer (Guerreiro, 1965: 3)

Moçambique. The majority of the articles mentioned the existence of paintings in Chinhamapere and described some of the images without interpreting the meaning of them. From the 1960s until the independence of the country in 1975, archaeological research was mainly focused on rock art studies and Iron Age sites (Morais 1988:41).

In 1965, Manuel Viegas Guerreiro published an article about the rock paintings in Manica district, more specifically about Chinhamapere. According to Guerreiro the paintings in Chinhamapere are the result of the material life and spirituality of the hunter-gatherer that occupied the region of Manica in the last 7000 years ago. Guerreiro argued that the paintings were made by Bushmen's (San) and further made the connections between the site and the same type of tradition found in neighboring countries (South Africa and Zimbabwe). Connections were made between the paintings in Chinhamapere and the magical religious life of the artist who made the art (Guerreiro 1965: 3-13).

Unlike other amateur researchers, Guerreiro tried to explain why the hunter-gatherer painted in the rock shelter and the meaning of the images in the panel. However, he recognized the problems and difficulties to date rock art, but was able to advance with some aspects about the conservation of the images, which in some cases were faded (Guerreiro 1965: 8). On the other hand, Guerreiro did not made clear which method he used to date the paintings, their meaning and did not excavate the shelter to get more information on the material culture of the site.

Guerreiro made an important contribution to research into the rock art in Manica district by describing the majority of the images in the panel and associating them to the LSA of the area. To support his argument, Guerreiro referenced work done by Alex Willcox and other important researchers in the 1950s and 1960s in South Africa (Guerreiro 1965). However, he made assumptions about the rock art in Chinhamapere (Fig. 10) and in the Manica area and was not able to reveal the meaning behind the paintings and the reason why they were made by the hunter gatherer.



Monte Chinhamapere: Pinturas em rocha calcária da Serra Vumba

Figure 10: One of the first photos of Chinhamapere published by Oliveira (1971)

In the 1960s, Octávio Roza de Oliveira², also focused his research in Chinhamapere. In his article “*Pinturas rupestres do monte Chinhamapere, contraforte da Serra Vumba, em Vila de Manica (Moçambique)*” (Oliveira 1964: 57-63) he described the possible customs and activities of the artists who made the paintings in Chinhamapere. He also described the possible reasons why artists painted by concentrating on the details in the paintings. In some cases the detail helped to identify the species of the animals represented in the paintings (Fig. 11). Oliveira (1964: 57-63), explained how the ingredients were obtained to make the paintings and the different shades of pigment.

² Oliveira was a professor of history in Beira city during colonial period.



Particular das pinturas rupestres de Monte Chinhamapere

Figure 11: Painting of Chinhamapere (Oliveira 1971)

According to Oliveira (1971: 49-73), the paintings were made by the San (Bushmen) and were dated to as much as 8000 years ago. He cited Breuil (Oliveira 1971: 49-73) and divided the paintings into three phases: schematic, impressionistic and naturalistic. Oliveira (1971: 50) noted in Chinhamapere the existence of superimposition in the paintings, which he thought could be the result of the substitution of some paintings by other, more expressive colours. He argued that the paintings in Chinhamapere were the result of artistic and sacred rituals by the San. In the site, Oliveira (1971: 57) mentions the existence of engravings; nonetheless, in Manica province until the moment there is no definite report of the existence of engravings (Santo Júnior 1940; Alberto 1951; Guerreiro 1965).

The first note of the existence of rock art at the nearby site of Romo Re Nguruwe (small site in Manica town) was made by Oliveira (1971: 57) who described the existence of animal Figures (antelope, elephant and a giraffe) and also human Figures (Bushmen hunters). Many of the paintings are now very faded (Fig. 12).



Figure 2: Photo of the kudu in Tomo Re Nguruwe (Oliveira 1971)

Oliveira, like Guerreiro, was very influenced by South African rock art research and drew on this for interpretations about the rock art in Manica. The description of the paintings in Chinhamapere and in other sites in the area is one of the best pieces of documentation from the colonial period. None of the sites where Oliveira conducted research were excavated. Direct dating of the paintings was not undertaken during this time. In the absence of absolute dating, most of the amateur researchers in Manica used a typological method to date the art.

According to recent research into the San rock art of Manica the paintings date to the Later Stone Age period and they may be 3000 or 2000 years old (Saetersdal, 2004).

In general during the colonial times, most of the research done on rock art in Manica, Central Mozambique was limited to descriptions of the paintings, some inaccurate drawings and the use of photography in black and white. The poor quality of the research was due to the fact that most of the researchers did not have a formal archaeology qualification and the colonial authorities failed to sponsor professional scientific investigations in Mozambique. Most of the studies drew heavily on the work done in South Africa by Henri Breuil, Van Riet Lowe, Raymond Dart, Alex Willcox and others. Consequently, the progress in research in rock art was not significant compared to other neighbouring countries; nevertheless the early reports made an important

contribution in terms of locating sites and protect this important cultural heritage. On that stage less than 30 rock art sites were known in the whole territory (Fig. 13).

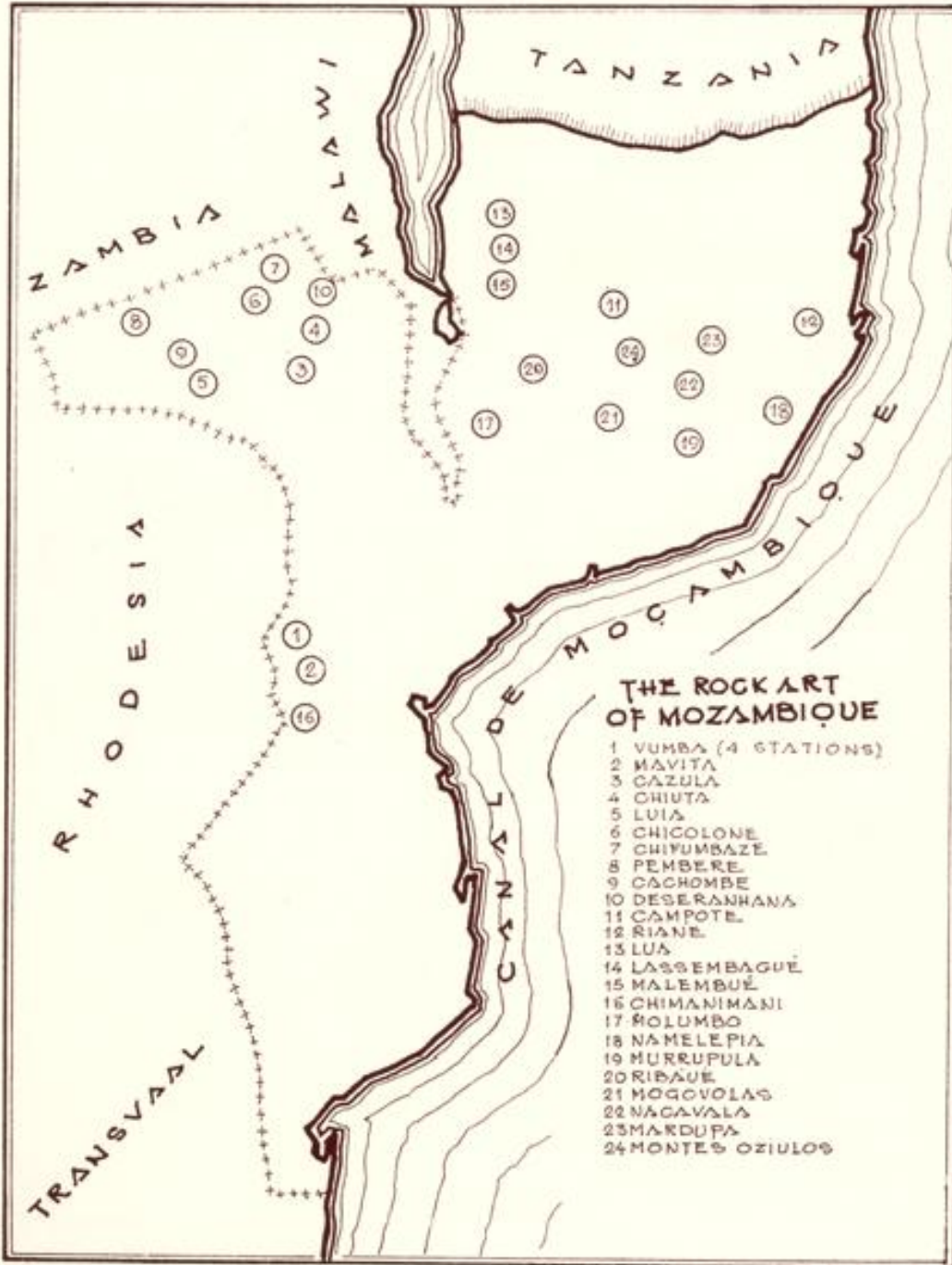


Figure 3: Rock art sites in Mozambique in the colonial period (Oliveira 1971)

Although the early researchers laid the foundation for the rock art research in Mozambique, there were many gaps in the interpretation of the rock art and in those days the investigators did not have access to San hunter-gatherer ethnography and so most interpretations remained highly superficial.

After the Independence of Mozambique in 1975 there was a significant increase in archaeological research, supported mostly by the state cultural institutions and foreign donors. Nonetheless factors such as the Civil War, internal problems³ in the country, logistical and funding difficulties, as well as an absence of infra-structural⁴ development and the existence of a limited number of qualified archaeologists to work in the LSA and rock art (Macamo & Saetersdal 2004: 189; Macamo 2005: 128; Sinclair 1993: 412).

Ricardo Duarte and Maria da Luz Duarte (Duarte 1979:57-59; Duarte & Duarte 1988: 75-77) were the first professional archaeologists to work on rock art in Manica. Duarte (Duarte & Duarte, M, 1988: 75) notes that in the past little was done in terms of interpretation, and that more research needed to be done. The paintings of Chinhamapere were described and associated to the Later Stone Age period. Although Duarte & Duarte (1988) used Oliveiras (1971) previous work in Chinhamapere for analyzing the paintings, they were not able to give new insights into rock art research due to the several problems that affected vague archaeological research in the 1980s in Mozambique. On the other hand, the research carried out in Manica was very important because the information was disseminated to the public and helped in preserving the rock art in Manica (Duarte 1979; Duarte & Duarte 1988).

Morais (1989: 302) considered that in Mozambique there was a diversity of sources for the study of the pre-colonial past. However, for the specific case of rock art, there were no oral traditions, about the origin and reason of the existence of this important heritage. In the late 1990s, Artur

³Difficulties in getting access to archaeological sites and other problems.

⁴ According to Macamo (2005: 128) there was an absence of institutional structures for the archaeological research in the country. On the other hand the lack of archaeological curriculum for pre-colonial history, since the primary, secondary and university instruction.

(1999: 12-13) mentioned the existence of rock paintings in Manica, and recognized that little documented information existed about the archaeology of the area.

Since 1997 Tore and Eva Saetersdal, have made an enormous contribution to rock art and Stone Age research in Manica and Tete provinces. New sites were discovered and a new approach in terms of survey, documentation and interpretation of the archaeological data was introduced in Manica and Tete provinces (more than 75 sites were located). For instance, the archaeological research in Manica produced C14 dates, 2800BP to 470BP, from excavations at Chinhamapere II and IV. Nevertheless the paintings (Fig. 14) were not dated directly, this information is fundamental to understanding the possible context in which the paintings were made by San hunter-gatherer (Saetersdal 2004: 53-71).



Figure 14: Students of Eduardo Mondlane and Wits University visiting Chinhamapere (Saetersdal)

In terms of the interpretation of San rock art, the Saetersdals introduced the use of ethnography, anthropology and history, sources widely used in other parts of southern Africa to interpret rock paintings. Furthermore, in the Manica District, Saetersdal (2004; *Projecto de Pesquisa Arqueológica e Gestão de Recursos Culturais em Moçambique*, 2003; 2011) demonstrated how

local communities have protected the sites with rock paintings and used the same sites for sacred rites such as rainmaking ceremonies (Fig. 15).



Figure 15: Mbuya Gondo performing ritual for the spirits at the Chinhamapere (T. Saetersdal)

In 2006 as part of an Honours Project in Archaeology, Décio Muianga (2006) wrote the first interpretation of the rock art in Romo Re Nguruwe rock art site in the Manica District. This project demonstrated that Manica was occupied for the last 3000 years. The San rock paintings in Romo Re Nguruwe (Figs. 16 & 17) reveal religious importance and contain images from the cosmological belief system of the hunter-gatherer that lived in Manica before the arrival of the Bantu speakers about 2000 years ago.



Figure 16: Image of Kudu in Romo Re Nguruwe (Tore and Eva Saetersdal)



Figure 17: Elephant depiction in Romo Re Nguruwe (D Muianga 2006)

The San rock art found in Manica province has been well known since the colonial days but most other areas are unsurveyed. Despite the fact that Manica was chosen by the majority of the

researchers for research, the south of Manica province remains poorly investigated. Recently two sites with San paintings were documented in Chimanimani National Park (see images in the appendix) in the south of Manica Province, which still have large areas to be surveyed (local informants confirmed the existence of more sites on the mountainous areas).

Also the distribution of the San rock art and the motifs depicted needs to be investigated in relation to other sites in southern Africa. To date, all known San rock art sites, occur south of the Zambezi river.

Central African Geometric Rock Art

The area north of the Zambezi is characterized by geometric tradition rock art (Clark 1959; Phillipson 1972 a & b, 1977; Juwayeyi & Phiri 1992; Smith 1997) and is dominated by geometric forms. For the Central Africa rock art, Smith (1997, 2006) distinguishes between Red Animal (male associated) and Red Geometric (female associated) Traditions. The White Spread-eagled Traditions is also found in the area and has been associated with Bantu speakers (Phillipson 1977; Lindgren & Schoffeleers 1978; Smith 1995; Zubieta 2006).

In Tete province, the information available about rock art is very scarce and imprecise from the records of the colonial times. During the colonial days the researchers mentioned the existence of 8 sites (Cazula, Chiuta, Luia, Chicolone, Chifumbaze, Pembere, Cachombe and Deseranhana) with red tradition rock art with depictions of animals and geometrics (Santos Junior 1950; Oliveira 1971). The largest site, Chicolone (Fig. 18), located north-west of Chifumbaze (Fig. 19, see chapter II for aspects of the Chifumbaze Complex) was discovered by Carl Wiese in 1909.



Figure 18: Chicolone (Smith)

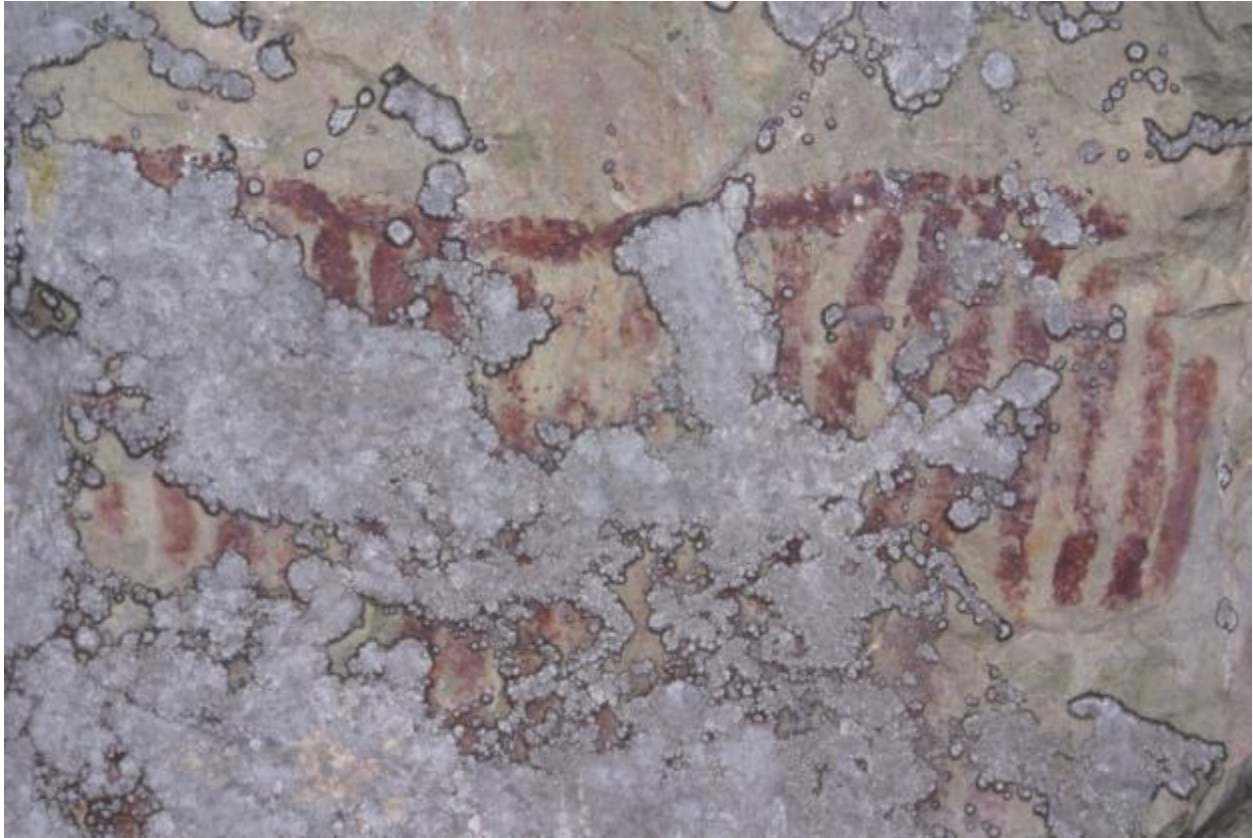


Figure 19: Chifumbaze paintings (Madiquida)

Phillipson (1972a & b: 24) suggested that archaeological part of the Chifumbaze Pottery Complex (EIA – Chapter II) are found in areas where the geometric rock paintings occurred, therefore, he made a connection between the paintings and EIA farmers. He proposed that the red schematic art was related to the religious beliefs and practices of the EIA communities. Smith (1995: 250-251) subsequently overturned this and demonstrated that though some geometric paintings may have been made in the EIA period, it was hunter-gatherer who made art. This interpretation might also be valid for some of the sites found in Tete Province, although large sections of the province remain poorly investigated due to many logistical problems.

Compared to Manica, Tete province does not have the same infrastructure in terms of roads and for that reason the survey of rock art in this area has always been difficult. There was little interest by colonial researchers in working in remote areas such as the north, west and east sections of the province.

Over the last ten years, surveys were conducted in the north-east of Tete province by Tore and Eva Saetersdal with the collaboration of the Rock Art Research Institute (University of the Witwatersrand – South Africa) and Department of Archaeology and Anthropology (Eduardo Mondlane University - Mozambique). 50 new sites were found dominated mainly by Red Animal and Red Geometric Traditions and also by White Spread Eagle Tradition (Bantu-speaking farmers).

Further north in Nampula Province, Adamowicz (1987) carried out important research into the rock art and Stone Age through the *Cipriana Project*. This research proposed a tentative chronology (Fig. 20) for the hunter-gatherer rock art (painted in red colour) north of the Zambezi River (Batwa rock art). The art was classified into: naturalistic, realistic, schematic, geometric and symbolic styles (Adamowicz, 1987: 51-60). As result of the investigation between the Lúrio and Ligonha Rivers, 12 rock art sites were documented (Appendix: See more drawings of paintings of Nampula made by Adamowicz 1987): Riane I; Muse I, II, III; Chakota; Nakwaho I; Namolepia; Occurine; Ribue II; Naavara; Mitemane and Maadja (Adamowicz 1987). The best-known site in north Mozambique is Riane, with the biggest representation of Red Animal Tradition in Central Africa (Benjamin Smith, pers. Comm.).

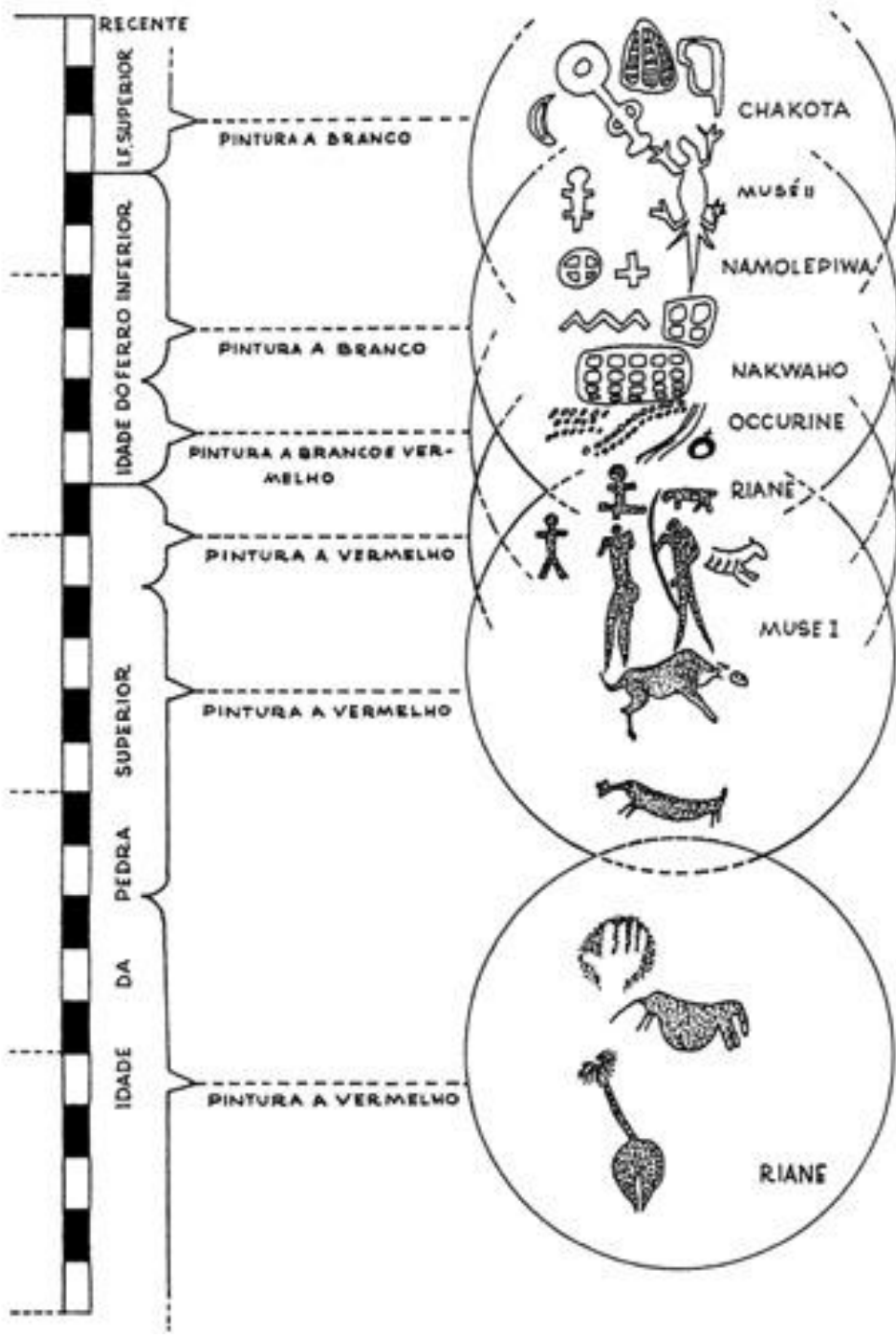


Figure 20: Rock art styles in Nampula province (Adamowicz 1987)

In north Mozambique, the rock art is mainly dominated by the geometric tradition along with some white paintings that are attributed to the first communities of farmers (Adamowicz 1987).

Information collected during and after colonial times indicate that paintings in the rock shelters in Nampula are attributed by local people to the supernatural being called “Muluto”. Thus, local communities consider them as sacred places and conduct rituals to resolve problems within society (Perreira 1966; Adamowicz 1984). In Nampula, Zambézia, Niassa and Cabo Delgado provinces less than 20 rock art sites have been found in total (Santos Júnior 1947; Soares de Castro 1961, 1966; Oliveira 1971; Adamowicz 1987). The majority of the rock art sites found north of the Zambezi River in Mozambique require more profound research because insufficient information is known about them or their associated archaeological signatures. All of the rock art north of the Zambezi found in Mozambique therefore conforms to what Smith (1997) termed the Batwa tradition of hunter-gatherer art. Northern Mozambique follows with Malawi and Zambia into the area of Red Geometric and Red Animal Tradition arts made by the Batwa.

On the basis of past research therefore, the Zambezi River, represents a border or frontier that separates two traditions of hunter-gatherer rock art. While intensive research and academic debate about both San and Batwa tradition art have occurred (Clark 1958 a,b, 1959b; Willcox 1963; Phillipson 1969, 1972, 1977; Vinnicombe 1976; Lewis-Williams 1981, 2002; Morais 1989; Juwayeyi & Phiri 1992; Prins & Hall 1994; Lenssen-Erz 1994; Walker 1994; Garlake 1995; Smith 1995, 1997; Blundell 1998, 2004; Dowson 1998; Eastwood 1999; Zubieta 2003; Saetersdal 2004), little is known about the rock art around the boundary area.

The examination of the previous research and literature on the both sides of the Zambezi River revealed not only the antiquity of the material culture of the hunter-gatherer but also a lack of archaeological investigation in different areas of the country and aspects of the interpretation of the prehistoric artefacts in Central Mozambique. This gap does not allow researchers to identify traces of contact between the San and Batwa that lived the opposite sides of the Zambezi; thus, it remains a border point for the LSA and rock art of the region.

Before analysing the LSA and rock art of the CBD, it is necessary to review the ways which borders and boundaries have been researched (chapter IV) in terms of archaeological research and how can they contribute to “*unlock*” the meaning behind the physical barrier imposed by the Zambezi River for the hunter gatherer groups.

Chapter IV

Borders and Boundaries: Theoretical Approach

Theory is part of the romance of archaeology and is vital if we want to breathe some life into the snippets of information drawn from stone and other artefacts – H.J. Deacon & J. Deacon, 1999

This chapter seeks to establish the connection between the material culture and ethnic groups that left this heritage in the past. In the previous chapter we have seen that the majority of the archaeological sites in central Mozambique with LSA artefacts were not interpreted due to a lack of theoretical framework on the hunter-gatherer studies. The key to understanding the way of living of the Bushmen and Batwa in the two margins of the Zambezi River lies not only on the material culture, but rather in a theoretical framework that brings different hypothesis about the way they lived in the area and also how the Zambezi as a boundary operated as a point of fusion or disunion. This analysis is partly based on previous research on borders and boundaries, but before considering how they operated for the two groups, it is necessary to look at ethnography of the hunter-gatherer that lived the sides of the Zambezi River as one of the roots for the reveal the way of life of these ancient groups.

