



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

A SYSTEMATICS FOR INTERPRETING PAST STRUCTURES WITH POSSIBLE COSMIC REFERENCES IN SUB-SAHARAN AFRICA

Richard Peter Wade

MASTERS THESIS
MSc: Applied Sciences
University of Pretoria

MASTER OF SCIENCE THESIS

Submitted as part of the requirements for the degree of Masters of Science in Applied Sciences. Faculty of Engineering, Built Environment and Information Technology - In the Department Architecture at University of Pretoria

Supervisors -

Prof Gwen Theron (Supervisor)

Prof Roger Fisher (Co-Supervisor)

Prof Karl Bakker (Head of Department)

External -

Prof Clive Ruggles (UK)

Prof Chris van Vuuren (SA)

Richard Peter Wade

University of Pretoria

January 2009

Acknowledgements

I am grateful to all my acquaintances, and family for their kind assistance throughout the many years of researching the impossible. Many years were spent in rural and urban settings with meager resources to achieve a better understanding of how the universe works. Perhaps this contribution can be applied to a better purpose for a beneficial future by resurrecting tested lifestyles and emulating the past successes.

To the following, a special heartfelt thank you for so much: - Professors Gwen Theron, Roger Fisher, Ora Joubert, Chris van Vuuren, Hannes Eloff, Stanley Lifschitz, Aeneas Chigwedere, Felix Chami, Hannes Rautenbach, Karel Bakker, Victor Ralushai, Dave Laney, Alex Duffey, Andre De Villiers, M. E. R. Mathivha, Jean-Pierre Delaporte, Mathole Motshekga, Bradley Schaefer, Anthony Aveni, E C Krupp, Clive Ruggles, Jarita Holbrook, John Vogel, Stranger Kgamphe, Patrick Moore, Arthur C Clarke, Tom Huffman, Henry Westerink, Karl Müller, Van Elden Trust, Volkswagen SA, Landrover SA, Andrea Vinassa, David and Laurinda Erasmus, Freek and Relifwe Kok, Rabbi Bernhard, David Lewis-Williams, Helgaard Prinsloo, Andre Meyer, Peter Hayward, Leon Pienaar, Francis Thackeray, Philip Appleton, Raymond Geens, Mark de Cuyper, Bernd Aschenbach, Dan Varisco and friends and colleagues - King Tony Ramabulana Mphephu, the Netshiendeulu's of Tshiendeulu, Sian Tiley-Nel, Johan Nel, Sven Ouzman, Roger Webster, Howard Benkenstein, Jan-Willem van Bergen, Johan Heine, Anton von Willich, Michael Tellingner, Margaret Roberts, Norman Appleton, Tom Ferguson, Fritz van der Merwe, Floors van Jaarsveld, Jensen Bjørnstadt, Marinda Smalberger, Lianie Naude, Anton de Jager, Deon Brewis, Gatscha Buthelezi, Ntate Kgalushi Koka and his family, Samuel Jale, Lawrence Bale, the Zuma, Ndzundza and Dhludla families of Nkandhla, King Samuel Moeti and the Lemba people, Regent Mphapatla Bakoma Modjadji, King Molepo, Rianne van Bergen, Erika von Fauberger-Becker, Kira van Bergen, Leoné Steyn, Vicki Jouannou, Lana Patterson, Danielle van Niekerk, Nanna de Klerk, Karien van Heerden, Sandra Botha, Paula I'ons, and specifically Suzanne Walker who started the whole thing in the first place.

And, especially for my nieces and nephews, my mother, father and sisters, three beautiful daughters Marjoke, Callista and Alizé and the pure love they represent in harsh times.