Ethnography

Ethnographical research as part of social investigation concerning forager societies in sub-Saharan Africa is one of the vehicles that provide information about beliefs, technology, economy and accounts about the lifestyle of the pre-literate groups. In the case of southern and south central Africa, ethnographical data collected mostly within the last century until our days for both San and Batwa also contributed to enrich the results produced from archaeological research. Thus, these sources of information demonstrate that hunter-gatherers are well recognized for their intimate relationship with the environment and extensive knowledge of space. In southern and central Africa insight into the hunting and gathering way of life comes from ethnographical and historical records which illustrate the close affinity of animal behaviour with the environment (Orpen 1874; Bleek 1874, 1875; Bleek & Lloyd 1911; Schebesta 1933;

Marshall 1959, 1969; Lee 1979; Katz 1982; Turnbull 1985; Cavalli-Sforza 1986; Biesele 1993; Guenther 1996, 1999; Tanaka & Sugawara 1999; Keeney 2003; Kusimba 2003).

Notwithstanding the extensive work and information accumulated about foragers, ethnography as a source of information has weak links because it is not able to capture the totality of hunter-gatherers' point of view and behaviour. On the other hand, Comaroff & Comaroff (1992: 11-12) show that ethnographic accounts have the potential ability and the creativity to capture imperfect knowledge that is historically contingent and culturally configured by the time they were gathered. Thus, by only looking at ethnography to understand isolated groups there is a risk of distortion of the social memory of past societies and also only fragments of cultural field get exposed (Comaroff & Comaroff 1992: 15-16; Deacon & Deacon 1999: 132- 135). In the context of sub-Saharan Africa, ethnography was often used for studying non-western groups and to become familiar with them as the justification for the application of ethnographical method (Comaroff & Comaroff 1992: 6). Although the acquisition of data for social investigation by ethnographers has problems it is so far one of the most reliable sources of knowledge of social life and also of the material culture produced or left by hunter-gatherer in the case of the CBD. Archaeologists irrespective of the time period they study the hunter-gatherer have to look at different sources of information to fit their approaches together with material culture. As Wobst stated:

Archaeologists are the only anthropologists whose data contain information about behavioural variance in all of its dimensions: in personnel from single individuals in private to the largest structural poses; in space from the smallest catchment area to the largest continent-wide population matrix, and in time from single events to millennia. Long after the ethnographic era of hunter-gatherer research will have passed into history, archaeologists will be busy removing the ethnographically imposed form and structure from their data and retrofitting both the ethnographic and archaeological record (1978: 307).

In Central Mozambique, this balance has been achieved by Saetersdal (2004) using archaeological material culture analysis together with ethnography in the study of the hunter-gatherer artefacts in Manica. While ethnography, for the case of the CBD does not give a hint about the physical separation of the two hunter gatherer groups that lived in the area; in addition, the oldest written records in Mozambique by Arabs and later by Portuguese so far do not

mention the existence of hunter-gatherer groups in the present territory, opening a hiatus in terms of background information for the material culture analysed in this project. Thus, rock art and Later Stone Age artefacts are still the only tunnel or back to the past time machine that can be used to access the borders and boundaries of the CBD together with theoretical curtain.

Borders and boundaries

This section will examine differences in the Later Stone Age (LSA) material culture and in the rock art of CBD so as to consider issues around borders/boundaries between LSA groups. Social boundaries may not always be tied to territorial limit, but it appears that they may do so in this area. Based on research conducted during the last 50 years of research, I believe that two hunter-gatherer ethnic groups with different archaeological signatures occupied this area, namely the San and BaTwa. I will therefore consider the theoretical writings on boundaries and borders to allow me to explore this distinction in the material culture and to also consider how the Zambezi River may have operated as a boundary.

In Africa, studies about frontiers are heavily influenced by western thought (Kopytoff 1989: 4-5; Flynn 1997: 312-313). In a recent definition 'frontier' was considered to be a spatial term to designate a physical margin, fringe or outer boundary (Lightfoot & Martinez 1995: 473). Alternatively, Kopytoff (1989: 8-12) considers frontier as a matter of physical political division within a geographical space. He argues that frontiers can arise because of cultural divergences within older cultural continuities, or, on the other hand, frontiers can be caused by ancient processes of interaction and social formation within and between separated political groups (Kopytoff 1989; Lightfoot & Martinez 1995; Flynn 1997; Ingold 2000; Parker 2006).

Given the fact African kin groups operated separately and often enjoyed autonomy, the frontier in the case of the CBD will be considered on a local scale, because it is acknowledged that hunter-gatherers were flexible in their usage of territories (Werner 1925; Metcalfe 1954; Lee 1979; Marshall & Ritchie 1984; Turnbull 1985; Wadley 1987; Schoffeleers 1992; Barnard 1992; Walker 1995; Ichikawa 1999; Biesele & Royal 1999; Bahuchet 1999).

In the past it was accepted that geographical and social isolation has been crucial in sustaining cultural diversity in one area (Barth 1969a: 74-79). Now, it is clear that boundaries separating ethnic groups operate in more complex ways. The presence of a boundary does not necessarily mean that social interaction did not take place and in this regard the archaeological remains can help us to model the nature of this interaction (Barth 1969a & b; Siverts 1969; Wobst 1978; Hodder 1982; Kopytoff 1989; Flynn 1997). Barth (1969a: 82-85) argues that in cases of interaction between groups complex social factors serve to sustain and evolve ethnic differences. He has shown how these differences may be manipulated for individual and group purposes.

After the Cahora Bassa Dam was built in 1974, an artificial lake was built in an extension of 250 km (navigable) comprising an area of 2500 km² (Middlemas 1974). Drastic changes modified the landscape and entire environment of Cahora Bassa. However, these recent modifications of the landscape in CBD have not excluded the study of the ancient landscape, its past resources, and interaction and interrelation in the former riverine space that provided these resources. In the past, people used, understood and moved through places in a variety of different ways (Thomas 1993; Massey 1994).

Gupta & Ferguson (1997: 6-10) suggested that distinct cultures within the same geographical and territorial space establish some kind of relationship. No one has studied this up until now in the CBD. Nevertheless, in the CBD the hunter-gatherer groups must have used some of the same resources, such as the river, sources of raw materials etc., and joint use and exchange of these materials should be visible within the archaeological deposits. Exchange and interaction in more social and cosmological arenas of life may also be visible within the rock art.

Massey (1994: 3-5) argues that space is not static, but should be seen as socially constituted. Space allows networks of social relation (including solidarity) that are dynamic. Thus, in a landscape social relations practised by individuals and physical barriers do not limit groups and there are chances to manipulate the border and cultural boundaries (Kopytoff 1989; Cosgrove 1993; Flynn 1997; Gupta & Ferguson 1997). In addition to this argument, Stahl (1991: 267-269) after studying ethnic frontiers in west-central Ghana concludes that boundaries are both permeable and flexible to different types of relationships.

Hunter-gatherer groups are characterized by mobility and use of larger and overlapping landscapes. Their identity is less fixed by space and they often interact with various other groups in a landscape (Yellen 1977; Zvelebil 1986; Gupta & Ferguson 1997; Ingold 2000; Parkington 2001; Smith & Blundell 2004). To complement this argument, in southern Africa, Alexander (1984: 12-21) suggests the idea of a ‘*moving*’ and ‘*static*’ frontier for the contacts between different ethnic groups that have not been thoroughly studied ‘in archaeology in this part of the continent. Later, Alexander’s models were criticized by Mazel (1989b: 133-134) which considered it theoretically inadequate due to the fact that it only analyse the relationships between people based in economic and ecological terms. Economic and ecological terms, according to Mazel (1989b: 133-134) ignore aspects of human interaction that are constituted by social, political and symbolic parameters, which are part of inter-group interactions.

The perception of ‘frontier’ as a border in the analysis of hunter-gatherer interaction in the CBD therefore needs careful consideration in that it must embrace permeability and not restrict consideration of social interaction. So, as I examine (Chapter VI and VII) what may be distinct ethnic groups, in this case both hunter-gatherer, both sharing the same physical space, I will approach it from the theoretical understanding that these groups will have had strategies to engage with the landscape, its material and spiritual resources, in a way that would have been flexible in manner so as to obtain mutual advantage while maintaining and (perhaps) furthering socio-cultural differences (Stahl 1991; Flynn 1997; Ingold 2000). Garth Sampson’s work provides an example of how archaeology can explore these issues. He considered the social/territorial organization of San groups in central South Africa by looking at variability in stone tool assemblages (Sampson 1988).

From this brief outline of the characteristics of African frontiers, it is clear that in physical and political division, strategies of sharing resources and interaction were present between different ethnic groups. In this sense, hunter-gatherers engaged with other groups and were malleable to use the same space in their own way. As Yellen puts it:

...the !Kung bands are composite in nature, not patrilineal; that exclusive territorial rights are not recognized, boundaries not defended; and that some “core” areas around permanent water points shared by more than one group (1977: 40).

To demonstrate the application of the theoretical approach presented above I conducted a smaller but comparable study in the CBD by exploring how the Zambezi operated as a social boundary through the study of material culture and human behaviour, both social and ideological. In the next chapter I present the fieldwork results in the CBD, the archaeological data and the methods used to recover the artefacts analysed in this dissertation.

Chapter V

Cahora Bassa: archaeological sites and assemblages

'But how do you know where to dig?' Is like asking 'But how do you know where to set up a business?' It is an educated guess – Janette Deacon (Deacon & Deacon 1999: 107)

Very few people are fortunate enough to discover an unknown rock shelter filled with ancient paintings. Yet in some of the more remote parts of southern Africa it is still possible to come upon a shallow, rocky overhang that may not have been entered since the last ...people...left over a century – perhaps several centuries – ago, and to find rock paintings of breath-taking beauty and intriguing interest – J.D. Lewis-Williams (2004:1)

The aim of this chapter is to describe and present the results of the fieldwork in the CBD, which are relevant to the question whether the research area is a borderland between ancient BaTwa and San hunter – gatherers.

Previous work includes Ramos (1979, 1980) and by Macamo (2006) that demonstrated that existence of evidence relating to the occupation of hunter - gatherers in both sides of the Zambezi River in Mozambique as well as artefacts associated with different groups described. Oral records pertaining to the existence of rock art in the margins of the Zambezi were reported to Tore Saetersdal and James Bannerman (2004/2005) during the research project in the north-east of Tete and in Manica Province. These surveys conducted in specific sections of the Zambezi were the first that looked specifically in the Later Stone Age (LSA) material culture of the hunter-gatherer in the riverine area.

The Survey

The surveys conducted in the CBD were undertaken during two field seasons in 2009. The first archaeological reconnaissance was carried out between April and May focused in the southern side of the Zambezi River in the Cahora Bassa District and during the second season, which was undertaken in late November, the initial survey was extended to include the northern margin. The purpose of the survey in the CBD was fourfold:

1. To assess the archaeological potential of the area;

2. To identify and study the nature of the rock art and LSA site distribution;
3. To record the rock art sites;
4. To locate suitable LSA sites for excavation.

The Cahora Bassa District was chosen for this project for several reasons. Firstly, there is a paucity of archaeological records in Central Mozambique. Secondly, previous archaeological research (*viz.* survey, surface collection & excavation) in the Cahora Bassa District (discussed in detail in Chapter II), particularly in the town of Songo, indicates that the area has the potential to increase our understanding of hunter-gatherer lifeway's in Central Mozambique.

Before the surveys were undertaken, a systematic research of written records (presented in Chapters II & III) about hunter-gatherer rock art and artefacts was made at the *Arquivo Histórico de Moçambique* (National Archive of Mozambique), Departamento de Arqueologia e Antropologia (Department of Archaeology and Anthropology of the Eduardo Mondlane University, Mozambique) and at the Rock Art Research Institute (University of the Witwatersrand). Detailed maps (1:250 000 and 1: 50 000) of Cahora Bassa District and software such as Google Earth were used to plan the surveys.

From these records it was apparent that the rock art and the LSA within the CBD were largely unexplored. These records did not however provide any direct evidence related to a specific forager group (San or BaTwa) in the CBD.

Survey method

The CDB and the Zambezi River in Central Mozambique, cover a fairly large geographical area of 250 kilometres of artificial lake (see Chapter II). An area spanning 10 km, on both banks of the Zambezi River was demarcated by me (Fig. 21). This area was selected because it is possible to find large outcrops of rock suitable for paintings and rock shelter habitation as outlined in Chapter I.

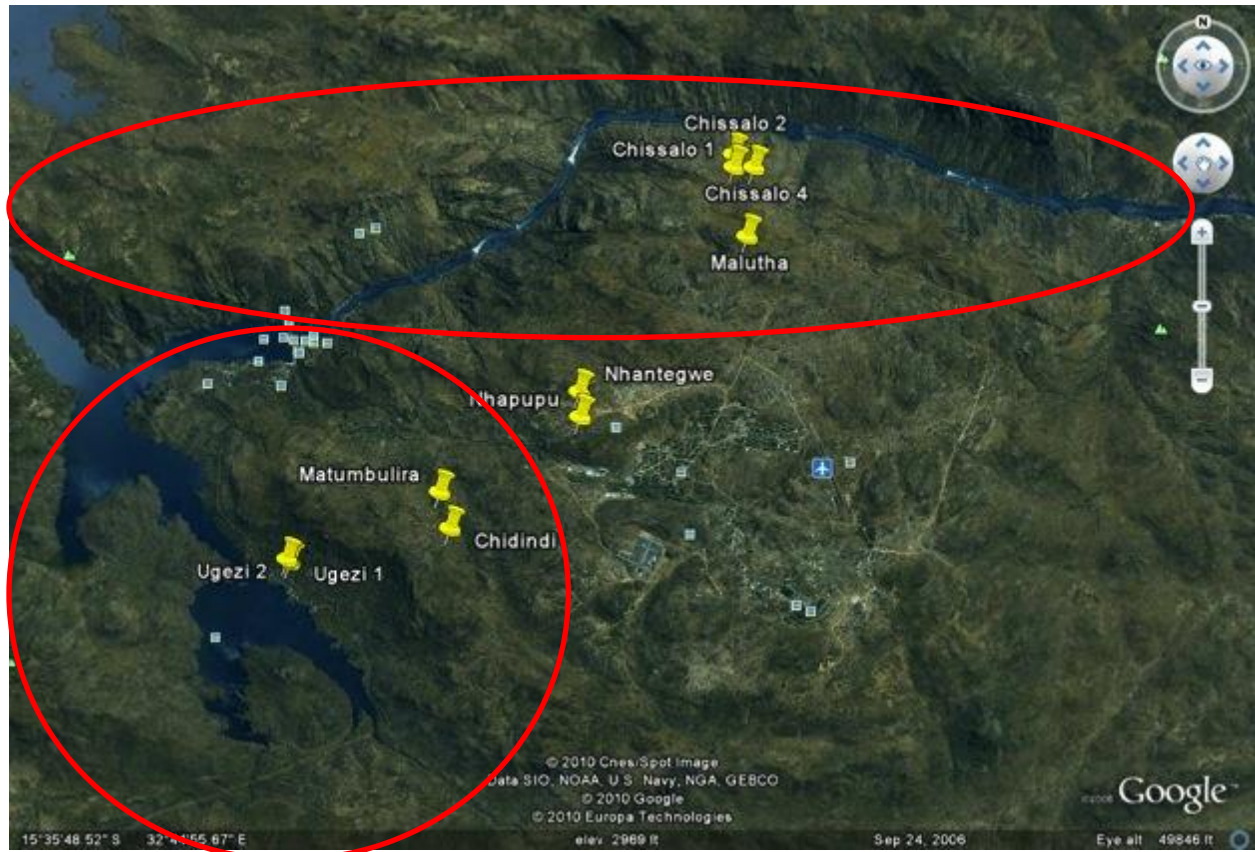


Figure 21: Survey areas demarcated (Google Earth Map 20-06-2010)

During the survey, the aim was to investigate the rock shelters, kopjes, hills and open air sites in the area. The sites located and identified during this survey are described in subsequent sections of this chapter.

1st season of fieldwork

The first season as mentioned before, was undertaken in April/May 2009 in Cahora Bassa District, on the southern margin of the Zambezi River. It took five weeks and involved 2 local people who were employed on a full time basis and when needed other local people were hired on a temporary basis. Also one post-doc in archaeology from University of the Witwatersrand, Dr Joel Le Baron and a Master student Prudence Mashimbye from the same University were part of the team that also included a field assistant (Omar Madime) from Eduardo Mondlane University. In total, in the first season 8 local guides helped with the survey. Note that some of the people have excellent knowledge of the physical environment and the local history.

From the five weeks in the field, two and a half were spent with the administrative authorities of Cahora Bassa. A few days before the arrival of the field team, a group of foreigners was arrested in the District by the police. They were accused of trying to destroy the Cahora Bassa Hydroelectric Dam with explosives. This served to delay our surveys.

Our presence was seen with suspicion by authorities (even with the permits and letters to undertake the field work in the area), mainly because of the events described and also by the fact that the team contained two foreigners (Canadian and a South-African citizen). Under these circumstances the local population feared to provide any information to the team, although one of the local guides that were employed is a traditional leader.

Despite these problems, before the surveys started the local population were interviewed and the elders of the District mentioned that they saw paintings in the 1950's in the area that was later submerged when the Dam was built.

As mentioned above, attention was primarily focused on the exploration of rock shelters and other sites that would have yielded traces of ancient occupation. Besides the lack of knowledge of the local people about archaeological sites, the survey was also slow due to the difficult physical characteristics of the area (steep hills and deep valleys). Another problem found during the survey was that the area is densely populated, covered with agricultural fields and the grazing of cattle and goats is also intense.

An excursion of the southern margin of the Zambezi was made mostly on foot because there are no roads - apart from the ones used for the maintenance of the Dam. Eleven archaeological sites were located but only one rock shelter with paintings - Nhantegwe (Figs 22 & 23).

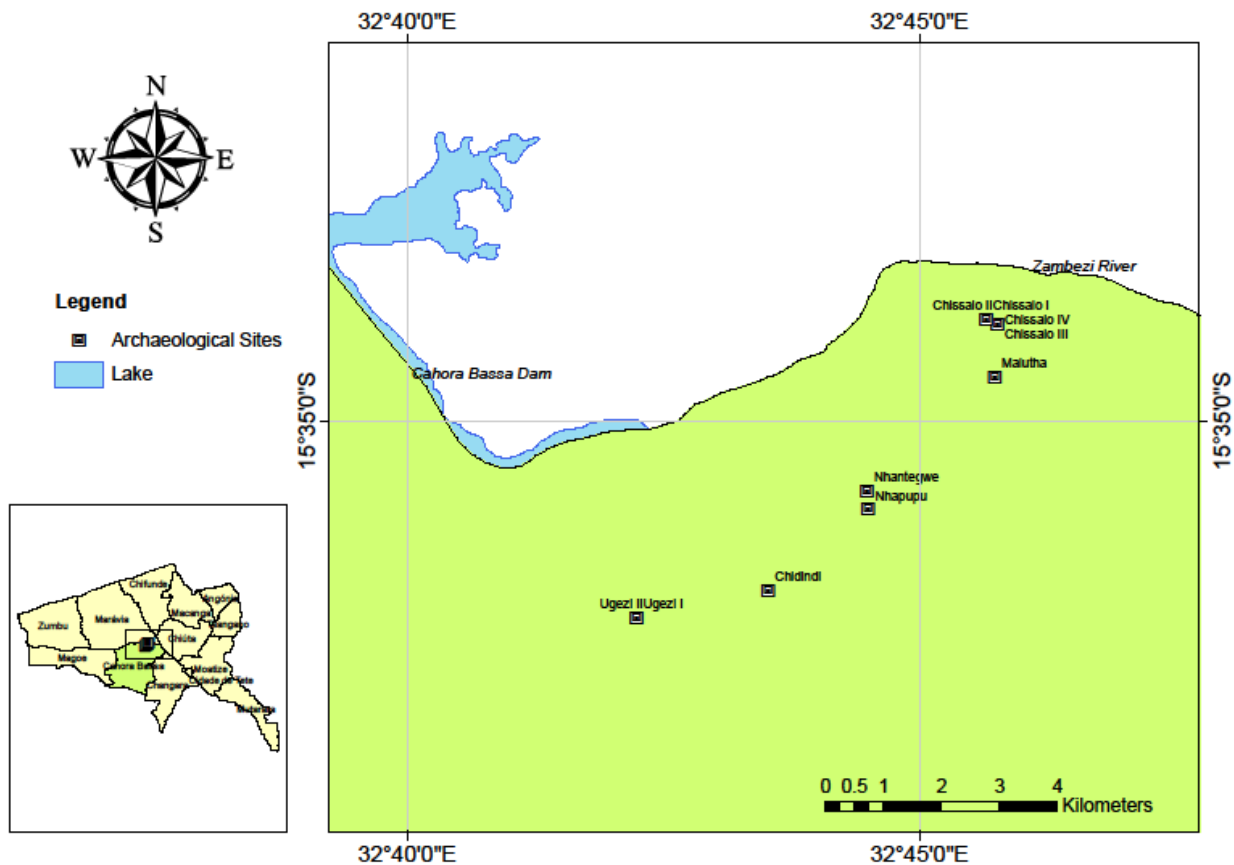


Figure 22: Sites in the Southern margin of the Zambezi river in the Cahora Bassa Dam (Map by Sandra Gonçalves 02-03-2012)

Surface collections were made at sites where artefacts occurred in considerable numbers, especially Iron Age artefacts. The rock shelter (Nhantegwe) with paintings also had a deep cultural deposit that had potential for excavation. This shelter was excavated and analysis of the findings is described in the following Chapter (VI).

In the northern margin, most of the time was spent surveying for archaeological sites and rock shelters (Fig. 25). The survey involved only walking because there are no roads for vehicles compared to the south margin, where infrastructures were built to accommodate the hydroelectric dam and their workers.

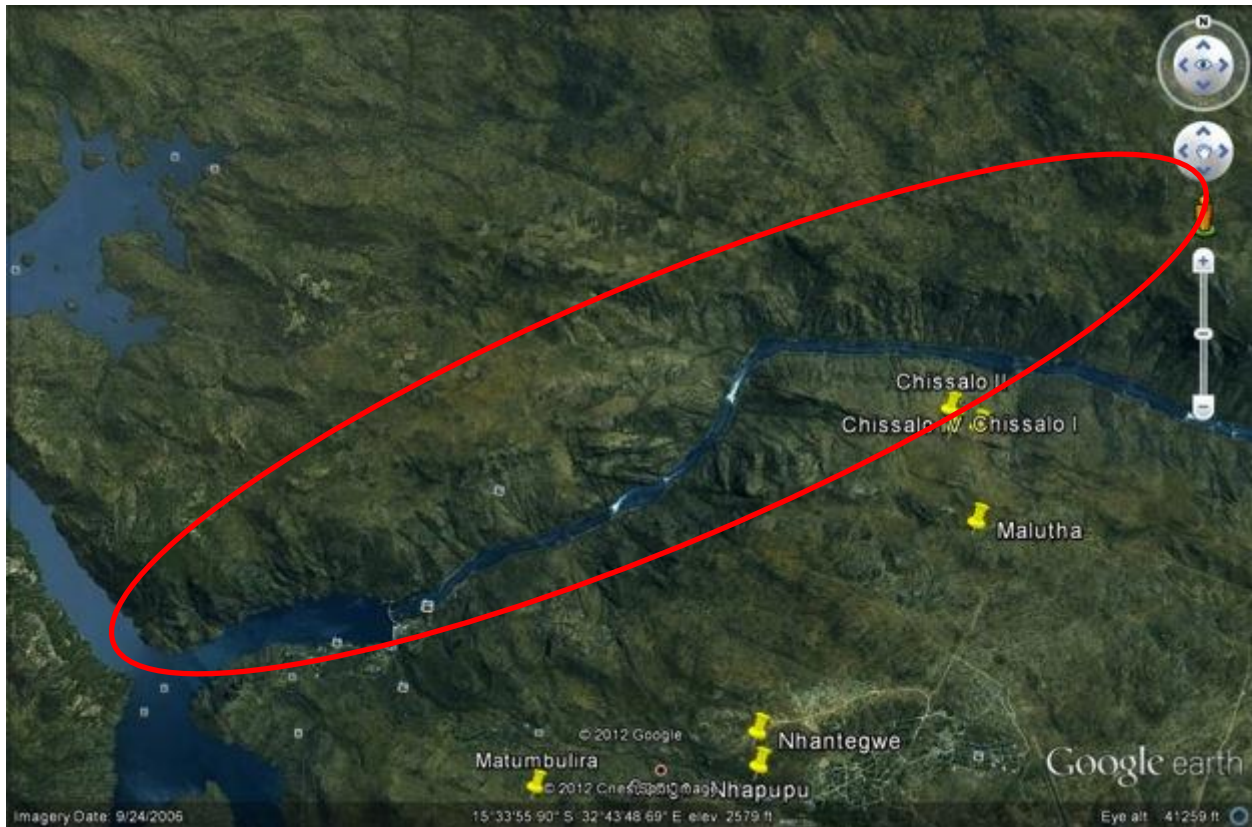


Figure 23: Northern margin of Zambezi river surveyed (Google Earth Map 26-03-2012)

Traditional canoes were used to cross the Zambezi River with all the excavation equipment and subsistence supplies. Apart from the intense heat during November there was also the unavailability of clean water for basic needs. After two weeks of surveying, most of the team were sick, although an effort was made to accomplish the objectives outlined.

The survey in the northern margin was not successful because archaeological sites were not found according to the expectations; the area planned for the surveys was entirely covered but no evidence of Later Stone Age or rock art sites. Compared to the southern margin, the north sections surveyed is mostly devastated and very little vegetation can be found due to the extensive farming. Farming is intensively done by local peasants and reaches the top of the hills and slopes.

Rock shelters were located but without any trace of paintings or cultural deposits, although small fragments of undecorated potteries were found in the area. These vessels are thought to be recent since the locals still make ceramics.

On the last day of the survey we got information from an elder that mentioned the existence of rock art more or less 50 km west of the research area. Due to financial, logistical and transport constraints, the team could not survey the areas mentioned by the local informants.

Survey results

Of the twelve new sites identified, only one rock shelter had cultural deposits suitable for excavation. Eight of the archaeological sites are associated with Iron Age/Farming Communities. They are generally found in open-air locations and near watercourses. Rock paintings were found in one rock shelter (Nhantegwe) with artefacts on the surface.

While the activities carried out during the fieldwork did not produce the expected results, the successful aspect of the exploration of the CBD was the location of first archaeological site – Nhantegwe, with paintings assigned to the Red Geometric Tradition south of the Zambezi River, the same site we carried out the first systematic LSA excavation in Tete Province.

The sites briefly mentioned above are fully described below in this section, although some of the Iron Age/Farming Communities sites are not part of the project they were recorded (Table 5) for future research (possibly the interactions between hunter-gatherer and farmers).

Sites	GPS coordinates	Altitude	Artefacts	Rock Paintings	Type of sites	Dating
Ugezi I	S 15° 36' E 32° 42'	349 m	Undecorated pottery; flaked quartz	None	LSA/IA Open air site	No samples collected for dating
Ugezi II	S 15° 36' E 32° 42'	357 m	Decorated pottery; dagga structure;	None	IA Open air site	No samples collected for dating
Nhantegwe	S 15° 35' E 32°44'	940 m	Decorated and undecorated pottery; Stone flakes	Red Geometric	LSA/IA Rock shelter	Samples collected for dating
Matumbulira	S 15° 36' E 32°43'	750 m	Stone flakes; quartz outcrop	None	LSA Open air site	No samples collected for dating
Nhapupu	S 15° 35' E 32°44'	932 m	Stone flakes; undecorated pottery	None	LSA/IA Open air site	No samples collected for dating
Chidindi	S 15° 36' E 32°43'	761 m	Spindle roll; decorated pottery	None	IA Open air site	No samples collected for dating
Malutha	S 15° 36' E 32°43'	822 m	Grinding stone; undecorated pottery; Stone flake	None	LSA/IA Rock shelter	No samples collected for dating
Chissalo I	S 15° 34' E 32°45'	682 m	Undecorated pottery	None	IA Open air site	No samples collected for dating
Chissalo II	S 15° 33' E 32°45'	641 m	Decorated pottery;	None	IA Open air site	No samples collected for dating
Chissalo III	S 15° 34' E 32°45'	691 m	Stonewalling and Undecorated pottery	None	IA Open air site	No samples collected for dating
Chissalo IV	S 15° 34' E 32°45'	690 m		None	IA Open air site	No samples collected for dating
Mouchiabaka	S 19° 10' E 32 ° 52'	750 m	Microlithic stone tools	San and khoikhoi paintings	LAS rock shelter	No samples collected for dating

Table 5: Archaeological sites in CBD

The sites and the artefacts found in the CBD have the following characteristics described below:

Ugezi I

Ugezi I is an open-air site located 10 kilometres west of Songo Town near the margins of the Zambezi River. Few potsherds with undecorated ceramics and flaked quartz were found on the surface floor. The floor is slightly disturbed by running water from the slopes of Ugezi Hill and the vegetation surrounding the site is constituted from few shrubs and grass.

Ugezi II

Is an open air site located roughly 800 m from Ugezi I on the slope of the hill with the same name, that is less than 100 m of the margins of the Zambezi River that is easily accessible from the that point. Decorated potsherds (Fig. 24) were found scattered on the surface and also a dagga structure of a possible old house was identified and is still visible at the site. Differently than the first site the floor does not have signs of disturbance by water or other types of factors. The site is surrounded by very sparse vegetation and also Baobab (*Adansonia*) trees dominant near the margins of the River (Fig. 25).



Fig. 24: Decorated pottery in the Zambezi river (Muianga 2009)



Figure 25: The Zambezi river (Muianga 2009)

Nhantegwe

Nhantegwe site is a rock shelter located in the north of Songo town, the chief town of Cahora Bassa Distric, and it is a prominent physical feature on top of a small hill that provides a good view to a valley and also to one of the suburbs of Songo, Catondo. This privileged mark in the landscape could have been used as a shade from the intense sun or a seasonal place to rest, according to the physical characteristics of the site. The site is about 2.6 km from the Zambezi River and the main panel with paintings is facing North - East (Fig. 26).



Figure 26: The Nhantegwe rock shelter (Muianga 2009)

The rock art at the site can be attributed to the BaTwa hunter-gatherer that are known for depicting Red Geometric monochrome paintings. The images are very faded but it is possible to recognize that they are part of the Red Geometric Tradition commonly found north of Tete Province and other parts of south-central Africa (Smith 1995).

It is likely that in the past more detailed images were visible but at the moment only a few of them are distinguishable. One small concentric circle and two grid-like designs with parallel lines are the only identifiable images. There are remnants of paintings on the different panels. All the images are painted in faded Red monochrome (Figs 27 & 28).



Figure 27: Concentric circle (Muianga 2009)

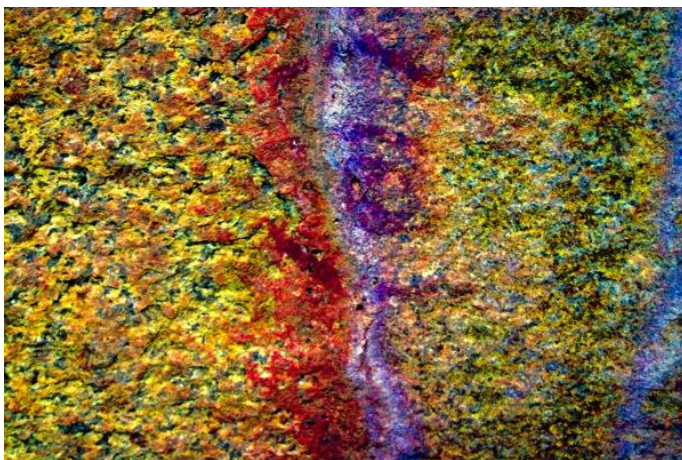


Figure 28: Concentric circle (Dstrech image)

There is oxidation on the images depicted on the main panel, which made the coloration of the paintings strongly faded, though that this oxidation of the images also may be the result of the

intensive exposure of the panel to the sun, during the midday and afternoon when the sun light is brighter. On the other hand, other natural factors such as the respective age of the paintings might also be the cause for the degradation of the images (Figs 29 & 30).



Figure 29: Painting of circles and arbitrary lines (Muianga 2009)

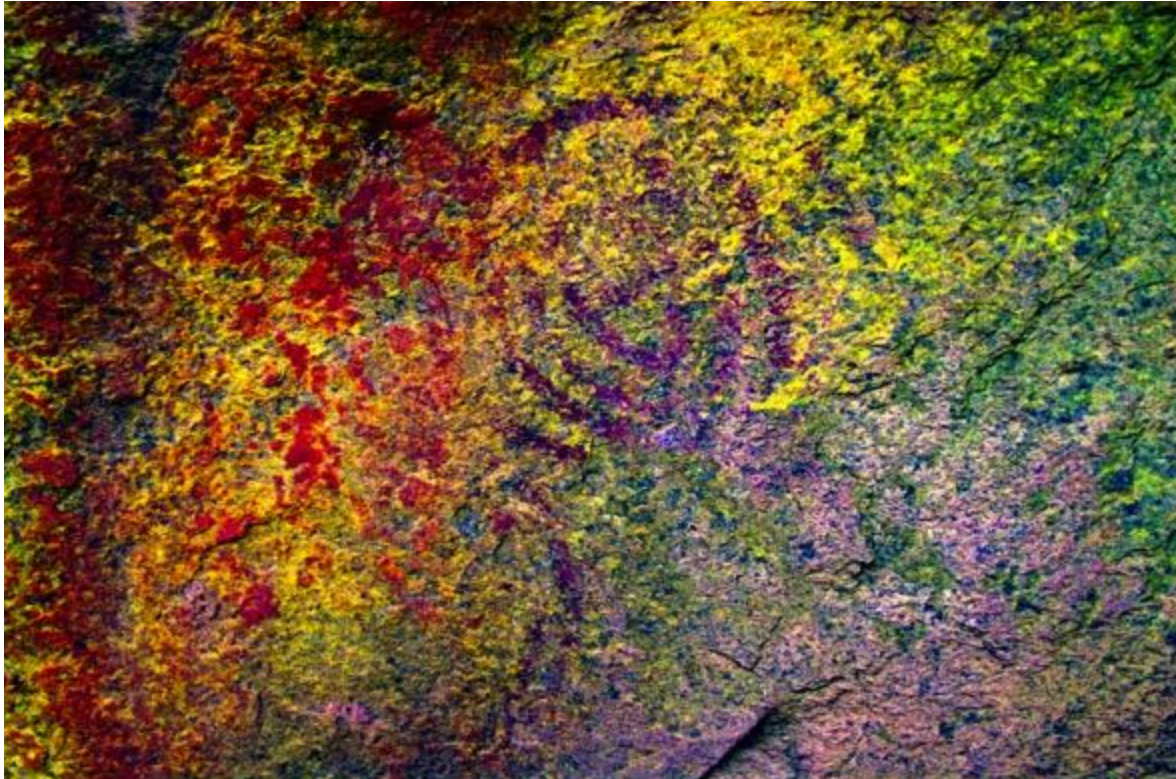


Figure 30: Painting of circles and arbitrary lines (Dstrech umage)

The paintings in the site are also affected by other natural factors such as water seepage (contains minerals which react with the rock surface producing a white layer of salt) during the rainy season; it causes iron oxidation of the paintings. Geological activity is also visible on the rock surface and it is causing the flaking of the rock especially in the sections of the panel where the paintings are depicted. The paintings are very close to the floor (more or less 1 meter) and cattle that rub against the panel frequently visit the site.

The other section of the boulder facing southeast does not have any paintings but some artefacts were found on the surface (Figs 31 and 32) and were collected before the excavation as part of the surface collection. Artefacts such as flakes and cores of milky quartz are abundant in the surroundings of the site. Decorated and undecorated pottery was also found in the surface floor of the site.



Figure 31: Ceramic sherds found in surface findings in Nhantegwe (Muianga)



Figure 32: Flaked quartz found in surface findings in Nhantegwe (Muianga)

The floor is very sandy, apart from some large stone (2 meters in front of the back wall of the shelter) and in front of this section of the panel there is also grassy vegetation and rocks. The local guides identified the vegetation and according to the descriptions some of the plants have medicinal purposes and two types of wild fruits (Ntchinga and catchitwa) were identified at the site. Due to the lack of knowledge of scientific names for vegetation, all the plants (*pimbi*, *caundze*, *ntumbi*, *cagolo*, *caucome*, *ntoa*, *canatoe*, etc) were recognized using indigenous knowledge. The section of the site described above was excavated with further details provided in following sections of the chapter.

Matumbulira

Matumbibulira is an open-air site with LSA artefacts and numerous quartz (mostly milky) stone. This outcrop of quartz is commonly found in the CBD and is concentrated on the base of a small hill (Fig. 33).



Figure 4: Quartz outcrop (Muianga)

It was possible to identify flakes, chunks and cores made of quartz, no formal tools were found at this site. The majority of the artefacts found on the slope of the hill are probably the result of the washing by the waters of the rain. Thus they are out of context and running waters and erosion heavily disturbs the area.

Nhapupu

An open air site located on the base of the mountain Nhapupu and is roughly 350 m south-west of Nhantegwe boulder. The floor is heavily disturbed by cattle that graze frequently around the site, but found on the surface were a few flakes and chunks of quartz and also undecorated pottery. It can be a site for a future excavation but the floor is heavily disturbed and the soil is very hard to dig.

Chidindi

Chidindi is an open air site (Fig. 34) on a small valley with Iron Age artefacts. The valley stretches downward between two small hills running northwards to another valley. The vegetation is of small trees and shrubs; however the majority of the trees have been logged for firewood and charcoal. Big trees such as the Baobab (*Adansonia*) are the only ones that are still present in the environment. Despite the fact that cutting of indigenous trees is forbidden it is to a large extent carried out openly in the CBD mainly to clear agricultural fields and for firewood. The site is located on a maize field and potsherds with decoration and undecorated were found spread all over the surface of the site.

The most significant finding was a spindle whorl (Fig. 34), which is rarely found on this kind of site. A few decorated potsherds and the spindle whorl were collected for future research.



Figure 5: Chidindi open air site and spindle whorl and decorated pieces (Le Baron & Muianga)

Malutha

Is a small rock shelter on the base of Malutha hill and the site is situated 3 km north-east of Nhantegwe rock shelter and consists of a small overhang that provide good shelter. The shelter faces west and is surrounded by vegetation and maize fields. In terms of width it measures less than 5 meters and it has at least 2.5 m of drip line (Fig. 35).

The surface collection done at the shelter revealed few artefacts such as a grinding stone, undecorated pottery and a chunk of quartz pebble (Fig. 35).



Figure 6: Rock shelter and Grinding Stone (Le Baron)

Local peasants use the site as a resting place during the day because it provides good shade and is close to a maize field. There are signs of recent fires and the floor of the shelter consists of loose sandy soil, but underneath it is very rocky.

Chissalo I

Chissalo I is an open-air site Iron Age site on the base of the hill with the same name. It is located 5 km north of Songo town in one of the cliffs near the Zambezi River and according to local informants it used to be a settlement area of their ancestors (Fig. 36).



Figure 7: Chissalo I (Le Baron)

The site is covered with undecorated potsherds on the surface and it seems to have been used in the last couple of hundred years.

Chissalo II

Chissalo II is located 70 m north-east from Chissalo I and both sites have the same characteristics but in between them there is a gap where artefacts were not found. The site is also covered with undecorated potsherds (Fig. 37) that might be part of the LIA sequence of farmers groups that lived in the area in the last centuries.



Figure 8: Chissalo II (Le Baron)

Chissalo III

The site is located more or less 40 m south–east of Chissalo II and also is an open-air site with potsherds spread on the surface. Apart from the potsherds, stone walling and remnants of dagga structure were found at the site (Fig. 38). The walling has the configuration of straight squares and according to one of the traditional leaders it was used to retain water after the rains.



Figure 9: Stone walling in Chissalo III (Le Baron)

Chissalo IV

Chissalo IV is situated 60 m south – east of Chissalo II and III on the same cliff. This site contained the largest variety of artefacts on the surface, including decorated potsherds, Iron slag, a glass bead and quartz flakes (Fig. 39).



Figure 10: Iron slags and decorated pottery from Chissalo IV (Muianga)

Features such as two grain bins, dagga floors and remnants of stonewalling were located near the artefacts mentioned above (Fig. 40).

The existence of these structures and artefacts suggest that they are possible related to the LIA sequence but further studies need to be done to understand the size and activities practiced in the past.



Figure 11: Grain bins bases (Muianga)

Mouchiabaka

The shelter is located in Manica District (Manica Province), nearly 15 km south of Manica City and 400 km south from Cahora Bassa Dam. The site was selected for comparison with Nhantegwe (located in the CBD) because it is one of the few LSA excavations done in Central Mozambique but the material has not been analysed (Fig. 41).

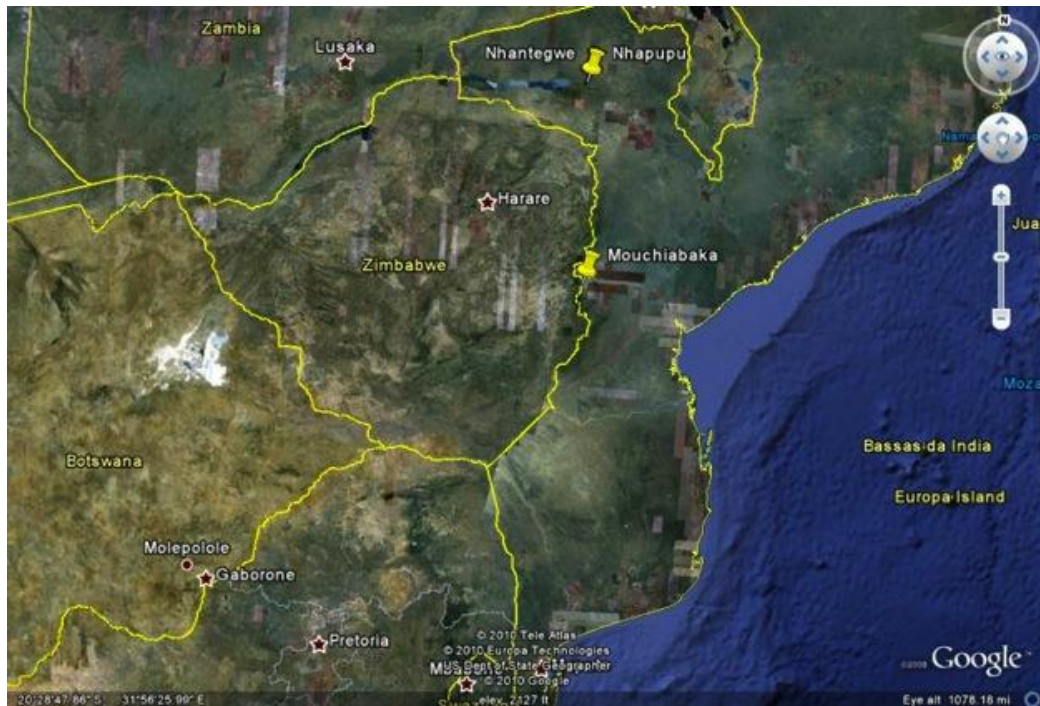


Figure 12: Map with the location of Mouchiabaka and Nhantegwe in Central Mozambique (Google Earth 2010)

Mouchiabaka is situated on the Guidingue kopje and from the site is possible to see the Guidingue valley and also the eastern part of the Chikamba Dam (the first hydroelectric dam built in Mozambique in the 1950's). The border with Zimbabwe is less than one kilometre south – east and it is a large shelter that measures 27 m long along the back wall and 6.5 m deep. The floor is even and composed of sandy soil (Fig. 42) and extends for about 20 meters beyond the shelter (Saetersdal 2004).



Figure 13: Mouchiabaka rock shelter (Saetersdal 2005)

The site is surrounded big trees with indigenous vegetation as the dominant type. In the central part of the shelter there are sections of the panel with representations of San and also Bantu Tradition. The majority of the images depicted are in red monochrome ochre and some of them were executed in fine – line but the great majority was made by finger (Saetersdal 2004: 148). In total there are 17 groups of images but some are very faded compared to others. Other types of representations such as human Figures, faded lines and anthropomorphic Figures and animals are also present in the main panel. The most intriguing image is of an animal (Figs 43 & 44) that was interpreted as being a cheap (Saetersdal 2004).



Figure 14: Cheap (Saetersdal 2005)



Figure 15: Cheap (D-Strech image)

For the local people of the Guidingue village the site is an important ceremonial site and rainmaking activities are performed at the present (Saetersdal 2004: 149).

A rich surface collection was made at the site and it is comprised of quartz stone tools such as bifacial cores, flakes, chips and potsherds related to the Gokomere Ziwa stamped ware tradition. The site was excavated between 2005 and 2006 in two different seasons over short periods of time. In 2006 the excavation was interrupted and the surface covered with sand bags and soil for future research. The analysis of the LSA material of one section of the excavation will be discussed the next chapter (VI) in comparison with Nhantegwe rock shelter.

Excavation at rock shelters sites

Nhantegwe

The excavation of Nhantegwe was done in May 2009 and lasted for five days on the south – east side of the boulder and it was dug in 50x50 rather than 25x25 quadrants. The site was chosen for excavation because the floor is sandy and not obstructed by rocks (compared to other sites in the area Nhantegwe was not affected by human disturbance – agricultural fields) and the aim was to collect a sample of comparative lithic material and to judge the extent of the LSA deposits in the

site, a test pit of 1x1 m (subdivided quadrants of 50 cm) were dug and taken down in thin spits (3 cm thick). The 1x1 meter had four quadrants (A, B, C and D) and it went down to 30 cm of depth (below surface), but bedrock was not reached (Fig. 45).



Figure 16: 1x1 excavated in Nhantegwe and the respective quadrants (Le Baron)

The soil is mostly grey – brown mixed with some ash and no stratigraphy could be differentiated in the excavation. All soils were sifted using a 1 mm sieve and stones, bones, shell, ceramics, charcoal and micro fauna were discovered. Bone was identified in small quantities.

The majority of the material collected consists of stone tools and the dominant raw material is milky quartz (78 %) and also substantial amount of crystal quartz (7 %). Some flakes and chunks of unidentified raw material and spall from the cave wall were collected in the different squares,, notwithstanding the fact that they were not retouched.

Charcoal and dating

Sample of charcoal (204.1 g) were collected in arbitrary layers of the four quadrants with strong concentration of charcoal. The sample was pre-treated by me and Kamela Sekonya (Physics PhD student at Wits and iThemba AMS Laboratory technician) at the Geology Department in the Geo Luminescence Laboratory. Subsequently the samples were taken to iThemba Labs for packing and were couriered to the USA. Ten samples were AMS radiocarbon dated at the Lawrence Livermore National Laboratory in California, USA (Table 6).

Dating Sample	Quadrant.	Square	Levels	¹⁴ C age uncalib.
Bag	ID			
Ia	D	1	2 (3-6cm)	265
IIa	C	1	3 (6-9cm)	575
IIIa	C	1	1 (0-3cm)	155
IVa	C	1	6 (15-18cm)	1970
Va	B	1	8 (21-24cm)	300
VIa	B	1	3 (6-9cm)	620
VIIa	A	1	8 (21-24cm)	2095
VIIIa	A	1	3 (6-9cm)	650
IXa	A	1	2 (3-6cm)	195
Xa	A	1	1 (0-3cm)	>Modern

Table 6: Results from dating in Lawrence Livermore Laboratories

Seven samples were collected on the first three levels and probably associated with the ceramic period, while the other three come from level seven which may be from pre-ceramic times. The recent dates (AD 1827 to 1889) were all found on the top levels and the oldest (99 BC to AD 12) from the lower levels as expected (Table 7).

The dates were calibrated for southern hemisphere (see complete table of results in the Appendix) using the software program Calib 601 developed by Quaternary Isotope Laboratory, University of Washington (USA) in 1986 and revised in 1987, 1993, 1998 and the most recent version in 2009. The recent version of the software includes the new calibration curve (Stuiver & Reimer 1986, 1993; McCormac *et al* 2004). MThe SHCal 04 southern hemisphere calibration data (diagram 1) were obtained from Intcal 09 McCormac (*et al* 2004 in conjunction with Stuiver & Reimer (1993). All the dates were calibrated at one sigma (one standard deviation).

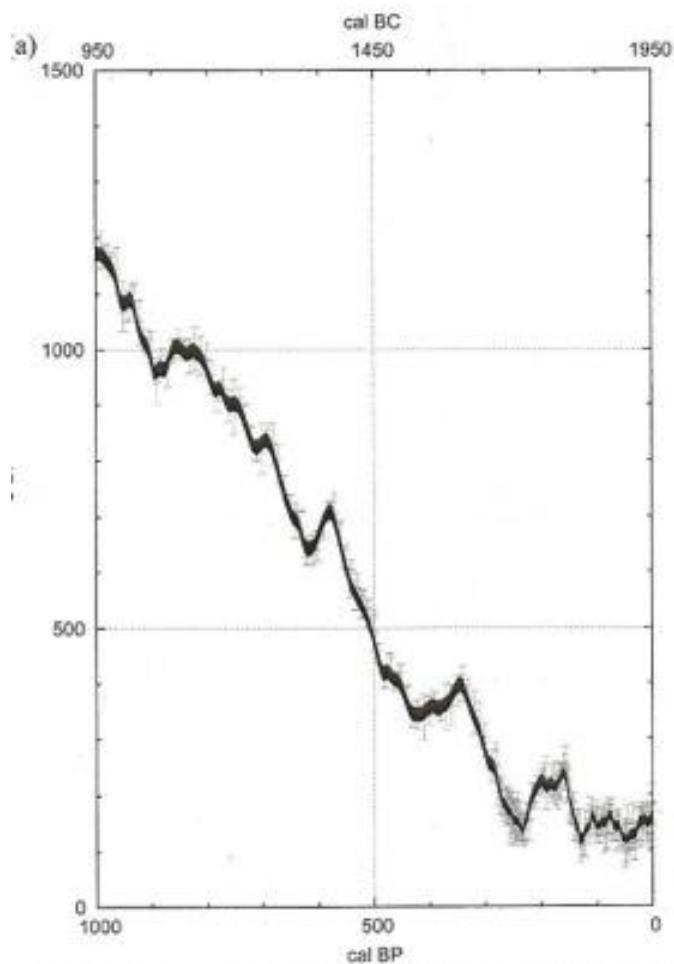


Figure 17: Calibration Curve for Southern Hemisphere

CAMS #	Sample Name	Levels	Quadrant. ID	$\delta^{13}\text{C}$	^{14}C age uncal.	SD	Calib. Dates
146972	Ia	2 (3-6cm)	D	-25	265	1 sd	AD 1638 – AD 1788
146973	IIa	3 (6-9cm)	C	-25	575	1 sd	AD 1400 – AD 1425
146974	IIIa	1 (0-3cm)	C	-25	155	1 sd	AD 1827 – AD 1889
146975	IVa	6 (15-18cm)	C	-25	1970	1 sd	AD 54 – AD 128
146976	Va	8 (21-24cm)	B	-25	300	1 sd	AD 1622 – AD 1661
146977	VIa	3 (6-9cm)	B	-25	620	1 sd	AD 1384 – AD 1412
146978	VIIa	8 (21-24cm)	A	-25	2095	1 sd	BC 99 – AD 12
146979	VIIIa	3 (6-9cm)	A	-25	650	1 sd	AD 1315 – AD 1355
146980	IXa	2 (3-6cm)	A	-25	195	1 sd	AD 1722 – AD 1813
146981	Xa	1 (0-3cm)	A	-25	>Modern		

Table 7: Radiocarbon dates from Nhantegwe

Ceramics

Eight potsherds (table 8) were found in the excavation. The sherds found on the surface were bigger compared to the ones found in the excavation. The sherds were located on the first three levels excepting one decorated piece found in level 6 (quadrant B) and the other piece in level 4 (quadrant C). The two decorated fragments are broken pieces of a rim of a vessel (Fig. 47).

Squares & Levels	Sherds (number)
Square B	
Level 2	2
Level 3	1
Level 6	1 (decorated)
Square C	
Level 2	1
Level 4	1 (decorated)
Square D	
Level 1	2

Table 8: Ceramic distribution and number in Nhantegwe

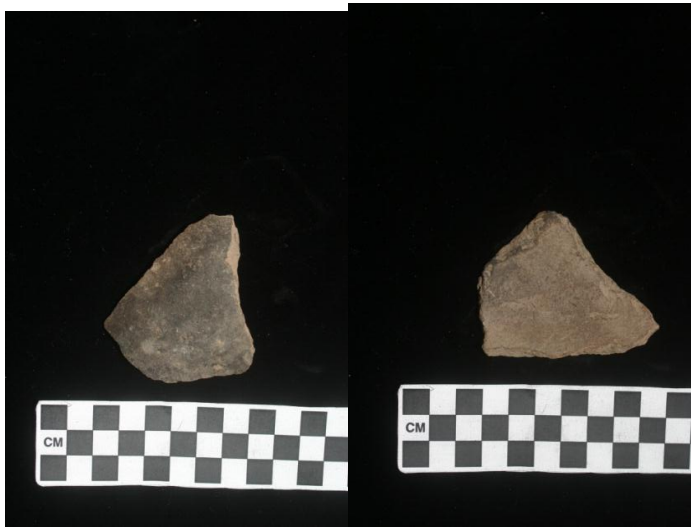


Figure 18: Two fragments of decorated potsherds from Nhantegwe (Muianga)

Faunal remains

The faunal remains (Table 9 and Fig. 48) recovered from the excavation, include bone, micro fauna and shell. In total 86 fragments were found but only four were identified as bone. Three fragments of bone (unidentified), one micro fauna (unidentified) and 82 fragments of *achatina*

shell. The shells, even on a fragmentary state, are the large majority (95 %) of the faunal sample and easy to recognize.