Cupped Time

If I
could
cup time in my
hands, pausing the moon, holding
the hour in a finite moment of crepuscular light:
neither day; nor night. Paused, reversing parting; inverting
death. The hour ablaze in achromatic nimbus, the old world and the
new, still and moving. Time conquered. Nothing extinguished, nor forgotten.

~~~~~  
Forgotten, extinguished. Nothing conquered, time moving, still. New and old world in  
a nimbus of achromatic blaze. The hour of death inverting,  
reversing, paused. Night, nor day, neither light. A  
crepuscular moment, finite in the hour, holding  
the moon. Pausing...  
time cupped.

And the end and the beginning  
were always there, before  
the beginning  
and after  
the end.

Suzanne Walker<sup>1</sup>

Though my mind  
May set in darkness  
It will rise  
In perfect light,  
I have loved the stars  
Too fondly  
To be fearful  
Of the night

Galileo Galilei

---

<sup>1</sup> Walker, Suzanne. 2008. Cupped Time. In Harris, "Cole" Vernick. 2008. The Baker's Dozen: The Cole Foundation Collection: Volume 2. Authors House. USA. <http://www.vimeo.com/2514179>

# A SYSTEMATICS FOR INTERPRETING PAST STRUCTURES WITH POSSIBLE COSMIC REFERENCES IN SUB-SAHARAN AFRICA

Richard Peter Wade

Acknowledgements

Table of Contents

List of Figures

## Table of Contents

|         |                                                                                             |    |
|---------|---------------------------------------------------------------------------------------------|----|
| 1       | CHAPTER ONE: INTRODUCTION.....                                                              | 14 |
| 1.1     | SYNOPSIS.....                                                                               | 14 |
| 1.2     | KEY WORDS.....                                                                              | 14 |
| 1.3     | DEFINITIONS.....                                                                            | 14 |
| 1.4     | RESEARCH PROBLEM STATEMENT.....                                                             | 15 |
| 1.4.1   | There are hardly any identified archaeoastronomical structures in sub-Saharan Africa.....   | 15 |
| 1.5     | MOTIVATION.....                                                                             | 16 |
| 1.6     | APPROACH AND METHOD.....                                                                    | 17 |
| 1.6.1   | Focus on Indigenous Knowledge Systems and the Sociocultural Environment.....                | 18 |
| 1.6.2   | Research Area and Limitation.....                                                           | 19 |
| 2       | CHAPTER TWO: ARCHAEOASTRONOMICAL IDENTIFICATION METHODS                                     |    |
| 2.1     | ARCHAEOASTRONOMICAL IDENTIFICATION METHODS.....                                             | 20 |
| 2.2     | DEFINING ARCHAEOASTRONOMY.....                                                              | 20 |
| 2.2.1   | Discussion - Present Methodology and Current Trends in Archaeoastronomy.....                | 22 |
| 2.2.2   | Present Methodology of Archaeoastronomy.....                                                | 24 |
| 2.3     | ARCHAEOASTRONOMICAL INITIATIVES TOWARDS METHODOLOGY IN REFERENCE TO SUB-SAHARAN AFRICA..... | 24 |
| 2.3.1   | Nabta, Ng'amoritung'a Megaliths and Borana Calendar.....                                    | 26 |
| 2.3.2   | Megaliths, Rock Art and Starlore.....                                                       | 29 |
| 2.3.3   | UNESCO - World Heritage Committee - Astronomy and World Heritage Initiative.....            | 35 |
| 2.3.4   | Conferences on Archaeoastronomical Initiatives in Africa.....                               | 36 |
| 2.3.4.1 | African Astronomical History Symposium.....                                                 | 36 |

|                                                                  |                                                                                                       |     |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----|
| 2.3.4.2                                                          | The First Workshop on Theories, Methods, and Future Collaborations in African Cultural Astronomy..... | 36  |
| 3                                                                | CHAPTER THREE – METHODOLOGY AND SUB-SAHARAN AFRI CA.....                                              | 37  |
| 3.1                                                              | PROPOSED METHODOLOGY TO IDENTIFY ARCHAEOASTRONOMICAL RESOURCES IN SUB-SAHARAN AFRI CA.....            | 37  |
| 3.1.1                                                            | Identification of the Relationship between Leadership and Cosmology                                   | 37  |
| 3.1.2                                                            | Identification of Astro-agricultural and Sustainable Practice.....                                    | 38  |
| 3.1.3                                                            | Identification of Structures and Artifacts in Terms of Astronomical Potential                         | 44  |
| 3.1.4                                                            | Data Collection and Analysis.....                                                                     | 49  |
| 3.1.5                                                            | Evaluation of the data.....                                                                           | 50  |
| 3.2                                                              | DIVERGENCE IN ARCHAEOASTRONOMY METHODOLOGY – A CASE STUDY.....                                        | 51  |
| 4                                                                | CHAPTER FOUR – ANALYSIS AND CONCLUSION.....                                                           | 60  |
| 4.1                                                              | COSMOLOGICAL REFERENCES AND THE ORDER OF THINGS.....                                                  | 60  |
| 4.2                                                              | COSMOLOGICAL REFERENCES AND WORLD-VIEW.....                                                           | 60  |
| 4.2.1                                                            | Relationship between Cosmic Reference and Rituals.....                                                | 62  |
| 4.2.2                                                            | Relationship between Cosmic Reference and Artifacts or Structures                                     | 68  |
| 4.2.3                                                            | Venus as Cosmological Reference.....                                                                  | 76  |
| 4.2.4                                                            | Cognitive Cosmological Principle of Spatial Organization at Tshiendeulu.....                          | 88  |
| 4.2.5                                                            | Rain making, Astronomy and the Concept of Mhondoro.....                                               | 91  |
| 4.2.6                                                            | Hypothesis – Mapungubwe.....                                                                          | 94  |
| 4.3                                                              | CONCLUSION.....                                                                                       | 112 |
| 4.4                                                              | APPENDICES.....                                                                                       | 119 |
| 4.4.1                                                            | Appendix 1 - Sub-Saharan Africa: Cultural Astronomy's Heart of Darkness                               | 119 |
| 4.4.2                                                            | Appendix 2 – General Overview of Archaeoastronomy Methods.....                                        | 123 |
| Artefactual analysis.....                                        |                                                                                                       | 123 |
| Symbolic analysis.....                                           |                                                                                                       | 123 |
| Alignment analysis.....                                          |                                                                                                       | 125 |
| Recreating the ancient sky.....                                  |                                                                                                       | 127 |
| Some Major topics in archaeoastronomical research.....           |                                                                                                       | 130 |
| Popular Sites and Artifacts regarded as Archaeoastronomical..... |                                                                                                       | 134 |
| Pretelescopic Astronomers.....                                   |                                                                                                       | 135 |
| Introduction of the telescope.....                               |                                                                                                       | 135 |
| Examples of Archaeoastronomical Artifacts.....                   |                                                                                                       | 135 |
| 4.4.3                                                            | Appendix 3 - Wheeler Seminar Research Compilation.....                                                | 143 |
| 4.4.4                                                            | Appendix 4 - Star Lore Of South Africa.....                                                           | 157 |

|        |                                                                                                             |     |
|--------|-------------------------------------------------------------------------------------------------------------|-----|
| 4.4.5  | Appendix 5 - Astronomy and World Heritage Initiative.....                                                   | 162 |
|        | Background.....                                                                                             | 162 |
|        | Why “Astronomy” and “World Heritage”.....                                                                   | 162 |
|        | Projects.....                                                                                               | 163 |
|        | Cyber forum <a href="http://whc.unesco.org/en/projects/74/">http://whc.unesco.org/en/projects/74/</a> ..... | 163 |
| 4.4.6  | Appendix 6 - African Astronomical History Symposium.....                                                    | 164 |
|        | GROUP PHOTOGRAPH OF AFRICAN ASTRONOMICAL HISTORY SYMPOSIUM ATTENDEES                                        |     |
|        | .....                                                                                                       | 167 |
| 4.4.7  | Appendix 7 - The First Workshop on Theories, Methods, and Future                                            |     |
|        | Collaborations in African Cultural Astronomy.....                                                           | 168 |
| 4.4.8  | Appendix 8.....                                                                                             | 169 |
| 4.4.9  | Appendix 9 - African Astronomy.....                                                                         | 179 |
| 4.4.10 | Appendix 10 - Sacrificial Practices Amongst the Lovedu People and                                           |     |
|        | Ritual Deaths in Southern Africa.....                                                                       | 182 |
| 4.4.11 | Appendix 11 - Tshiendeulu the Grave of Dambanyika.....                                                      | 188 |
|        | EXPEDITION TO TSHIENDEULU MARCH 2007.....                                                                   | 217 |
| 4.4.12 | Appendix 12 - Concept of Mhondoro Amongst the Korekore Speaking                                             |     |
|        | People in North-Eastern Zimbabwe.....                                                                       | 256 |
| 4.4.13 | Appendix 13 - Map of the Dying Sun Chariot Temple and of the                                                |     |
|        | Pilgrims Way North (in on-site pamphlet by Hromnik, C.A. 1994 November. The                                 |     |
|        | Dying Sun Chariot: Suikerboschfontein, Komatiland. Cape Town).....                                          | 265 |

## List of Figures

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Figure 6 Tiya Monolith. Joussaume, Roger. 1980 (sous la direction de) : Tiya - l'Ethiopie des mégalithes, Du biface à l'art rupestre dans la Corne de l'Afrique, publié avec le concours du Ministère des Affaires Etrangères, le Ministère de la Coopération, l'Ambassade de France en Ethiopie, l'U.N.E.S.C.O., l'U.P.R. 311 du CNRS.....                                                                                                                                               | 28 |
| Figure 116 500 BP Lascaux – Shaft of the Dead Man. Wall Scene depicting constellations as stick figures and animals. From Rappenglück, M. 1998. A Skychart from the Ice Age? - A Contribution to the Early History of Astronomy and to the Palaeoastronomical Methodology, the Scene "Le Puits" in the Cave of Lascaux (Com. Montignac, Dép. Dordogne, Rég. Aquitaine, France). .....                                                                                                     | 32 |
| Figure 2 Detail extracted from Dendera Zodiac depicting the same constellations as at Lascaux, with similar figures. 6000 BP zodiac restored by the Ptolemaic Dynasty in 1st century BCE of Temple of Dendera near Karnak. Trevisan, Camillo. 1997. La rappresentazione delle costellazioni nello zodiaco circolare di Dendera. I UAV - DPA.<br><a href="http://www.iuav.unive.it/dpa/ricerche/trevisan/dendera.htm">http://www.iuav.unive.it/dpa/ricerche/trevisan/dendera.htm</a> ..... | 33 |
| Figure 3 6000 BP zodiac restored by the Ptolemaic Dynasty in 1st century BCE of Temple of Dendera near Karnak Trevisan, Camillo. 1997. La rappresentazione delle costellazioni nello zodiaco circolare di Dendera. I UAV - DPA.<br><a href="http://www.iuav.unive.it/dpa/ricerche/trevisan/dendera.htm">http://www.iuav.unive.it/dpa/ricerche/trevisan/dendera.htm</a> .....                                                                                                              | 33 |
| Figure 4 Rock Painting found in the Eastern Freestate area of a comet or bolide breaking into two – Sven Ouzman Rock Art Dept. National Museum South Africa. Extracted from Ouzman, Sven. (2008 In Press) Flashes of Brilliance: San Rock Paintings of heavens things. Festschrift dedicated to David Lewis-Williams. (Personal Communication Sven Ouzman 14 November 2008).....                                                                                                          | 34 |
| Figure 5 Petroglyph photographed by RP Wade at Waterval-Boven district that may depict the lunation prior to full moon.....                                                                                                                                                                                                                                                                                                                                                               | 35 |
| Figure 7 Ruin fields near Waterval-Boven area – Johan Heine (Makomati Foundation) .....                                                                                                                                                                                                                                                                                                                                                                                                   | 39 |
| Figure 8 Ruin fields near Waterval-Boven area – Johan Heine (Makomati Foundation) .....                                                                                                                                                                                                                                                                                                                                                                                                   | 40 |
| Figure 9 Ruin fields near Waterval-Boven area – Johan Heine (Makomati Foundation) .....                                                                                                                                                                                                                                                                                                                                                                                                   | 40 |
| Figure 10 Ruin fields near Waterval-Boven area – Johan Heine (Makomati Foundation) .....                                                                                                                                                                                                                                                                                                                                                                                                  | 41 |
| Figure 11 Ruin fields near Waterval-Boven area – Johan Heine (Makomati Foundation) .....                                                                                                                                                                                                                                                                                                                                                                                                  | 41 |
| Figure 12 Extracted from Soodyall, Himla. 2006. The Prehistory of Africa Tracing the Lineage of Modern Man. Jonathan Ball Publishers. South Africa. ....                                                                                                                                                                                                                                                                                                                                  | 42 |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Figure 13 Extracted from Soodyall, Himla. 2006. The Prehistory of Africa Tracing the Lineage of Modern Man. Jonathan Ball Publishers. South Africa .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 43 |
| Figure 14 'Zodiac Bowl' in Bent, T. 1893. Ruined Cities of Mashonaland. London. (Rhodesiana Reprint Library. Volume Five facsimile reproduction of the third edition ). Books of Rhodesia, Bulawayo. Frontispiece.....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 47 |
| Figure 15 BaVenda Divination Bowl found by N. J. Van Warmelo amongst the VhaLemba. (Courtesy Dieter Giesekke). Now on loan to Cape Town Museum – I ZIKO .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 47 |
| Figure 16 Map of the Dying Sun Chariot Temple and of the Pilgrims Way North in on site pamphlet Hromnik, C.A. 1994 November. The Dying Sun Chariot: Suikerboschfontein, Komatiland. Cape Town.....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 53 |
| Figure 18 Stone Circle "A" in the Ruin fields near Waterval-Boven area. Photograph by Johan Heine (Makomati Foundation).....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 54 |
| Figure 19 A Stone Circle "A" in the Ruin fields near Waterval-Boven area. 'Alignments' as inferred by Johan Heine (Makomati Foundation).....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 54 |
| Figure 20 Stone Circle "B" in the Ruin fields near Waterval-Boven area. Positions of Viewpoints as inferred by Johan Heine (Makomati Foundation).....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 55 |
| Figure 21 Stone Circle "B" in the Ruin fields near Waterval-Boven area. 'Alignments' as inferred by Johan Heine (Makomati Foundation).....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 55 |
| Figure 22 The Johan Heine Stone Calendar (Affectionately known as Adam's Calendar). The Pole indicates where the 'Stoneman' pillar once stood. Makomati Foundation Home Page. 2007 April 1 <sup>st</sup> . <a href="http://www.makomati.com/calendar.htm">http://www.makomati.com/calendar.htm</a> .....                                                                                                                                                                                                                                                                                                                                                                                                                             | 57 |
| Figure 23 The Johan Heine Stone Calendar (Affectionately known as Adam's Calendar). Alignments as per Johan Heine and Michael Telling. Makomati Foundation Home Page. 2007 April 1 <sup>st</sup> . <a href="http://www.makomati.com/calendar.htm">http://www.makomati.com/calendar.htm</a> .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | 58 |
| Figure 24 The Stoneman of Adam's Calendar. See tyranny22; a member of AboveTopSecret.com.'Oldest man-made structure' unearthed?' <a href="http://www.abovetopsecret.com/forum/thread371662/pg1#pid4638583">http://www.abovetopsecret.com/forum/thread371662/pg1#pid4638583</a> .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 59 |
| Figure 25 Venus Synodic Pattern from September 2000 through March 2001, Tunc Tezel photographed the planet Venus on 25 different dates as it wandered through the evening twilight. The pictures were taken from the same spot on the campus of the Middle East Technical University near Ankara, Turkey, and timed so that for each photo the Sun was 7 degrees below the horizon. Carefully registering and combining the pictures, he produced this composite image - demonstrating the motion through the sky of Venus as an evening star. The pattern is different to that seen from Great Zimbabwe latitude. <a href="http://antwrp.gsfc.nasa.gov/apod/ap010601.html">http://antwrp.gsfc.nasa.gov/apod/ap010601.html</a> ..... | 77 |
| Figure 26 Chevron Pattern on the Main Wall at the Great Enclosure at Great Zimbabwe in Caton-Thompson, G. 1931. The Zimbabwe Culture: Ruins and Reactions. Oxford: Clarendon Press. Page 232.....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 78 |