Square/Levels	Bone	Shell
Square A		
Level 8		9
Level 9		8
Level 10	1	
Square B		
Surface collec.	1	
Level 7		1
Level 9		5
Level 10		5
Square C		
Level 7		5
Level 9	1	6
Level 10		23
Square D		
Level 8	1	4
Level 9		12
Level 10		4

Table 9: Distribution of faunal remains in the squares excavated

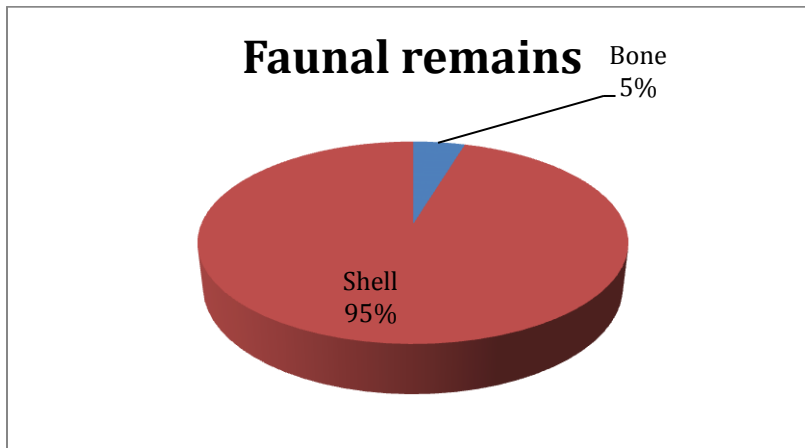


Figure 19: Faunal remain percentages - Nhantegwe

The shells generally occur in the lower levels (7, 8, 9 and 10) while the few bones are dispersed throughout the different levels. The shells seem to be introduced in the shelter by humans on the site and they occur naturally by the margins of the Zambezi River and not in the rock shelters.

Lithics

The material recovered is typical of LSA stone assemblages and a total of 1168 (628.3 g) of flaked stones were examined, the majority of them is quartz. Quartz pebble as mentioned earlier seem to be the frequent lithic raw material into the surveyed sections of the CBD and in the site 85 % dominates the assemblage that is followed by spall from the cave wall with 9 % and raw materials with less than 4 %. The main raw material, quartz was divided in milky (78 %) and crystal (7 %) for a detailed classification (figure 49).

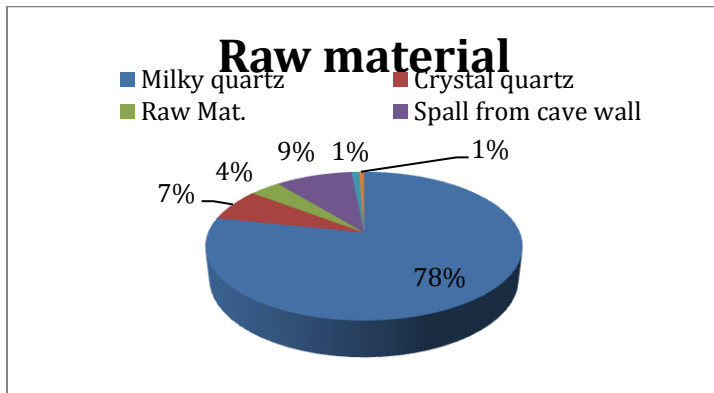


Figure 20: Raw materials from Nhantegwe

The analysis of the lithics is fully described in the next chapter (VI) along with the comparisons between the sites investigated with others from the neighbouring countries.

Mouchiabaka

This shelter has a large area surface floor without rocks and sandy floor easy to excavate and it is also possible to do interventions eve on the rainy season. Until the interruption of the excavation it was used to train students of the University Eduardo Mondlane.

The excavation of the shelter started in January 2005 continued through 2006 until it was interrupted later on the same year. The excavation unfortunately was interrupted because the Norwegian Funds – NORAD terminated in 2006 and fieldwork in Mouchiabaka rock shelter was never concluded. The Department of Archaeology and Anthropology of University Eduardo Mondlane did not managed to secure funds to carry on with the activities and for this reason the site has been closed.

Six square meters (50x50y; 50x51y; 50x52y; 51x50y; 51x51y; 51x52y; 52x50y - unfortunately maps of the excavation are not available to include on this section) were opened in the west – east direction and were dug in levels of 10 centimetres of thickness. Each square (1x1 m) was divided in four quadrants (South – West, South – East, North – West and North – East) of 50x50cm centimetres each, but some of the bags of finds are missing in the storage of Department of Archaeology and Anthropology at the University Eduardo Mondlane in Maputo. Bedrock was not reached (excavation not concluded due to lack of funds and termination of the project that sponsored the initial activities at the site), beneath the 40 centimetres of grey – brown soil that characterized the shelter. Excavation ceased at 50 centimetres below surface. All deposits from the excavation were sieved in 1 millimetres screen and the artefacts found include stones, shell, bones, ceramic, beads, charcoal and micro fauna. For this project only one square, 50x50y, was analysed.

Charcoal and dating

From the excavation samples of charcoal were collected for dating. Only two samples have been sent for dating because other samples from nearby sites (Chinhamapere located 15 km north of Mouchiabaka had a good selection of C14 dated) were used to correlate the dates of the LSA artefacts. The samples from Mouchiabaka were sent to Beta Analytic Inc, Florida, USA and the dates are from the last 3000 years until the last hundred of years, thus from the hunter-gatherer and later farmer occupation in the Zimbabwe Escarpment (Saetersdal 2004, 2006).

Ceramics

From square 50x50y only 12 fragments of ceramics were found in arbitrary levels and the vessels do not have any decoration and are in general burnished.

Beads

A total of six *achatina* beads were recovered (Table10) and appear mostly between the levels 3, 4 and 5 in different quadrants.

The beads are generally small (Fig. 50) and circular, average diameter of all measurable beads is 6.65 ± 0.90 millimetres. With only one square meter analysed (50x50y) it is difficult to prove if the beads are part of the earlier or later period of occupation of the shelter.

Levels	Number of beads	Average diameter per level	
50x50y NW 3	2	1.89	- 3.06
50x50y SE 4	2	3.47	- 3.07
50x50y SW 5	2	1.57	- 2.78
Total	6		

Table 10: Achatina beads

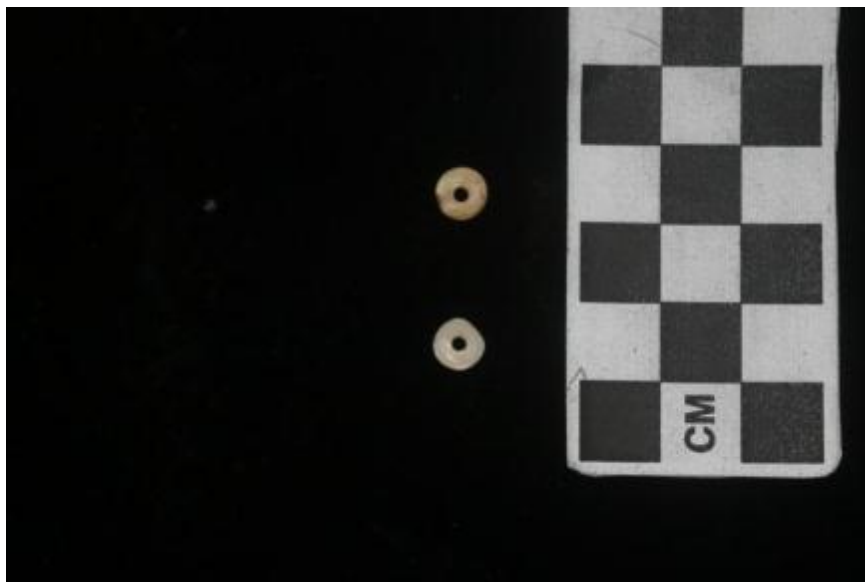


Figure 21: Achatina beads from Mouchibaka

Faunal remains

From 3527 fragments of faunal remains collected in square 50x50y in the five levels excavated, only 1471 were identified. The identified faunal remains (Fig. 51) include the *achatina* shell (42 %) and the unidentified 2051 bones (58 %). There is a need in the future to identify properly the species of animals and catalogue the faunal assemblage. None of the collections of faunal remains from the excavations in Manica have been analysed by specialists due to the lack of funds and the absence of a reference collection in Mozambique (Saetersdal 2004).

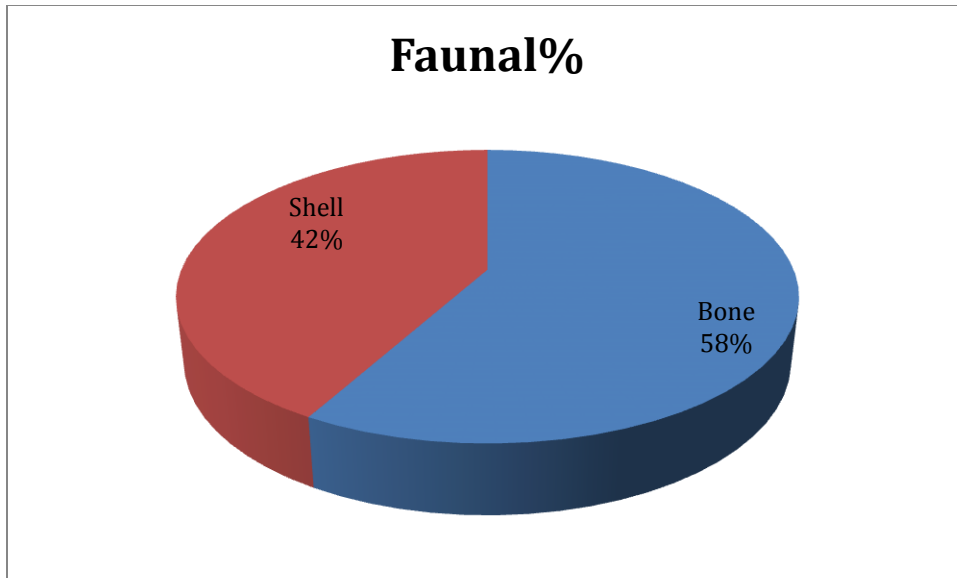


Figure 22: Faunal percentages from Mouchiabaka

Although the majority of the faunal remains have not been examined, bones and shell have similar distribution in square 50x50y. From level 2 to level 3 there is a gradual decrease of both faunal remains and again in level 3 (50x50y north – west level 3 and 50x50y north - east level 3) the proportion rises in some quadrants. In the southern sub-section of level 3 (50x50y south – east level 3 and 50x50y south – east level 3) the frequency of bones and shell is very low and it tends to decrease in the south sub-section of level 4 (50x50y south – east and 50x50y south – west 4). In the north section of level 4 (50x50y north – east level 4 and 50x50y north – west level 4) the frequency of bones and shell raises again in contrast with level 3. In level 5 (50x50y south – west level 5) only one subsection have both remains and the frequency is high similarly to level 4 (Fig. 52).

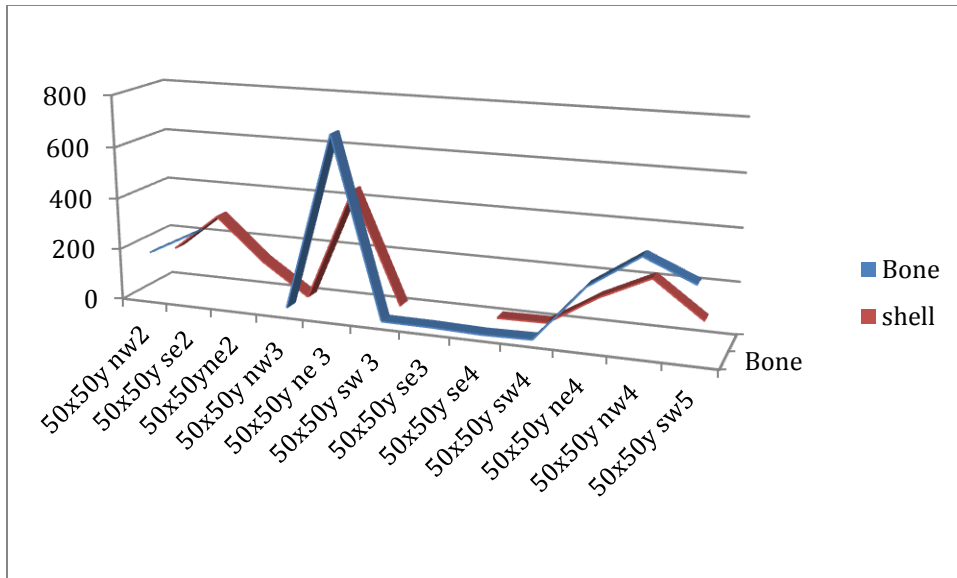


Figure 23: Distribution of faunal remains throughout the different levels of square 50x50y

Apart from being very fragmented the bones are generally well preserved, perhaps due to the fact that they are inside the drip line the soils are very dry.

Lithics

The stone assemblage analysed from Mouchiabaka is typical of the LSA from other parts of Central Mozambique and eastern Zimbabwe. A total of 4322 flaked stones examined and the collection is dominated by quartz, which constitutes 92 % (3973) of the stones (table 11 and Figure 53). Quartz was divided in milky (69 %) and crystal (23 %). Quartz seems to be dominant raw material for the production of micro lithic tools but other type of raw material (8 %) also occurs in the shelter.

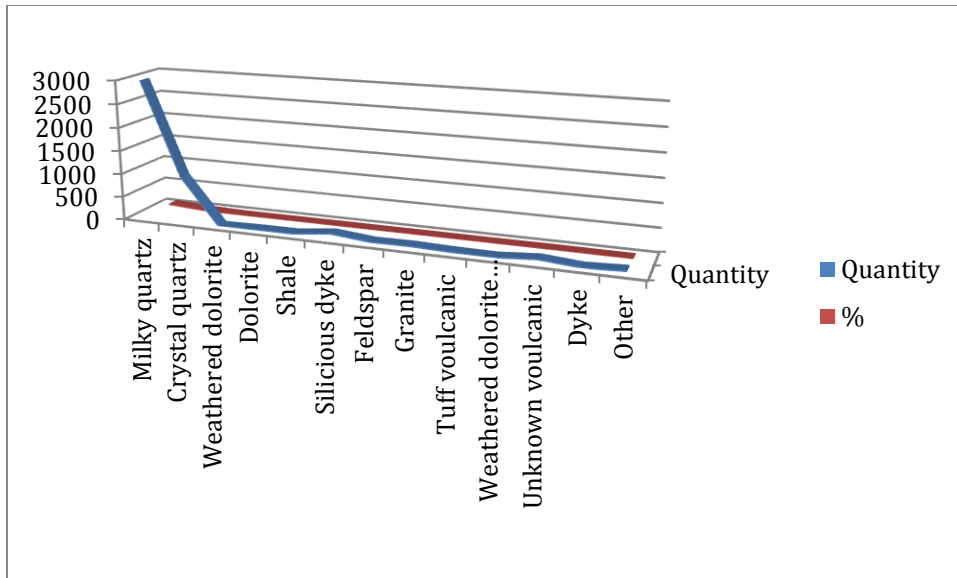


Figure 24: Lithics raw material histogram from Mouchiabaka

Lithic Raw Materials	Quantity	%
Milky quartz	2991	69
Crystal quartz	982	23
Weathered dolorite	1	0
Dolorite	16	0
Shale	18	0
Silicious dyke	108	2
Feldspar	31	1
Granite	37	1
Tuff volcanic	15	0
Weathered dolorite dyke	7	0
Unknown volcanic	69	2
Dyke	5	0
Other	42	1
Total	4322	100%

Table 11: Lithic raw materials from Mouchiabaka

The other raw materials are: weathered dolorite, dolorite, volcanic, weathered dolorite dyke, unknown volcanic, dyke and other (Anika Solanki personal communication 2010). None of these seem to have been retouched. The full analysis of the lithics from 50x 50y will be part of the following Chapter (VI).

In general the surveys in the CBD demonstrated that the area has a diversity of archaeological sites. During the two seasons of fieldwork new sites were identified which are associated with LSA artefacts, rock art and Iron Age/ Farming Community. The primary aim of the surveys was to identify LSA and rock art sites within the research area; only one rock art site with micro lithics was located. After all the obstacles encountered during the survey of both banks of the Zambezi it is clear that with more resources and better logistics it would be possible to find new sites in the CBD. The results were disappointing but at least evidence of hunter-gatherer occupation and possibly aspects of their symbolism were found depicted in the rock art.

Based on the presence of formal tools in Nhantegwe and Mouchiabaka it is clear that LSA hunter-gatherer ranged from the Zambezi River to the southern parts of Central Mozambique. The idea of identifying a frontier between the Nachikufan and Wilton will be developed in the next chapter.

Chapter VI

Analysis of the excavations and inter-site general comparisons of stone artefacts

The previous chapter looked at the material culture identified and collected in the fieldwork seasons in the CBD. This chapter is principally concerned with the analysis of the microlithic artefacts recovered from the archaeological excavations in Nhantegwe (Songo District, Tete Province) and Mouchiabaka (Manica Province) in comparison with other assemblages in the region around the CBD. It will examine to which extent the material culture found, fits with the Wilton or the Nachikufan Later Stone Age industries and in the relationship between the two of them in the CBD. It should become apparent in this analysis that the contact and the movement of both groups of hunter-gatherer in the study happened for the last thousand of years and this is replicated from the lithic archaeological deposits and also by the quartz raw materials that are dominant in both sides of the CBD, to be discussed in this chapter.

Nhantegwe

From Nhantegwe rock shelter, were analysed 1077 microlithic artefacts, based on Deacon's (1984) standard typology with alterations used to analyse the Later Stone Age artefacts. A total of 300 flaked stones were analysed mostly occurring in three different layers. For the analysis of the lithics of Mouchiabaka the assemblage was divided into 3 levels (Table 12) composed of the following quadrants:

Upper level (1, 2, 3 & 4);

Middle level (5, 6 & 7);

Lower level (8, 9 & 10);

Context Bag	Surf.Col	Lev.1	Lev.2	Lev.3	Lev.4	Lev.5	Lev.6	Lev.7	Lev.8	Lev.9	Lev.10
	.										
Chips	70.8	17.6	19.7	24.2	49.0	53.3	51.4	46.6	47.6	38.7	38.4
Flakes	13.5	16.2	24.8	37.4	22.1	18.3	21.9	25.6	24.3	32.1	34.8
Chunk	14.6	16.2	24.1	23.1	26.0	18.3	21.0	26.3	27.2	26.4	20.5
Spall	0.0	45.9	29.9	14.3	1.9	9.2	4.8	1.5	0.0	1.9	3.6
Segment	0.0	1.4	0.0	0.0	0.0	0.8	0.0		1.0	0.9	0.9
Scraper	0.0	0.0	0.0	0.0	0.0		0.0				0.0
Ceramics	0.0	2.7	1.5	1.1	1.0		1.0				0.0
Core	1.1										0.0
Bipolar core											0.9
Flake fragment											0.9
Hammer stone											

Table 12: Concentration levels of artefacts of Nhantegwe

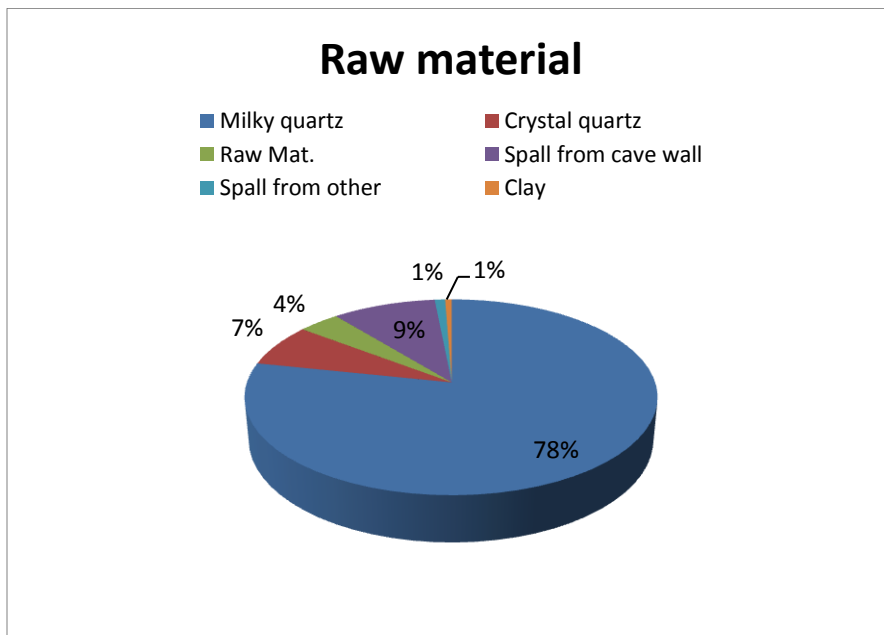


Figure 25: Raw materials from Nhantegwe excavation

The majority of the tool sample (78%) is composed of milky quartz and the crystal quartz is 7%, followed by other raw materials that are not flaked. Quartz was definitely the most available raw material used in the landscape by hunter-gatherer for this reason was the preferable raw material. From the excavation also was found in the 3 layers, especially on the upper and middle layer, that spall from the cave wall composed 9% of the raw materials (Fig. 54). The collapse of the

cave wall may be an indication of climate change or geological activity in the site (Anika Solanki, Geology Department at Wits University personal communication 2010).

Most of the quartz flaked stones were shattered through bipolar technological reduction and all the artefacts has been classified using Deacon’s (1984) terminology. The quartz artefacts were divided into categories that included chips, flakes, chunks, segment, core/hammerstone, bipolar core and flake fragments (Fig. 55).

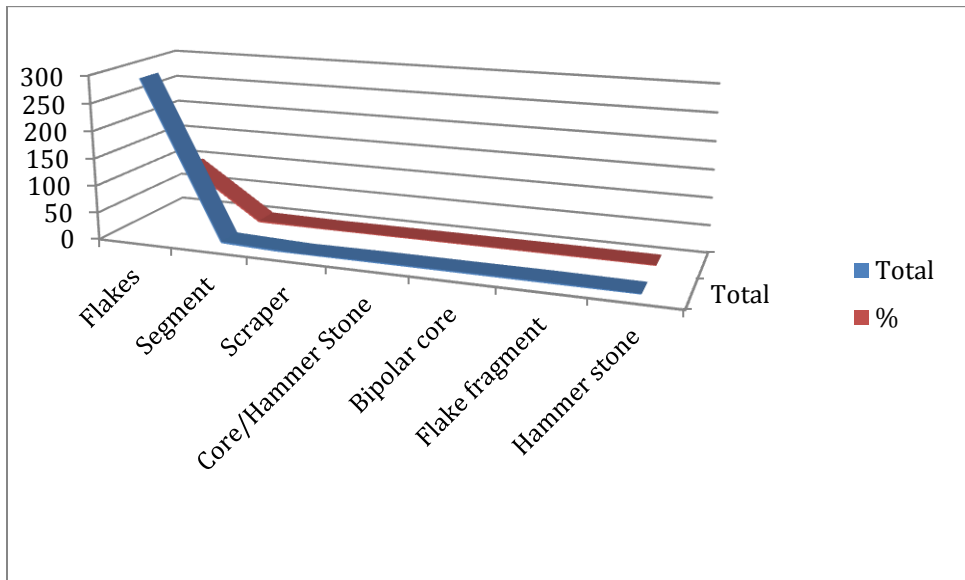


Figure 26: Quartz artefacts percentage

Looking at the distribution of the materials through the three layers proposed above few formal tools were found, distributed in the three layers but more common on the lower (Table 13) level (3 segments). The lower level also included flake fragments, chips, flakes and chunks. The upper level only has one segment and is dominated by chips, flakes and chunks. The middle level also has one formal tool (1 segment – Fig. 56) and is dominated by the categories mentioned (Table 13 and 14, appendix). The reduced number of artefacts (both formal and informal) is a shortcoming on the dissertation and do not allow a more conclusive statistical analysis and comparison with other sites.



Figure 27: Segment from Nhantegwe, leell 10 (27-30 cm), quadrant A (Muianga)

Context Bag	S. Coll.	Lev 1	Lev 2	Lev 3	Lev 4	Lev 5	Lev 6	Lev 7	Lev 8	Lev 9	Lev 10	Total
Chips	63	13	27	22	51	64	54	62	49	41	43	489
Flakes	12	12	34	34	23	22	23	34	25	34	39	292
Chunk	13	12	33	21	27	22	22	35	28	28	23	264
Spall		34	41	13	2	11	5	2		2	4	114
Segment		1				1			1	1	1	5
Scraper												0
Ceramics		2	2	1	1		1					7
Core/Hammer Stone	1											1
Bipolar core											1	1
Flake fragment											1	1
Hammer stone												0
Total	89	74	137	91	104	120	105	133	103	106	112	1174

Table 13: Lithics distribution in the different levels

Context bag	Quad A	%	Quad B	%	Quad C	%	Quad D	%	Total	%
Flakes	57	93.4	78	100	82	96.5	75	98.7	292	97.3
Segment	4	6.6		0		0	1	1.3	5	1.7
Scraper				0		0		0		0
Core/Hammer Stone					1	1.2			1	0.3
Bipolar core					1	1.2			1	0.3
Flake fragment					1	1.2			1	0.3
Hammer stone										0
Total	61		78		85		76		300	

Table 14: Flaked stones from Nhantegwe

In the lower levels the segments are present but the frequency of the formal tools in general is very low and little diverse compared to other assemblages from other archaeological sites found in the north of the Zambezi River. The other sites north of the Zambezi River, present bigger assemblages and the formal tools (shaped) from Nhantegwe are very low which do not allow statistically comparative analysis with regional sites.

Looking at the different levels analysed at Nhantegwe it is clear that the flakes, segments, chips and chunks, decrease from the bottom levels to the top levels. Segments are present on the bottom level and sparsely distributed in the top and middle level.

Ceramics dominate on the top levels, which conforms to the known sequence chronological occupation (Miller 1969; Sandelowsky 1972; Mgomezulu 1978; Juwayeyi 1981; Musonda 1983) of the area, firstly inhabited by hunter-gatherer and later by farmers.

Fragments of the rock shelter wall are well represented on the upper and middle level (table 13) of the site. They increase from the middle to the top layers, which may be an indication of geological activities or result of climate change in Nhantegwe.

North of Zambezi

In comparison with other micro lithic assemblages (Miller 1969b; Fletcher 2010) the few formal tools (3 segments) of the Nhantegwe seem to be part of the last phase of the Nachikufan complex (Phase III). In the Nachikufan III the reduction of tools number is verified but segments and other formal tools together with ceramics are common in the archaeological deposit.

In Nhantegwe, the lithics (formal tools) are in the lower levels underneath the ceramics and also there is an absence of beads in the deposit excavated. On the wall of the rock shelter there are rock paintings (Red Geometric Tradition) related to the Batwa hunter-gatherer (see Chapter V). I assume that the same group of hunter-gatherer also produced the artefacts found in the archaeological deposit because there is no other indication of a different group of foragers.

The radiocarbon dates (Chapter V) from the lower layers (level 8, quadrant A) also confirms that dates are old (99 BC – AD 12) which happened at the same time of the last phase of the Nachikufan III and the Early Iron Age groups (Chifumbazi Complex) dispersing in the regions.

Nhantegwe, through the times as been used since the final phase of the Nachikufan, until the farmers arrived, few hundred years ago according to the radiocarbon dates (Table 7, Chapter V).

Unquestionably the hunter-gatherer were present in the rock shelter but from the small sample collected it is difficult to understand the lithics production in the different periods of occupation of the shelter and also the spatial limits of the Nachikufan south of the Zambezi because more sites need to be found and investigated.

Mouchiabaka

From the Mouchiabaka a total of 4271 artefacts (Table 15) were analysed for this project. Deacon's (1984) typology was used to study the 304 flaked stones (table 16) that occur in the four levels analysed (2,3,4 and 5) which unfortunately some bags are missing (for instance level 1 and surface collection). The artefacts from this excavation were transported in 2006 from Manica Province to the storage of the University Eduardo Mondlane in Maputo and kept without registration and the storage did not had a system of control at the time, for these reason some bags disappeared.

For the analysis of the lithics of Mouchiabaka the assemblage was divided into 3 levels (see appendix tables) composed by the following quadrants:

Top level (50x50y NW2, 50x50y SE2, 50x50y NE2);

Middle level (50x50y NW3, 50X50y NE3, 50x50y SW3, 50x50y SE3);

Bottom level (50x50y SE4, 50x50y SW4, 50x50y NE4, 50X50y NW4, 50x50y SW5);

The middle layers contain the majority of the formal lithic tools of the excavation and the rest of the assemblage is composed by waste (Tables 15, 16, 17 and appendix tables). The assemblage is comprised by a majority of informal tools (tools that show no retouch or obvious utilization), which comprise more than half of the collection.

In the Manica District, the milky quartz is the dominant raw material and comprises 69% of the assemblage, followed by crystal quartz (23%) and other different types of raw materials (8%) of the collection (Table 18 and Fig. 57).

Quartz flaked stones were reduced through the bipolar technology (Mourre 1996) and these artefacts were classified according to Deacon's (1984) terminology and separated into the categories of chips, flakes and chunks, which comprise the majority of the assemblage.

Context Bag	Level 2	%	Level 3	%	Level 4	%	Level 5	%
Chips	175	23.0	170	10.5	144	10	35	7.8
Flakes	357	46.9	940	58.1	777	54.0	294	65.2
Chunk	170	22.3	339	20.9	381	26.5	96	21.3
Spall		0		0.0	8	0.6		0.0
Segment	6	0.8	9	0.6	7	0.5	1	0.2
Scraper	4	0.5	18	1.1	8	0.6	4	0.9
Core/Hammer Stone		0		0.0	13	0.9		0.0
Bipolar core	1	0.1		0.0		0		0.0
Flake fragment	1	0.1		0.0		0		0.0
Core	10	1.3	28	1.7	33	2.3	10	2.2
Bladelet	31	4.1	87	5.4	58	4.0	9	2.0
Core bladelet	1	0.1		0.0	1	0.1		0.0
Chunky flake	1	0.1		0.0		0		0.0
Borer		0		0.0	1	0.1		0.0
Denticulated flake		0	1	0.1		0		0.0
Manuport		0	3	0.2		0		0.0
Backed microlithic/Truncht		0	1	0.1		0		0.0
MRP	1	0.1	13	0.8	6	0.4		0.0
Retouched bladelet		0	1	0.1	1	0.1		0.0
Retouched tool	1	0.1		0.0	1	0.1	2	0.4
Blade		0	1	0.1		0		0.0
Backed bladelet	1	0.1	7	0.4		0		0.0
Broken bladelet	1	0.1		0.0		0		0.0
Broken backed piece		0	1	0.1		0		0.0
Hammer stone		0		0.0	1	0.1		0.0
Total	761		1619		1440		451	

Table 15: Stone artefacts from Mouchiabaka

Context Bag	Level 2	%	Level 3	%	Level 4	%	Level 5	%
Segment	6	12.2	9	6.3	7	7.2	1	6.3
Scraper	4	8.2	18	12.7	8	8.2	4	25
Core/Hammer Stone		0		0	13	13.4		0
Bipolar core	1	2.0		0		0		0
Flake fragment	1	2.0		0		0		0
Bladelet	31	63.3	87	61.3	58	59.8	9	56.3
Core bladelet	1	2.0		0	1	1.0		0
Chunky flake	1	2.0		0		0		0
Borer		0		0	1	1.0		0
Denticulated flake		0	1	0.7		0		0
Manuport		0	3	2.1		0		0
Backed microlithic/Truncht		0	1	0.7		0		0
MRP	1	2.0	13	9.2	6	6.2		0
Retouched bladelet		0	1	0.7	1	1.0		0
Retouched tool	1	2.0		0	1	1.0	2	12.5
Blade		0	1	0.7		0		0
Backed bladelet	1	2.0	7	4.9		0		0
Broken bladelet	1	2.0		0		0		0
Broken backed piece		0	1	0.7		0		0
Hammer stone		0		0	1	1.0		0
Total	49		142		97		16	

Table 16: Flaked stone artefacts from Mouchiabaka

Context Bag	Numbers	%
Segment	23	8%
Scraper	34	11%
Core/Hammer Stone	13	4%
Bipolar core	1	0%
Flake fragment	1	0%
Bladelet	185	61%
Core bladelet	2	1%
Chunky flake	1	0%
Borer	1	0%
Denticulated flake	1	0%
Manuport	3	1%
Backed microlithic/Truncht	1	0%
MRP	20	7%
Retouched bladelet	2	1%
Retouched tool	4	1%
Blade	1	0%
Backed bladelet	8	3%
Broken bladelet	1	0%
Broken backed piece	1	0%
Hammer stone	1	0%
Total	304	

Table 17: Flaked stone artefacts from Mouchiabaka

Lithic Raw Materials	Quantity	%
Milky quartz	2991	69
Crystal quartz	982	23
Weathered dolorite	1	0
Dolorite	16	0
Shale	18	0
Silicious dyke	108	2
Feldspar	31	1
Granite	37	1
Tuff volcanic	15	0
Weathered dolorite dyke	7	0
Unknown volcanic	69	2
Dyke	5	0
Other	42	1
Total	4322	

Table 18: Lithic raw materials from Mouchiabaka

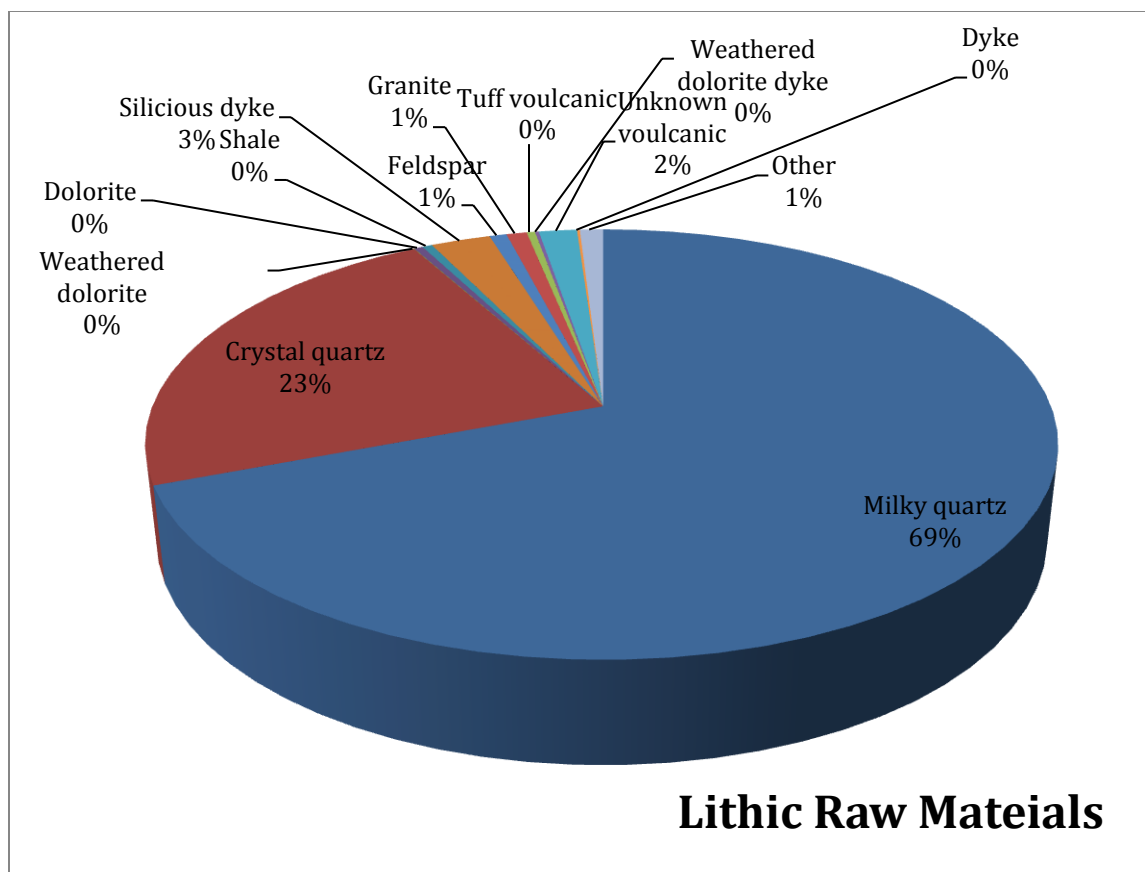


Figure 28: Raw materials distribution in Mouchiabaka rock shelter

The main tools (formal) are frequent in the middle layers and are constituted from segments (Fig. 58), scrapers (Fig. 59), miscellaneous retouched pieces (Fig. 60), retouched bladelets and retouched tool. The percentages of scrapers tend to increase from the top to the bottom level, while the segments also have the same pattern as the scrapers. Backed bladelets are also concentrated in the middle level and are not represented in the bottom level that has the only borer of the analysed collection.

Compared to other LSA sites in the area (Saetersdal 2004) the assemblage of Mouchiabaka is unique and presents a variety of formal tools for the few excavated collections in Central Mozambique.

The presence of formal stone tools in the different layers of the assemblage suggests that at the same site there was a continuity in the hunter-gatherer way of life until the arrival of the Bantu

farmers in the First Millennium with the Gokomere Ziwa pottery tradition that was identified in the area (Sinclair et al 1993).



Figure 29: Segment from Mouchiabaka, 50x50y SW level 3 (Décio Muianga)



Figure 30: Scraper from Mouchiabaka, 50x50y SW level 3 (Décio Muianga)



Figure 31: Miscellaneous retouched pieces (MRP) from Mouchiabaka, 50x50y level 3 (Décio Muianga)

South of Zambezi

South of the Zambezi the oldest cultural material of the Holocene belongs to San hunter-gatherer. The assemblages at Mouchiabaka demonstrate the continuity of the forager's lifestyle and technology in the Vumba Mountain Range where the site is located. Other sites such as

Chinhamapere II (Saetersdal 2004) in the same mountain complex, for instance, also present the same characteristics in terms of material culture and micro lithic tools, which were still produced even after the arrival of the Bantu farmers in the area.

Chinhamapere IV (Saetersdal 2006) and Mouchiabaka in Manica Province, the Matopos (Walker 1995) sites in Zimbabwe, and also in South Africa (Van Doonum 2007 & 2008) the raw materials were reduced using bipolar technique, which is the most practical manner of flaking quartz. Scrapers, segments backed bladelets and miscellaneous retouched pieces are the most common formal tools dominant in the last phase of the occupation of Mouchiabaka, which fits with the last hundred of years.

The similarity of the assemblages found in Central Mozambique, Zimbabwe and South Africa fits within the Wilton stone tools tradition that is spread in specific areas in southern Africa south of the Zambezi River, dominated territorially by the San hunter-gatherers.

South and north of the Zambezi River present different microlithic stone tool technology but with this project was not able to understand and determine how far the spatial boundary between the Wilton and other Later Stone Age Tradition, north of the Manica District. More research on open air and rock shelters needs to be carried in the future in Manica and Sofala provinces to close this gap and expose more material culture that will help to perceive to which extent the San inhabited this area and the chronology of the events can be highlighted.

“To which side of the River we throw the Stone?”

A further fact in the chronological and physical occupation of the riverine area is the presence of the foragers and their economy until the last hundred of years. Found in the Central Mozambique, the lithic artefacts and rock paintings highlight these facts, and the Zambezi River cannot be considered a physical barrier for the movements of groups practicing hunting and gathering as part of their lifestyle.

To maintain the lifestyle and guarantee their subsistence the hunter-gatherer used tools made with stone raw materials available in the areas they preferably occupied. Quartz is the main raw material both on the northern and southern margins of the Zambezi River vicinity, used by the foragers, which show clearly a preference for this rock by the toolmakers also depending on

distances they had to travel to find the sources of raw materials. Excavations on the two sides of the river demonstrate that not only this was the same raw material used by them but also the same materials analysed were all done with bipolar flaking technique, which is ideal to get functional flakes. Quartz flakes represented in both excavations analysed in this chapter, are a dominant feature on the assemblages and follow the principle of fracture by using direct hard hammer percussion. A part of the identification of the technique used for the reduction of the raw materials, it is relevant to consider that the majority of the quartz assemblages analysed cannot be interpreted even after detailed investigation due to the high level of fragmentation of the quartz.

Scattered quartz is found on the surroundings of the two sides analysed in this project and also over Central Mozambique. These two sites are rock shelters as mentioned before but in the area around the CBD (north and south banks) from the surveys done, was possible to observe that this raw material is disperse on the landscape in both rock shelters and also on the open air sites. The rock shelters were chosen, because they had flaked stone and also good deposit for excavation. Open-air sites were found in the CBD, but the levels of disturbance of them due to farming and erosion discouraged any attempt to do an intervention to determine the extension and the depth of the archaeological deposit. More research needs to be done not only on the rock shelters, which normally have well-preserved archaeological deposits but also on the open-air sites to understand the extension of the occupation of the Batwa and San hunter-gatherer in the area. This will allow producing a more systematic database of the dispersion of foragers in the landscape and not only to analyse the artefacts of the two groups but also to create an assemblage of comparative materials for the studies of the Later Stone Age in the area.

Later Stone Age, overtime, according to the dates of Nhantegwe (Chapter V), seems to continue even after the arrival of the farmers. It is a strong possibility that the hunter-gatherer also interacted with farmers but undoubtedly that Batwa and San met and networked in the surroundings of the Zambezi River.

In the CBD, according to the model proposed (Chapter IV) to interpret the differences found in the other aspects of LSA culture that suggests a cultural boundary in the research area, concluded that this section of the Zambezi operated as a flexible ideological and social frontier and not a physical barrier. The Zambezi River never represented an obstacle for such mobile and not sedentary different ethnical groups that somehow made connections and interacted through

material culture and other resources available in the area. The resource available for their subsistence in the CBD and surroundings areas were easily explored by both groups (San and Batwa) during the LSA period, demonstrating that space is not static (Massey 1994: 3-5), but it also allows dynamic relationships between individuals and groups turning the borders into permeable places and flexible for diverse types of interactions. Which interpretations can we make out of this?

The scarce LSA artefacts found under this project, made by both (specially the Batwa) groups show clearly that the frontier was accessible and they did travel across, but more evidence to support these movements in the research area are needed specially to understand till each extent the groups studied moved in opposite directions of the river and if there was any technological influence on the way the tools were produced after these contacts. Part of these contacts if we look only at the micro lithic artefacts it is difficult to decipher the nature of these interactions behind the tools and residues found on the sites investigated and related to different ethnical groups and ideological beliefs. Apart from these problems, dating also does not help to determine the precise contemporaneity of the two groups in the area but provide some evidence of the chronological setting of the CBD.

In the CBD, despite these chronological and technical difficulties that can be overtaken with more research in the different aspects of the LSA studies, I suggest that the San and Batwa built a strategy of sharing resources and interacted individual or in group basis. These contacts between two different ethnical groups show that identity is less fixed to space than thought on the last 50 years of research when studying the two groups in the vicinity of the Zambezi River. The Zambezi River according to the theoretical framework built to study the nature of the interaction between San and Batwa was an area of aggregation and the relations were not exclusively uniform as we may think. I should not exclude as well the possibility of opposition, resistance and conflict between them in some stage but also a progressive phase of integration of the foragers in the permeable frontier of the CBD.

In the CBD this study showed that despite the lack of an adequate data base, the study of the LSA artefacts needs further research to understand if in any moment these groups influenced each other on the way the tools were produced and if we can see it on the archaeological deposits, despite the maintenance socio-cultural differences. Chronological and space distribution of the two groups also need to be established to resolve this important issues and

help us to '*throw the stone to the right side*'. The next chapter will examine the rock art found in both sides of the river and the implications of these symbols or metaphorical functions for the understanding of the CBD as an ideological boundary of the hunter-gatherer.

Chapter VII

The Rock Art and its place in the Zambezi

Rock art ... in South and Southern Africa is one of the region's greatest cultural treasures - H.J. Deacon & J. Deacon, 1999

[T]hese societies operate within the confines of a metaphorical "ceiling and floor": a ceiling above which one may not accumulate wealth and power and a floor below which one may not sink – R.B. Lee, 1993

Now that it has been shown that the hunter-gatherer moved freely around the CBD, we can look at the rock art from a more accurate perspective than achieved until now. Chapter VI argued that the Nachikufan (BaTwa) microlithic toolmakers crossed the riverine boundary and carried out the production of these instruments. The presence of these artefacts answers some of the questions about the early occupation of CBD and contributes to form an impartial view of just how the tangible and intangible aspects of the contact between the San and BaTwa took place, and the paintings found in Central Mozambique are the evidence of the relationship between the groups studied. I therefore proceed to examine the hunter-gatherer rock art of the CBD and adjacent regions with one eye on the interpretation on how the area operated as a social boundary.

Zambezi River and the rock art signature in Cahora Bassa Dam

It was noted in Chapters V and VI that the BaTwa hunter-gatherer crossed the Zambezi and depicted their rock art tradition on the southern margin of the Zambezi (Nhantegwe site). This evidence by itself shows that the northern Zambezi was not the only area of social and cultural activity of the BaTwa. It was suspicious to consider the Zambezi an impenetrable boundary for such mobile autonomous groups with great knowledge of the environment and its resources.

The rich faunal and botanical resources of the CBD region allowed the foragers to explore the area for their subsistence and consequently, the economic, social and ideological aspects of behaviour was left in the rock shelters represented by the artefacts and rock art.

The two traditions of rock art made by the two groups of hunter-gatherers were conceived as being divided by the Zambezi (Fig. 10), because these aspects of the LSA in the area were not studied in detail. To provide a better understanding of the foragers in the area and their signature, this chapter will demonstrate how the physical boundary affects the rock art of the CBD and adjacent areas.

Fieldwork seasons on the CBD and its surroundings, confirm that the division between the hunter-gatherers living in the area was broken by the BaTwa who left physical remains as part of their ideological and cultural signature on the southern margin of the CBD.

Southern margin

San hunter-gatherers' main signature in southern Africa is the rock art well preserved and represented in the diverse environments from the southern Cape to the vicinity of the Zambezi River. Despite covering a large area, the regional variability of motifs chosen has been identified both in the paintings and engravings but the common trend that they share is explained from the shamanistic beliefs, experiences and rituals (trance dance), part of the cognitive system of the San people dispersed in southern Africa. The general features of the southern African San art, were summarised by J.D Lewis-Williams (1998: 87):

The making of San rock paintings was essentially (or 'principally') associated with a range of shamanistic beliefs, rituals and experiences and was situated within a tiered shamanistic cosmology and complex social relations. The images comprise symbols (or, more economically, concentrations) of supernatural potency (e.g. paintings of eland), images of trance dances, 'fragments' of trance dances (e.g. single figures in the arms-back posture), 'processed' (recollected and formalised) visions (e.g. the capture of rain animal), transformed shamans (including the so-called therianthropes), monsters and beings encountered in the spirit world, activities performed in the spirit world (e.g. fighting off malevolent spirits of the dead), and "scenic' group (loosely called 'compositions') made by one or more painters, and complex groupings, including superimpositions, of many images that, in a range of ways, show the interdigitating of the of the spirit realm with the material world. The spirit realm was, in some conceptual circumstances, believed to lie behind the walls of rock shelters.

In southern Africa apart from the regional variability of the rock art south of the Zambezi, interaction between the San with Khoi herders, Bantu speaking farmers and with colonial settlers also has been identified. This could also explain the regional variability of some of the motifs depicted as part of the San belief system (Lewis Williams 1981, 2002; Vinnicombe 1976;

Dowson 1988; Garlake 1995; Ouzman 1995; Blundell 1998; Deacon & Deacon 1999; Eastwood 1999; Hollmann 2002; Mguni 2002; Saetersdal 2004; Smith 2006).

From these observations that other ethnical groups interacted with the San, it is evident that the existing social boundaries were moveable according to the level of relationships established by them. Barth (1969) on the other hand showed that there are multiple social boundaries and despite their differences (ideological and cultural) was manipulated for individual and group purposes. Recalling the instances in Chapter IV, Barth (1969) and other researchers (Hall 1984; Kopytoff 1989; Flynn 1997; Gupta & Ferguson 1997) agree that they are easily manipulated and permeable to movements of people, it is noticeable that the CBD and the Zambezi River were not immobile environmental physical barrier. Looking at how the boundary could have been overtaken, identified spatial associations of artefacts in Central Mozambique, which placed a new challenge.

Chapter V and VI demonstrated that the BaTwa crossed the Zambezi river towards the south and left their material culture and ideological beliefs in Nhantegwe site. These movements show that environmental boundaries are more mobile (Hall 1984: 4), deconstructing thus the idea of the absence of contact and travelling beyond the CBD and areas previously identified as original occupational space of both BaTwa and the San. BaTwa rock art known to cover from the southern coast of Tanzania in the east and the Zambezi in the south to Lake Victoria in the north and their history lasted as long as the San counterpart (Smith 1995; 2006: 89-90).

From the paintings from Nhantegwe (Figs 28, 29, 30 & 31 – Chapter V) together with the archaeological deposits and dated materials the BaTwa hunter gatherers used at the site during the same time the San groups were present in southern Africa. As a result, I suggest that both groups interacted around the CBD and surroundings during the different phases of the LSA period, thus throwing down the idea of a static hunter-gatherer border area. This hunter-gatherer physical barrier is a permeable frontier (Stahl 1991) where for this case in study, a group of hunter-gatherer exploited the resources in the landscape, using strategies that resulted in new relationships (that included social, political and symbolic parameters [Mazel 1989 a,b]) with hunter-gatherer neighbours or even with farmers.

The rock art on the permeable frontier is composed by concentric circles and circles; grid-like designs with parallel lines all painted in red monochrome. Thus the spatial area that we consider part of the Red Geometric rock art tradition in south-central African must be expanded and

consider sections south of the Zambezi River and not only on the northern margin despite the one site documented so far in the CBD.

The presence of south central African geometric rock art tradition in the southern margin of the CBD landscape allowed us to study the rock art in a manner that goes beyond the more traditional evidence that places, hunter-gatherer investigated in different geographical spaces. Despite the differences that both groups have they were present in the CBD, probably interacted through the social, political and symbolical parameters [e.g. contacts between hunter gatherers and farmers in the Thukela Basin studied by Mazel (1989b: 132-134)] in their relationships. Part of these relationships that need to be studied in depth in other sections of the Zambezi River and adjacent areas may have contributed for the occupation of Nhantegwe where they left the important legacy for the research on the hunter-gatherer frontier.

North of Zambezi

The location of the BaTwa hunter-gatherer archaeological remains is geographically well described and foraging exploitation strategies also better known on the past five decades. The archaeological remains as we know can trace some of the important cultural activities developed by the hunter-gatherer in the areas part of this study. For instance the finger painted BaTwa rock art, dominated by geometric forms and in small size by bizarre and varied stylised forms of animals all in red comprise the legacy left behind (Smith 2006: 87). This legacy does not represent narratives or daily activities but more complex symbolic and supernatural ritual concepts that were relevant for these communities.

The living cultural manifestations of the BaTwa people unfortunately are gone long time ago in the northern margin of the Zambezi River in Tete Province, notwithstanding three rock art traditions were identified in this area namely:

- The Red Animal Tradition,
- Red Geometric
- White Spread-eagled Tradition belonging to Bantu farmers

Further north of the CBD in Malawi and Zambia, archaeologists had identified traces of interaction between hunter-gatherer and farmers (Mgomezulu 1978; Juwayeyi 1981; Musonda 1983) excluding evidences of the contacts between the BaTwa and the San (on the southern margin). Thus considering the past research in south central and in southern Africa the hunter gatherers were divided by a impenetrable boundary that did not allowed movements and interaction. Zambezi River was then working as an ideological *static frontier* (Alexander 1984: 13) where each group existed beyond or inside the boundaries. Gupta & Ferguson (1992) suggested that the borderlands were places of incommensurable contradictions and different ethnical cultures were sometimes disconnected in the area of physical political division. Unfortunately, like other parts of southern and central Africa, there are no ethnographic records from the frontier area and surroundings that could give some evidence to solve this mystery.

Although ethnography does no help to unlock this mystery, we turn to the evidence found 120 km of the northern margin of the Zambezi. From fieldwork carried out in 2004 and 2005 by Eduardo Mondlane University (Mozambique), Rock Art Research Institute (Wits University – South Africa), University of Zimbabwe (Zimbabwe) and Department of Antiquities (Malawi) in the north-east Makanga District in Tete Province was found one rock art site with unusual features compared to the rest of the northern margin of the Zambezi including Malawi and Zambia. Chimuala I (Fig. 61) rock shelter has three traditions of rock art, which is completely strange for all the Tete Province, where BaTwa and Bantu farmer's paintings were recognized.



Figure 32: Panels with rock painting from Chimuala, Tete province (Image courtesy of RARI)

The third tradition identified belongs to the San hunter-gatherer, and is comprised by human and animal figures (Figs. 62, 63, 64, 65, 66 & 67).



Figure 33: Human figures Chimuala, Tete province (image courtesy: RARI)



Figure 34: Human figure, Chimuala (Dstrech image)



Figure 35: Human figures Chimuala, Macanga district, Tete province (image courtesy: RARI)

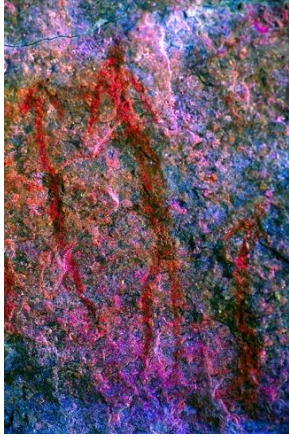


Figure 36: Human figure Chimuala, Macanga district, Tete province (Dstrech image)



Figure 37: Animal figure Chimuala, Tete province (image courtesy: RARI)

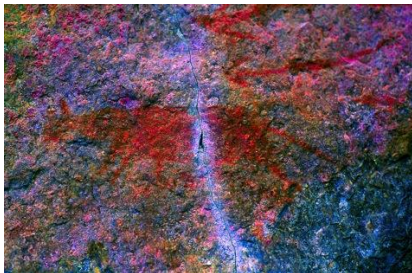


Figure 38: Animal figure Chimuala, Tete province (Dstrech image)

Interestingly compared to the other sites with San rock art paintings, over the southern Zambezi the images are positioned in the panel in the direction of the cracks and cavities on the rock surface which is widely accepted to be an indication of them on the process of entering into the spiritual world (Lewis-Williams 1981; 2002).

Chimuala I a part from the San fine line brushed paintings have also Red Geometric images (together with red, yellow pigment was used for some images – see Appendix) and Bantu farmers designs (white circle and spread eagle designs - see Appendix).