|                                                                                                                                                                                                                                                                                                                                                        |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Figure 27 Venda Girls' Initiation Schools. Department of Social Anthropology. University of Belfast (Blacking March 1998)<br><a href="http://sapir.ukc.ac.uk/QUB/Introduction/TitlePage.html">http://sapir.ukc.ac.uk/QUB/Introduction/TitlePage.html</a> .....                                                                                         | 79 |
| Figure 28 Mayan Dresden Codex. In Aveni, A. 1997. Stairways To The Stars – Sky watching in Three Great Ancient Cultures. John Wiley & Sons, Inc. Astronomy in the Maya Codices, Pg110.....                                                                                                                                                             | 80 |
| Figure 29 The Monolith Stone originally found at Dhlo-dhlo now in the Zimbabwe National Museum in Hall, R.N. & Neal, W.G. 1902. The Ancient Ruins of Rhodesia. Methuen. Page236.....                                                                                                                                                                   | 81 |
| Figure 30 The Monolith Stone originally found at Dhlo-dhlo now in the Zimbabwe National Museum reproduced in Huffman, T.N. 1996. Snakes and Crocodiles – Power and Symbols in Ancient Zimbabwe. Johannesburg. Witwatersrand University Press. ....                                                                                                     | 82 |
| Figure 31 Detail of the Monolith Stone originally found at Dhlo-dhlo now in the Zimbabwe National Museum reproduced in Huffman, T.N. 1996. Snakes and Crocodiles – Power and Symbols in Ancient Zimbabwe. Johannesburg. Witwatersrand University Press. ....                                                                                           | 82 |
| Figure 32 An 'Ndzalama' Rock found at Zimbabwe by JT Bent. In Bent, J.T. 1969. (Reprinted from 1896) The Ruined Cities of Mashonaland. Books of Rhodesia. Page 254.....                                                                                                                                                                                | 87 |
| Figure 33 Figure VII 28 on page 119 Chapter VII , JC hill: Photograph of cupules and an 'incomplete' game board on mid southern side. In Schoeman, Maria Hendrieka. CLOUDI NG POWER? Rain-control, Space, Landscapes and I deology in Shashe-Limpopo State Formation. 2006. Phd Thesis. University of Witwatersrand.....                               | 96 |
| Figure 34 Sketch indicating how monoliths are arranged over the grave of the 'King of Mapungubwe'. University of Pretoria-Mapungubwe Archives pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53". Affidavit by Richard Rorke which first mention stone structures in Adams & Adams of Pretoria 1928.....               | 97 |
| Figure 35 Sketch indicating how one of the monoliths over the grave of the 'King of Mapungubwe' has a chip. University of Pretoria-Mapungubwe Archives pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53". Affidavit by Richard Rorke which first mention stone structures in Adams & Adams of Pretoria 1928.....      | 97 |
| Figure 36 Plan of Mapungubwe Hill showing earliest excavations. Fouche, Leo. 1937. Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937..... | 99 |
| Figure 37 Section of Profile of trench showing stone circles in Fouche, Leo. 1937. Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations                                                                                                                                                                                       |    |

at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937. Page 13. ....101

Figure 38 Detail of Section of Profile of trench showing stone circles in Fouche, Leo. 1937. Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937. Page 13. ....101

Figure 39 Stone circle on Mapungubwe hill, excavated by earliest archaeologists - Photographs from set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53" . ....102

Figure 40 Stone circle on Mapungubwe hill, excavated by earliest archaeologists - Photographs from set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53" . ....102

Figure 41 Stone circle on Mapungubwe hill, excavated by earliest archaeologists - Photographs from set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53" . ....103

Figure 42 Air photo of Stone circles revealed on Mapungubwe hill, excavated by earliest archaeologists - Photographs from set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53" . ....103

Figure 43 Air photo of Stone circles revealed on Mapungubwe hill, excavated by earliest archaeologists - Photographs from set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53" . ....104

Figure 44 Plan of first excavations found in the records of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University of Pretoria. See Figure 48 page 108. ....105

Figure 45 Detail of Site 7 in Plan of excavations titled – Mapungubwe Contoured Plan of Summit by Prof C van Riet Lowe, with details of excavations of sites 1,2,4,5,6 and 7. First record of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University of Pretoria. See Figure 48 page 108. ....105

- Figure 46 'Stonehenge' of Mapungubwe. Reconstruction of arrangement of 'polished-looking' monoliths over the 'Chief's Grave' - that appear to have been fashioned from crystalline dolerite (columnar-jointed basalt) found at a nearby igneous dyke intrusion - by Jan Willem van Bergen and Richard Wade August 2004..107
- Figure 47 Schematic Distribution indicating 'Stonehenge' and stone circles of Mapungubwe - by Jan Willem van Bergen and Richard Wade August 2004....108
- Figure 48 Plan of excavations titled - Mapungubwe Contoured Plan of Summit by Prof C van Riet Lowe, with details of excavations of sites 1,2,4,5,6 and 7. First record of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University of Pretoria.....109
- Figure 49 Detail of Site 2 in Plan of excavations titled - Mapungubwe Contoured Plan of Summit by Prof C van Riet Lowe, with details of excavations of sites 1,2,4,5,6 and 7. First record of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University of Pretoria. See Figure 48 page 108. .... 111
- Figure 50 Diagram showing the location of the sun daggers on the petroglyph on various days 2001. August. [http://en.wikipedia.org/wiki/History\\_of\\_astronomy](http://en.wikipedia.org/wiki/History_of_astronomy) .....124
- Figure 51 The Sun rising behind the Heel Stone at Stonehenge 2001. August. [http://en.wikipedia.org/wiki/History\\_of\\_astronomy](http://en.wikipedia.org/wiki/History_of_astronomy).....125
- Figure 52.....127
- Figure 53 Precessional movement. 2006. September. Wikipedia - <http://en.wikipedia.org/wiki/Archaeoastronomy> .....128
- Figure 54 Halley's Comet depicted on the Bayeux tapestry 2006. September. Wikipedia - <http://en.wikipedia.org/wiki/Archaeoastronomy>.....129
- Figure 55 Aztec Stone of the Sun replica in El Paso, Texas, cast from the original to be found in the National Museum of Anthropology and History. A religious artefact showing how the Mexica people thought about time. 2006. March 12<sup>th</sup>. [http://en.wikipedia.org/wiki/List\\_of\\_artefacts\\_of\\_archaeoastronomical\\_significance](http://en.wikipedia.org/wiki/List_of_artefacts_of_archaeoastronomical_significance) .....130
- Figure 56 The constellation Argo Navis drawn by Johannes Hevelius in 1690. 2006. March 12<sup>th</sup>. [http://en.wikipedia.org/wiki/List\\_of\\_artefacts\\_of\\_archaeoastronomical\\_significance](http://en.wikipedia.org/wiki/List_of_artefacts_of_archaeoastronomical_significance) .....131
- Figure 57 The Intihuatana ("tie the sun") at Machu Picchu is believed to have been designed as an astronomic clock by the Incas, while some have speculated about the site's possible astrological role. 2006. March 12<sup>th</sup>. [http://en.wikipedia.org/wiki/List\\_of\\_artefacts\\_of\\_archaeoastronomical\\_significance](http://en.wikipedia.org/wiki/List_of_artefacts_of_archaeoastronomical_significance) .....133

Figure 58 Diagram of the disk in its current condition (a star and a part of the full moon was restored). 2006. November.  
[http://en.wikipedia.org/wiki/Pretelescopic\\_astronomy](http://en.wikipedia.org/wiki/Pretelescopic_astronomy).....136

Figure 59 Initial state: On the left the full moon, on the right the waxing moon, and between and above, the Pleiades. 2006. November.  
[http://en.wikipedia.org/wiki/Pretelescopic\\_astronomy](http://en.wikipedia.org/wiki/Pretelescopic_astronomy).....137

Figure 60 Second state: Arcs are added on the horizon for the zones of the rising and setting sun. Individual stars were shifted and/or covered. 2006. November. [http://en.wikipedia.org/wiki/Pretelescopic\\_astronomy](http://en.wikipedia.org/wiki/Pretelescopic_astronomy).....137

Figure 61 Third state: Addition of the "sun boat".2006. November .  
[http://en.wikipedia.org/wiki/Pretelescopic\\_astronomy](http://en.wikipedia.org/wiki/Pretelescopic_astronomy).....138

Figure 62 Avention gold cône from 1500-1250 BC. 2004. June 23<sup>rd</sup>. "Mathias Schultz, "Der Kult der Sternenmagier".....139

Figure 63 The Antikythera mechanism (main fragment) 2006. November.  
[http://en.wikipedia.org/wiki/Antikythera\\_mechanism](http://en.wikipedia.org/wiki/Antikythera_mechanism).....141

Figure 64 Schematic of the artifact's mechanism2006. November.  
[http://en.wikipedia.org/wiki/Antikythera\\_mechanism](http://en.wikipedia.org/wiki/Antikythera_mechanism).....141

Figure 65 The Antikythera mechanism as reconstructed by Paolo Amoroso side 1  
 14<sup>th</sup> May 2007 <http://www.mogi-vice.com/Antikythera/Antikythera-it.html>.142

Figure 66 The Antikythera mechanism as reconstructed by Paolo Amoroso side 2  
 14<sup>th</sup> May 2007 <http://www.mogi-vice.com/Antikythera/Antikythera-it.html>.142

# 1 Chapter One: Introduction

## 1.1 Synopsis

This thesis presents a method of identifying astronomical expressions inherent within the spatial geography, cultural landscapes, and layouts of structures with a view to implementing the systematics in an African context. In determining astronomical codes of the southern African pre - early farmer and metalworking archaeological sites - this review deals with oral tradition, rituals, formative calendars, fertility, meteorites, eclipses, bio-diversity, sustainable agriculture, rainmaking and the general star lore. Conclusions are drawn from the hypothesis that certain structures functioned as astronomical expressions by use of monoliths and other configurations, with specific examples of how these possibilities were drawn from aspects within the Mapungubwe/Zimbabwe Cultural Complex and the preceding riverine cultural formations.

## 1.2 Key Words

Technologies and applied sciences, Social Sciences, Agricultural sciences  
Architecture, Archaeoastronomy, Historical Astronomy, Archaeology,  
Agriculture, Astronomy, History, Anthropology, Indigenous Knowledge Systems,  
Mathematical literacy, Ethno mathematics, Ethnoastronomy, Cultural  
Astronomy, Cognitive anthropology, Indigenous material culture, Precision  
Agriculture, sustainable agriculture, Venda, Shona, Lemba, Culture, Identity,  
History, Ancient - Africa, Oral history, Gamma-ray astronomy, Computer  
Simulation, Cosmic Reference, Cultural Landscapes, Calendars, Cosmology, Oral  
Tradition, Tourism, Ethnoastronomy, Rainmaking, Meteorology, Heritage,  
Mapungubwe, Machema, Spatial Geography, Cave Art, Rock Art, Stelae,  
Monoliths, Megaliths, Cultural Landscape, systematics, Social Ecology, Cultural  
Ecology, Heritage Conservation, Heritage Assessment, Heritage Management,  
Entoptic, Neuropsychological Theory, Cognitive.

## 1.3 Definitions

Introductory clarification of concepts and definitions are discussed in detail in the text.

### – **Archaeology**

Current trends in the South African historiography are defined with specific reference to which particular archaeological methodology is used, such as

cognitive versus processualist, with the various social anthropological and cultural ideologies.

– **Astronomy**

Definitions that are relevant to this study are introduced such as precession, solar movements, eclipses, supernovae, meteorites, lunation and Venus synodic period.

– **Archaeoastronomy**

Archaeoastronomy as a new discipline is discussed in detailed reference to southern African context.

– **Astro-archaeology**

Astro-archaeology deals with astronomical features found in the archaic records. This is now regarded as an outdated term

## **1.4 Research Problem Statement**

### **1.4.1 There are hardly any identified archaeoastronomical structures in sub-Saharan Africa.**

To determine a methodology of identifying the relevant structures and expressions associated with indigenous astronomy and the possible effects that the results may have on present knowledge of the universe, ideologies, leadership, agricultural practice, tourism, historical perspective and socio-cultural identity.

Almost no structures are recorded or researched for their astronomical aspects and therefore it is an area of concern as to why and how this came about or why sub-Saharan Africa is destitute of such a heritage. Methodology to determine such structures is required in order to change the perspectives that Africa apart from Egypt had developed the capability to perceive, record and utilize the movements and events of space beneficially.

Astronomical designs, the oral traditions and records that still exist may provide a greater insight into climate research, astrophysics, past celestial events as well as reintroducing the successful agricultural past to modern methods of farming. These cognitive aspects and events may indeed lead to a greater understanding of social movements, origins, and thereby spatial geography in general.

There is a severe lack of astronomical heritage sites in sub-Saharan Africa to date and in a newly emerging South African socio-cultural identity it is imperative that



such a need be fulfilled (see appendix 1 page 119)<sup>2</sup>. This can provide a new idiom of science awareness in that mathematics and early physics of the world also has a home in the African continent.

The earliest formation of metalworking agrarian cultures that emerged along the main habitable river valleys flowing into the east coast of Southern Africa appear to have astronomical aspects. Rudimentary surveys were conducted in the Limpopo, Nkomati, Pongola and Thukela River valleys.

This thesis aims to determine a methodology of identifying the relevant structures and expressions associated with indigenous astronomy and to stress the value of why there should be a need for such a methodology and the possible effects that this may have on present ideologies, leadership, agricultural practice, tourism, historical perspective and socio-cultural identity.

It will provide a perspective on early economies and how they existed with their indigenous temporal methods. How this in turn produced food and perhaps how this knowledge can alleviate poverty today. Furthermore providing historiography of capital, leadership, ownership of land and determination of identity.

## 1.5 Motivation

As a method to determine or establish astronomical codes that may exist in the settlement layouts of African archaeological sites - this preliminary study attempts to ascertain how to reveal by any means - such as use of alignments by stelae and monoliths, structures, other astronomical tools and practices. Found throughout the various ages, which possibly relate to buildings, rituals, agriculture and habitation. And, whether a traditional astronomical use of might prevail or be reflected in the architecture specifically throughout Southern Africa.

Archaeoastronomical research is rare and scarce architectural remains direct present understanding, with rudimentary cipher search being largely challenged in the subcontinent of Africa. This research is proliferated in the northern hemisphere, South America and Asia. The logical conclusion suggesting that Africans and early humans were not capable of perceiving and recording celestial phenomena, specifically in their expressive use of space. Humans appear to have emerged from Africa and it is therefore pertinent to ascertain when the larger

---

<sup>2</sup> See Appendix 1 - Snedegar, Keith. 1999. Sub-Saharan Africa: Cultural Astronomy's Heart of Darkness. Essays from Archaeoastronomy & Ethnoastronomy News, The Quarterly Bulletin Of The Center For Archaeoastronomy and I SAAC. Number 32 June Solstice 1999.



universe became part of the human realm and how these significant attempts can be identified.

Africa has limited written records or solid structures and settlement layouts can only suggest that an astronomical heritage exists, moreover, there are vast resources of cave paintings and petroglyphs and much of the research has yet to be analyzed, for their astronomical content<sup>3</sup>.

### 1.6 Approach and Method

The idea of ascertaining astronomical aspects from the archaeological resources has been a recent endeavour brought about by the mysteries of the first publications of megalithic phenomena since the beginning of the 1900's.

The concept that ancient man had the potential to mark the sun and stars took root specifically around discoveries in Egypt and Stonehenge but the relatively newly established discipline of finding astronomical data in archaeological and cultural resources has finally emerged from an almost pseudo-scientific task into a natural and social scientific status as archaeoastronomy.

The limited archaeological and ethnographic records of Southern African historiography are expanded by the incorporation of the new disciplines archaeoastronomy and indigenous astronomy, both current and past. Scanning the heavens with high technology telescopes and spacecraft, modern astronomers have fashioned an understanding of the universe far beyond what was thought possible only a few decades ago. Yet in a sense, the achievements of these scientists are less remarkable than those of the ancient sky watchers - the priests, shamans, and philosophers of long-vanished societies. Somehow, through observation, intuition, and methods now lost in time, these scholars amassed a wealth of knowledge about the sun, moon, planets, and stars, and how they might be linked to the rhythms of humankind, of sowing and reaping, life and death.

This relatively unknown new branch of research called archaeoastronomy that is proposed here as a possible methodology, has emerged to trace the full extent of

---

<sup>3</sup> Marschak, Alexander. 1988. The Neanderthals and the Human Capacity for Symbolic Thought: Cognitive and Problem-solving Aspects of Mousterian Symbol. - *Etudes et Recherches Archéologiques de l'Université de Liège* 32: 332-335.

Marschak, Alexander. 1988. Theory and Methodology in the Study of the Upper Paleolithic Signs. Paper Delivered at the First International Congress on Rock Art, Darwin, Australia, August 29-September 2.

this considerable ancient indigenous knowledge. By studying the cultural material and archaeological features such as stone structures, art and oral history lore of early African communities, archaeoastronomers hope to discover how these societies learned about the heavens and how and why they used their insights in agriculture, philosophy, and ancestral worship. Also that there is a pressing urgency to retrieve, document and record oral traditions relating to archaeoastronomical aspects before they are destroyed completely.

“Physical law is not made by social consensus, only by scientific evidence, which comes from acknowledging those things scientists know are uncertain or even yet unknown - not accepting as incontrovertible that which is yet unproven”.<sup>4</sup>

### **1.6.1 Focus on Indigenous Knowledge Systems and the Sociocultural Environment**

This research focuses on the research and propagation of indigenous knowledge systems of star lore within the interface of tourism and resources specifically in Tshiendeulu, Mapungubwe National Park and the Mapungubwe<sup>5</sup> sociocultural environment, as well as the extensive ruin-fields of structures throughout Mpumalanga.

To combine research on archaeoastronomical sites of key importance with the reestablishment of lore in communities who have lost this in order to provide a deep understanding of its role in the social milieu - for instance, the astronomical discoveries at Mapungubwe and Great Zimbabwe. To employ whether these discoveries increase our understanding of the Universe and our Humanity and the role this plays in leadership development and to enhance knowledge systems around science and culture, and the relationships amongst and between diverse groups. And, in doing so the systematics will create interdependence between Ubuntu and science by recognizing the validity of humanity, and the contribution every human being can make to the advancement and benefit of society as a whole.

---

<sup>4</sup> Michael Crichton.

<sup>5</sup> Fouché, L. 1937. ed. Mapungubwe: ancient Bantu civilisation on the Limpopo. Cambridge: Cambridge University Press.

Gardner, G.A. 1963. Mapungubwe II: report on excavations 1935-1940. Pretoria. Van Schaik.

Meyer, A. 1998. The Archaeological Sites of Greefswald - Stratigraphy and Chronology of the Sites and a History of Investigations. V & R Printing Works - Pretoria.

The main aim of the thesis/systematics is to reconstruct the knowledge base for indigenous star lore by a methodology of applying it to economic growth and cultural heritage promotion for the African Renaissance.

Research into the archaeoastronomical (Indigenous Knowledge Systems) aspects of the Mapungubwe cultural complex and its applications can therefore be most productive in examining the interface of indigenous knowledge systems with other systems of knowledge that have a fundamental influence on the creation of a new more eco-efficient economic trajectory for the African Renaissance.

The theoretical framework for the interface of star lore with systems of knowledge and the highly sophisticated nature of star lore is summarized in the description of the discipline of archaeoastronomy. (See Appendix 2 page 123)

The relevant aim of archaeoastronomy being to reconstruct and ascertain archaeological resources from an astronomical perspective to gain insights to aspects of socio-cultural and ideological nature.

#### **1.6.2 Research Area and Limitation**

This research focuses on the research and propagation of indigenous knowledge systems of star lore within the interface of tourism and resources specifically protected in the National Parks, the Mapungubwe National Park, Mapungubwe sociocultural environment (including Tshiendeulu and Macheba), Mpumalanga, Mozambique, Botswana, Zambia, Zimbabwe as well as Cape Karroo socio-cultural environment of the San and Khoi people.

## 2 Chapter Two: Archaeoastronomical identification Methods

### 2.1 Archaeoastronomical identification Methods

Throughout human history, people have looked to the sky to reveal its meaning. Because the sky is dependable and predictable, people can meet their need for order by incorporating the regularities of the sky into their lives.

Humans observe the objects in the sky and the phenomena associated with them to improve the quality of daily life. Explore the heavens by learning about the objects humans have observed for thousands of years and the phenomena associated with them.

By searching for the cosmic references of the past and present, inferences are drawn about the comparative cosmological consciousness that may be preserved through time that is reflected in spatial arrangements and the cultural landscape.

### 2.2 Defining Archaeoastronomy

Since the 1960s, a new branch of scholarship called archaeoastronomy<sup>6</sup> has emerged to trace the full extent of this considerable ancient knowledge. By studying the artifacts and lore of early human communities, archaeoastronomers hope to discover how these societies learned about the heavens and how and why they used their insights in agriculture, philosophy, and religion. But the researchers are dogged by a frustrating certainty: Much of what they seek has been lost beyond retrieving. The astronomers of old will keep many of their secrets through eternity.

---

<sup>6</sup> Aveni, A. 1997. *Stairways To The Stars – Skywatching in Three Great Ancient Cultures*. John Wiley & Sons, Inc. Astronomy in the Maya Codices.

Aveni, Anthony F. 1981. "Archaeoastronomy". In *Advances in Archaeological method and Theory*, vol 4. Princeton, N.J.: Academic Press, 1981, pp.1 –77

Krupp, E.C. 2003. *Echoes of the Ancient Skies: The Astronomy of Lost Civilizations*. Dover Publications, inc. Mineola, New York.

Schaefer, B.E. 1999. "Astronomy in Historical Studies" in *Archaeoastronomy: The Journal of Astronomy in Culture*. Edited by J. B. Carlson. XIV,1 University of Texas Press (Spring/Summer 1999).

“Archaeoastronomy (also spelled Archeoastronomy) is the study of ancient or traditional astronomies in their cultural context, utilising archaeological and anthropological evidence. The anthropological study of astronomical practices in contemporary societies is often called ethnoastronomy, although there is no consensus as to whether ethnoastronomy is a separate discipline or is a part of archaeoastronomy. Archaeoastronomy is also closely associated with historical astronomy, the use of historical records of heavenly events to answer astronomical problems and the history of astronomy, which uses written records to evaluate past astronomical traditions. It is most frequently mentioned with astronomical claims regarding Stonehenge or the pyramids of Egypt.”<sup>7</sup>

A discipline that strives for secure theoretical foundations by studying astronomical practices and traditions in their cultural context to understand the processes of the human interface with a changing environment and an ability to record and predict the cycles of time in Nature.

Moreover, archaeoastronomy sets out to determine an optimal balance between the ‘general’ (statistical) and ‘specific’ (contextual) approaches that involves finding a balance between the ‘scientific’ evidence of repeated trends against ‘historical’ evidence from specific instances.<sup>8</sup>

Artifacts are seen as the material expression of human concepts that provide a tool to explore levels of meaning in the archaeological record that were once considered inaccessible and in dealing with phenomena such as ‘alignments’ it should be noted that there is little point in interpreting or identifying cosmic references encoded in the architecture, without contextualizing the different peoples and places in each circumstance. This has become a key focus to recent trends and provides the basis that advance theoretical foundations in Archaeoastronomy.<sup>9</sup>

---

<sup>7</sup> Krupp, E. C., ed 1983. *Archaeoastronomy and the Roots of Science*. Washington, DC: American Association for the Advancement of Science.

<sup>8</sup> Ruggles, Clive. 2000. *The General and the Specific: Dealing with Cultural Diversity*. In *Archaeoastronomy*. Vol 15, 151-177(Texas Press).

Iwanizewski, S. 1989. *Exploring some Anthropological Theoretical Foundations for Archaeoastronomy*. In *World Archaeoastronomy*. Edited by Anthony F. Aveni, pp 27 – 37. Cambridge University Press, Cambridge.

<sup>9</sup> Iwanizewski, S. 2001. *Time and Space in Social Systems – Further Issues for Theoretical Archaeoastronomy*. In *SEAC98: Astronomy, Cosmology and Landscape* edited by Clive L.N. Ruggles, Frank Prendergast and Tom Ray. Ocarina Books. Bognor Regis, England

### 2.2.1 Discussion - Present Methodology and Current Trends in Archaeoastronomy

Elizabeth Baity was one of the first to define Archaeoastronomy as a mixture of engineering, astronomy and archaeology formed a new field of study called astroarchaeology, archaeoastronomy, or ethnoastronomy. This multi-faceted discipline was required to better understand past cultures and even though she provided long bibliographies and an opportunity for in-depth study her critics maintained her research to be faulty. Elizabeth Baity's description was that the interaction of the three fields created a means of astronomical methods to understand monumental structures of the past.<sup>10</sup>

Heinrich Nissen was likely the first archaeoastronomer, with his *Das Templum: Antiquarische Untersuchungen* in 1869. Followed by Francis Penrose who published in the *Philosophical Transactions of the Royal Society* on the astronomical alignment of Greek temples in the Mediterranean in the same period and then various surveys of alignments of Megalithic stones in the British Isles.

Thereafter Gerald Hawkins proposed that Stonehenge was a Neolithic computer at the same time that the engineer Alexander Thom published his results of megalithic sites which proposed wide-range practice of precision astronomy throughout England. However, even though Thom's claims of precision were not supported by the evidence an interest began that led to statistical means as opposed to the then social practice of astronomy.<sup>11</sup> This spread throughout the New World as a form of 'anthropology of astronomy' and so began a development of science and cosmological thought from the study of both the ancient astronomies and surviving indigenous traditions around the world.

---

<sup>10</sup> Baity, Elizabeth Chelsey. 1973. "Archæoastronomy and Ethnoastronomy So Far". *Current Anthropology* 14 (1973): 389-449.

Baity, Elizabeth Chesley. 1974. *Archæoastronomy and Ethnoastronomy So Far*. *Current Anthropology* October 1974 Vol15 (4): 320-326.

Hicks, Ronald. "Archæoastronomy and the Beginnings of a Science." *Archæology* 32. no. 2 (March/April, 1979). 46-52.

<sup>11</sup> MacKie, E. 1977. *Science and Society in Prehistoric Britain*, St Martin's Press, 1977, ISBN 023640041X

Archaeoastronomy then defines essentially as a study of the anthropology of astronomy and world-views and the role of astronomy and astronomers in their cultures.<sup>12</sup>

There is an understanding of the fact that science, and particular astronomy, is not something that only Western Europeans and their intellectual descendants do - all peoples construct frameworks to make their observations of the heavens intelligible; astronomy is a universal human activity.

A word that best describes the study of astronomy using the methods of archaeology, (i.e., surveys to determine if and how accurately Stonehenge, medieval churches, or Mayan temples face the rising or setting of heavenly bodies) and is mostly the study of astronomies in early cultures.

Stellar or planetary mythology is usually connected to observations to fit the basic definition of archaeoastronomy. "Archaeoastronomy also needs established methodologies for estimating, qualitatively or quantitatively, the extent to which archaeological, historical, or other empirical data tend to strengthen or weaken a given set of ideas, at whatever level of generality they are conceived."<sup>13</sup>

A balance is usually made between astronomy and its social context, its functions in society. Calculations are used to anticipate - to predict - some of these regularly recurring events as different peoples took different approaches to predicting events.

Early astronomies have been studied from many different perspectives. For some, astronomy is an exact science, based on quantifiable measurements, which lead to mathematical models that, in turn, provide exact predictions.

In Europe and the Americas the archaeoastronomical studies build on the work over the past twenty years of investigating the astronomies of the peoples of medieval Europe, the American Southwest, and pre-Columbian Mesoamerica. There is an understanding of the fact that science, and particular astronomy, is not something that only Western Europeans and their intellectual descendants do - all peoples

---

<sup>12</sup> 2006. April. [http://ecuip.lib.uchicago.edu/dglib/science/cultural\\_astronomy/](http://ecuip.lib.uchicago.edu/dglib/science/cultural_astronomy/)

Platt, Tristan. 1991. Anthropology of Astronomy. In *Archaeoastronomy* (Supplement to the *Journal of the History of Astronomy*) no 16 (1991), S76-83.

<sup>13</sup> Ruggles, Clive L.N. 1999. *Astronomy in Prehistoric Britain and Ireland*. Yale University Press. Page 147.

construct frameworks to make their observations of the heavens intelligible; astronomy is a universal human activity.<sup>14</sup>

### **2.2.2 Present Methodology of Archaeoastronomy**

Because of the wide variety of evidence, which can include artefacts as well as sites there is no one way practise archaeoastronomy. Despite this it is accepted that Archaeoastronomy is not a discipline that sits in isolation. Because Archaeoastronomy is an interdisciplinary field, whatever is being investigated should make sense both archaeologically and astronomically. Studies are more likely to be considered sound if they use theoretical tools found in Archaeology like analogy and homology and if they can demonstrate an understanding of accuracy and precision found in Astronomy. (See Appendix 2 - General Overview of Archaeoastronomy Methods page 123)

### **2.3 Archaeoastronomical Initiatives Towards Methodology in Reference to Sub-Saharan Africa**

Although there were earlier attempts to document and characterize the indigenous astronomical knowledge in sub-Saharan Africa. The first known and documented sources was that of Norman Lockyer and his colleagues.

A further treatise will deal with the astronomical charts relating to the expeditions of Admiral Zheng He and the Kangnido cartography of Ch'uan Chin and Li Hui, Prince Henry the Navigator in Senegal, the Malian Timbuktu Arabic Astronomical records, and the Arabian and Chinese sources of the East African Trade Coast Network.<sup>15</sup>

---

<sup>14</sup> Krupp, E. C., ed 1983. *Archaeoastronomy and the Roots of Science*. Washington, DC: American Association for the Advancement of Science.

Aveni, A.F. 1989. *World Archaeoastronomy*, CUP, 1989, xi-xiii, I SBN 0521341809

McCluskey, S. C. 2005. "Different Astronomies, Different Cultures, and the Question of Cultural Relativism," in John Fountain and Rolf Sinclair, eds., *Current Studies in Archaeoastronomy: Conversations across Time and Space*. Woodbourne. USA

2006. April. [http://equip.libuchicago.edu/diglib/science/cultural\\_astronomy/](http://equip.libuchicago.edu/diglib/science/cultural_astronomy/)

<sup>15</sup> Russel, Peter. 2000. *Prince Henry 'the Navigator' - A Life*. Yale University Press

Medupe, T. et al 2008. *The Timbuktu Astronomy Project: A Scientific Exploration of the Secrets of the Archives of Timbuktu*. In Holbrook, J. Urama, Johnson O. & Medupe, Thebe R. (eds.), *African*



Sir J. Norman Lockyer (1836-1920) was a British astronomer and a respected scientist in his day. In 1869 he founded and served as editor of the prestigious scientific journal *Nature*. Working on the presumption that the midsummer sun rose originally over the Heel Stone, Lockyer attempted to calculate back from the point where the sun now rose on midsummer's dawn in 1901 to determine when it would have risen precisely over the Heel Stone and thereby establish the date when Stonehenge was built. Together with F. C. Penrose, he published the results of these calculations in 1901<sup>16</sup>

Lockyer apparently urged his surveyor acquaintance R.M.W. Swan to join an expedition to Africa by Theodore Bent and Swan therefore became one of the first to assess the ruins for any possible astronomical functions at Great Zimbabwe -

" But the temples at Zimbabwe also to have served a more directly practical purpose than that of mere worship of the powers of nature, and while regulating the festivals held in honour of natural powers, to have provided means of observing the passage of the seasons and of fixing the limits of the tropical year, and thus providing the elements of a calendar.....by observing the heliacal rising of stars, or the meridian passage of stars when the sun is near the horizon".<sup>17</sup>

To which Richard Hall later added, "The position of the Tower, its decoration facing east, the precise work in the chevron pattern on the main wall, which also faces east, the ornamentation of the summit of the east wall, with small conical towers and almost fifty monoliths, the eastward position of the stone birds, the presence of phalli, and the existence of the twelve phenomena mentioned earlier in this

---

Cultural Astronomy – Current Archaeoastronomy and Ethnoastronomy Research in Africa. Springer Science+Business Media B.V. 2008. Pages 179-188.

Hapgood, C.H. 1996. *Maps of the Ancient Sea Kings*. Adventures Unlimited Press. USA

Menzies, Gavin. 2003. *1421: The Year China Discovered the World*. Bantam Books

Freeman-Grenville, G.S.P. 1962. *The East African Coast: Select Documents from the First to the Earlier Nineteenth Century*. Clarendon Press. Oxford

<sup>16</sup> Lockyer, J.N. and Penrose, F.C. 1901. An attempt to ascertain the date of the original construction of Stonehenge. *Proceedings of the Royal Society of London*, 69, 1901, pp. 137-147

Witcombe, Chris . 1998 2<sup>nd</sup> March <http://witcombe.sbc.edu/earthmysteries/EMLockyer.html>

<sup>17</sup> R.M.W. Swan in Chapter 5 p 147 - 'On the Orientation and Measurements of Zimbabwe Ruins' in Bent, T. *Ruined Cities of Mashonaland*. London. 1893. (Rhodesiana Reprint Library. Volume Five facsimile reproduction of the third edition ). Books of Rhodesia, Bulawayo. 1969- pages 141 - 178).

chapter as being paralleled in Arabia and India, may possibly point to some method, even though crude, of fixing times, seasons, and feasts.”<sup>18</sup>

L.R. Doyle and E.W. Frank did further investigations and found Swar’s assumptions incommensurable with the data but in their investigations they came to several conclusions that required more research.<sup>19</sup>

### 2.3.1 Nabta, Ng'amoritung'a Megaliths and Borana Calendar

In December 1998, Prof J Craig Wheeler of the University of Texas used the opportunity of studying African archaeoastronomy by making the topic a seminar to initiate research, he wrote, “My curiosity was picqued when I taught a course several years ago that touched on archaeoastronomy and it was very obvious that the continent of Africa, certainly sub-Saharan Africa was conspicuous by its absence in popular texts on the subject. I waited for a chance to explore this area in more depth. That came with this Freshman Seminar and the opportunity to work with a group of energetic young people who did all the work that brought this information together. There is a great, unfolding story here and much more to learn.” ..... Like ancient people everywhere, Africans wondered at the sky and struggled to make sense of it. Evidence that they did so with creativity and intelligence has been slow to permeate academic studies of archaeoastronomy and wider public understanding. This evidence is not just in myths and calendars, but also in ancient megalith observatories. Two are known, Nabta in southern Egypt that predated the famous site at Stonehenge and other European megaliths, and Ng'amoritung'a on the shores of Lake Turkana in Kenya where the logic of a 2000 year-old calendar predates any European influence. Other such artifacts undoubtedly await discovery. This (web) site is an introduction to the astronomy of ancient Africa.... This Freshman Seminar course was developed with the primary goal of unveiling information pertaining to monoliths in Africa, primarily those that were astronomically oriented.”<sup>20</sup>

---

<sup>18</sup> Hall, R.N. 1909. Prehistoric Rhodesia. Maskew & Miller Pages 344, 345. in response to Swan, R.M.W. 1893. Chapter V -The Orientation and Measurements of Zimbabwe Ruins. In Bent. T. 1893 Ruined Cities of Mashonaland. London.

<sup>19</sup> L.R. Doyle, L.R. & Frank, E.W. 1997. “Astronomy in Africa”. in Selin, H. Ed. 1997. Encyclopaedia of the History of Science Technology & Medicine in Non-Western Cultures. Kluwer Academic Publishers.

<sup>20</sup> 1998. December 2<sup>nd</sup>. <http://hej3.as.utexas.edu/~www/wheel/africa/index.htm>

The analyses done on the two sites, namely Nabta and Ng'amoritung'a as well as the Borana Calendar, is summarized in the Wheeler seminar research compilation and is presented as Appendix 3 page 143.<sup>21</sup>

Most African archaeoastronomical research literature deals with the archaeological sites that were assessed for their astronomical aspects in North east Africa and UNESCO together with various other researchers made reports on their extent throughout Northern Africa,<sup>22</sup> Egypt,<sup>23</sup> Kenya,<sup>24</sup> and specifically Tiya in Ethiopia -

---

<sup>21</sup> Appendix 3 - Wheeler, Craig. 1998 Dec 2. Website Notes to African Archaeoastronomical Project

<sup>22</sup> Webb, E. J. 1952. The names of the stars. London,; Nisbet.

Belmonte, J. A., C. Esteban, J. Juan, and J. Gonzalez. 1998. Mediterranean Archaeoastronomy and Archaeotopography: Pre-Roman Tombs of Africa Proconsularis. *Archaeoastronomy* 23:S7.

Belmonte, J. A., M. A. Perera Betancort, R. Marrero, and A. Tejera Gaspar. 2003. The Dolmens and Hawanat of Africa Proconsularis Revisited. *Journal for the history of astronomy* 34:16.

<sup>23</sup> Malville, J. M., Wendorf, F., Mazar, A. A., & Schild, R. 1998. Megaliths and Neolithic astronomy in southern Egypt. *Nature* 392, 488 (1998) (Letters to Nature).

Malville, J. M et al. 2008. Astronomy of Nabta Playa. In Holbrook, J. Urama, Johnson O. & Medupe, Thebe R. (eds.), *African Cultural Astronomy - Current Archaeoastronomy and Ethnoastronomy Research in Africa*. Springer Science+Business Media B.V. 2008. pages 131-143.

Krzyzaniak, L. and Kobusiewicz, M. (eds.) 1998 "Late Neolithic Megalith Complex in the Eastern Sahara: A Preliminary Report." In *Interregional Contacts in the Late Prehistory of Northeastern Africa*. Poznan: Poznan. Archaeological Museum and Polish Academy of Sciences, Poznan Branch (with R. Schild and N. Zedeno).

Cornell, James. 1981. "The First Stargazers: An Introduction to the Origins of Astronomy," New York: Scribner.

<sup>24</sup> Galloway, A. 1935. Stone structures on the Uashin Gishu Plateau, Kenya Colony. In *South African Journal of Science*. Vol.32, 3. Pages 656-668.

Lynch, B. Mark. 1978. *The Namoratunga Cemetery and Rock Art Sites of North-Western Kenya: A Study Of Early Pastoralist Social Organization*. PhD. Dept. Anthropology at Michigan State University.

Lynch, B.M., and Robbins, L.H. "Namoratunga: 1978. The First Archaeoastronomical Evidence in Sub-Saharan Africa," *Science*. May 1978: 766-768. Article about the Namoratunga II site and evidence that shows its archaeoastronomical implications.

Paul, G. 1980. "The Astronomical Dating of a Northeast African Stone Configuration," *The Observatory*, 1980: 206-209. Article on the calculations of the precessions of the seven stars relevant to the Namoratunga II site.

"Of the roughly 160 archaeological sites discovered so far in the Soddo region, south of Addis Ababa, Tiya is one of the most important. The site contains 36 monuments, including 32 carved stelae covered with symbols, for the most part difficult to decipher, which are the remains of an ancient Ethiopian culture, whose age has not yet been precisely determined"<sup>25</sup>.



**Figure 1** Tiya Monolith Jousaume, Roger. 1980 (sous la direction de) : Tiya - l'Ethiopie des mégalithes, Du biface à l'art rupestre dans la Corne de l'Afrique, publié avec le concours du Ministère

---

Doyle, Laurance R., and Thomas J. Wilcox. 1986. "Statistical Analysis of Namoratunga: An Archaeoastronomical Site in Sub-Saharan Africa?" *Journal of the British Institute in Eastern Africa*. 1986, pp. 125-128.

Soper, R. 1982. "Archaeo-astronomical Cushites: Some Comments, *Azania: Journal of the British Institute of East Africa* 17, 145-162.

Ruggles, Clive. 1990. "Four approaches to the Borana Calendar," *Archaeoastronomy in the 1990's*. Ed Clive L.N. Ruggles. Group D Publications, Ltd. Loughbrough,

<sup>25</sup> Quoted from UNESCO: The World Heritage List. 1995. Report of the 4<sup>th</sup> Session of the Committee (Ethiopia). Jousaume, Roger. 1980 (sous la direction de) : Tiya - l'Ethiopie des mégalithes, Du biface à l'art rupestre dans la Corne de l'Afrique, publié avec le concours du Ministère des Affaires Etrangères, le Ministère de la Coopération, l'Ambassade de France en Ethiopie, l'U.N.E.S.C.O., l'U.P.R. 311 du CNRS ; 1995.

Haberland, E. 1963 *Galla Sud-Aethiopiens*. Stuttgart: Kohlhammer.

Huntingford, G. W. B. 1955. *The Galla of Ethiopia; the kingdoms of Kafa and Janjero*. London: International African Institute.

Huntingford, G. W. B. 1950. The Hagoliths of East Africa. In *Eastern Anthropologist*, III, 1950 119-36.

des Affaires Etrangères, le Ministère de la Coopération, l'Ambassade de France en Ethiopie,  
l'U.N.E.S.C.O., l'U.P.R. 311 du CNRS

### 2.3.2 Megaliths, Rock Art and Starlore

In South Africa there exists a belief that monoliths were erected to bring rain and the following extract is from the earliest historiography by G McCall Theal: -

“SUPERSTITIONS AND CUSTOMS OF THE BANTU.