The presence of the three traditions of rock art in Chimuala I allow space for different interpretations about the dynamics of the ethnical groups identified at the site. Chimuala I evidences also contributes significantly to drop down the idea that the Zambezi is an impenetrable boundary has as been considered over the last 50 years of research. I would say that we are in the presence of a dynamic area where contacts and relationships took place between the two groups of hunter-gatherer and eventually with farmers. Thus, once again, I think we on the presence of a *permeable frontier* of hunter-gatherer and presumably with the proximity of farming communities (Mazel 1989b; Stahl 1991). This permeable frontier however does not provide chronological evidence that can help to understand when the occupation or contacts between the San, BaTwa and Bantu took place in Chimuala I and also on the northern margin of the CBD. I strongly believe that more sites with these features of interaction on the rock art exist on the both margins of the Zambezi, which can help us to understand better the distribution of the contact area around the CBD. In large sections of the Tete Province, for instance in northwest, central, southwest and along the Zambezi, no archaeological research and surveys were conducted both in the colonial and after independence. These leaves a big gap to be closed with more investigation and careful observations of all the features left by hunter-gatherer. Hunter-gatherer evidence of contact in the northern margin conforms to the arguments highlighted in Chapter IV that space is socially constituted, allowing permeability and flexibility of the existing boundaries that can be influenced cultural differences for individual or group purpose during interaction (Barth 1969; Stahl 1991; Massey 1994).

Implications of the Cahora Bassa findings

It was also noted in Chapter III that BaTwa and San rock paintings had a symbolic spiritual and cosmological component. Thus using the spiritual and symbolic components of this groups that depicted in the rock art of the frontier zone and it's surroundings, Barth (1969) showed in his research that differences could be manipulated for individual or group purposes and further I suggest that the CBD operated as a dynamic area of complex social believes. Unfortunately through the lithic was not possible to see the extent of this contacts but the rock art provides unique evidence to look on the CBD type of frontier more cautiously.

On a static point of view CBD is not a classic case of a border area where a physical boundary separates two groups. Definitely the Zambezi was accessible and easy to cross by both groups but the cultural boundary was moveable and influenced the intervenient of these interactions.

Looking at the evidence of interaction, Hall (1984: 4-5) suggests that environmental boundaries are demonstrably more mobile but there is a need to incorporate this theoretical argument together with archaeological data. Thus, archaeological evidence from Manica Province and north-eastern Zimbabwe reveal some unusual features on the rock paintings made by the San.

The referred San fine line naturalistic images in southern Zambezi (Fig. 68) still conforms with the main characteristics of this tradition but the animal and human figures instead of being filled with red monochrome pigment (which is the normal pattern) they are enhanced on a different way. The images of human figures from Bué Simuke site (Figs. 69, 70 & 71) in Sussundenga District (Manica Province) show that the body was filled with red parallel lines, which is different than the common pattern.



Figure 39: Chidura I - Manica Province (Décio Muianga)



Figure 40: Bué Simuke, Manica Province (Décio Muianga)



Figure 41: Human figure (DStrech image)

These characteristics are also found in one site in north-eastern Zimbabwe where both animal and human figures (Figs. 71 & 72) have the same pattern of filling the paintings found in Bué Simuke site in southern Manica province.



Figure 42: Animal figures, Eastern Zimbabwe (image courtesy: Ancila Nhamo)



Figure 43: Animal and human figures from Eastern Zimbabwe (DStrech image)

Yet I believe that these pattern in filling the depicted images with parallel lines is the result of interactions and influence of BaTwa hunter-gatherer on the San rock art tradition in the southern margin of the Zambezi. Geometric motifs or similar representations on the San rock art are not very common at least on the existing sites in Central Mozambique. I believe however, that despite few archaeological evidences to feed theoretical arguments to give as much accurate meaning to the paintings, the San used the BaTwa influence to add more symbolism and spiritual power to the images filled with parallel lines. The use of geometric designs is unique to the BaTwa (Smith 1997: 24) and not common with the San paintings, which were known to be naturalistic with fine lines. These features (that fill the inside part of the paintings) are not commonly found in the rock art of the two regions described above but the existence of parallel lines are part of the San rock art record. The existence of parallel lines San rock art is explained by the neuropsychological model applied to these hunter-gatherer paintings by J.D Lewis-Williams and other researchers (Lewis-Williams & Dowson 1988; Lewis-Williams & Pearce 2004).

The existence of these two sites demonstrates that interaction between the hunter-gatherer resulted in the absorption of stylistic elements in the depiction of the paintings. These types of paintings are rare and few examples apart from the one mentioned are known so far, but the two rock art traditions are clearly separated. This separation is thus broken by the *permeable frontier* established on the CBD and surrounding areas of the river, which perhaps the normal conventions they used to depict the rock paintings were changed and adapted according to the level of interaction occurred.

The concluding chapter resumes the condition of the border and boundaries in the CBD and the relations between the archaeological evidences and the theoretical background developed over the preceding chapters.

Chapter VIII

Conclusion: Border and boundaries - is it the case of Cahora Bassa?

Mankind always sets itself only such problems as it can solve; since, looking at the matter more closely, it will always be found that the task itself arises only when the material conditions for its solution already exist or are at least in the process of formation – Karl Marx (1859)

Cahora Bassa represented the ultimate confirmation that nature could be conquered and biophysical systems could be transformed to serve humankind – Isaacman & Sneddon 2000

In this thesis I have suggested a new way of understanding the frontier zone established by the archaeological evidence left by the San and BaTwa hunter-gatherer. In order to comprehend how did the hunter-gatherers establish and use the border area in the CBD, I have provided a general overview of the history of settlement and research of the area focusing on the rock art and LSA microlithic tools. Contextualizing the occupation of the area by the San and BaTwa in each margin of the Zambezi River had the objective of placing the archaeological sites with the evidence of contacts and diagnostic prehistoric materials of the LSA. However, the contacts may have happened in the past, the last five decades of archaeological research (Clark 1958a; Cooke 1964; Miller 1969; Phillipson 1969, 1972, 1977; Vinnicombe 1976; Lewis-Williams; Juwayeyi 1981; Smith 1995; Mguni 2002; Zubieta 2003; Saetersdal 2004; Nhamo 2005; Fletcher 2010) of both groups found no evidence tracing these relations. Even if we do not know the specifics of the relations between San and BaTwa, these occurred in distinct degrees across time in the CBD.

Hunter-gatherers in the CBD

Southern and south-central African LSA artefacts and rock art, as analysed in this thesis have been done by two different ethnical groups of hunter-gatherer. The San and the BaTwa occupied most of the sub-Saharan Africa primarily and explored the different environments and respective resources. Through the exploration of the environment they left artefacts and most specially rock paintings linked to cultural beliefs and symbolisms throughout the 20,000 years of occupancy of the area. The 20,000 years of occupancy in south-central Africa, the BaTwa were responsible for

making the Red Geometric and the Animal rock art tradition and also to manufacture the Nachikufan microlithic tools (Chapters III, VI & VII).

The Bushmen on the other hand were responsible for San rock art tradition and produced the Wilton microlithic industry in southern Africa (south of the Zambezi). Both groups after the arrival of the Bantu farmers in southern Africa interacted with them and evidences of these relationships have been found in the northern and southern margins of the CBD (Juwayeyi 1981; Musonda 1983; Wadley 1996; Walker 1995, 2003; Van Doonum 2007, 2008), and these contacts also need to be studied in the CBD area.

The CBD was chosen to interpret the nature of the boundary or frontier between the San & BaTwa using their material culture. Theoretical writings on border and boundaries (Barth 1969; Zvelebil 1986; Kopytoff 1989; Stahl 1991; Lightfoot & Martinez 1995; Flyn 1997; Gupta & Ferguson 1997) suggest hypothesis to explore the relations established by different ethnical groups in this geographical units. The boundaries as geographical units are very dynamic and constantly adjusting to the new challenges as result of the economical, social and cultural relations of the people living around them.

The results of this research demonstrate that two hunter-gatherer groups with different archaeological signatures occupied and interacted in the CBD; thus the idea that no links between the two groups occurred in the past is invalid and also the area was not a static frontier where interactions did not occur. Invalidating the static border in the CBD and surroundings opens space to understand the new evidence found in Nhantegwe and Chimuala I archaeological sites that gives a new direction to the hunter-gatherer research. The questions to be placed is:

How far did the BaTwa go south of the Zambezi and how far did the San travelled north of the Zambezi?

Contact zone

In order to figure out the extent of the movements of both groups in the CBD and surroundings different sources were tested. Ethnography widely used in sub-Saharan Africa by researchers to understand aspects of hunter-gatherer lifestyle, behaviour, social relations, settlement, mobility patterns and economy, was not able to provide evidence of the relationships developed in the past. Not being able to provide such ethnographical indications or any kind of trace for the

research area, the archaeological evidence emerged as the main source for the interpretation of the problems to be solved.

From the fieldwork conducted and interpretation of the data (Chapters V, VI & VII) on the CBD and surroundings, it is clear that archaeological evidence illustrates that the BaTwa crossed to the southern margin of the river and the San did the same movement towards the northern side leaving rock paintings and artefacts in the neighbours territory. These movements by both groups in opposite directions caused the interaction between them and exchange of some sort that made the CBD a permeable and flexible boundary. Various researchers have argued that the relationships between different ethnical groups were easily manipulated for individual and group purposes (Barth 1969; Lightfoot & Martinez 1995).

It was mentioned previously that part of this relationships involved exchange (Chapter VII) of tangible elements over the time but intangible aspects could have been also acquired, gained or transmitted. The suggestion is that, despite minor appearances in southern Zambezi, sites with San rock art tradition had geometric elements in the composition of the images, which is unusual, and these elements are common in Red Geometric tradition. Although only two sites present this pattern, it should not be excluded as part or result of the relationships established by the San & BaTwa.

To understand better this aspect there is a need to cover a large area around the southern margin of the Zambezi River to comprehend the extent and the possible variations of change over the time in the appearance of more geometric and schematised forms in the San rock art. Also the extent and influence of San fine line rock art on the BaTwa tradition should also be investigated. At the moment these aspects are beyond the scope of this study, the extent to which these aspects are found more widely applicable would make an interesting topic for future studies and comprehend the meaning of these images depicted.

The rock art traditions of the BaTwa and San hunter-gatherers are still separated by the Zambezi River (Smith 1997) but the link between them was found in both margins of the river as result of the study of the relations in this thesis. The relationships of the BaTwa and San were also studied taking into account the microlithic artefacts and the transference of ideas, both technological and geographical, from one group to another. The analysis of these materials clearly showed that the Nachikufan toolmakers (BaTwa) crossed the Zambezi River (Chapter VI) and left their industry on the southern margin of the CBD. Evidence of the same kind of

occupation or transference of industry by the San was not found on the northern margin of the CBD. Despite absence of more evidences to confirm the extensions of the movements of the hunter-gatherer on the CBD, the study of the LSA showed extensive occupation of the rock shelter from the hunter-gatherer period until the end of the 19th Century (Chapter V).

The chronology and materials indicate that the Wilton and Nachikufan toolmakers converged in the CBD area over the time and used the permeable frontier as part of the exploration of the environment and its resources. It is unsure until now, when and how the contacts and exchange on the technological point of view took place. Moreover it is unknown if these traces can only be found on the rock shelters or in the open air sites that possibly can help to disclose the mystery of the hunter-gatherer interactions.

Broken conventions and permeable frontier

Large aspects of the hunter-gatherer mystery are buried and remain hidden but other evidences are surfacing as part of this investigation. The CBD and the Zambezi River operated as a permeable frontier for the hunter-gatherer groups and links between the San and BaTwa were found in the research area.

The findings of the research area strongly suggest that despite the interactions and links identified between the two groups, the geographical separation of the rock art traditions and industry remained intact. From now onwards to comprehend this mystery there is a need of what Smith (1997: 25) called a broad relationship between the interpretative models for the two rock art traditions and respective lithic industries. Considering these aspects to study the cultural and social consequences of these interactions it is necessary to move carefully and analyse an extensive amount of data that needs to be explored and brought to surface.

With the exploration of the CBD new evidences of interactions between San and BaTwa emerged that were unknown before. The interaction identified is responsible for the establishment of a permeable and flexible frontier as defined by Stahl (1991: 267): a frontier that not only broke the existing conventions but opened space to consider apparent cultural variations and shared beliefs by hunter-gatherers.

The CBD showed dynamic of events that involved the exploration of the environment, multiple interactions from the prehistory, history and present times (Chapter II). The cultural interactions in the Zambezi Valley are ancient and these long processes contributed to the establishment of the composition of the present day population of the Central Mozambique. The San and BaTwa in the CBD had a leading role for the beginning of the composition and structuration of the diverse ethnical groups in this section of Mozambican territory.

For many years it was thought that borders in all their forms were difficult and in many cases almost impossible to cross them, thus restricting the communication of different ethnic groups. The CBD study shows the opposite dimensions of the borders where interaction took place in ancient past, without people necessarily losing their identity and specific social and cultural characteristics as hunter-gatherers.

Where do we go from here?

This thesis has many limitations and gaps to be closed and hopefully it will be done in the future with more research and resources to answer all the questions raised here. For instance the surveys of the northern margin of the CBD did not provide the quantity of comparative archaeological materials initially expected; thus LSA and rock art sites were not identified. On the other hand, the sites investigated are rock shelters because the archaeological deposits are better preserved, allowing the capture of artefacts in context together with datable materials. These sites also have rock paintings, which is a strong indication of extensive occupation of the site over the time by hunter-gatherer. A careful observation on the open-air sites needs to be considered to answer many questions related to the LSA artefacts distribution and technological characteristics of the Nachikufan and Wilton industries.

Faunal remains need to be analysed extensively and also more excavations need to be carried out taking into account the different raw materials apart from quartz that is dominant in Central Mozambique. Open-air sites eventually will provide other types of raw materials that also can be analysed to understand the choices made by the toolmakers of the two industries.

Another area of research in need of expansion is that of the absorption of symbolic elements on the rock art by the San and BaTwa hunter-gatherers to identify the indications of significant cultural variations or similarities between them along the CBD and adjacent areas.

The intention of this thesis was to start the research on the interactions between hunter-gatherers, which is largely unknown through the combination of rock art, and LSA artefacts and understand how these tangible evidences could be used as a path to reveal the past activities. With the building of the CBD 30 years ago, archaeological evidences were destroyed which could have helped to understand the complex relations established by hunter-gatherer.

The past is buried and due to recent economical and infrastructural developments, archaeological heritage has been destroyed not allowing the preservation of Central Mozambican prehistory and history that remains largely unknown to the general public.

The arguments presented here, can be considered the basis for more detailed future research to overcome the shortcoming of evidences found in the CBD.

References

Adamowicz, L. 1984. Alguns aspectos sobre as pinturas rupestres na Província de Nampula. In: TEXTOS PARA DEBATE, 5, DAA/UEM.

Adamowicz, L. 1987. “Projecto Cipriana”, 1981-1985: contribuição para o conhecimento da arqueologia entre os rios Lúrio e Ligonha, Província de Nampula. In: Departamento De Arqueologia E Antropologia. Trabalhos de Arqueologia e Antropologia. Nº 3. Maputo: DAA/UEM.

Afonso, R.S. 1976. A Geologia de Moçambique. Notícia explicativa da carta geológica de Moçambique 1:2,000,000. Maputo: Imprensa Nacional.

Alberto, M. S. 1951. A pré-história de Moçambique. In: Boletim da Sociedade de Estudos da Colónia de Moçambique. Nº 68.

Alexander, J. 1984. Early frontiers in Southern Africa. In: Hall, M; Avery, G; Wilson, M.L; Humphreys, A.J.B (eds.). Frontiers in southern African archaeology today. 12-23. Oxford: British Archaeological Reports - International Series 207.

Artur, D do R. 1999. Cidade de Chimoio: ensaio histórico-sociológico 1. Chimoio: Coleção Embondeiro.

Bahuchet, S. 1999. Aka Pygmies. In: Lee, R.B & Daly, R (eds). The Cambridge Encyclopedia of Hunters and Gatherers: 190-194. Cambridge: Cambridge University Press.

Bannerman, J. H. 1993. Bvumba- pré-colonial shona em Manica, na fronteira entre Moçambique e o Zimbabwe. In: Nogueira da Costa, I. (dir). Arquivo: Boletim do Arquivo Histórico de Moçambique nº13. Maputo: AHM.

Barham, L & Mitchell, P. 2008. *The First Africans: African archaeology from the earliest toolmakers to most recent foragers*. Cambridge: Cambridge University Press.

Barnard, A. 1992. *Hunters and Herders of Southern Africa*. Cambridge: Cambridge University Press.

Barth, F (ed). 1969a. *Ethnic Groups and Boundaries: the social organization of culture difference*. Oslo: Univeristets Forlaget.

Barth, F. 1969b. *Pathan Identity and its Maintenance*. In: Barth, F (ed). *Ethnic Groups and Boundaries: the social organization of culture difference*. Oslo: Univeristets Forlaget.

Biesele, M. 1993. *Women like meat: the folklore and foraging ideology of the Kalahari Ju/'hoan*. Johannesburg: Witwatersrand University Press.

Biesele, M & Royal K. 1999. *The Ju/'hoansi of Botswana and Namibia*. In: Lee, R.B & Daly, R (eds). *The Cambridge Encyclopedia of Hunters and Gatherers*: 205-209. Cambridge: Cambridge University Press.

Bleek, W.H.I. 1874. *Remarks on Orpen's 'A Glimpse into the Mythology of the Maluti Bushmen'*. *Cape Monthly Magazine* (n.s) 9: 10-13.

Bleek, W.H.I. 1875. *Brief Account of Bushman Folklore and Other Texts. Second Report Concerning Bushman Researchers, Presented to Both Houses of Parliament of the Cape of Good Hope*. Cape Town: Government Printer.

Bleek, W.H.I. & Lloyd, L.C. 1911. *Specimens of Bushman folklore*. London: George Allen.

Blundell, G. 1998. *On neuropsychology in Southern African Rock Art Research*. *Anthropology of Consciousness* 9 (1): 3-12.

Blundell, G. 2004. Nqabayo's Nomansland: San Rock Art and the Somatic Past. Uppsala: Uppsala University.

Botelho, J.J.T. 1934. História Militar e Política dos Portugueses em Moçambique da Descoberta a 1893. Lisboa: Centro Tipográfico Colonial.

Breuil, H. 1944. II Parte das primeiras impressões duma viagem de estudos arqueológicos no Sul de Moçambique. Moçambique Documentário Trimestral (Lourenço Marque) 40: 39-48.

Bridges, E.M. 1978. World Soils. London: Cambridge University Press.

Carvalho, P de. 1946. Velha Macequece. Documentário Trimestral "Moçambique" 46: 5-71.

Cavalli-Sforza, L.L. 1986. African Pgmies: an evolution of the state of research. In: Cavalli-Sforza, L.L. African Pgmies: 361-467. Orland: Academic Press.

Chami, F. 1994. The Tanzanian Coast in the First Millenium AD: an archaeology of the iron-working farming communities: with microscopic analyses by Anders Lindahl. (Studies in African Archaeology 7). Uppsala: Societas Archaeologica Upsaliensis.

Chippindale, C. & Taçon, P. 1998. An archaeology of rock-art through informed methods and formal methods. In: Chippindale, C. & Taçon, P. (ed). The Archaeology of Rock Art: 1-10. Cambridge University Press.

Chittik , H.N. 1990. L'arqueologie de la côte orientale africaine: Arabes et Islamisés a Madagascar et dans l'Ocean Indien. Taloha 2: 21-38.

Clark, J.D. 1950. The newly discovered Nachikufu Culture of Northern Rhodesia and possible origin of certain elements of the South African Smithfield Culture. Southern African Archaeological Bulletin 5: 86-98.

Clark, J.D. 1958. Schematic art. *South Africa Archaeological Bulletin* 13: 72-74.

Clark, J.D. 1959. *The Prehistory of Southern Africa*. Harmondsworth: Penguin Books.

Clark, J.D. 1970. *The Prehistory of Africa*. London: Thames & Hudson.

Comaroff, J & Comaroff, J. 1992. *Ethnography and the historical imagination*. Oxford: Westview Press.

Cosgrove, D. 1993. *Landscapes and Myths, Gods and Humans*. In: Bender, B (ed). *Landscape: Politics and Perspectives*. Providence: Berg Publishers.

Das Neves, J. 1998. *Economy society and labour migration in central Mozambique, 1930- c 1965: a case of Manica province*. Unpublished doctoral thesis. University of London.

Deacon, J. 1984a. *The Later Stone Age of Southernmost Africa*. Cambridge monographs in African Archaeology, BAR International Series 213.

Deacon, J. 1984b. *The Later Stone Age people and their descendents in Southern Africa*. In: Klein, R (ed). *Southern African prehistory and paleoenvironments*. Rotterdam: Balkema.

Deacon, H.J. & Deacon, J. 1999. *Human beginnings in South Africa: uncovering the secrets of the Stone Age*. Cape Town: David Philip Publishers.

Departamento de História da UEM. 1982. *História de Moçambique: volume I – primeiras sociedades sedentárias e o impacto dos mercadores (200/300-1886)*. Maputo: Tempo.

Departamento de Terra e Água/ Instituto de Investigação Agronómica-INIA. 1982. *Projecto 'Avaliação dos Recursos de Terra para a Produção de Culturas de Sequeiro em Moçambique'*. *Revista para o Desenvolvimento e Extensão Rural* 2 (Extra): 1-33.

Dowson, T. A. 1988. Revelations of religious reality: the individual in San rock art. *World Archaeology* 20:116–25.

Dowson, T. 1998. Rain in Bushmen belief, politics and history: the rock art of rain-making in south-eastern mountains, southern Africa. In: Chippindale, C. & Taçon, P. (ed). *The Archaeology of Rock Art*. Cambridge: Cambridge University Press.

Duarte, R. T. 1979. Arte rupestre em Moçambique, pinturas de oito mil anos. In: *Revista Tempo*. Nº477. 54-59. Maputo: 2 de Dezembro de 1979.

Duarte, R.T. 1993. Northern Mozambique in the Swahili world: an archaeological approach. (*Studies in African Archaeology* 4). Uppsala: Societas Archaeologica Uppsaliensis.

Duarte, M. D & Duarte, R. T. 1988. Arte rupestre em Moçambique (sobre cinco dos mais belos painéis). In: Departamento De Arqueologia E Antropologia. *Trabalhos de Arqueologia e Antropologia*. Nº 5. Maputo: DAA.

Eastwood, E.B. 1999. Red Lines and arrows: attributes of supernatural potency in San rock art of the Northern Province, South Africa and South-Western Zimbabwe. *South African Archaeological Bulletin* 54: 16-27.

Ekblom, A. 2000. Trade development on the southern coast of Africa in the first millennium, a southern perspective. Unpublished report. Maputo: Eduardo Mondlane University, Department of Archaeology and Anthropology.

Ekblom, A. (2004), *Changing landscapes, an environmental history of Chibuene, southern Mozambique, c AD 400-present*. Uppsala. Department of Archaeology and Ancient History, African and Comparative Archaeology.

Filipe, K.C. 2006. *Património Vivo em Inhambane: Districto de Vilanculos, 1992-2004*. Maputo: Eduardo Mondlane University. B.A Honours.

Fletcher, R.J. 2010. Seeking social identity in the Later Stone Age: techniques and technical choice within the mid late Holocene microlithic industries in Zambia. Unpublished doctoral thesis. Liverpool: University of Liverpool.

Flynn, D 1997. "We are the border": identity, exchange, and the state along the Bénin-Nigeria border. *American Ethnologist* 24 (2): 311-330.

Garlake, P. 1995. *The Hunter's vision: the prehistoric art of Zimbabwe*. Harare: Zimbabwe Publishing House.

Goodwin, A.J. & Van Riet Lowe, C. 1929. The Stone Age cultures of South Africa. *Annals of the South African Museum* 27: 1-289

Guenther, M. 1996. Diversity and flexibility: the case of the Bushmen of Southern Africa. In: Kent, S (ed.). *Cultural diversity among twentieth-century foragers: an African perspective*: 65-86. Cambridge: Cambridge University Press.

Guenther, M. 1999. *Tricksters & trancers: Bushman religion and society*. Bloomington (IN): Indiana University Press.

Guerreiro, M. V. 1965. Pinturas rupestres de Manica. In: *Geographica* 1. Nº 2. Lisboa: Sociedade Geográfica de Lisboa.

Gupta, A & Ferguson, J. 1997. *Culture, Power, Place: Ethnography at the End of an Era*. In: Gupta, A & Ferguson (eds). *Culture, Power, Place: Explorations in Critical Anthropology*. Durham: Duke University Press.

Hall, M. 1984. Frontiers in southern African archaeology. In: Hall, M; Avery, G; Wilson, M.L; Humphreys, A.J.B (eds.). *Frontiers in southern African archaeology today*. 1-10. Oxford: British Archaeological Reports - International Series 207.

Hall, M. 1987. *The changing past: Farmers, kings and traders in southern Africa, 200-1860*. Cape Town: David Phillip Publishers.

Hall, M. 1996. *African Archaeology*. London: David Phillip Publishers.

Hall, S. & Smith, B.W. 2000. Empowering places: rock shelters and ritual control in farmer-forager interactions in Northern Province. *South African Archaeological Society Goodwin Series* 8: 30-46.

Hammond-Tooke, W.D. 1974. *The Bantu speaking Peoples of Southern Africa*. London: Routledge and Kegan Paul.

Hydroelétrica de Cahora Bassa. 25º aniversário da Hidroelétrica de Cahora Bassa: a nossa energia abraça Moçambique. Lisboa: HCB, 2000. 208p.

Hodder, I. 1982. *Symbols in action: ethnoarchaeological studies of material culture*. Cambridge: Cambridge University Press.

Hodder, I. 1985. *Boundaries as Strategies*. In: Green, S.W. & Perlman, S.M (eds). *Frontiers, Boundaries and Open Social Systems*. 140-159. Orlando: Academic Press Inc.

Hollmann, J. 2002. Natural models, ethology and San rock-paintings: pilo-erection and depictions of bristles in south-eastern South Africa. *South African Journal of Science* 98: 563-567.

Horton, M.C. 1984. *The early settlement of the northern Swahili coast*. Unpublished PhD thesis. Cambridge: University of Cambridge.

Huffman, T.N. 1989a. *Iron Age Migrations*. Johannesburg: Witwatersrand University Press.

Huffman, T.N. 1989b. Ceramics, settlements and late Iron Age migrations. *African Archaeological Review* 7: 155-182.

Huffman, T.N. 2001. The Central Cattle Pattern and Interpreting the Past. *South African Humanities* 13: 19-35

Huffman, T.N. 2007. *Handbook to the Iron Age: the archaeology of pre-colonial farming societies in Southern Africa*. Scottsville: University of Kwazulu Natal Press.

Ichikawa, M. 1999. The Mbuti of northern Congo. In: Lee, R.B & Daly, R (eds). *The Cambridge Encyclopedia of Hunters and Gatherers*: 210 - 214. Cambridge: Cambridge University Press.

Ingold, T. 2000. *The Perceptions of the Environment: Essays in Livelihood, Dwelling and Skill*. London: Routledge.

Isaacman, A. 1979. *A tradição de resistência em Moçambique: o vale do Zambeze, 1850-1921*. Porto: Afrontamento.