AMONG all the sections of the Bantu there were individuals who professed to be able to make rain, and whose services were frequently called into use when any part of the country suffered from drought. If it happened that rain fell soon afterwards they received credit for it, and were amply rewarded, while if the drought continued they asserted that some unknown powerful wizard was working against them, a statement that was in most cases believed. Sometimes, however, the chief and people lost faith in them, when they were pronounced guilty of imposture, and were tied hand and foot and thrown over a precipice or into a stream.

This belief in the power of certain individuals to cause or to prevent rain was universal, and in our own times has been shown to exist even among people who were supposed to have made long strides towards European civilization. As an instance, a few years ago the Cape government, under the guidance of the right honourable Cecil J. Rhodes, caused a large area of land at Glen Grey to be surveyed into small farms, and allotted to Tembus who were believed to be so far advanced as to be able to appreciate the advantages of individual tenure.

After a time it was found that some of the stone boundary beacons had been thrown down, and upon inquiry it was ascertained that the owners of the farms had been directed by a rainmaker to plant poles in the ground when they wanted rain and take them out when they desired it to cease. They thought the stone beacons would have the same effect, and consequently broke them down to prevent floods.”<sup>26</sup>

---

<sup>26</sup> Theal, G McCall. 1964. History Of South Africa. Volume 1. History of South Africa Before 1505. Chapter xi. Page 237 Struik Cape Town

The general starlore in Southern Africa is summarized in Appendix 4 page 157 and Appendix 9 page 179<sup>27</sup>. Research in Southern Africa with regard to archaeoastronomical initiatives is rare with very few common references found in the literature.<sup>28</sup>

By way of illustration, and in the somewhat outdated Colonial terminology of the 1950's, G. P. Murdock saw the Cushites of East Africa as being the progenitors of a megalithic culture throughout eastern Africa:

“Recently, however, the independent samples of carbon from Zimbabwe have, upon analysis, yielded unexpectedly early dates, around the beginning of the seventh century. These force a complete reconsideration of the problem. The period now indicated considerably antedates that of Arab expansion on the adjacent coast and falls at the very beginning of the Bantu penetration into East Africa. Analysis of skeletal remains reveals Bantu physical types at Zimbabwe in Rhodesia but only Bushmanoid types (Fouché, 1937) at Mapungubwe in the Transvaal. Since the latter site contains evidence of sorghum, cow peas, and watermelons, it cannot be ascribed to the preagricultural Bushmen or to the not yet present Bantu but only to some other people who cultivated Sudanic crops. Could these have been the

---

<sup>27</sup> Appendix 4. Wade, R.P. 2001. Star Lore Of South Africa. MWeb Online Encyclopedia. NASPERS  
<http://www.mweb.co.za>

Appendix 9. Holbrook, Jarita. 1998. African Astronomy. Essays from Archaeoastronomy & Ethnoastronomy News, The Quarterly Bulletin Of The Center For Archaeoastronomy and ISAAC. Number 28 June Solstice 1998

<sup>28</sup> Gayre of Gayre, R. 1972. The Origin of the Zimbabwean Civilization. Galaxie Press. Salisbury.

Stayt, Hugh A. in THE BAVENDA. CASS LIBRARY OF AFRICAN STUDIES - GENERAL STUDIES - No 58 Editor Adviser: John Ralph Willis. Frank Cass & Co. Ltd. 1968 London. Printed by Thomas Nelson London

Schlichter, Henry. 1899. Travels and Researches in Rhodesia. In Geographical Journal. Vol. xiii pages 382-387 and Geographic Journal. July 1893 p. 49 - 50.

Hall, R. N. 1905. Great Zimbabwe. Methuen. (Specifically Keane in the Introduction).

Keane, A. H. 1901. The Gold Of Ophir. London: Edward Stanford

Chaplin, J.H. 1967. Vernacular month names from Zambia. African Studies, vol. 26 (1967).

Dornan, S. S. Moon Lore amongst the Bantu. Native Affairs Department Annual. 1927, 29 - 35. (N.A.D.A., pp. 32 - 34.)

Cushites of Azania? The stone platforms, terraces, monoliths, and enormous structures of dry-stone masonry at Zimbabwe suggest a specific connection with the Megalithic Cushites, an interpretation bolstered by the wealth of stone phallic representations reminiscent of those on the Azanian coast and in southern Ethiopia.... Though the riddle of Zimbabwe cannot yet be considered solved, it now appears more reasonable than formerly to ascribe a prominent role in its development to the Cushites of Azania".<sup>29</sup>

Elsewhere in Africa, Felix Chami has expressed evidence of ancient African beliefs in celestial bodies that may be astronomical or astrological in nature and researched in detail by Clive Ruggles. Chami refers to examples of lunar and solar symbols in the Kondoa rock art, recorded by Mary leakey, and in the rock paintings of Muleba at Lake Victoria there is evidence of renditions of 'stars' and 'sun and rays' that are part of a deification of the sun and moon pointing to a form of Solastic religion or otherwise extensive knowledge in astronomy<sup>30</sup>.

The archaeoastronomical potential in rock art provides further instances such as in the following comparisons:-

A cave in the Ach Valley of the Alb-Danube region of Germany Carbon dated from bone ash deposits found next to a small tablet with a rendition of what appears to be a constellation of Orion as a hunter, suggest it is between 32 500 and 38 000 years old, making it one of the oldest known representations of a man ever found or of records of early renditions of the sky.<sup>31</sup>

The Lascaux cave in Europe is a site approximately 16 500 years Before Present and reveals what may be a 'star map' of the earliest kind. This being an instance of

---

<sup>29</sup> Lynch, B.M. 1978. The Namoratunga Cemetery and Rock Art Sites of North-Western Kenya: A Study Of Early Pastoralist Social Organization. Unpublished Ph.D. Thesis, Michigan State University, Michigan. P192

<sup>30</sup> Chami, F.A. 2008. Evidence of Ancient African Beliefs in Celestial Bodies. In Holbrook, J. Urama, Johnson O. & Medupe, Thebe R. (eds.), African Cultural Astronomy – Current Archaeoastronomy and Ethnoastronomy Research in Africa. Springer Science+Business Media B.V. 2008. Pages 121-130.

Ruggles, C. 2005. Ancient Astronomy. Santa Barbara:ABC-CLIO

Leakey, M. 1983. African's Vanishing Art: the Rock Painting of Tanzania. New York: Doubleday and Comp

<sup>31</sup> Rappenglück, M. 2001. The Anthropoid in the Sky: Does a 32,000 Years Old Ivory Plate Show the Constellation Orion Combined with a Pregnancy Calendar? - In: SEAC IXth "Symbols, Calendars and Orientations: Legacies of Astronomy in Culture". Stockholm, August 27-30, 2001.



how rock art might be interpreted to be purely socially or religiously driven ideological phenomena<sup>32</sup>, instead of simple possible records of celestial events<sup>33</sup>.

The Lascaux cave scene from the 'Shaft of the Dead Man' could even compare with the Dendera Zodiac (a possible early dynasty zodiac restored by the Ptolemaic Dynasty in 1st century BCE of the Temple of Dendera near Karnack in Egypt) as it would appear to be depicting the same constellations as at Lascaux, with similar figures.



**Figure 2** 16 500 BP Lascaux - Shaft of the Dead Man. Wall Scene depicting constellations as stick figures and animals. From Rappenglück, M. 1998. A Skychart from the Ice Age? - A Contribution to the Early History of Astronomy and to the Palaeoastronomical Methodology, the Scene "Le Puits" in the Cave of Lascaux (Com. Montignac, Dép. Dordogne, Rég. Aquitaine, France).

---

<sup>32</sup> Lewis-Williams, David. 2002. *The Mind in the Cave*. Thames & Hudson, London.

Lewis-Williams, David and Pearce, David. 2005. *Inside the Neolithic Mind - Consciousness, Cosmos and the Realm of the Gods*. Thames & Hudson, London.

Hancock, Graham 2005. *Supernatural*. United Kingdom. Century Press.

<sup>33</sup> Rappenglück, M. 1999 January. Palaeolithic Timekeepers Looking At The Golden Gate Of The Ecliptic; The Lunar Cycle And The Pleiades In The Cave Of La-TETE-Du-Lion (Ardèche, France) - 21,000 BP. Volume 85-86, No 0 January 1999. Springer Netherlands.

<http://www.springerlink.com/content/k4104700h0815m41/>

Rappenglück, M. 1998. *A Skychart from the Ice Age? - A Contribution to the Early History of Astronomy and to the Palaeoastronomical Methodology, Shown by the Scene "Le Puits" in the Cave of Lascaux (Com. Montignac, Dép. Dordogne, Rég. Aquitaine, France)*. - Doctoral Thesis. Ludwig-Maximilians-University of Munich, Germany, Department of Mathematic and Information Science, History of Natural Sciences.



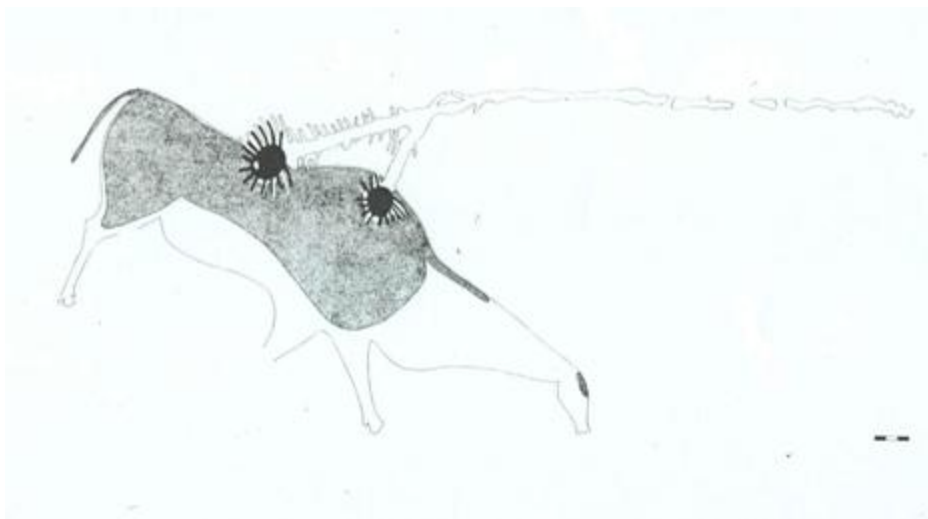


**Figure 3** Detail extracted from Dendera Zodiac depicting the same constellations as at Lascaux, with similar figures. 6000 BP zodiac restored by the Ptolemaic Dynasty in 1st century BCE of Temple of Dendera near Karnak. Trevisan, Camillo. 1997. La rappresentazione delle costellazioni nello zodiaco circolare di Dendera. IUAV - DPA. <http://www.iuav.unive.it/dpa/ricerche/trevisan/dendera.htm>



**Figure 4** 6000 BP zodiac restored by the Ptolemaic Dynasty in 1st century BCE of Temple of Dendera near Karnak. Trevisan, Camillo. 1997. La rappresentazione delle costellazioni nello zodiaco circolare di Dendera. IUAV - DPA. <http://www.iuav.unive.it/dpa/ricerche/trevisan/dendera.htm>

The focus of this study however does not include examples from the rock art as the current trends in this regard are limited in the literature. Specific instances are to be stressed in a further study and wholly revolve about how the lack of cosmic references in the rock art of sub-Saharan Africa are possibly resultant from methodological differences or New Age preferences that overstress a focus on the shifting human consciousness, neuropsychological entoptic phenomena and symbology<sup>34</sup>, as opposed to testing the rock art records for simple records or reactions of celestial events that may exist as natural phenomena, i.e., material versus mental constructed cosmologies.<sup>35</sup>



**Figure 5** Rock Painting found in the Eastern Freestate area of a comet or bolide breaking into two - Sven Ouzman Rock Art Dept. National Museum South Africa. Extracted from Ouzman, Sven. (2008 In Press) *Flashes of Brilliance: San Rock Paintings of heavens things*. Festschrift dedicated to David Lewis-Williams. (Personal Communication Sven Ouzman 14 November 2008).

---

<sup>34</sup> Lewis-Williams, David. 2002. *The Mind in the Cave*. Thames & Hudson, London.

Hancock, Graham 2005. *Supernatural*. United Kingdom. Century Press.

<sup>35</sup> Lewis-Williams, David & Pearce, David. 2005. *Inside the Neolithic Mind*. Thames & Hudson Ltd, London. Page 149.

Pearson, J.L. 2002. *Shamanism and the Ancient Mind: A Cognitive Approach to Archaeology*. Walnut Creek, California: Altamira Press.

Lewis-Williams, J.D. 2003. Review - *Shamanism and the Ancient Mind: A Cognitive Approach to Archaeology*. In *Journal of Anthropological Research*. Vol 59, No 1 (Spring 2003) pp 93-95. University of Mexico



**Figure 6** Petroglyph photographed by RP Wade at Waterval-Boven district that may depict the lunation prior to full moon.

### **2.3.3 UNESCO - World Heritage Committee - Astronomy and World Heritage Initiative**

As a result of the lack of archaeoastronomical initiatives in the world, specifically sub-Saharan Africa, various incentives were generated to provide a basis for the creation of Heritage sites in the region.

On 17<sup>th</sup> November 2003, the United Nations Education, Scientific and Cultural Organization - World Heritage Committee, expressed an interest to elaborate on the New World Heritage thematic Programme by announcing a new theme of "Archaeo-astronomical Sites and Observatories".

"To link the study of astronomy with cultural sites and monuments around the world which have been devoted to the explanation of the universe and humankind's relationship to the sky. This new programme was in line with the main objective of the Global Strategy adopted in 1994 by the World Heritage Committee to establish a representative and balanced World Heritage List which reflects the diversity of cultural and natural sites of outstanding universal value."

Meetings were destined for March 2004 in Africa, "where archaeo-astronomical sites are not well known" and Venice - through the support of the UNESCO Regional Bureau of Science in Europe. To define a strategy of the thematic programme and a

methodology which will aid States Parties in choosing archaeo-astronomical sites and Observatories.

By 2003 the initiative finally culminated in the formation of a steering committee to oversee the creation of a database and various conferences took place in Africa for this reason.

Recently, this program was changed to a new title – “Astronomy and World Heritage” and as such was published on the UNESCO website together with a Timeline of World Astronomy (see Appendix 5 page 162)<sup>36</sup>.

### **2.3.4 Conferences on Archaeoastronomical Initiatives in Africa**

#### **2.3.4.1 African Astronomical History Symposium**

Held in Cape Town, 2005 November 8 & 9

(Appendix 6 page 164)<sup>37</sup>

#### **2.3.4.2 The First Workshop on Theories, Methods, and Future Collaborations in African Cultural Astronomy**

The First Workshop on Theories, Methods, and Future Collaborations in African Cultural Astronomy - March 27- April 1, 2006 Cape Coast, Ghana

(Appendix 7 page 168)<sup>38</sup>

---

<sup>36</sup> Appendix 5 - Astronomy and World Heritage Initiative  
2006. October 26<sup>th</sup>. <http://whc.unesco.org/en/initiatives/32/>

<sup>37</sup> Appendix 6  
2005 September 1<sup>st</sup>. <http://www.saa.ac.za/assa/aahs>

<sup>38</sup> Appendix 7  
2006. January 6<sup>th</sup>. <http://www.ceao.arizona.edu/edipse/>

## **3 CHAPTER THREE - METHODOLOGY AND SUB-SAHARAN AFRICA**

### **3.1 Proposed Methodology to Identify Archaeoastronomical Resources in Sub-Saharan Africa**

By way of exemplification, various hypotheses are introduced to outline how structures can be found to relate to astronomy in the archaeological record, specifically in southern Africa.

Present framework and philosophical arguments are assessed and presented in a theoretical review of astronomical, archaeological, and architectural thought surrounding the methods to approach structures and phenomena of this nature.

The proposed methodology below relates to the current norms, trends and standards present throughout the world and hopefully those that may culminate out of deliberations of the UNESCO database on Astronomy and World Heritage.

#### **3.1.1 Identification of the Relationship between Leadership and Cosmology**

The experimental research approach chosen for this programme, allows key challenges in society to be addressed. When these are the same as those that were faced by the archaeoastronomers of the past, the thinking becomes Afro centric. What is needed is an understanding of the human needs, and improvement of human welfare that these archaeoastronomers were pursuing with the techniques they devised through archaeoastronomy<sup>39</sup>. This deliverable objective created for the

---

<sup>39</sup> Aveni, A. 1997. *Stairways To The Stars – Skywatching in Three Great Ancient Cultures*. John Wiley & Sons, Inc. *Astronomy in the Maya Codices*.

Aveni, Anthony F. 1981. "Archaeoastronomy". In *Advances in Archaeological method and Theory*, vol 4. Princeton, N.J.: Academic Press, 1981, pp.1 -77

Krupp, E.C. 2003. *Echoes of the Ancient Skies: The Astronomy of Lost Civilizations*. Dover Publications, inc. Mineola, New York.

Ruggles, C.L.N. (1993). *Archaeoastronomy in the 1990s*. Group D Publications. ISBN 1-874152-01-2.

Ruggles, C.L.N. (1999). *Astronomy in Prehistoric Britain and Ireland*. Yale University Press. ISBN 0-300-07814-5.

Ruggles, C.L.N. (2000). "Ancient Astronomies - Ancient Worlds". *Archaeoastronomy: Supplement to the Journal for the History of Astronomy* 25 (31): S65-S76.

astronomers of the past the opening for a charismatic leadership, which they as a means of wielding power to collectivize labour and organize efforts to create a force to be reckoned with.

### 3.1.2 Identification of Astro-agricultural and Sustainable Practice

Currently the key issue of land and agrarian reform is the top priority for sustainable development for South Africa. This is no different from the top priorities at the time archaeoastronomy was widely practiced.

If this frame of reference is used to unite traditional leadership with modern leadership in order to achieve sustainable economic development, it creates Afro centric thinking. Thus, a vast unutilized intellectual capital under traditional leadership can be mobilized within the framework of Afro centric thinking - was left out of the Foresight Report<sup>40</sup>, which was based on the written norm as a medium for compilation of the information - by using indigenous knowledge systems in economic reforms aiming at sustainable development in Southern Africa.

Therefore, it is vital to accentuate that the present culture is the renaissance of the nascent emergence of the very first Capital of the first Empire in Southern Africa, of which the ruins at Mapungubwe are the scant remains.

Preceding the Mapungubwe cultural complex were the cultures responsible for a vast area of ruin fields stretching throughout Mpumalanga province through to Mozambique and Swaziland. They are found mainly in the lowveld and eastern escarpment zones and all along the major riverine courses flowing into the east

---

Ruggles, C.L.N. (2005). *Ancient Astronomy*. ABC-Clío. ISBN 1-85109-477-6.

Ruggles, C.L.N. and Barclay, G. (2000). "Cosmology, calendars and society in Neolithic Orkney: a rejoinder to Euan MacKie". *Antiquity* 74(283): 62-74.

Ruggles, C.L.N. & Saunders, N.J. (1993). "The Study of Cultural Astronomy", in Clive L.N. Ruggles and Nicholas J. Saunders; *Astronomies and Cultures*. University Press of Colorado, 1-31.

Schaefer, B.E. 1999. "Astronomy in Historical Studies" in *Archaeoastronomy: The Journal of Astronomy in Culture*. Edited by J. B. Carlson. XIV,1 University of Texas Press (Spring/Summer 1999).

<sup>40</sup> 1999. Dawn of the African Century. Foresight – National Research and Technology Foresight Project. Dept Arts, Culture, Science & Technology. Pretoria South Africa. ISBN 0-7970-3837-2



coast of southern Africa. Epitomized by the archaeologically defined “Lydenburg” cultural complex.<sup>41</sup>

A memorandum circulated in a South African Governmental report exemplifies how archaeoastronomical data are utilized to provide identity and Poverty Alleviation projects with resource funding, through the reestablishment of indigenous African Astro-agricultural and Sustainable Practices (Appendix 8 page 169)<sup>42</sup>.



**Figure 7** Ruin fields near Waterval-Boven area – Johan Heine (Makoma ti Foundation)

---

<sup>41</sup> Evers, T.M. 1980. Klingbeil Early Iron Age sites, Lydenburg, Eastern Transvaal, South Africa. South African Archaeological Bulletin 35:46-57.

Evers, T.M. 1982. Excavation at the Lydenburg Heads site, Eastern Transvaal. South African Archaeological Bulletin 37:16-33.

<sup>42</sup> Appendix 8 - Benkenstein, H. 2006. Government Memorandum - Returning Identity Of Capital Formation To Actors: Matatielesega/Mesp Study to Director-General DEAT



**Figure 8** Ruin fields near Wa terval-Boven area - Johan Heine (Makoma ti Foundation)



**Figure 9** Ruin fields near Wa terval-Boven area - Johan Heine (Makoma ti Foundation)

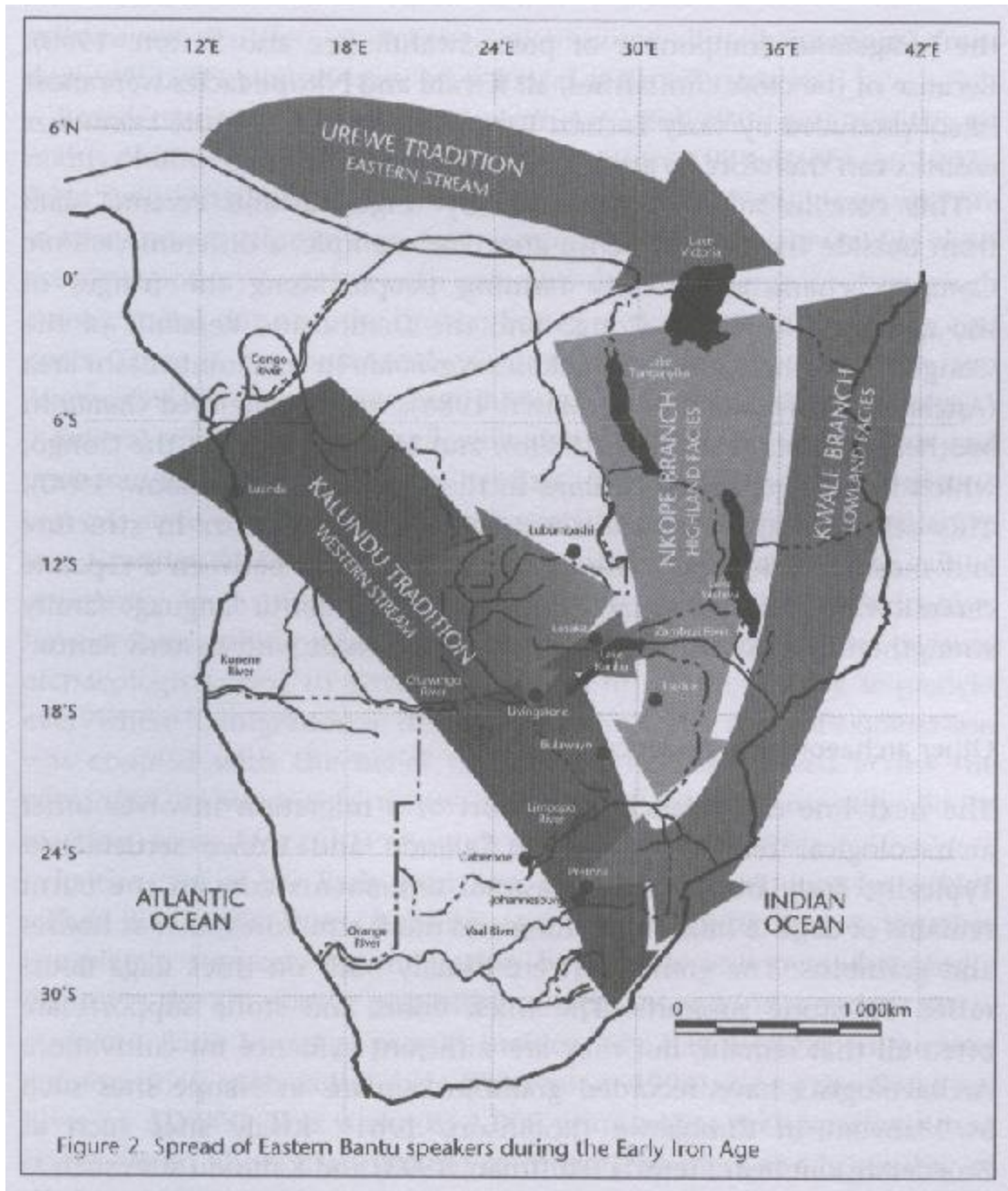




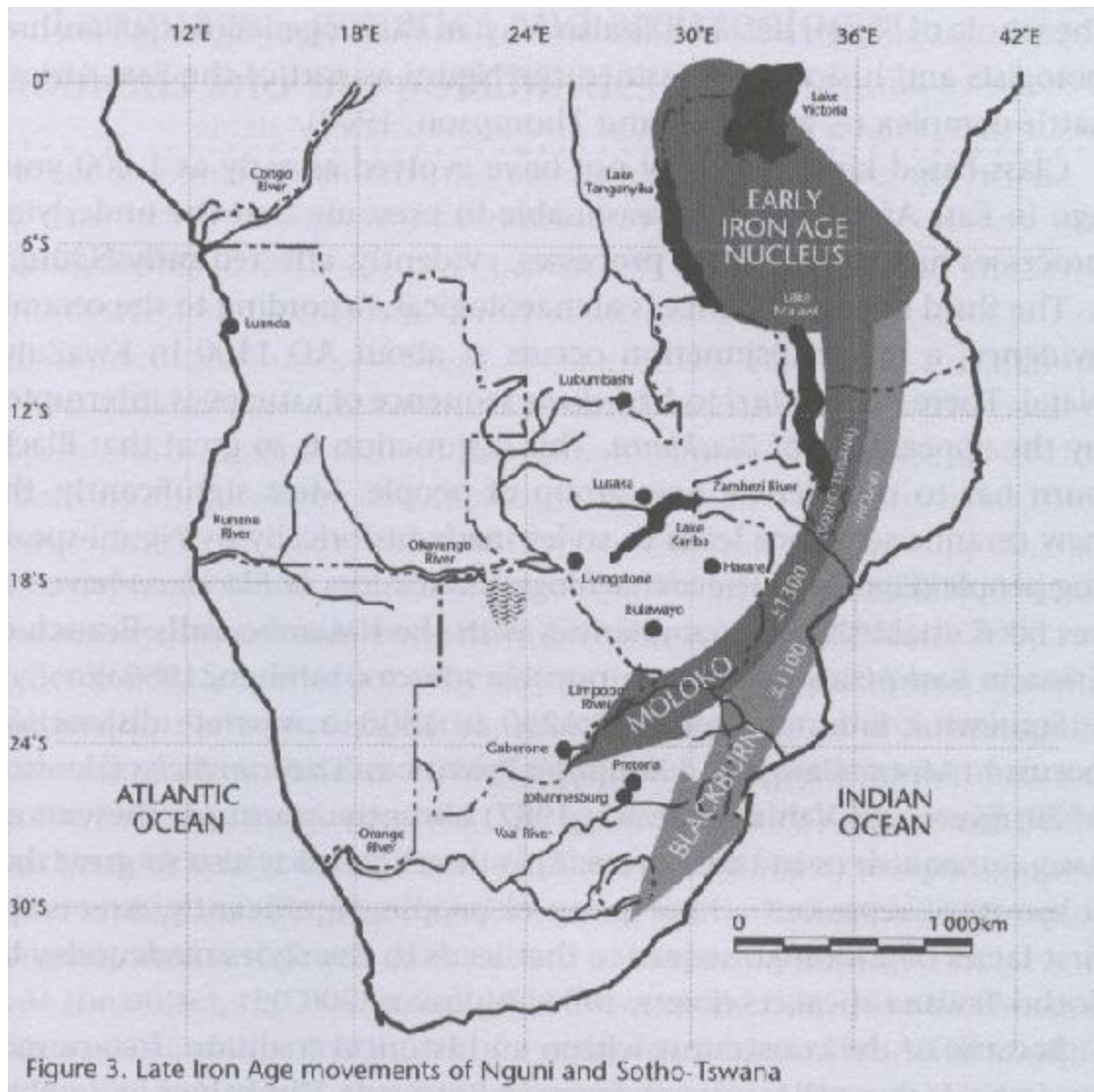
**Figure 10** Ruin fields near Waterval-Boven area – Johan Heine (Makomati Founda tion)



**Figure 11** Ruin fields near Waterval-Boven area – Johan Heine (Makomati Founda tion)



**Figure 12** Extracted from Soodyall, Himla. 2006. *The Prehistory of Africa Tracing the Lineage of Modern Man*. Jonathan Ball Publishers. South Africa.



**Figure 13** Extracted from Soodvall, Himla. 2006. *The Prehistory of Africa Tracing the Lineage of Modern Man*. Jonathan Ball Publishers. South Africa.



### 3.1.3 Identification of Structures and Artifacts in Terms of Astronomical Potential

It is imperative that any structures located within this cultural-complex or archaeoastronomical discoveries that might be found at Mapungubwe or Zimbabwe are understood within their cultural context to determine what they may portend to be. These are unknown cultural aspects, which hitherto have been ignored or misunderstood and may hold vital legacies to many fields in science and culture.

In establishing whether astronomical codes exist in the settlement layouts of southern African 'Iron-Age' archaeological sites, a preliminary study has revealed evidence of the use of alignments by means of monoliths and structures, as well as other tools, at Great Zimbabwe and Mapungubwe, which possibly relate to the astronomical use of stelae and monoliths throughout Africa. The Great Enclosure at Great Zimbabwe seems to typify the use of stellar markers and alignments amongst certain structures of the pre-trade and early agrarian era sites of southern Africa. Research into their precursor's trade, as well as distribution and development of sorghum, primitive crops, mortuary practice, calendars, and use of agricultural marker-stars, may lead to understanding archaeoastronomical aspects of certain artifacts and structures and cultures associated with megalithic archives of cosmic references, galactic events and the sub-Saharan conceptions of the Universe.

The use of astrological/astronomical marker monoliths or 'phallic' stones found in Egypt, Ethiopia, Tiya, Namoratunga and Yemen - as well as in the Zimbabwe Complex, still persists. East African people like the Galla, Borana, Konso, Sidamo and Gugji make use of agricultural marker stars and constellations. This may possibly conceal an ancient tradition of astronomy, stretching from northeastern Africa to southern Africa since the Stone Age.<sup>43</sup>

---

<sup>43</sup> Doyle, L.R. & Wilcox, T.J. 1986. Statistical Analysis of Namoratunga: An Archaeoastronomical Site in Sub-Saharan Africa? *Azania* 21: 125-129.

Doyle, L., Frank, E. 1997. "Astronomy in Africa". *Encyclopedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, Helaine Selin, Dordrecht: Kluwer

Ehret, C. 1976. Cushitic. In *The Non-Semitic Languages of Ethiopia*. Bender, M.L. (ed.), pp85-96, East Lansing: African Studies Center, Michigan State University. (Ethiopian Monograph Series. No 5)

Haberland, E. 1963. *Galla Sud-Aethiopians*. Stuttgart: Kohlhammer.

Hinnant, J. in Lynch, B. Mark. 1978. *The Namoratunga Cemetery and Rock Art Sites of North-Western Kenya: A Study Of Early Pastoralist Social Organization*. Ph.D. Dept. Anthropology at Michigan State University) page 173.