Isaacman, A & Isaacman, B. 1975. The Prazeros as Transfrontiersmen: a study in social and cultural change. *The International Journal of African Historical Studies* 8 (11): 1-39.

Isaacman, A & Isaacman, B. 1983. *Mozambique: from colonialism to revolution, 1900-1982*. Colorado: Westview Press.

Isaacman, A & Isaacman, B. 1991. Os Prazeiros como Trans-Raianos: um estudo sobre transformação social e cultural. In: *Arquivo nº 10*. Maputo: AHM.

Isaacman, A & Sneddon, C. 2000. Toward a Social and Environmental History of the Building of Cahora Bassa Dam. *Journal of Southern African Studies* 26: 597-632.

Jopela, A. 2006. Gestão do património arqueológico no distrito de Manica: o caso das pinturas rupestres da estação de Mouchiabaka I, 1943-2005. Unpublished BA Honours. Maputo: Eduardo Mondlane University.

Jopela, A. 2010. Traditional Custodianship of Rock Art Sites in Southern Africa: a case study from Central Mozambique. Unpublished MA Thesis. Johannesburg: University of the Witwatersrand.

Juma, A. 2004. Unguja Ukuu on Zanzibar: an archaeological study of early urbanism. (Studies in Global Archaeology 3). Uppsala: Department of Archaeology and Ancient History.

Juwayeyi, Y. 1981. The Later Prehistory of Southern Malawi: A contribution to the study of technology and economy during the Later Stone Age and Iron Age periods. Unpublished doctoral thesis. Department of Anthropology. Berkeley: University of California.

Juwayeyi, Y.M & Phiri, M.Z. 1992. The state of rock art research in Malaŵi. Occasional Papers of the Malaŵi Department of Antiquities 1: 53–66.

Katankwa, N.M. 1994. The Iron Age in Zambia some new evidence and interpretation. Unpublished paper presented at the International Conference on the growth of farming communities in Africa from the Equator southward, Cambridge.

Katz, R. 1982. Boiling Energy: Community Healing Among the Kalahari Kung. Cambridge: Harvard University Press.

Keeney, B. 2003. Ropes to god: experiencing the Bushman spiritual universe. Rochester: Ringing Rocks Press.

Kinahan, J. 2000. Cattle for beads: the archaeology of historical contact and trade on the Namib coast. Uppsala: University of Uppsala.

Kopytoff, I. 1989. The Internal African Frontier: The Making of African Political Culture. In: Kopytoff, I (ed). The African Frontier: The Reproduction of Traditional African Societies: 3-84. Bloomington: Indiana University Press.

Kusimba, S. B. (2003). African Foragers: environment, technology, interactions. Walnut Creek: Altamira Press.

Lee, R.B. 1979. The !Kung San: men, women and work in a foraging society. Cambridge: Cambridge University Press.

Lee, R.B. 1993. The Dobe Ju/'hoansi. New York: Hartcourt Brace.

Lee, R.B & Daly, R (eds). 1999. The Cambridge Encyclopedia of Hunters and Gatherers. Cambridge: Cambridge University Press.

Lenssen-Erz, T. 1994. Jumping About Springbok in the Brandberg Rock Painting and in the Bleek and Llyod Collection. In: Dowson, T; Lewis-Williams, J.D. Contested Images: diversity in Southern African Rock Art Research: 331-371. Johannesburg: Witwatersrand University Press.

Lewis-Williams, J. D. 1981. Believing and Seeing: an interpretation of symbolic meanings in southern San rock paintings. London: Academic Press.

Lewis-Williams, J.D. 1998. Quanto? The Issue of 'Many meanings' in Southern Africa San Rock Art Research. In: South African Archaeological Bulletin 53: 86-97.

Lewis-Williams, J.D. 2002. A cosmos in stone: interpreting religion and society through rock art. Oxford: Altamira Press

Lewis-Williams, J.D. 2004. Discovering Southern African rock art. Cape Town: David Phillip.

Lewis-Williams, J.D. & Dowson, T.A. 1988. The signs of all times: entoptic phenomena in Upper Palaeolithic art and the neuropsychological model. *Current Anthropology* 34: 55-65.

Lewis-Williams, J.D. & Dowson, T.A. 1989. *Images of Power: Understanding Bushmen Rock Art*. Johannesburg: Southern Book Publishers.

Lewis-Williams, J.D & Pearce, D. 2004. *San Spirituality: Roots, Expressions and Social Consequences*. Cape Town: Double Storey.

Liesegang, G.J. 1996. Ngungunyane: A figura de Ngungunyane Nqumayo, Rei de Gaza 1884-1895 e o desaparecimento do seu Estado. Maputo: Coleção Embondeiro.

Lightfoot, I & Martinez, A. 1995. Frontiers and boundaries in archaeological perspective. *Annual Review Anthropology* 24: 471-492.

Lindgren, N.E. & Schoffeleers, J.M. 1978. *Rock art and Nyau symbolism in Malaŵi*. Department of Antiquities Publication No. 18, Ministry of Education & Culture. Zomba: Malaŵi: Government Press.

Livingstone, D. 1865. *The Zambesi Expedition 1858-64*. London: n/ed.

Loendorf, L. 2001. Rock Art Recording. In: Whitley, D. (ed). *Handbook of Rock Art Research*: 55-79. Walnut Creek: Altamira.

Macamo, S. 2006. *Privileged places in South Central Mozambique*. Uppsala:Uppsala University.

Macamo, S.& Ekblom, A. 2005. Projectos SAREC e a participação das comunidades locais na pesquisa arqueológica: o caso do distrito de Vilanculo. In: Zimba, Benigna; Castiano, José P. *As Ciências Sociais na Luta Contra a Pobreza em Moçambique*. Maputo: FILSOM Entertainment.

Macamo, S & Saetersdal, T. 2004. Archaeology and Cultural heritage Management in Mozambique - some experiences made and some future challenges. In: Oestigaard, T, Anfinset, N; Saetersdal, T (Eds): Combining the Past and the Present: Archaeological perspectives on society". BAR International series 1210, London.

Madiquida, H. 2007. The iron-using communities of the Cape Delgado Coast from AD 1000. Uppsala: Uppsala University.

Mann, M. & Dalby, D. 1987. A Thesaurus of African Language: a classification Annotated Inventory of the spoken Language of Africa: with an Appendix on their written Representation. London: Zell Publisher.

Marshall, L. 1959. Marriage among the #Kung Bushmen. Africa: Journal of the International African Institute 29 (4): 335-365.

Marshall, L. 1969. The medicine dance of the !Kung Bushmen. Africa 39: 347-381.

Marshall, L & Ritchie, C. 1984. Where are the Ju / wasi of Nyae Nyae? Cape Town: Centre for African Studies, University of Cape Town.

Marx, K. 1859. A contribution to the Critique of Political Economy. London: Progress Publisher.

Massey, D. 1994. Space, Place and Gender. Cambridge: Polity Press.

Mazel, A. 1989a. Changing social relations in the Thukela Basin, Natal 7000-2000 BP. South African Archaeological Society Goodwin Series 6: 33-41.

Mazel, A. 1989b. People making history: the last thousand years of the hunter-gatherer communities in the Thukela Basin. Natal Museum Journal of Humanities 1: 1-168.

Meneses, M.P.G. 1988. Idade da Pedra em Moçambique (Os primórdios da sociedade humana: evidências arqueológicas). In: Departamento De Arqueologia E Antropologia. Trabalhos de Arqueologia e Antropologia. Nº 5. Maputo: DAA/UEM.

Meneses, M.P.G. 1999. New methodological approaches to the study of the Acheulean from Southern Mozambique. Unpublished doctoral thesis. University of Rutgers.

Meneses, M.P.G. 2004. O Acheulense no sul de Moçambique: novas abordagens metodológicas. Maputo: Promédia.

Mercader, J; Bennet, T; Raja, M. 2008. Middle Stone Age starch acquisition in the Niassa Rift Mozambique. *Quaternary Research* 70: 283-300.

Metcalf, M. 1954. Some Nyasaland folk-lore tales. *Nyasaland Journal* 7 (2): 46-49.

Mgomezulu, G.G. 1978. Food Production: The beginnings in the Linthipe/Changoni Area of Dedza District, Malawi. Unpublished doctoral thesis. Department of Anthropology. Berkeley: University of California.

Mguni, S. 2002. Continuity and Change in San beliefs and ritual: Some aspects of the enigmatic formulating and three motifs from Matopo hills rock art, Zimbabwe. Unpublished Mphil thesis. Johannesburg: University of the Witwatersrand.

Middlemas, K. 1975. Cahora Bassa: engineering and politics in southern Africa. London: Weidenfeld and Nicolson.

Miller, S. F. 1967. Archaeological sequence of the Zambian Later Stone Age, in *Actes du VI^o Congres Panafricain de Prihistoire et de l'Etude du Quater-naire*, Dakar, 1967, in press.

Miller, S. 1969a. Contacts between the Later Stone Age and the Early Iron Age in southern Central Africa. *Azania* 4: 81-90.

Miller, S. 1969b. The Nachikufan industries of the Later Stone Age in Zambia. Unpublished doctoral thesis. Department of Anthropology. Berkeley: University of California

Miller, S. 1971. The age of the Nachikufan industries in Zambia. *Southern African Archaeological Bulletin* 26: 143-146.

Ministerio da Educação. 1986. Atlas Geográfico. Vol 1. Maputo: Diname.

Missão do Fomento e Povoamento do Zambeze. 1960. Elementos Económicos-Sociais. Relatório Geral (1959-1960).

Mitchell, P. 2002. *The archaeology of southern Africa*. Cambridge: Cambridge University Press.

Mitchell, P. 2005. Modelling Later Stone Age societies in Southern Africa. In: Stahl, A. (ed). *African Archaeology, A Critical Introduction*: 250-273. London: Blackwell.

Morais, J. M. 1988. *The Early Farming Communities of Southern Mozambique*. Stockholm: Central Board of National Antiquities.

Morais, J. 1989. Fontes historiográficas e arqueologia em Moçambique. In: *Revista LEBA* 7: 301-317.

Mourre, V. 1996. Les Industries en quartz au paleolithique: terminologie, methodologie et technologie. *Paleo* 8: 205-223.

Muianga, D. 2006. Romo Re Nguruwe. Pesquisa e interpretação arqueológica da arte rupestre San em Manica, 1936-2006. Maputo: Eduardo Mondlane University. B.A Honours History.

Musonda, F. 1983. Aspects of the prehistory of Lunsemfwa drainage basin, Zambia, during the last 20,000 years. Unpublished doctoral thesis. Department of Anthropology. Berkeley: University of California.

Negrão, J. Cem anos de economia da família rural africana: o delta do Zambeze em análise retrospectiva. Maputo: Promédia, 2001. 387p.

Newitt, M. 1973. Portuguese Settlement on the Zambesi: exploration, land tenure and colonial rule in east Africa. New York: Africana Publishing Company.

Newitt, M. 1997. História de Moçambique. Sintra: Europa-América.

Nhamo, A. 2005. Out of the labyrinth: an enquiry into the significance of kudu in san rock art of Zimunya, Manyikaland eastern Zimbabwe. Unpublished. Submitted for the Master of Philosophy Degree in Archaeology, Department of Archaeology, University of Bergen.

Nurse, G.T. 1974. The physical characters of the Maravi. Unpublished PhD Thesis. Johannesburg: University of the Witwatersrand.

Oliveira, O.R. 1964. Pinturas rupestres do monte Chinhamapere, contraforte da Serra Vumba, em Vila de Manica (Moçambique). In: Associação dos Arqueólogos Portuguese. Volume XI. Lisboa.

Oliveira, O.R. 1971. A arte rupestre em Moçambique. In: Monumenta. Nº 7. Lourenço Marques.

Orpen, J.M. 1874. A glimpse into the mythology of the Maluti Bushmen. Cape Monthly Magazine (N.S.) 9:1-13.

Parker, B.J. 2006. Toward an understanding of borderland processes. American Antiquity 71 (1): 77-100.

Parkington, J. 2001. Presidential Address: Mobility, seasonality and southern African hunter-gatherer. *South African Archaeological Bulletin* 56(173 & 174): 1-7.

Pélissier, R. 1984. *Naissance du Mozambique résistance et révoltes anticoloniales (1854-1918)* tome 1. Orgeval (France).

Perreira, M.A. 1966. *A Arte Rupestre de Moçambique*. In: *Governo Geral de Moçambique*, Lisboa.

Phillipson, D. 1969. The prehistoric sequence at Nakapapula rockshelter, Zambia. *Proceedings of the Prehistoric Society* 35: 172-202.

Phillipson, D. 1972a. *Prehistoric rock paintings and engravings of Zambia*. Livingstone: Livingstone Museum.

Phillipson, D. 1972b. *Zambian rock paintings*. *World Archaeology* 3: 313-327.

Phillipson, D. 1973. The prehistoric succession in eastern Zambia: a preliminary report. *Azania* 8: 3-24.

Phillipson, D.W. 1976. *The prehistory of Eastern Zambia*. Memoir Number Six of the British Institute in Eastern Africa. Nairobi, Kenya: British Institute in Eastern Africa.

Phillipson, D.W. 1977. *The Late Prehistory of Eastern and Southern Africa*. London: Heinemann.

Phillipson, D. W. 2002. *African Archaeology*. 2nd edition. Cambridge: Cambridge University Press.

Pikirayi, I. 1993. *The Archaeological Identity of the Mutapa State: Towards an Historical Archaeology of Northern Zimbabwe*. Uppsala: University of Uppsala.

PNUD. 2000. Moçambique Relatório nacional de desenvolvimento humano 1999: crescimento económico e desenvolvimento humano: progressos obstáculos e desafios. Maputo: SARDC.

PNUD. 2001. Moçambique Relatório nacional de desenvolvimento humano 2000: educação e desenvolvimento humano: percurso, lições e desafios para o século XXI. Maputo: SARDC.

Poole, E.H.L. 1930. The Date of the Crossing of the Zambezi by the Nguni. *Journal of Royal African Society* 29 (115): 290-292.

Prins, F.E. & Hall, S. 1994. Expressions of Fertility in the Rock Art of Bantu-Speaking Agriculturists. *African Archaeological Review* 12: 169-201.

Pwiti, G, 1996. Continuity and Change: An Archaeological Study of Farming Communities in Northern Zimbabwe, AD 500-1700. Uppsala: Uppsala University.

Ramos, M. 1973. Exploração arqueológica na area de Cahora Bassa. *Separata de Actas das II Jornadas Arqueológicas* 1: 7-14.

Ramos, M. 1979. Contribution portugaise à l'étude archaéologique de la vallé du Zambeze. *Leba* 2 : 45-52.

Ramos, M. 1980. Une enceinte (Monomotapa?) peu connue du Songo, Mozambique. In: Leakey, R.E. & Ogot, B.A. (eds). *Proceedings of the 8th Panafrikan Congress of Prehistory and Quaternary Studies*. Nairobi: International Louis Leakey Memorial Institute for Africa Prehistory.

Real, F. 1966. Geologia da Bacia do rio Zambeze (Moçambique): características geológico-minerais da bacia do rio Zambeze, em território moçambicano. Lisboa: Junta de Investigação do Ultramar.

Rita-Ferreira, A. 1975. Povos e cultura de Moçambique: história e cultura. Porto: Afrontamento.

Rita-Ferreira, A. 1966. Os Cheuas da Macanga. 8ª Série C: 1-332. Lourenço Marques: Instituto de investigação científica de Moçambique.

Rita-Ferreira, A. 1982. A fixação portuguesa e história pré-colonial de Moçambique. Nº142. Lisboa: Instituto de investigação científica do tropical.

Rodrigues, M.C. 1999. Os primórdios da Investigação Arqueológica em Moçambique e o Prof Santos Júnior: um reconhecimento arqueológico. Portugalia XIX-XX: 256-278.

Rodrigues, M.C. 2006. O primeiro sítio com vestígios de utilização do ferro e ceramic “tradicional” da Early Iron Age localizado em Moçambique – provincial da Zambézia. Revista Portuguesa de Arqueologia 9 (2): 415-449.

Rodrigues, M.C. 2007. Artefactos líticos das “estações” dos terraços fluviais da margem sul do rio Zambeze – provincial de Tete Moçambique: uma primeira abordagem. Revista Portuguesa de Arqueologia 10 (1): 401-482.

Saetersdal, T. 2004. Places, People and Ancestors: Archaeology and Society in Manica, Mozambique. BAR International series: London.

Saetersdal, T. 2011. Manica rock-art in contemporary society. In: Smith, B.W & Brundell, G. Seeing and knowing: ethnography and beyond in understanding rock-art. Johannesburg: Witwatersrand University Press.

Sampson, C.G. 1974. The Stone Age archaeology of Southern Africa. New York: Academic Press.

Sampson, C.G. 1988. Stylistic boundaries among Mobile Hunter-Foragers. Washington: Smithsonian Institution Press.

Sampson, C.G & Southard, M.D. 1973. Variability and change in the Nachikufan Industry of Zambia. *South African Archaeological Bulletin* 28: 78-89.

Santos Júnior, J. R. 1937. Contribuição para o estudo da Idade da Pedra em Moçambique. A estação lítica de Marissa (Tete). Moçambique, Lourenço Marques, nº12.

Santos Júnior, J. R. 1940. Pré-História de Moçambique. In: Congresso do Mundo Português IX. 647-656. Lisboa: Instituto de Antropologia da Universidade do Porto.

Santos Júnior, J.R. 1947. Alguns aspectos da IV Campanha da Missao Antropologica de Mocambique. *Bulletin De La Societe Portugaise Des Sciences Naturelles* 15 (23): 128-151.

Santos Júnior, J.R. 1950. Carta da pré-história de Moçambique. In: Actas do XIII Congresso Luso-Espanhol para o Progresso das Ciências. Tomo V. Lisboa: Universidade do Porto.

Santos Júnior, J.R. 1955. Les peintures rupestres de Moçambique. In: Balout, L (ed.). Actes du Congrès Panafricain de Préhistoire, Ile Session, Algiers 1952: 747-758. Paris: Arts et Métiers Graphiques.

Schebesta, P. 1933. *Among Congo Pygmies*. London: Hutchinson.

Schoffeleers, J.M. 1973. Towards the identification of a Proto-Chewa Culture: a preliminary contribution. *Journal of Social Science* 2: 47-60.

Schoffeleers, J.M. 1992. *River of Blood: The Genesis of a Martyr Cult in Southern Malawi, c. AD. 1600*. Madison: University of Wisconsin Press.

Serra, C. 1986. Como a penetração estrangeira transformou o modo de produção dos camponeses Moçambicanos: O exemplo da Zambézia (ca 1200 – 1964). (Os Moçambicanos antes da

penetração estrangeira). Coleção Moçambique e a sua história, Vol. I. 1-109. Maputo: Núcleo Editorial da Universidade Eduardo Mondlane.

Sinclair, P. 1987. *Space, Time and Social Formation: a territorial approach to the archaeology and anthropology of Zimbabwe and Mozambique, 0- 1700 AD*. Uppsala: Societas Archaeologica Upsaliensis. macamo

Sinclair, P., Morais, J., Adamowicz, L. & Duarte, R.T. 1993. A perspective on archaeological research in Mozambique. In: Shaw, T; Sinclair, P; Andah, B & Okpoko, A (eds). *Archaeology in Africa: food, metals and towns*: 409-431. London: Routledge

Siverts, H. 1969. Ethnic stability and boundary dynamics in Southern Mexico. In: Barth, F (ed). *Ethnic Groups and Boundaries: the social organization of culture difference*. Oslo: Univeristets Forlaget.

Smith, B.W. 1995. *Rock Art in south-central Africa: a study based on the pictographs of the Dedza District, Malawi and Kasama District, Zambia*. Unpublished doctoral thesis. Department of Archaeology. Cambridge: University of Cambridge.

Smith, B.W. 1997. *Zambia's ancient rock art*. Livingstone: National Heritage Conservation Commission of Zambia.

Smith, B.W. 2006. Reading rock art and writing genetic history: regionalism, ethnicity and the rock art of Southern Africa. In: Soodyall, H (ed). *The prehistory of Africa: tracing the lineage of modern man*. 76-96. Johannesburg: Jonathan Ball Publishers.

Smith, B.W. & Blundell, G. 2004. *Dangerous ground: a critique of landscape in rock-art studies*. In: Chippindale, C. & Nash, G. (eds). *The figured landscape of rock art: looking at pictures in place*. 239-262. Cambridge: Cambridge University Press.

Smith, P. & Allen, Q. 2004. Field Guide to the Trees and Shrubs of the Miombo Woodlands. Richmond: Royal Botanic Garden.

Soares de Castro. 1961. A pré-história de entre Ligonha e Rovuma. Boletim do Museu de Nampula 2.

Stahl, A.B. 1991. Ethnic style and ethnic boundaries: a diachronic case study from West-Central Ghana. *Ethnohistory* 38: 250-275.

Staudinger, H. 1911. Funde und Abbildungen von Felszeichnungen aus den alten Gold Gebieten von Portugiesisch – Sudostafrika. *Zeitschrift für Ethnologie* 43: 140-146.

Tanaka, J & Sugawara, K. 1999. The /Gui and //Gana of Botswana. In: Lee, R.B & Daly, R (eds). *The Cambridge Encyclopedia of Hunters and Gatherers*: 195-199. Cambridge: Cambridge University Press.

Thakeray, F. 1983. Dating the rock art of southern Africa. *South African Archaeological Bulletin* 7: 33-57.

Thomas, J 1993. The Politics of Vision and the Archaeologies of Landscape. In: Bender, B (ed). *Landscape: Politics and Perspectives*. Providence: Berg Publishers.

Trimingham, J.S. 1975. Notes on Arabic sources of information on East Africa. Appendix 1. In: Chittik, H.N. & Rotberg, R.I. *East Africa and the Orient: cultural syntheses in precolonial times*. 272-283. New York: Africana Publishing Co.

Turnbull, C.M. 1985. Processional Ritual among the Mbuti Pygmies. *The Drama Review* 29 (3): 6-17.

Van Doonum, B. 2007. Shelter and the Shashe Limpopo confluence area hunter-gatherer Sequence. *Southern African Humanities* 19: 17-67.

Van Doonum, B. 2008. Sheltered from change: hunter gatherer occupation of Balerno Main Shelter, Shashe Limpopo confluence area, South Africa. *Southern African Humanities* 20: 249-284.

Van Riet Lowe, C. 1948. Pinturas rupestres e a cultura do Zimbábue. *Boletim da Sociedade de Estudos da Colónia de Moçambique* 17: 3-16.

Van Riet Lowe, C & Wells, L.H. 1944. A contribution to the prehistory of Moçambique and report on material from Kitchenmiddens near the mouth of the Limpopo River. Lourenço Marques, 1944. Portuguese version in *Moçambique Documentário Trimestral*, Dec 1943).

Vinnicombe, P. 1976. *People of the Eland: Rock Paintings of the Drakensberg Bushmen as a reflection of their life and thought*. Pietermaritzburg: University of Natal.

Wadley, L., 1996. Changes in the social relations of pre-colonial hunter-gatherer after agro pastoralist contact: an example from the Magaliesberg, South Africa. *Journal of Anthropological Archaeology*, 15, 205-217.

Wadley, L. 1987. *Later Stone Age hunters and gatherers of the southern Transvaal: social and ecological interpretations*. Oxford: British Archaeological Reports.

Wadley, L. 2000. The early Holocene layers of Rose Cottage Cave, eastern Free State: technology, spatial patterns and environment. *South African Archaeological Bulletin* 55: 18-31.

Walker, N. 1980. Later Stone Age Research in the Matopos. *South African Archaeological Bulletin* 35 (131): 19-24.

Walker, N. 1994. Painting and Ceremonial Activity in the Later Stone Age of Matopos, Zimbabwe. In: Dowson, T; Lewis-Williams, J.D. *Contested Images: diversity in Southern African Rock Art Research*: 331-371. Johannesburg: Witwatersrand University Press.

Walker, N. 1995. Late Pleistocene and Holocene hunter-gatherer of the Matopos. *Studies in Africa Archaeology* 10. Uppsala: Uppsala University.

Walker, N.J. 1995b. The archaeology of the San: the Late Stone Age of Botswana. In: Sanders, A.J.G.M. (ed). *Speaking for the Bushmen*. Gaborone: Botswana Society.

Walker, N. 2003. Encapsulation, autonomy or somewhere inbetween? Kalahari Bushman Debate in Botswana. Prepared for the Khoesan Conference, Gaborone.

Werner, A. 1925. *The Mythology of All Races*. Volume II. Boston: Archaeological Institute of America.

Wild, H. & Fernandes, A. 1967. *Vegetation map of the Flora Zambesiaca Area: Flora Zambesiaca*. Salisbury: M.O. Collins.

Willcox, A.R. 1963. *The Rock Art of Southern Africa*. Johannesburg: Thomas Nelson and Sons (Africa) (PTY) Ltd.

Wobst, H.M. 1974. Boundary conditions for paleolithic social systems: a simulation approach. *American Antiquity* 39 (2): 147-178.

Wobst, H.M. 1978. The archaeo-ethnology of hunter-gatherer or the tyranny of the ethnographic record in archaeology. *American Antiquity* 43 (2): 303-309.

Wood, M. 2011. *Interconnection: Glass beads and trade in southern and eastern Africa and the Indian Ocean – 7th to 16th centuries AD*. Uppsala: Department of Archaeology and Ancient History.

Yellen, J.E. 1977. *Archaeological Approaches to the Present: Models of Reconstructing the Past*. London: Academic Press.

Zvelebil, M. 1986. Mesolithic societies and the transition to the farming: problems of time, scale and organisation. In: Zvelebil, M (ed). *Hunters in transition: Mesolithic societies of temperate Eurasia and their transition to farming*:167-188 Cambridge: Cambridge University Press.

Zubieta, L.F. 2003. *The Rock Art of MwanawaChentcherere II Rockshelter, Malawi: a site – specific study of girl’s initiation Rock Art*. Leiden: African Studies Centre.

Zubieta, L.F. 2009. *The Rock Art of Chinamwali: material culture and girl’s initiation in south-central Africa*. Unpublished PhD Thesis. Johannesburg: University of the Witwatersrand.