A so-called 'zodiac bowl' found near Great Zimbabwe at the time of the earliest excavations<sup>44</sup> and possibly contemporaneous in time of occupation, to the time of Great Zimbabwe, was found close to the ruin and is marked with 'zodiac-looking'

---

Huntingford, G. W. B. 1950. The Hagiolithic Cultures of East Africa. *Eastern Anthropologist*, 111: 119-136.

Huntingford, G. W. B. 1955. *The Galla of Ethiopia; the kingdoms of Kafa and Janjero*. London: International African Institute.

Krzyzaniak, L., Kroeper, K. & M. Kobusiewicz (eds.). 2000. Recent Research Into the Stone Age of Northeastern Africa. *Studies in African Archaeology* 7, Poznan (Poznan Archaeological Museum): 21-31.

Legesse, A. 1973. *Gada: Three Approaches to the Study of African Society*. New York: Free Press.

Turton, D. and Ruggles, C.L.N. 1978. Agreeing to Disagree: The Measurement of Duration in a Southwestern Ethiopian Community, *Current Anthropology* Vol. 19.3, 1978, 585-600

Lynch, B.M. 1978. *The Namoratunga Cemetery and Rock Art Sites of North-Western Kenya: A Study Of Early Pastoralist Social Organization*. Unpublished Ph.D. Thesis, Michigan State University, Michigan.

Lynch, B.M. & Robbins, L.H. 1978. Namoratunga: The First Archaeoastronomical Evidence in Sub-Saharan Africa. *Science* 200: 766-768.

Lynch, B. M., Robbins, L. H., " Namoratungu: The first archaeoastronomical evidence in sub-saharan Africa", in *Blacks in Science: Ancient and Modern*, Van Sertima, I., New Brunswick, N.J.: Transaction Books, New Brunswick, NJ, 1983.

Holbrook, J. Urama, Johnson O. & Medupe, Thebe R. (eds.), *African Cultural Astronomy – Current Archaeoastronomy and Ethnoastronomy Research in Africa*. Springer Science+Business Media B.V. 2008

Malville, J.M., Wendorf, F., Mazar, A.A., & Schild, R. 1998. Megaliths and Neolithic astronomy in southern Egypt. *Nature* 392: 488.

Murdock, G. P. 1959. *Africa: Its People and Their Culture History*. New York: McGraw-Hill. See Southern Cushites pg.193 and Ancient Azanians pages 204-211. and again page 222 in Lynch, B. Mark. 1978. *The Namoratunga Cemetery and Rock Art Sites of North-Western Kenya: A Study Of Early Pastoralist Social Organization*. Ph.D. Dept. Anthropology at Michigan State University.

Wainwright, G.A. 1949. The Founders of the Zimbabwe Civilization. *Man* 80: 62-66.

<sup>44</sup>Bent, T. 1893. *Ruined Cities of Mashonaland* London. (Rhodesiana Reprint Library. Volume Five facsimile reproduction of the third edition).. Books of Rhodesia, Bulawayo.1969- pages 141 - 178).

Hall, R.N. & Neal, W.G. 1902. *The Ancient Ruins of Rhodesia*. Methuen.

Hall, R.N. 1909. *Prehistoric Rhodesia*. London: Maskew & Miller.

motifs or temporal notations, may have been used, according to ethno-history for 'counting days'. Now regarded as a divination bowl, the device was known amongst the Venda and Lemba to determine aspects of time:<sup>45</sup>

On the day of the new moon of July, you will arise and proceed southward. The VhaLemba will tell you when those days have come near. Fear nothing everything will go well. The important thing is Ngoma-lungundu, which will help you greatly"<sup>46</sup>

Another practice that surprises strangers is their way of shaving their heads. Every month they must shave their hair off completely. And so whenever they say, "Tomorrow is the new moon," the Venda would know that the new moon was about to appear by seeing the Valembe freshly shaven. The moon of the Vhalembe is seen in their wash basin. This shows that they know how to count. As for their wash basin, they filled this with water and they looked into it and saw the moon therein.<sup>47</sup>

---

<sup>45</sup> Caton-Thompson, G. 1931. *The Zimbabwe Culture: Ruins and Reactions*. Oxford: Clarendon Press.

Sekerere, G.T. & Mavindidze, A. 1975. *The Shona Calendar*. Unpublished MS. Gweru Teachers' College, Gweru.

Steyn, H.A. 1968. *The Bavenda*. London: Frank Cass & Co. Ltd. (Cass Library of African Studies - General Studies - No 58)

<sup>46</sup> van Warmelo, N.J. (ed.) 1940. *The Copper Miners of Musina and the Early History of the Zoutpansberg: Vernacular accounts* by S.M. Dzivhani, M.F. Mamadi, M.M. Motenda, E. Mudau. Pretoria: Government Printer. (Ethnological Publications Vol. VI I I). Page 8.

<sup>47</sup> van Warmelo, N.J. (ed.) 1940. *The Copper Miners of Musina and the Early History of the Zoutpansberg: Vernacular accounts* by S.M. Dzivhani, M.F. Mamadi, M.M. Motenda, E. Mudau. Pretoria: Government Printer. (Ethnological Publications Vol. VI I I). Page 67.



**Figure 14** 'Zodiac Bowl' in Bent, T. 1893. Ruined Cities of Mashonaland. London. (Rhodesiana Reprint Library. Volume Five facsimile reproduction of the third edition).. Books of Rhodesia, Bulawayo. Frontispiece.



**Figure 15** BaVenda Divination Bowl found by N. J. Van Warmelo amongst the VhaLemba. (Courtesy Dieter Giesekke). Now on loan to Cape Town Museum - IZIKO

Divination bowls,<sup>48</sup> found amongst the Venda/Lemba are known to have been filled with water and have a central cowry shell that is placed on a raised zone with

---

<sup>48</sup> Stayt, H.A. 1968. The Bavenda. London: Frank Cass & Co. Ltd. (Cass Library of African Studies - General Studies - No 58)

mastic glue, this effectively 'calibrates' as it were, the orientation of the bowl in order to view new moon reflections through a year. The submersed underlying carved figures providing the required durational comparison.

The carved figures and designs do not necessarily pertain to constellations or Western astrological/astronomical concepts and are likely to do with clans and social relationships within groupings of people.

Amongst the oral traditions by earlier African anthropologists that exist is one in specific that relates how the earliest metalworking farmers and traders were led to build Great Zimbabwe by following a star:

He (Mhani) was guided by a star which came every evening and showed the direction. They followed the star until the star stood on top of the little hills of Zvishavane. Here the community settled under the Kingship of Mhani...In Zvishavane King Shabi of the Mhani tribe ruled for a long time but all the time the star came in the evening reminding them that Mwari (God) was not satisfied with the place where they should settle permanently. One evening they set out and followed the star in a Southern direction until the star reached the mountain where it stood on the mountain...the fifth suburb was the Mhani suburb which was under the leadership of Gumbu chena Mhani. This suburb was good in the observation of the stars and other heavenly bodies. Members of this suburbs could foretell what the stars meant by certain positions. They led the other suburbs in the observation of the phases of the moon and to determine the seasons...During the evening on the hills the star shone showing that they had not arrived at the place where Mwari the God of heaven had directed them to go...From Gokomere the Tovakare was led by a star which came and stood on the mountain south of Mucheke River. They crossed the river and established a city on the mountain and in the valley. Tovakare Muzimbabwe became the ruler in the settlement. The settlement was named Zimbabwe after the founder...The Zungunde suburb with its sub-suburb the Ngavi increased in the popularity and ruled the city of Zimbabwe until a catastrophe happened in the city. A great disease befell the city that many people died...The Mhani lineage had grown in popularity up to the time when the illness befell the city. The Mhani being the next in the succession of the leadership of the Basena decided to leave the city because the star which was seen when the Basena were settled at Gokomere led them Southwards...The other suburbs who were already reduced in



their numbers sided with Mhani and separated themselves from the Zungunde lineage...The Mhani lineage took over the leadership of the Basena / Bamwenye from the Zungunde when they were led by a star in a Westerly direction. This lineage is sometimes called the star lineage of the Basena. It is spread over many areas in South Africa as well as in Zimbabwe...The Hadzhi, Seremane, the Hamisi, the Ngavi, the Sarefo, the Tovakare, the Mange, the Bakari, the Bhuba, the Mhani, Sadhiki all decided to follow the Mhani in a Westerly direction under the guidance of a star... Mberengwa Hadzhi followed the star down south until the star stood on a mountain on which Mberengwa established his village. After the establishment of this village the star never came back since then in Mberengwa...<sup>49</sup>

The myths deal with how the ancestors of these people came to establish the Zimbabwe 'civilization'. This research portrays the relationship of the Shona-Lemba-Venda and how their ancestry relates to possible external influences on the east African coastline of many centuries ago and how Great Zimbabwe may have been designed in terms of cosmic reference or had as one of its many functions, the aspects of an observatory. The study of this mythology and the 'star' to which it refers to is discussed in detail in a later publication.

The relevance of archaeoastronomical research illustrates a pressing urgency to retrieve and as far as possible to reconstruct star lore within the very social institutions who once had it in forms of oral tradition and custom, that conferred substantial benefits on the societies that own this great heritage of intellectual capital.

#### **3.1.4 Data Collection and Analysis**

- Examine sites for 'alignment' potential and specific spatial arrangement or celestial orientation.
- Determine extent of agricultural lands in relation to eco and geo variables in regard to 'rain-making' relevance and ideological constraints - such as the concept of Venus (Nehanda/Nand) controlling specific Oracle (Mohondoro) zones.

---

<sup>49</sup> Mathivha, M.E.R. 1992. The Basena / Vamwenye / Balemba. Morenster: M E R Mathivha

- Informants and Interview/Interviewee situation to collect and assess oral traditions. General ethnographic survey.
- Survey for artifacts and structures relating to calendars, solstitial markers, gnomonic devices, rain-making rituals, and meteorite radiant or planetary and stellar markers.
- Analysis and reconstruction using models and computer simulations to identify and determine notations, arrangements, structural orientations and expressions, cognitive use of space, 'primitive' calendars or temporal devices.
- Literature review of all astronomical related documentation pertaining to historical/prehistorical links in regard Sub-Saharan Africa.
- Survey the archaeological record for evidence of astronomical structures and whether there are any ecological factors present.
- Utilizing possible statistical methods of assessment and evaluation of marker orientations.
- Recording, photographing, filming and documenting data for preservation and analysis purposes.
- Locating meteorite impact craters and landfall sites that played specific roles in local oral traditions and vice versa.

### **3.1.5 Evaluation of the data**

The main methods consequently are to identify, examine, record, survey and evaluate the data. Thereafter, to provide reconstructions and assess the benefits to present problems or create new resource applications.

- To closely examine what methodology has been utilized for general databases of a similar nature. How surveys are conducted, whether use is made in general GIS mapping such as Landsat, Satellite and infrared type technology and what are the ecological determinants and indicator species as markers etc.
- What geographic factors are conducive to determining ancient farmlands, grassland types extant and extinct, stellar aspects, views, rain zones,

altitude, geology. How certain geographic social zones formed along escarpment of Drakensberg in drainage forest zones and which may have led to population expansions, terrace farming and eventual rain-making structures and ritualization.

- Show the methods incorporated. How are these documented and how they have been documented up to now. Oral traditions, surveys and excavations with test case of Mapungubwe related structures (H Prinsloo, Johan Heine surveys).
- Produce evidence and provide the causal relationships for the proposed alternative methodology.
- Survey of archaeological sites for their astronomical aspects
- Internet review and subscriptions
- Air photo and Landsat survey
- GIS database survey and inclusions
- Interviews and informants

### **3.2 Divergence in Archaeoastronomy Methodology - a case Study**

Particularly pertinent to this dissertation is a possible example of how archaeoastronomical methodology can provide more insight into identification and evaluation of a proposed site that may or may not have cosmic references.

The following case study draws attention to a necessity of methodology and specifically in an African context, how this may affect an assessment of a site:-

Within the Mpumalanga region in South Africa, there are vast ruin fields that are regarded in contradiction to accepted theory, to be the remains of various external and exotic cultures that dominated indigenous populations and that brought in concepts of astronomy and cosmology from specifically India. Many similar notions were furthered for political expediency or Colonial ideals and remain untested and unverified, regardless of whether the notions are correct or not.

The ruins are similar to most others in southern Africa but are likely more visible because of a widespread use of stones as walling material. The associated terraces

are particularly concentrated in the areas known as Carolina, Barbeton, Waterval-Boven in Mpumalanga, whereas, similarly aged cultural remains in other parts of the hinterland have less bountiful readily available stone as a resource or perhaps a lack of preference for stone areas by the past inhabitants.

Johan Heine recorded many of these features and structures from the air during his work as a pilot in these areas over many years. His record of the sites has become vital to drawing attention to their intensity and has proved most invaluable.

In a search for a methodology to understanding these ruinfields, Heine followed concepts of archaeoastronomy through the research of Cyril Hromnik, which introduced preliminary formations of documentation and reconstruction by making comparisons with similar-looking structures found in Dravidian India.<sup>50</sup>

See Appendix 13 - Map of the Dying Sun Chariot Temple and of the Pilgrims Way North. Page 265.

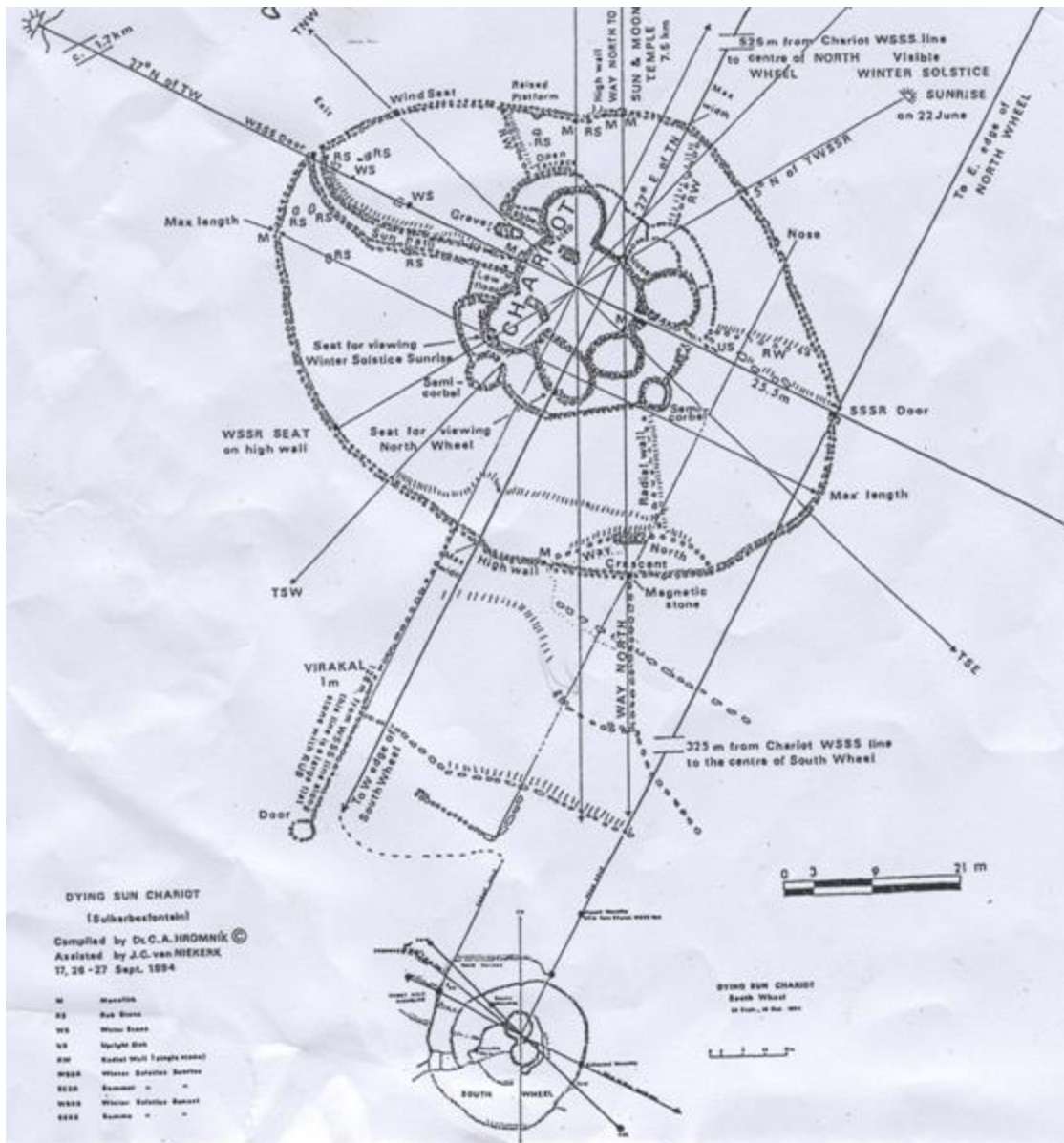
Past homesteads and villages in the various settlements were preserved from being destroyed by the later settlers and eventually through their efforts, a foundation formed to coordinate research of the various concentrations of ruins that mystified most of the farmers, who mainly preferred a non-African explanation at the time for the origins of the structures.

In depth studies and meticulous documentation centered about a formative premise that ancient gold-seeking traders from India inhabited the vast expanses of Mpumalanga and that they introduced farming and various goldmining methods to the indigenous populations.

Astronomical features and etymology were indispensable to substantiate this hypothesis and cosmic references emerged as a concept in a widespread search for 'alignments' of the precedent structures.

---

<sup>50</sup> Hromnik, C.A. 1981. Indo-Africa. Juta & Company, Cape Town.

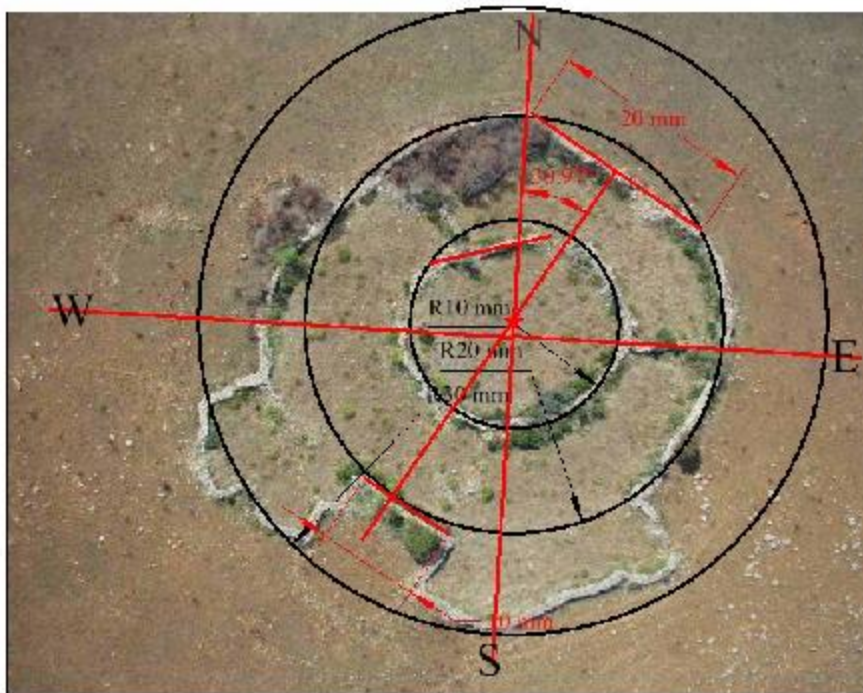


**Figure 16** Map of the Dying Sun Chariot Temple and of the Pilgrims Way North in on site pamphlet Hromnik, C.A. 1994 November. The Dying Sun Chariot: Suikerboschfontein, Komatiland. Cape Town.





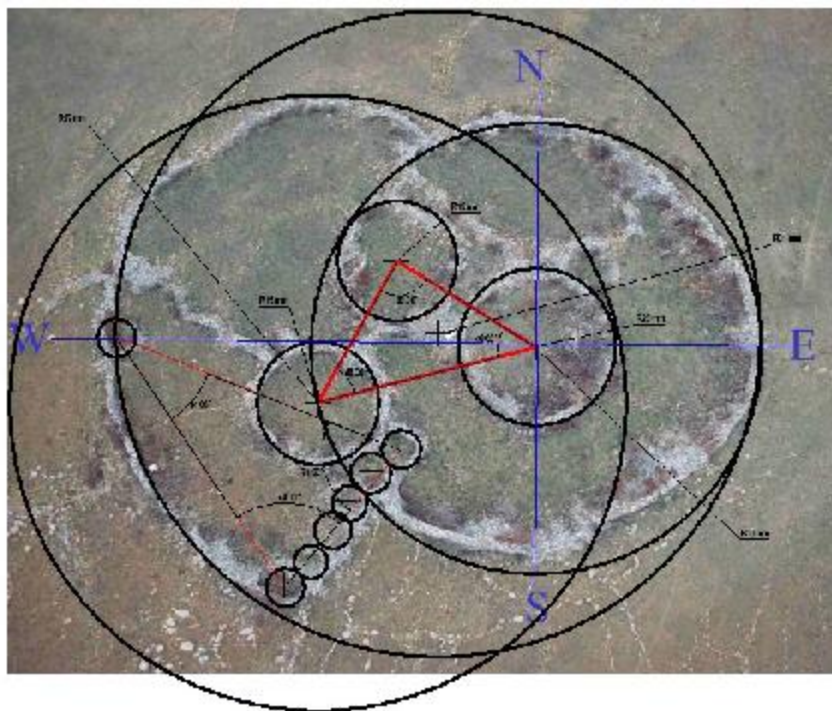
**Figure 17** Stone Circle "A" in the Ruin fields near Waternal-Boven area. Photograph by Johan Heine (Makomati Foundation).



**Figure 18** A Stone Circle "A" in the Ruin fields near Waternal-Boven area. 'Alignments' as inferred by Johan Heine (Makomati Foundation).



**Figure 19** Stone Circle "B" in the Ruin fields near Watterval-Boven area. Positions of Viewpoints as inferred by Johan Heine (Makomati Foundation).



**Figure 20** Stone Circle "B" in the Ruin fields near Watterval-Boven area. 'Alignments' as inferred by Johan Heine (Makomati Foundation).



In the same context, a specific recent case involving the discovery of 'Adam's Calendar' is part of the divergence from the exactitudes which have been formed on the conceptualizations of the past surrounding these ruins and which may have created possible unsubstantiated deductions.

The methodology used in hypotheses building, identification and evaluation were seemingly based mainly on supposition, conjecture and assumption rather than verified facts.<sup>51</sup> Assumptions made utilizing concepts of archaeoastronomy that has lead to the discipline of Archaeoastronomy receiving a negative response.<sup>52</sup>

(See Appendix 1 page 119 - Iwaniszewski, Syanislaw. 1995. Alignments and Orientations Again).

A natural outcrop of weathered igneous rock protrusions found near Kaapse Hoop town in the Mpumalanga province of South Africa, on top of a plateau were identified by the authors as being a man-made stone circle with so-called 'alignments'.<sup>53</sup>

On investigation, the authors made several assumptions about the stones and that they formed part of an east-west as well as a north-south alignment. Various fallen stones were further included to fit the hypothesis in the formation of alignments. Their analysis thereafter determined that the 'alignments' were not exact and that the arrangement was originally built with east-west and north-south placements.

---

<sup>51</sup> See Appendix 1 page 119. Iwaniszewski, Syanislaw. 1995. Alignments and Orientations Again. Essays from Archaeoastronomy & Ethnoastronomy News, The Quarterly Bulletin Of The Center For Archaeoastronomy. Number 18 December Solstice 1995

Ruggles, Clive. 2000. The General and the Specific: Dealing with Cultural Diversity. In Archaeoastronomy. Vol 15, 151-177(Texas Press).

<sup>52</sup> Andrews, J. 2007 March/April. The Voyage of the Planet. Issue #3. JCA Archaeological Foundation for Research JCA Management Services. South Africa.

<sup>53</sup> Heine, J & Tellingner, M. 2008. Adam's Calendar - Discovering the Oldest Man-made Structure On Earth 75,000 years ago. Zulu Planet Publishers. South Africa.



**Figure 21** The Johan Heine Stone Calendar (Affectionately known as Adam's Calendar). The Pole indicates where the 'Stoneman' pillar once stood. Makomati Foundation Home Page. 2007 April 1<sup>st</sup>. <http://www.makomati.com/calendar.htm>

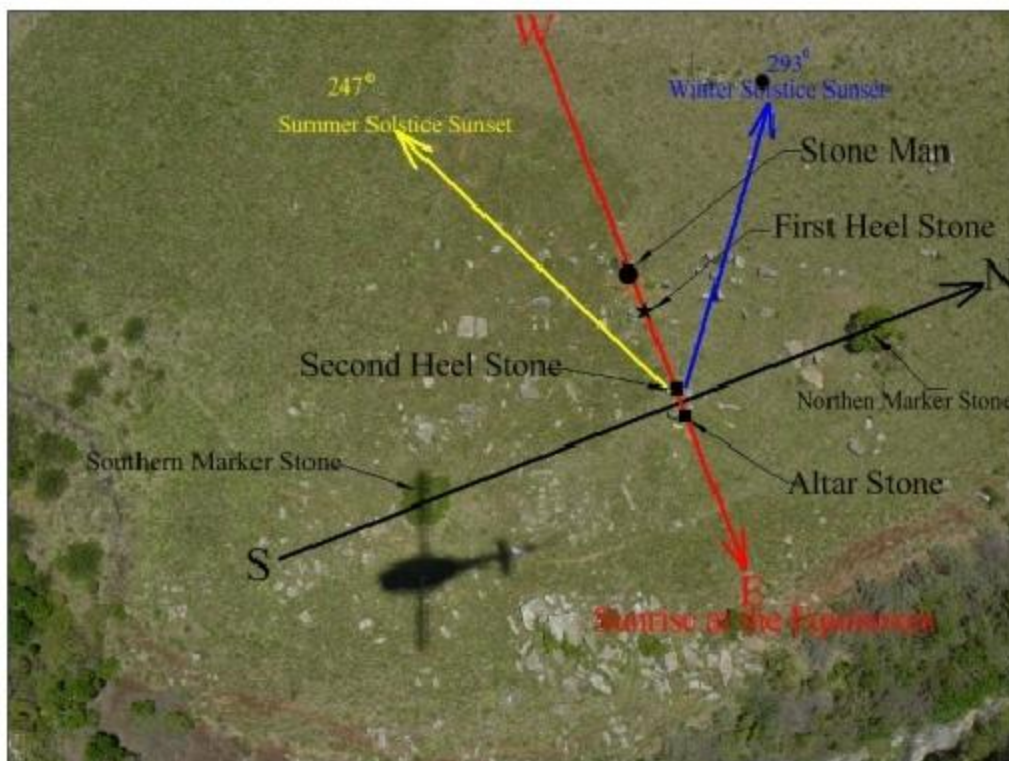
A presumption was made that concluded that the so-called discrepancy error in the east-west line of several degrees resulted from the precession of the earth's rotation.

The assumed 'precession error' provided a date of 'construction' of the east-west line and this was 'confirmed' by an astronomer Bill Hollenbach who estimated the age to be 75,000 years ago.<sup>54</sup>

Other aspects such as the 'emergence of rock art' in southern Africa corroborated this assumption and it was finally conjectured that the date of modern Human emergence in Southern Africa fits the probable date of construction for 'The Johan Heine Stone Calendar' to 250 000 years ago.

---

<sup>54</sup> Makomati Foundation Home Page. 2007 April 1<sup>st</sup>. <http://www.makomati.com/calendar.htm>



**Figure 22** The Johan Heine Stone Calendar (Affectionately known as Adam's Calendar). Alignments as per Johan Heine and Michael Tellinger. Makomati Foundation Home Page. 2007 April 1<sup>st</sup>. <http://www.makomati.com/calendar.htm>

A rudimentary survey documented specific stones and disregarded others according to appearance. No excavations were made to test for evidence that the rocks are separate or attached to the mother rock or whether they showed signs of human activity, nor was evidence found showing that the rocks were utilized or fashioned by humans in any way. Ethnography and archaeological literature of the area were not mentioned.

A geologist report suggested to the authors that the stones were not part of the base rock of the area and this became the evidence that the stones were 'carved elsewhere and brought to the 'circle' and planted in their positions. No consideration was made to the effect that the rock had protruded from the magma beneath the surface and that in most cases, the stones were still intact with their igneous and metamorphized substructures.

Some of the eroded stones also have apparent 'humanoid' forms and were therefore classified as 'stonemen'. They are said to have been carved by ancient technology into their various forms and therefore provide the 'proof' that they were human

artifacts as opposed to natural formations. Some of which are now being mystically revered as evidence of extraterrestrial in origin.



**Figure 23** The Stoneman of Adam's Calendar. See tyranny22; a member of AboveTopSecret.com.' Oldest man-made structure' unearthed?'  
<http://www.abovetopsecret.com/forum/thread371662/pg1#pid4638583>

The geological report added the required 'scientific evidence' that due to the stones weathering and marks of erosion over a long period, they must have been carved by ancient beings a long time ago.

In addition, other 'Scientific' methods were attempted to verify the age through dating pottery fragments located near the rock outcrop and through testimonies from three independent psychics that 'scientifically' verified the age of 75 000 years to be correct. The so-called 'Calendar' is now seen to be a special portal for beings from outer space.

## 4 Chapter Four – Analysis and Conclusion

### 4.1 Cosmological References and the Order of Things

Modern ideas depend on a technological world-view that relies on a specific history and philosophy of science for the order of things. The contrast in 'weltanschauung' is the key to providing a methodological perspective for African systematics.

In attributing a human order to the concept of things that are seen, to understand them better is a logical conclusion in most respects.

As conscious beings on a planet, we persevere the anomalous relationships to provide our paradigmatic sciences<sup>55</sup>. By negating the emptiness and awe of the heavens and striving to a moral Universe within, we constantly epitomize the singular permutation of our existence.

Our being, however, is made of an arrangement of matter that took, to our present knowledge, at least 14 billion years to coalesce<sup>56</sup>. We are a product of the mechanics of quanta of light, which is exponentially intertwined to an energy filled mass that is fabricated by a motion of time<sup>57</sup>.

### 4.2 Cosmological References and World-View

In a paradigmatic shift in the science of applications of information technology and the built environment, Christopher Alexander provides a means to understanding the fundamental truths of traditional ways of building that give life and beauty and

---

<sup>55</sup> Kuhn, T.S. 1957. *The Copernican Revolution: Planetary Astronomy in the Development of Western Thought*. New York. Random House

Kuhn, T.S. 1970. *The Structure of Scientific Revolutions*. International Encyclopedia of Unified Science. Foundations of the Unity of Science Volume II – Number 2. The University of Chicago Press.

<sup>56</sup> Kaku, Michio. 2005. *Parallel Worlds: The Science of Alternative Universes and Our Future in the Cosmos*. Penguin Books

<sup>57</sup> Einstein, A. September 27<sup>th</sup> 1905. Ist die Tragheit eines Körpers von seinem Energiegehalt. Abhängig? *Annalen der Physik*. 18:639, 1905. Germany

Einstein, A. June 30<sup>th</sup> 1905. Zur Elektrodynamik bewegter Körper, in *Annalen der Physik*. 17:891, 1905. Germany



true functionality to buildings and towns, in a context that sheds light on the character of order in all phenomena<sup>58</sup>.

Alexander conceptualizes a cosmology that provides architecture with its basis by redefining the procedures of planning, design and building as well as the style, the shapes of buildings and the forms of construction. Through a multifaceted approach using computer science, sociology, philosophy, and art. He invents a language for the construction and transition to a new kind of society, rooted in the nature of human beings.<sup>59</sup>

He deals with the topic of living structures and sheds light on the problem of the definition of the living structure, the process of generating living structure, the practical vision of a world made of living structure, and the cosmological underpinnings and implications caused by the idea of living structure.

Thus offering a view of a human-centered universe, a view of order, in which the 'soul', or human feeling, and the 'soul', play a central role. Where experiments are conceived as an abstract Cartesian mode and a new class of experiments that reveal the foundation of all matter, and all process, as being something, which resides in human beings. A kind of new entity underlying matter, or 'soul'.<sup>60</sup>

Stephen Wolfram, however, presents a provocative revolutionary understanding of the underlying 'laws' that govern Nature. By using computer science he has made an in depth analysis of how to describe processes and the order of things in general in a new essential mathematical language. Although Wolfram's research is still in its relative infancy it really questions whether the laws that formulate the mathematical expressions, such as exemplified by cellular automata, are prevalent to all processes and ordering of natural things?<sup>61</sup>

---

<sup>58</sup> Christopher Alexander, C. Ishikawa, S. Silverstein, M. Jacobson, M. Fiksdahl-King, I. Angel, S. 1977. *A Pattern Language: Towns, Buildings, Construction*. Oxford University Press.

Alexander, C. 1979. *The Timeless Way Of Building*. Oxford University Press.

<sup>59</sup> Alexander, C. 1999. *The Origins of Pattern Theory: The Future of the Theory, and the Generation of a Living World*. IEEE Software, vol. 16, no. 5, pp. 71-82, Sept/Oct, 1999.

<sup>60</sup> Alexander, C. 2005. *THE NATURE OF ORDER: Books One to Four - Book 1: The Phenomenon Of Life, Book 2: The Process Of Creating Life, Book 3: A Vision Of A Living World, Book 4: The Luminous Ground*. Center for Environmental Structure, Berkeley, California. Taylor & Francis Publishers.

<sup>61</sup> Stephen Wolfram, Stephen. 2002. *A New Kind of Science*. Wolfram Media, Inc

The question is whether the 'ticking' of Universal Structure is prevalent to the ordering of structures.

African settlements are surveyed and assessed by recording the rapidly disappearing pre-colonial architectural traditions and by searching for African-orientated solutions to Africa's problems of rapid urbanization. In an African context, Gerald Steyn argues for pattern language as a method to interpret and analyze examples of Indigenous architecture of African settlements in order to promote, preserve, and plan appropriate urban solutions.<sup>62</sup>

In order to expand on the concepts of sub-Saharan astronomical indigenous knowledge and how this relates to structures, myths, rituals and cultural landscapes in general – a clarification of interrelationships is necessary.

#### **4.2.1 Relationship between Cosmic Reference and Rituals**

The annual gathering of the Lemba people at Sweetwater's near Elim close to Makhado (Louis Trichardt) in South Africa is usually held on the new moon of the month called Tshimedzi. It also happens to coincide with the new moon for Ramadan and Rosh Hashanah. In exceptional circumstances such as drought or eclipses, the gathering is held on another date. In 2006, the event was held on Sept 9 and a partial lunar eclipse marked the occasion on 7 September from 7pm to 11pm.

Venus disappeared behind the sun's glare at this time, during its cycle of visibility or synodic cycle, in the early morning and rose just before the Vernal Equinox sun on 22 September 2006. It then started becoming an evening star. A partial solar eclipse occurred on that day from 2pm to 4pm.

The descendants of the Karanga Empire are known to have practiced ritual regicide and sacrifice<sup>63</sup>.

---

<sup>62</sup> Steyn, Gerald. 2006. A Pattern Language as a tool for studying African urbanism using Malindi, Kenya, as a case-study. *South African Journal of Art History*. Vol 21, no.2. 10-26.

Steyn, Gerald & Holm, Dieter. 2001. An Analysis of an Omani house in Stone Town, Zanzibar. *South African Journal of Art History*. Vol 16.110-132.

<sup>63</sup> Chigwedere, Aeneas. 1996. *The Karanga Empire*. Books for Africa, Harare

Krige, E.J. and Krige J.D. 1965. *The Realm of the Rain-Queen – A study of the Pattern of Lovedu Society*. Oxford University Press



The concepts that Lewis-Williams & Pearce offer as regards sacrificial practices in this case in the Neolithic, are relevant to the understanding of how the astronomical aspects are part of the African cosmology: -

“‘Death’ and concepts of ‘wild’ and ‘birth’ and specifically the notion of sacrifice in the Neolithic are of importance to this study.

Sacrifice is an idea of a bargain with the deities, propitiation and where substitutions of an animal for a human being frequently recur. Sacrifice is part of the tiered cosmos and is posited on a notion of transition between cosmological realms. Hubert, Mauss and Turner divide the act of sacrifice into three stages:

- Separation (separated from one part of the cosmos)

---

Frobenius, Leo. 1923. *Das sterbende Afrika* / Leo Frobenius. Veröffentlichung des Forschungsinstitutes für Kulturmorphologie. München : O.C. Recht.

Mc Cosh, F. W. J. 1979. *The African Sky*. In *N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual*, No. 12, 1979. pg. 30 - 44. See page 34. Edited by A. B. D. Spicer. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

Tiley, Sian & Webster, Roger (ed) 2004. *The 2004 Mapungubwe Calendar*. Mapungubwe Archive, Pretoria University.

Frobenius, Leo. 1931. *Erythrea*. Munchen

Blake-Thompson, J. 1932. *Some Notes on African Ritual Sacrifice*. In *N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual*, No. 2, March 1932. pg. 123 - 129. Edited by Guy A. Taylor. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

Harald von Sicard. 1966. *Karanga Stars*. In *N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual*, Volume 9, No. 3, 1966. Pages 42 - 65

N.H.W. 1926. *The Darwin Ritual Murder*. In *N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual*, No. 4, December 1926. pg. 61 - 62. Edited by Guy A. Taylor. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

Kirkaldy, A. 2005. *Capturing the soul. The Vhavenda and the missionaries, 1870-1900*. Protea Book House, Pretoria.

Wilson, Agnes. 1931. *The Human Sacrifice*. In *N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual*, No. 9, 1931. pg. 6 - 10. Edited by A. B. D. Spicer. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

- Liminality (during which the victim may be dismembered and imbued with supernatural potency)
- Incorporation (incorporation of the victim into another level of the cosmos)

Sacrificial transition, this process of cosmological breakthrough, is in the hands of a ritual specialist who is believed to hold the keys to other realms. Sacrificers are thus empowered by the act of sacrifice. It is they who send a human being or animal from the material world into a spiritual dimension. They control 'death' as a cosmological transition, thus enhancing their own and their fellow ritual specialist's social influence.

Sacrifice is initiated by people (believed to be ordained by gods), bridges divisions of the cosmos and thereby affects daily life. Therein lies its power to move people emotionally, and it is on this foundation that elaborate rituals and myths, variously interpreted by theologians and historians of religions, are constructed."<sup>64</sup>

The line of Queens of the Lovedu people in the Limpopo Province of South Africa has many references to ritual regicide and sacrificial aspects.<sup>65</sup> There is also a deep connection of ritual killings with the drum of Mwari – Ngoma Lungundu that exists amongst the Vhakwebho Group.<sup>66</sup> In reference to the 'Kwevo' group Krige & Krige see the Lovedu people as having a fertility and drum cult: -

"There are other initiation ceremonies amongst the Lovedu...These are closely interwoven with a fertility and rain cult which, because of its association with sacred drums, one may call the drum cult.... The sacred drum cult has many ramifications. The Zwidajani, supposed to be ancestral spirits coming to earth to take part in gomana singing and drumming of the sacred drums, have become incorporated into other aspects of the culture....In appearance they are no different from ordinary drums, but they are made in

---

<sup>64</sup> Lewis-Williams, David & Pearce, David. 2005. Inside the Neolithic Mind. Thames & Hudson Ltd, London. Page 126.

<sup>65</sup> Krige, E.J. and Krige J.D. 1965. The Realm of the Rain-Queen – A study of the Pattern of Lovedu Society. Oxford University Press. Page 11.

<sup>66</sup> Krige, E.J. and Krige J.D. 1965. The Realm of the Rain-Queen – A study of the Pattern of Lovedu Society. Oxford University Press. Page 85. Definition of 'kwevo'.

Personal communication Mokgomana (Prince) Mulalo Nema handu 2001 January – Vhakwebho clan of rain-makers in the Venda and Modjadji areas of the Northern Province of South Africa.

a special way and it is said that the maker 'will see them with his eyes but never hear them with his ears' (i.e. he will be put to death when his work is done). While all four gomana drums are said to contain a human skull instead of the stone that one usually finds inside it, rangwedi, the smallest, has the facial skin of a human being placed (in strips, it is said) under the resonator of ox hide and has, smeared on the outside, the body dirt of the person (said to be always a chief councilor or other important person of royal blood) killed for its manufacture. This drum is thought to be closely associated with the welfare of the tribe...and it is said that, when the heir to the throne receives instruction in the use of rain medicines just prior to the death of the ruling chief, she must be sitting upon it. In some of the neighboring tribes the sacred drums are pierced on the death of the chief. The Thavina and Nareni, tribes to the south of the Lovedu, offer to the sacred drums the first fruits, and everywhere their beating is associated with rain and the agricultural year.... The instrument used consisted in the old days of the tibia of a human being with a feather inserted (and there is reason to believe that some of these are still extant) but today they use mostly two pieces of wood slightly concave on the inside in which a piece of sinew or reed is temporarily inserted...The most important feature of the drum cult was the beating of the sacred drums in an enclosure near the village, usually in the afternoon and evening on the six successive days twice every year: in the spring just before the sowing and in the winter after the harvest thanksgiving...There was a special procession which no one was to see on pain of death, the Mulodozi River had to be crossed at a special spot called Khitaba-vakololo (washing place of great people) and it is maintained by some that a black ox was slaughtered...The last gomana initiation held officially by the queen in the tribe was in 1892, just before the accession of the present queen. (Queen Modjadji III) It is difficult to account for this lapse when among neighboring tribes the cult is still fully carried out. Some say the reason lies in the ritual murders that are associated with the drums, but since it is an accepted principle that a sheep may satisfactorily take the place of a human being and, moreover, this difficulty must somehow have been overcome in other tribes, this reason does not appear good enough."<sup>67</sup>

Another source refers to the necessary rituals usually being performed in October and mentions that the magical medicine includes the brain of a sacrificed child together with the skins of the dead rain queens and their counselors. However present practice makes use of a goat instead.

---

<sup>67</sup> Extracted from: - Krige, E.J. and Krige J.D. 1965. The Realm of the Rain-Queen - A study of the Pattern of Lovedu Society. Oxford University Press. Pages 126 - 128.

The corpses are left for a few days till the skin comes away easier. Human skulls are used together with the gomana drums and the medicine is stored in pots called mehago. The medicine is then burned in magical horns and when the smoke rises into the sky it seeds rain clouds. When the magical horns are placed on the ground, rain continues to fall until Queen Modjadji hangs up the horns.

The Queen always lives on through her successor.<sup>68</sup>

Modjadji means the 'person of the sun' and when the sun 'dies' during an eclipse, so too does the living person on earth. When Mwari (God) dies then all the Bogoshi (leaders, kings, chiefs) are called to assist Mwari in the afterlife.

In a condolence speech by the Premier of the northern province, Adv. Ngoako Ramatlhodi, at the burial of Her Majesty Queen Modjadji V on 1<sup>st</sup> July 2001, the Premier drew the attention of the eclipse connection and that the deaths of the many magoshi meant that they were called to accompany the Great Queen who is the living representative of Mwari on earth: -

"Wise men and women must still tell us the relationship between the recent eclipse and the demise of our Queen. Could it be that the heavens chose to mourn her death in the most spectacular show? Last weekend, we buried her ancestral cousin, Kgoshi Molepo. It was at that funeral where her other cousin, Vhamusanda Vho Khosi Kutama lamented the death of several Magoshi in our Province, this very year. The initiated would know that a Queen or King always sleeps on a pillow. If indeed the royalty we have been burying in recent months was meant to accompany our great Queen, today we summon her great Spirit to put an end to the deaths and usher in tranquillity to Bogoshi in our province and elsewhere in our amiable land."<sup>69</sup>

Queen Modjadji V reigned for 22 years and her daughter Princess Makheale next in line destined to be Queen Modjadji VI both died at the time of the total eclipse of the sun of 21 June 2001 (Winter Solstice). The later installed new Queen Modjadji VI died on the winter solstice of 2005 (See Appendix 10 page 182)<sup>70</sup>.

---

<sup>68</sup> August 2002. Van Hunks Articles. <http://www.vanhunks.com/lowveld1/modjadji1.html>

<sup>69</sup> See Appendix 11 - Sacrificial Practices Amongst the Lovedu People and Ritual Deaths in Southern Africa.

<sup>70</sup> See Appendix 10 - Sacrificial Practices Amongst the Lovedu People and Ritual Deaths in Southern Africa

Regicide according to Leo Frobenius apparently occurred every 8 years but sometimes it was shortened to 4 years.<sup>71</sup>

The Khosi (leader) of the Lemba – Prof M E R Mathivha died at on Tshimedzi new moon on the Vernal Equinox of 2002 and Samuel Moeti, the leader of the Lemba after M E R Mathivha, died four years later on the new Moon of Tshimedzi month also at the time of the Vernal Equinox in 2006.

The Late Dr Kgalushi Koka, another Khosi of the Lemba people that headed the liberation struggle in Southern Africa, died on the Summer Solstice of 2005. At the time of the death of Queen Modjadji V in 2002, Dr Koka mentioned that when Mwari (god) dies during a solar eclipse, then all the important kings and spiritual leaders are called to assist him in passing, by dying at the same time. Eclipses usually therefore are marked by the death of an important person<sup>72</sup>.

Does astronomical relevance exist amongst the Great Zimbabwe Cultural Complex descendant groups? Is it discernable and can such ontological expressive use of space be a means for testing in the archaeological record?

As an approach for determining these aspects in structures, the cognitive methodology should include a search for cosmic references. The above hypotheses exemplify the means to resolve the systematics. Through emphasizing the astronomical aspects of an anthropological assessment in an instance, a richer depth is attained.

---

<sup>71</sup> Frobenius, Leo. 1923. Das sterbende Afrika / Leo Frobenius. Veröffentlichung des Forschungsinstitutes für Kulturmorphologie. München : O.C. Recht.

Frobenius, Leo. 1931. Erythrea. München

<sup>72</sup> Personal communication 25<sup>th</sup> June 2001 by Dr Kgalushi Koka of the Karaites Institute for Afrikology South Africa.

#### 4.2.2 Relationship between Cosmic Reference and Artifacts or Structures

By way of illustration; the current archaeological problem found at Mapungubwe is that certain features on the hilltop ruin are seen to be structures related to the storage of grain. Since the 1930's these structures have been destroyed because of being interpreted as being the remains of grain-bin bases<sup>73</sup>.

Some of the structures are shown to have had pots, monoliths, and directional relationships similar to those found elsewhere in Africa. In addition, as the surrounding cultures have provided records of rituals relating to the makings of rain and for providing fertility of the land that are relevant. Then it follows that astronomical aspects should provide a key to achieving a resurrection of the past ideological relationships concerned with similar structures and their utilization.

The 'grain bin bases' can then be viewed as remains of rainmaking indigenous knowledge rather than actual storage repositories, i.e. if several stone circles all have similar astronomically aligned aspects that relate to the cardinal points, specifically if they can be shown to be associated with the vernal equinox. Then it would not be out of place to suggest, given the oral tradition of the archaeological site and that of descendents who claim to have originated from this settlement - that the structures be empirically tested for their astronomical aspects. See Mapungubwe - Hypothesis page 94.

In the southern African worldview the pertinent cognitive aspects of divination, sacrifice and spirit mediumship or oracles provide a greater insight to interpreting various structures. Pertinent to this study is the concept the mhondoro (royal ancestor) spirits as protectors of the land and bringers of the rain, a subject dealt with in detail in the section on page 91 and in Appendix 12 on page 256.

The extent of astronomical indigenous knowledge is unknown in southern Africa and if closely examined or researched the coincidental nature of this heritage can be revealed. By incorporating an archaeoastronomical methodology, many aspects and their causal relationships can be attained.

---

<sup>73</sup> Wade, Richard Peter. 2007 Jan/Feb. Mapungubwe and Tshimedzi Moon. In The Voyage of the Planet. Issue #2. pages 38-42. JCA Archaeological Foundation for Research JCA Management Services. South Africa. ISSN 1991-5039

Andrews, Johnathan. 2007 March/April. Mapungubwe Outcry! Discussion Forum In The Voyage of the Planet. Issue #3. pages 40-48. JCA Archaeological Foundation for Research JCA Management Services. South Africa. ISSN 1991-5039

The methodology advocated here has developed from the structural approach, which is primarily concerned with understanding settlement organization and cultural structures through cognitive archaeology - the study of prehistoric values and beliefs of mainly ethnographic models: -

“Interest in cognitive aspects of spatial organization developed a decade ago largely as a result of Adam Kuper’s paper, ‘Symbolic dimensions of the southern Bantu homestead’ (1980). Following Kuper’s structural analysis, archaeologists have identified three spatial patterns: a Street Pattern (Huffman 1989), a central Cattle Pattern (Denbow 1986, Evers 1984, Huffman 1984b 1986, Loubser 1981, 1985 Taylor 1984, Van Waarden 1989, Whitelaw 1993) and the Zimbabwe Pattern (Huffman 1981, 198, 1984a, 1986, Huffman and Hanisch 1987, Küsel 1992). In general the Street Pattern correlates with Western Bantu speakers in Central Africa having a matrilineal ideology with regard to biological descent, while the Central Cattle Pattern is restricted to patrilineal Eastern Bantu speakers who exchange cattle for wives. The Zimbabwe Pattern characterizes various levels of Zimbabwe political centres, and its first appearance in the archaeological record at K2 and Mapungubwe shows that it evolved from the Central Cattle Pattern. The continuation of these two patterns together in the Zimbabwe Culture area provides some of the evidence for class distinction.

These patterns and their associations with social groups and classes, however, have not been completely accepted. At a broad level they have been criticized on the same grounds as other attempts at cognitive archaeology. For many, social structure in general and values and beliefs in particular are merely epiphenomena of no value to understanding the past, or at least no longer accessible. Some critics consider ethnographic models irrelevant or misleading because their use allegedly ignores change and recreates the past in terms of the present. More specifically, some challenge the use of recent Shona custom and oral tradition to interpret sites abandoned five hundred or more years ago, such as Great Zimbabwe”.

<sup>74</sup>

Despite criticism from ‘particularist’ and ‘inductivist positions’, Huffman suggests...

“it is possible to develop spatial models due to a few very well attested premises of human behaviour. First to create order, human societies everywhere divide their physical environment into discrete locations in each