Appendix

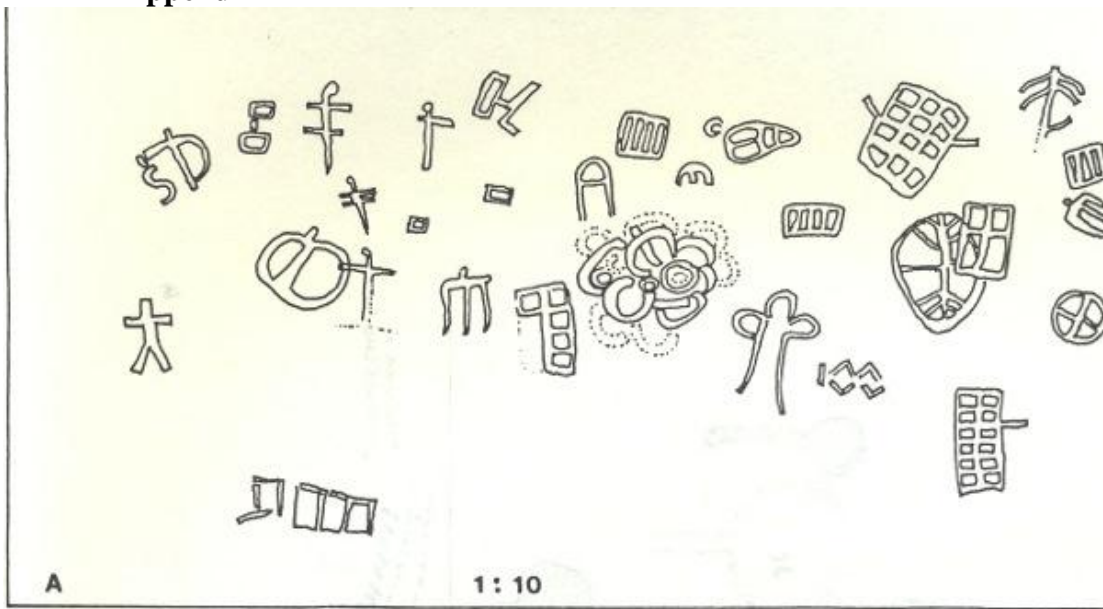


Figure 73: Adamowicz 1987: Red Geometric Tradition

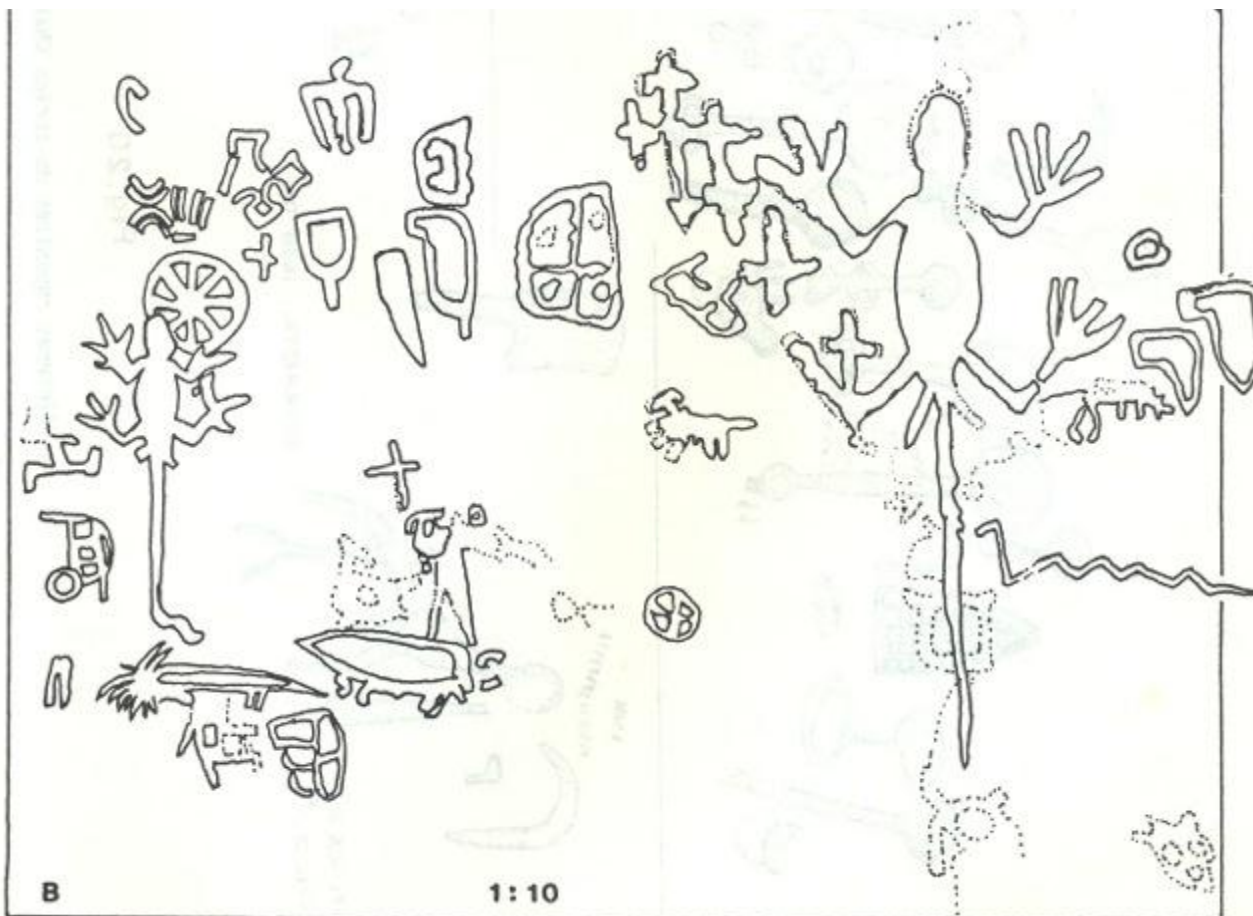


Figure 74: Adamowicz 1987: White paintings and symbolic art

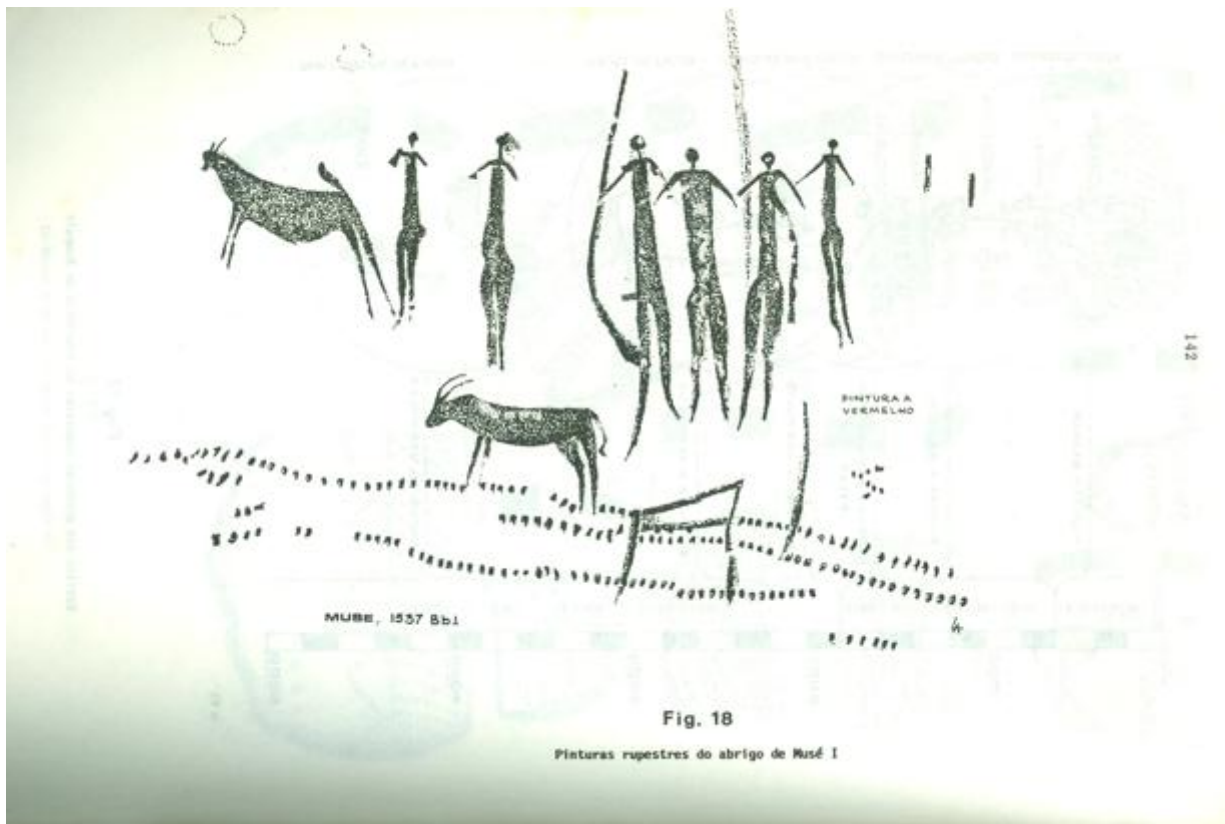


Figure 75: Adamowicz 1987: Rock paintings of Musé (Nampula Province).

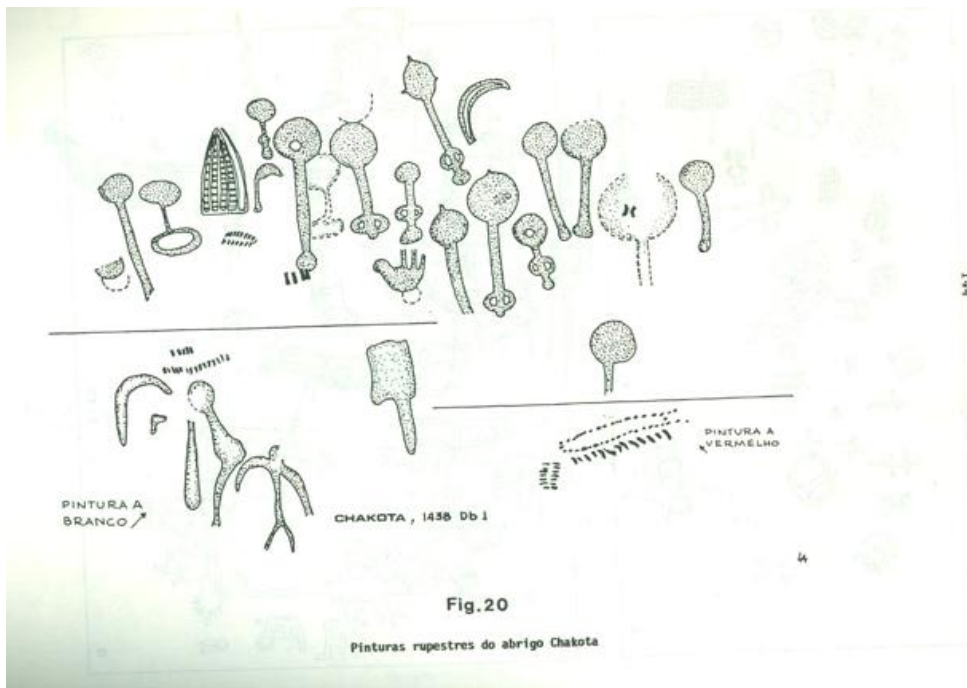


Figure 76: Adamowicz 1987: Rock paintings at Chakota site (Nampula Province).

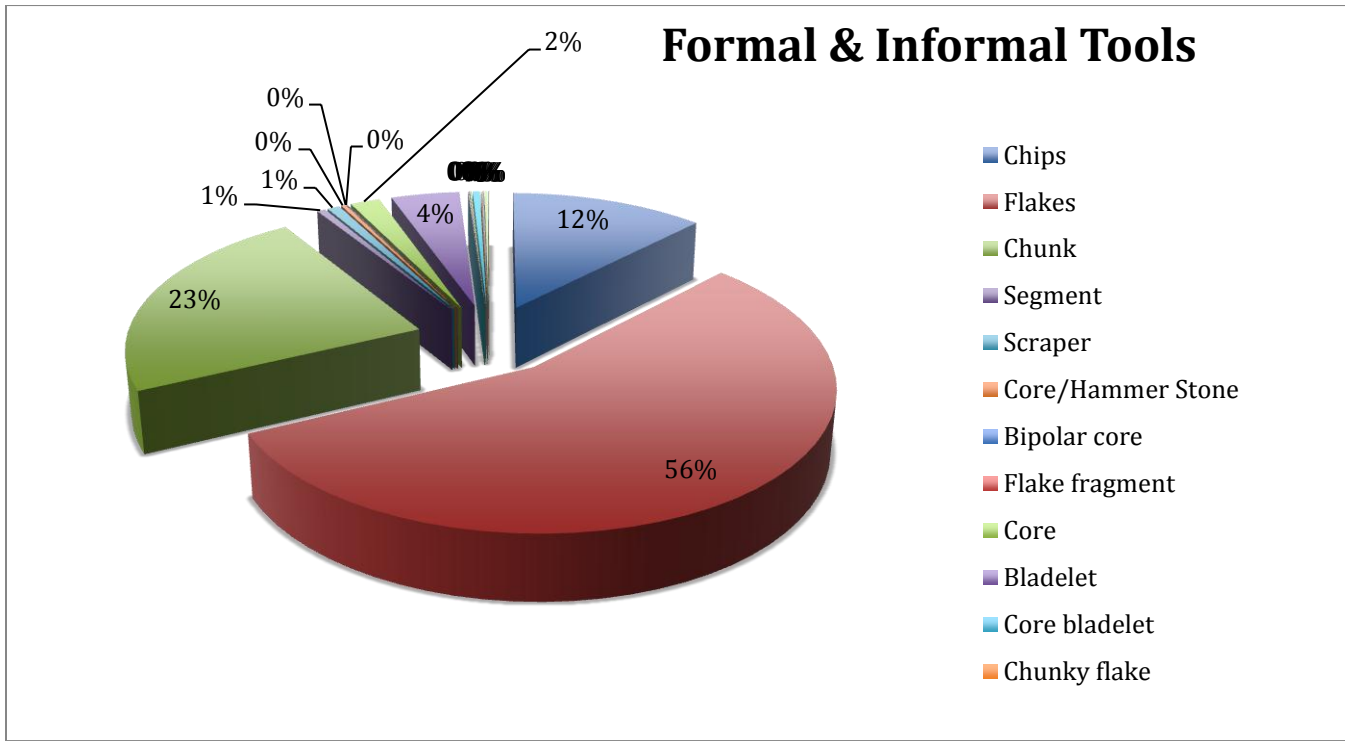


Figure 77: Formal and informal tools distribution Mouchiabaka.



Figure 78: Naturalistic human and animal figures Chimuala, Tete Province (image courtesy : RARI).

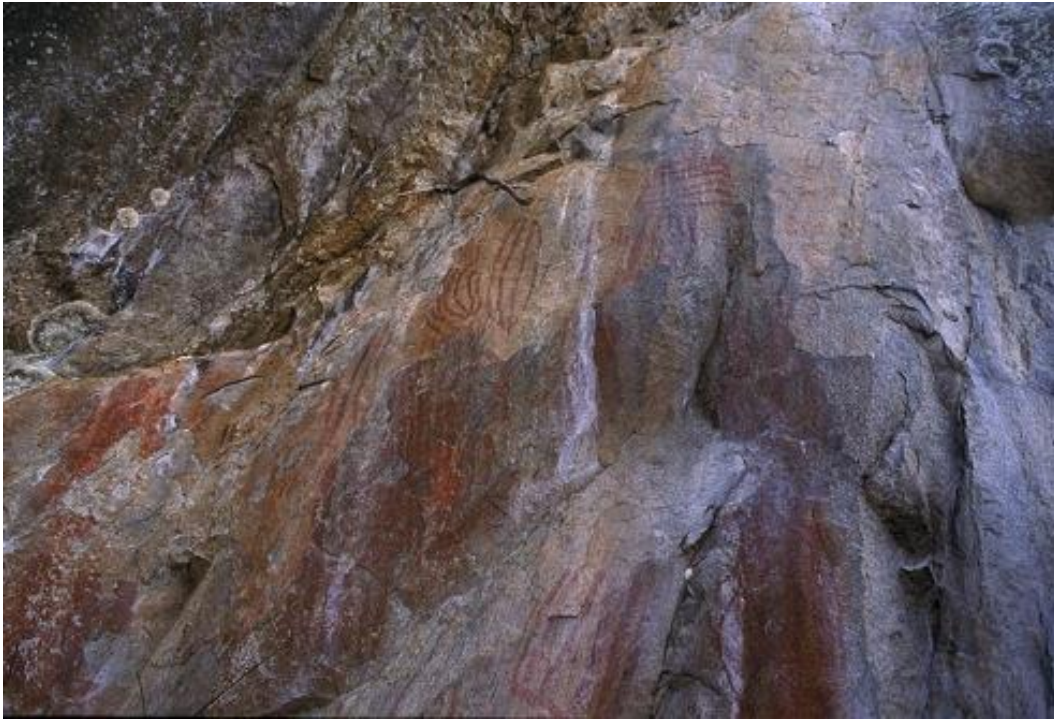


Figure 79: Red Geometric Chimuala, Tete Province (image courtesy: RARI).



Figure 80: White concentric circle (Bantu Painting) Chimuala, Tete Province (image courtesy: RARI).

CAMS #	Sample	Other	$\delta^{13}\text{C}$	fraction	\pm	D ¹⁴ C	\pm	¹⁴ C age	\pm					
	Name	ID		Modern										
												Diff	\pm Diff	Within (# of sigma)
146972	Ia	N91633	-25	0.9673	0.0032	-32.7	3.2	265	30		CAMS			
146982	Ib	N91643	-25	0.9696	0.0034	-30.4	3.4	250	30		UWIT pt	15	42	1
146973	IIa	N91634	-25	0.9311	0.0033	-68.9	3.3	575	30		CAMS			
146983	IIb	N91644	-25	0.9409	0.0033	-59.1	3.3	490	30		UWIT pt	85	42	2.1
146974	IIIa	N91635	-25	0.9808	0.0039	-19.2	3.9	155	35		CAMS			
146984	IIIb	N91645	-25	0.9809	0.0040	-19.1	4.0	155	35		UWIT pt	0	49	1
146975	IVa	N91636	-25	0.7823	0.0028	-217.7	2.8	1970	30		CAMS			
146985	IVb	N91646	-25	0.7920	0.0028	-208.0	2.8	1875	30		UWIT pt	95	42	2.3
146976	Va	N91637	-25	0.9636	0.0037	-36.4	3.7	300	35		CAMS			
146986	Vb	N91647	-25	0.9674	0.0039	-32.6	3.9	265	35		UWIT pt	35	49	1
146977	VIa	N91638	-25	0.9255	0.0041	-74.5	4.1	620	40		CAMS			
146987	VIb	N91648	-25	0.9393	0.0033	-60.7	3.3	505	30		UWIT pt	115	50	2.3
146978	VIIa	N91639	-25	0.7705	0.0031	-229.5	3.1	2095	35		CAMS			
146988	VIIb	N91649	-25	0.7737	0.0028	-226.3	2.8	2060	30		UWIT pt	35	46	1
146979	VIIIa	N91640	-25	0.9220	0.0033	-78.0	3.3	650	30		CAMS			
146989	VIIIb	N91650	-25	0.9224	0.0033	-77.6	3.3	650	30		UWIT pt	0	42	1
146980	IXa	N91641	-25	0.9763	0.0037	-23.7	3.7	195	35		CAMS			
146990	IXb	N91651	-25	0.9776	0.0035	-22.4	3.5	180	30		UWIT pt	15	46	1
146981	Xa	N91642	-25	1.0141	0.0036	14.1	3.6	Modern			CAMS			
146991	Xb	N91652	-25	1.0180	0.0036	18.0	3.6	Modern			UWIT pt	-3.9	5.1	1

- 1) $\delta^{13}\text{C}$ values are the assumed values according to Stuiver and Polach (Radiocarbon, v. 19, p.355, 1977) when given without decimal places. Values measured for the material itself are given with a single decimal place.
- 2) The quoted age is in radiocarbon years using the Libby half-life of 5568 years and following the conventions of Stuiver and Polach (ibid.).
- 3) Radiocarbon concentration is given as fraction Modern, D¹⁴C, and conventional radiocarbon age.
- 4) Sample preparation backgrounds have been subtracted, based on measurements of samples of ¹⁴C-free wood. Backgrounds were scaled relative to sample size.

Table 19: Charcoal dating results from Nphantegwe excavation

Context bag	Quad A	%	Quad B	%	Quad C	%	Quad D	%	Total	%
Flakes	57	93.4	78	100	82	96.5	75	98.7	292	97.3
Segment	4	6.6		0		0	1	1.3	5	1.7
Scraper				0		0		0		0
Core/Hammer Stone					1	1.2			1	0.3
Bipolar core					1	1.2			1	0.3
Flake fragment					1	1.2			1	0.3
Hammer stone										0
Total	61		78		85		76		300	

Table 20: Distribution of lithics in the different from excavation Nhantegwe.

Context bag	Total	%
Flakes	292	97.33
Segment	5	1.667
Scraper	0	0
Core/Hammer Stone	1	0.333
Bipolar core	1	0.333
Flake fragment	1	0.333
Hammer stone	0	0
Total	300	

Table 21: Flaked artefacts from Nhantegwe.

Artefacts	Total	%
Chips	490	45.54
Flakes	292	27.14
Chunk	265	24.63
Spall	21	1.952
Segment	5	0.465
Scraper	0	0
Core/Hammerstone	1	0.093
Bipolar core	1	0.093
Flake fragment	1	0.093
Hammerstone	0	0
Total	1076	100

Table 22: Stone artefacts from Nhantegwe.

Context Bag	S. Coll.	Lev 1	Lev 2	Lev 3	Lev 4	Lev 5	Lev 6	Lev 7	Lev 8	Lev 9	Lev 10	Total
Chips	63	13	27	22	51	64	54	62	49	41	43	489
Flakes	12	12	34	34	23	22	23	34	25	34	39	292
Chunk	13	12	33	21	27	22	22	35	28	28	23	264
Spall		34	41	13	2	11	5	2		2	4	114
Segment		1				1			1	1	1	5
Scraper												0
Ceramics		2	2	1	1		1					7
Core/Hammer Stone	1											1
Bipolar core											1	1
Flake fragment											1	1
Hammer stone												0
Total	89	74	137	91	104	120	105	133	103	106	112	1174

Table 23: Nhantegwe excavation levels: Top level (1, 2, 3, 4 - yellow), Middle level (5,6, 7 – green) and Bottom level (8, 9 & 10 – light blue).

Context Bag	50x50y nw2	%	50x50y se2	%	50x50yne2	%	Total	%
Flakes	92	15.5	222	23.1	43	18.7	357	85.8
Segment	4	0.7	2	0.2		0.0	6	1.4
Scraper		0.0	4	0.4		0.0	4	1.0
Core/Hammer Stone		0.0		0.0		0.0	0	0.0
Bipolar core	1	0.2		0.0		0.0	1	0.2
Flake fragment	1	0.2		0.0		0.0	1	0.2
Core	5	0.8	3	0.3	2	0.9	10	2.4
Bladelet	19	3.2	8	0.8	4	1.7	31	7.5
Core bladelet	1	0.2		0.0		0.0	1	0.2
Chunky flake	1	0.2		0.0		0.0	1	0.2
Borer		0.0		0.0		0.0	0	0.0
Denticulated flake		0.0		0.0		0.0	0	0.0
Manuport		0.0		0.0		0.0	0	0.0
Backed microlithic/Truncht		0.0		0.0		0.0	0	0.0
MRP		0.0	1	0.1		0.0	1	0.2
Retouched bladelet		0.0		0.0		0.0	0	0.0
Retouched tool		0.0	1	0.1		0.0	1	0.2
Blade		0.0		0.0		0.0	0	0.0
Backed bladelet		0.0	1	0.1		0.0	1	0.2
Broken bladelet		0.0	1	0.1		0.0	1	0.2
Broken backed piece		0.0		0.0		0.0	0	0.0
Hammer stone		0.0		0.0		0.0	0	0.0
Total	124		243		49		416	

Table 24: Top level Mouchiabaka.

Context Bag	50x50y nw3	%	50x50y ne 3	%	50x50y sw 3	%	50x50y se3	%	Total	%
Flakes	294	106.5	165	77.8	234	84.2	247	89.5	940	84.7
Segment	4	1.4	1	0.5	2	0.7	2	0.7	9	0.8
Scraper	9	3.3		0.0	7	2.5	2	0.7	18	1.6
Core/Hammer Stone		0.0		0.0		0.0		0.0	0	0.0
Bipolar core		0.0		0.0		0.0		0.0	0	0.0
Flake fragment		0.0		0.0		0.0		0.0	0	0.0
Core	7	2.5	4	1.9	10	3.6	7	2.5	28	2.5
Bladelet	22	8.0	40	18.9	14	5.0	11	4.0	87	7.8
Core bladelet		0.0		0.0		0.0		0.0	0	0.0
Chunky flake		0.0		0.0		0.0		0.0	0	0.0
Borer		0.0		0.0		0.0		0.0	0	0.0
Denticulated flake		0.0	1	0.5		0.0		0.0	1	0.1
Manuport	1	0.4	1	0.5	1	0.4		0.0	3	0.3
Backed microlithic/Truncht	1	0.4		0.0		0.0		0.0	1	0.1
MRP	2	0.7		0.0	8	2.9	3	1.1	13	1.2
Retouched bladelet	1	0.4		0.0		0.0		0.0	1	0.1
Retouched tool		0.0		0.0		0.0		0.0	0	0.0
Blade	1	0.4		0.0		0.0		0.0	1	0.1
Backed bladelet	1	0.4		0.0	2	0.7	4	1.4	7	0.6
Broken bladelet		0.0		0.0		0.0		0.0	0	0.0
Broken backed piece	1	0.4		0.0		0.0		0.0	1	0.1
Hammer stone		0.0		0.0		0.0		0.0	0	0.0
Total	344		212		278		276		1110	

Table 25: Middle level Mouchiabaka.

Context Bag	50x50y se4	%	50x50y sw4	%	50x50y ne4	%	50x50y nw4	%	50x50y sw5	%	Total	%
Flakes	202	84.9	176	83.4	161	84.7	238	88.8	294	91.9	1071	87.3
Segment	3	1.3		0.0	2	1.1	2	0.7	1	0.3	8	0.7
Scraper	4	1.7	2	0.9	1	0.5	1	0.4	4	1.3	12	1.0
Core/Hammer Stone		0.0	13	6.2		0.0		0.0		0.0	13	1.1
Bipolar core		0.0		0.0		0.0		0.0		0.0	0	0.0
Flake fragment		0.0		0.0		0.0		0.0		0.0	0	0.0
Core	16	6.7		0.0	5	2.6	12	4.5	10	3.1	43	3.5
Bladelet	9	3.8	17	8.1	18	9.5	14	5.2	9	2.8	67	5.5
Core bladelet		0.0	1	0.5		0.0		0.0		0.0	1	0.1
Chunky flake		0.0		0.0		0.0		0.0		0.0	0	0.0
Borer		0.0		0.0	1	0.5		0.0		0.0	1	0.1
Denticulated flake		0.0		0.0		0.0		0.0		0.0	0	0.0
Manuport		0.0		0.0		0.0		0.0		0.0	0	0.0
Backed microlithic/Truncht		0.0		0.0		0.0		0.0		0.0	0	0.0
MRP	4	1.7	1	0.5		0.0	1	0.4		0.0	6	0.5
Retouched bladelet		0.0		0.0	1	0.5		0.0		0.0	1	0.1
Retouched tool		0.0		0.0	1	0.5		0.0	2	0.6	3	0.2
Blade		0.0		0.0		0.0		0.0		0.0	0	0.0
Backed bladelet		0.0		0.0		0.0		0.0		0.0	0	0.0
Broken bladelet		0.0		0.0		0.0		0.0		0.0	0	0.0
Broken backed piece		0.0		0.0		0.0		0.0		0.0	0	0.0
Hammer stone		0.0	1	0.5		0.0				0.0	1	0.1
Total	238		211		190		268		320		1227	

Table 26: Bottom level Mouchiabaka