---

<sup>74</sup> Huffman, T.N. 1996. Snakes and Crocodiles. Wits University Press. Pages 4 - 5.



of which only a limited range of activity is permitted. Secondly, it follows that these spatial locations have social significance and consequences: they provide physical backdrops for social behaviour and in many cases help to shape it (see for example, Hiller and Hansen 1984). The physical boundaries imposed by a building, for instance, force people to replicate standardized behaviour. Thirdly, it can be shown that a relatively small set of organizational principles operates on several levels within one society, and these can generate a wide range of features. The spatial principles that determine the organization of a Tswana house, for example, also apply to the household, homestead and town (see for example, Schapera 1953), and this is no less the case for the systems of other Bantu speakers.”<sup>75</sup>

The cognitive symbolic aspects underlying spatial arrangement and expressive use of space is an approach to determine, therefore, the patterns of structure and cultural features as found in the archaeological record. Their causal relationships help define the historic and prehistoric ideologies which is an almost unattainable aspect of the past social fabric in anthropological research of the archaeological record.

Pertinent to the cognitive approach my research involved large-scale archaeological excavations of the Thukela River Valley in the early 1980's, where an enormous dam was to be established to provide water for the Witwatersrand in South Africa. I was seconded by the South African Defence Force to the Kwazulu Government Service (Bureau of Natural Resources) during the Apartheid regime at the time. My objective was to survey and excavate the area that would be affected by the dam to preserve and identify any archaeological or cultural material or phenomena.

During this time I would travel with a team of excavators and one specific day I asked my head induna Samuel Jale if he could in any way determine where previous cultures had settled. I was initiating archaeological and ethnographic research in the Ndongondwane archaeological site in Nkandhla at a place we called the Mamba area. The provisional dating for the cultural horizon was placed at roughly 600A.D. and was characterized by features of industrious metalworking. I asked Samuel Jale to help me locate a homestead or hut of a settlement we found and for several weeks we could not locate any hut remains other than broken smelting-ovens.

Eventually Samuel Jale said he could work out how to find where the people lived who worked the metal at the time and I jokingly asked if he could find a hut floor, and would he at least be so accommodating to locate the very centre of the hut for me as well. He laughed and said he would do exactly that.

---

<sup>75</sup> Huffman, T.N. 1996. Snakes and Crocodiles. Wits University Press. Page 6.

Samuel Jale then walked about on the approximately 2 square km sized island between the confluence of the Mamba River tributary entering the Large Thukela River and went towards its eastern most zone. He then looked toward where the sun rose every morning and stepped back and forward holding his arms outstretched as the horns of cattle. He then looked toward the direction where the sun set in the evening and his eye followed the sunrise and sunset directions while holding his arms outstretched and then he motioned that this would have been the ideal place for a hut and that if I should excavate where he stood I would likely be in the middle of the hut.

The Thukela River frequently flooded in the past and so very few signs of human occupation were apparent. We excavated to a depth of roughly 1 metre and came upon the strata of a perfect hut floor. I was able to quarter the sediment above the hut floor, as one would make slices in a round pie. Impressing my colleagues in the process. No other hut remains were found to exist throughout the area.

Samuel Jale thus revealed an astounding intuitive symbolic dimension that relates to the possible underlying spatial organization principles of his Zulu society. On asking him how he did it, he answered that he was tracing the path that the sun would take each day, at the same time bearing in mind that it was winter at the time. His arms were held in the shape of a bull's horns or crescent of the moon. Facing north, he then proceeded to find the most suitable orientation that a hut's entrance would have to be facing to benefit the dwellers most. The hut door would have to face due east and the crescent of his arms allowed him to ascertain where a hut would likely be, given the river's proximity and the slope of the ground.

From that time, I orientated my research to finding the hidden astronomical aspects that underlie cognitive spatial relationships and the various patterns of underlying symbolic aspects of Bantu homestead. The methodology was expressed clearly in the then developing approaches in History of Astronomy or Archaeoastronomy. Through this approach, I was able to question the models to understand the basic seasonal and plausible orientations of arrangements of homesteads, villages, and cities. Together with other concepts produced by professors David Lewis-Williams<sup>76</sup> and Tom Huffman<sup>77</sup> where the research led to

---

<sup>76</sup> Lewis-Williams, David. 2002. *The Mind in the Cave*. Thames & Hudson, London.

Lewis-Williams, David & Pearce, David. 2005. *Inside the Neolithic Mind*. Thames & Hudson Ltd, London

<sup>77</sup> Huffman, T.N. 1996. *Snakes and Crocodiles*. Wits University Press

Huffman, T.N. 1981. *Snakes and Birds: Expressive Space at Great Zimbabwe*. In *African Studies*. Vol. 40, no. 2 1981.

motivation of a method for identification of, as it were, astronomical structures in the archaeological record.

Lewis-Williams and Pearce argue that...

“differences and comparisons in the ethnography create the overriding impression with archaeologist trends and natural and cultural environments influences are seen as most important. In archaeology references to innate human commonalities or faculties of thought that allow humans to create or learn culture, are seen as superficial worthless generalizations that are a hangover from the now passé archaeological interest in finding ‘covering laws’.

Ethnography detracts the archaeologist’s attempt to understanding the past and describing the various societies in the world is a trap. By projecting ethnography into the past we inevitably create a past in the image of the present. Generalizations can be made of features of Kinship systems and aspects of language but all facets of all cultures are unique and non-generalizable.

What is needed is a methodology that will help access knowledge about universal foundations of diversity. What is the feature or anchor that determines human behaviour of every cultural aspect? What leads to these commonalities?

The human mind is an experience created by the working of the brain. The neurology and functioning of the brain create a mercurial type of human consciousness that is universal. The ways in which humans can accommodate consciousness in daily life is not infinite. Certain principles can be derived from the universal functioning of the brain and ethnographic instances illustrate the ways in which that universal functioning can find expression or see the practicality of the argument.

In the archaeological record therefore, the most important issue is that there are diverse ways that communities come to terms with shifting human consciousness and that these ways are sometimes recognizable in the archaeological record as they are recognizable in world ethnography. Social strategies to accommodate the brain’s functioning to produce consciousness can be found as archaeological evidence, even though we may have never encountered strategies of that kind before in our own or in ethnographically

---

recorded societies..... researchers should not ignore the functioning of the brain/mind when they examine ancient cultures.. .... people formulate common understandings of their various types of consciousness.

The ways in which the functioning of the brain provides raw material for the fashioning of cosmologies is then determined. There are broad structures that derive from the brain even though each society's cosmology is unique. In many societies there are 'seers' who believe they can actually see and travel through the cosmos to capture insights hidden from ordinary people - their cosmos then no longer becomes a concept but becomes a lived explored reality.

People in the Near East at the beginning of the Neolithic began to construct exemplars of their particular cosmologies. Houses for daily shelter and living could become in certain circumstances, models of the cosmos, even to the extent that the dead could be buried in a chthonic realm believed to lie beneath the living floors...and show that human neurology manifests itself in the art and architecture of the Near Eastern Neolithic and more generally in some universal experiences that often provide turning points in mythical narratives throughout the world.

The ideas developed concerned ... the megalithic monuments of the Atlantic seaboard as a barrier of the Neolithic ideas. European structures are considered on a different scale, as these megaliths are truly monumental and were not lived in or inhabited but were like 'houses of the dead'.

A cluster of Neolithic structures in Ireland (the bend of the Boyne) holds keys to the ways in which architecture, cosmology and the realm of the dead interlocked in megalithic monuments.

In assessing mind and religion in society the consideration is in the dark depths of the nether realm created by the human mind. Stone axes for instance are more than the prosaic tools they appear to be. Neolithic axes and enigmatic motifs on tombs are dredged up from a simultaneous material and psychic underworld. Differing treatments of the dead destined to the nether realm illustrate ways in which people engage with universal themes of social discrimination and how they link their discriminations to mentally and materially constructed cosmologies."<sup>78</sup>

---

<sup>78</sup> Lewis-Williams, David & Pearce, David. 2005. Inside the Neolithic Mind. Thames & Hudson Ltd, London. Pages 6 - 12.

Lewis-Williams & Pearce contend that natural phenomena are negligible when compared to the social and economic fabric that provides the structure to cosmology.

“Myths are set within the cosmology of the people who give allegiance to them, they reproduce or reinforce that cosmology every time they are recounted, simply by taking the cosmos for granted as a framework for the origins, events, journeys, transformations and beings that the myth describes. Sacred narratives differentiated from folk-tales. Myths incorporate historical events but there is more to them than fantastically embroidered history. They are socially situated - groups of people define themselves in part by the myths with which they associate themselves. Myths do not merely explain origins and events in the natural world, such as why the sun rises and sets. It is incorrect to suppose that a natural phenomenon is at the heart of every myth. Society itself is more significant in understanding a myth than natural phenomena. It is not easy to discern the ‘true meaning’ of a myth. It is also contingent on who tells it to whom and under what circumstances. They are not parables or fables, which illustrate simple moral principles.”<sup>79</sup>

However, Cosmology has almost always included the realm of stars space and celestial imagery and trance dances and hypnogogic daydreams cannot always account for the phosphenes and entoptic challenges we face in the depths of our mind when the eyes are closed. Myths are surely not the only reflections to the music of our cortex, sometimes we generate new things because the dynamism of nature and social beings are far too complicated to anchor dream states’ onto.

Extraordinary natural phenomena can generate social upheaval or changes.

Huffman too, sees almost no celestial imagery in Southern African Cave Art, other than in some renditions of comets and mentions astronomical aspects as glimpses that are referred to in three paragraphs of an entire treatise on Great Zimbabwe<sup>80</sup> No mention at all is made of Shona starlore. The conclusion being that neither the Venda nor the Shona had any astronomy knowledge of significance.

---

<sup>79</sup> Lewis-Williams, David & Pearce, David. 2005. Inside the Neolithic Mind. Thames & Hudson Ltd, London. Page 149.

<sup>80</sup> Huffman, T.N. 1996. Snakes and Crocodiles. Wits University Press. Page 121.

Lewis Williams & Pearce rationalize that the Built Environment is seen as a cosmological model of the unseen world. "It is a three-tier concept that repeats throughout most examples from the archaeological and anthropological record: -

- Cosmology is embodied in structures that people build and these are neurologically generated
- Labour reproduces and modifies beliefs
- Buildings unite religion, social structure and cosmology

They exemplify how the Barasana and Bororo people of South America model their houses on their cosmology. How the divisions of the village reflect and impose the laws by which the whole cosmos is regulated. The whole cosmos comes down to earth.

Architectural features associated with cosmological and social implications: -

- Columns, platforms, and ladders suggest verticality in a tiered cosmos. A general conceptual patterns with cosmological associations can be discerned even if the exact meaning of the images in unknown.
- Verticality linked to axis mundi the transcological route traveled by ritual specialists
- Burials beneath floors let into subterranean realm
- Columns with bulls heads probably ritual specialist's spirit-animals that provided power for transcological travel
- Cosmological horizontality reflected in tripartite divisions of intercolumnar panels and differentiating platforms
- Panels and platforms associated with three principal divisions of the cosmos
- Levels of the cosmos in panels associated with bulls and female imagery - goddesses
- Standing stones emphasize the vertical dimension of the tiered cosmos
- Holes sunk into the floor and sub floor channels also indicate verticality
- Hearths suggest transformation by fire
- Structures that guidewhat people can and cannot see
- Sacrifice associates with cosmological transition
- Ritual associated with social differentiation

Rectangular buildings at Ain Ghazal in near east and Konya Plain in southern Turkey reflect the intricate social differentiation a well as changes of religion where standing stones and anthropomorphic orthostats supplicated



ritual functions. A kind of door between two cosmos. Replicated into later cathedrals.

Structures took people into a complexly constructed level of cosmos that had social implications. It seems that at Çatalhöyük the built environment was a place where people, moving between demarcated areas, made statements about their social statuses in the same way a Christian priest makes a statement about his status when he moves into the sanctuary of a cathedral - which related to the tiered cosmos itself.

Transcosmological travel is sometimes thought of as a journey into the womb and depictions of female genitalia do not necessarily stand for or always depict fertility and birth and therefore there is another understanding of the figures as 'goddesses'.<sup>81</sup>

The concept that a human can mediate between the afterlife and the living through ritualized divination and spirit-mediumship is a very prevalent aspect to most Africans. It is regarded as reality and is seldom scoffed at in any way and ancestral worship is most profound especially amongst the rural populations in sub-Saharan Africa.

#### **4.2.3 Venus as Cosmological Reference**

By way of illustration, Venus provides an example as a cosmic reference in structural aspects possibly inherent in structures.

The relationship between Venus and the sun is seemingly paramount to the Shona-Lemba-Venda astronomical indigenous knowledge tradition<sup>82</sup> and may be seen as the method used for timing rain periods. Tshimedzi Moon usually occurs on the Vernal Equinox when Venus disappears or appears from behind the sun at this time for the first time in the Venus Synodic Period, as either a morning star or evening star.

---

<sup>81</sup> Lewis-Williams, David & Pearce, David. 2005. Inside the Neolithic Mind. Thames & Hudson Ltd, London. Chapter 4, pages 88 - 121.

<sup>82</sup> Lan, David. 1987. Guns & Rain : Guerrillas & Spirit Mediums in Zimbabwe. James Currey London and University of California Press Berkeley and Los Angeles.



**Figure 24** Venus Synodic Pattern from September 2000 through March 2001, Tunc Tezel photographed the planet Venus on 25 different dates as it wandered through the evening twilight. The pictures were taken from the same spot on the campus of the Middle East Technical University near Ankara, Turkey, and timed so that for each photo the Sun was 7 degrees below the horizon. Carefully registering and combining the pictures, he produced this composite image - demonstrating the motion through the sky of Venus as an evening star. The pattern is different to that seen from Great Zimbabwe latitude. <http://antwrp.gsfc.nasa.gov/apod/ap010601.html>

The calendrical aspect and cycle of Venus may provide a predictive relationship that potentially exists - that cyclical rainfall patterns can be used to 'forecast' either a wet or a dry period<sup>83</sup>. Similarly, the Kgatla people of South Africa also relate that if the moon, Venus and the sun disappear at the same point on the horizon within a given period, then a drought would follow for many years.

Likewise, the Human duration of gestation mostly matches the time taken for the movement that Venus makes across the sky from the Vernal Equinox to the Winter Solstice (in the southern hemisphere) before it disappears behind the sun once more in the Synodic period, generally 260 days.

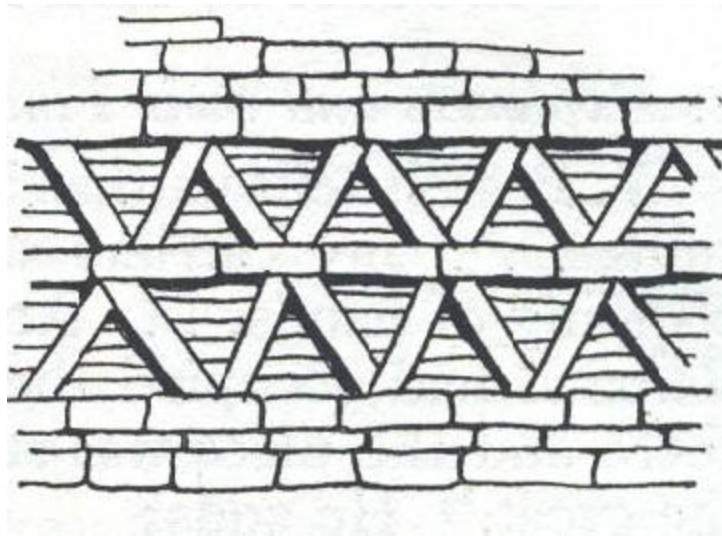
The chevron pattern on the main outer wall of the Great Enclosure at Great Zimbabwe does not extend about the full wall but faces the rising stars and planets associated with the morning sky and possibly relates to the amount of days in a gestation period. The gestation period of modern humans is closer to 260 days

---

<sup>83</sup> Keen, Cecil S and Tyson, Peter D. 1973. Seasonality of South African rainfall: a note on its regional delimitation using spectral analysis. Volume 21, Numbers 2-3/June 1973. in *Theoretical and Applied Climatology*. Springer. Wien.

<sup>84</sup>and the amount of chevron 'units' discernable on the wall amount to approximately 210.

Notwithstanding, structural aspects must be examined for their possible cosmic references and all scenarios examined on site and then tested with traditions and further examples should they prove to exist.



**Figure 25** Chevron Pattern on the Main Wall at the Great Enclosure at Great Zimbabwe in Caton-Thompson, G. 1931. *The Zimbabwe Culture: Ruins and Reactions*. Oxford: Clarendon Press. Page 232.

The chevron patterned belt or snakeskin is worn by pregnant Shona and Venda women during the gestation and fertility and reproduction may be part of a timing method prescribed by the Venus Synodic Period and Venus's relationship with Solstices, equinoxes and conjunctions of the moon and could provide an explanation of the use of the chevron as a fertility symbol.<sup>85</sup>

The ritual amongst the Karanga /Shona involving use of a python skin belt and worn from conception to birth period, is symbolically related to 'Nehanda' or 'Mukaranga'

---

<sup>84</sup>Scotland, W.H.D. February 1956. Length Of Gestation Of East African Women. *BJOG: An International Journal of Obstetrics and Gynaecology* 63 (1), 120-123.

<sup>85</sup> Huffman, T.N. 1981. Snakes and Birds: Expressive Space at Great Zimbabwe. In *African Studies*. Vol. 40, no. 2 1981

-Venus<sup>86</sup> is never seen by anyone and is 'eased' by a notch eight times during the pregnancy period at each new moon. The 'Domba' dance amongst the Venda specifically invokes Venus and the songs all revere Venus and in some cases Jupiter as the 'light that brings the supper' and fertility. Tshilalelo 'song of dismissal', in which the girls 'ask for their supper' (ri yo humbela tshilalelo) and Khumbela-tshilalelo is also a name for Venus as the evening star.<sup>87</sup>



**Figure 26** Venda Girls' Initiation Schools. Department of Social Anthropology. University of Belfast (Blacking March 1998) <http://sapir.ukc.ac.uk/QUB/Introduction/TitlePage.html>

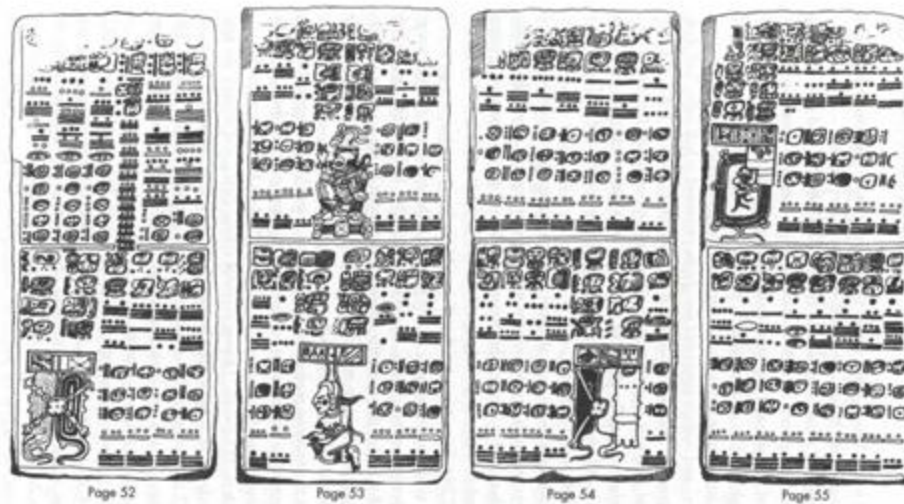
Some Zimbabwe Cultural Complex monoliths may also support the idea that astronomy was important to those who erected them. Several have intricate geometrical notations, which suggest an astronomical connection and one in particular indicates what appears to be a 'diaper' pattern, whose number and arrangement may correspond to the possible records of Venus and Mars as depicted in the Mayan Dresden Codex.<sup>88</sup>

---

<sup>86</sup> von Sicard, H. 1966. Karanga Stars. NADA 9: 45. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

<sup>87</sup> Blacking, John. March 1998. Venda Girls' Initiation Schools. Department of Social Anthropology. University of Belfast. <http://sapir.ukc.ac.uk/QUB/Introduction/TitlePage.html>

<sup>88</sup> Aveni, A. 1997. Stairways To The Stars - Skywatching in Three Great Ancient Cultures. John Wiley & Sons, Inc. Astronomy in the Maya Codces, Pg110.



**Figure 4.7** A section [pages 52 to 55] of the Eclipse Table in the Dresden Codex. Numbers across the bottom of each half page are 5 and 6 lunar synodic months and the pictures represent (usually) ominous eclipse events.

**Figure 27** Mayan Dresden Codex. In Aveni, A. 1997. *Stairways To The Stars - Sky watching in Three Great Ancient Cultures*. John Wiley & Sons, Inc. Astronomy in the Maya Codices, Pg110.

The stone was found at Dhlo-dhlo and is inadvertently regarded as a status phallus symbolized and decorated with snake and crocodile motifs,<sup>89</sup> it has what is referred to as a 'diaper' pattern with sections of 'chevron'. The 'diapers' are basically rough diamond-shaped peck marks made a few millimeters into the polished surface of the stone, with incised chevron' zigzags. These notations/pockmarks could have been made as a result of recording the daily sightings, for instance, of the planet Venus, on the horizon and may involve the Venus synodic period and a method of tabulating lunar or solar eclipses amongst the Karanga, similar to the Mayan method as seen in the Codex.

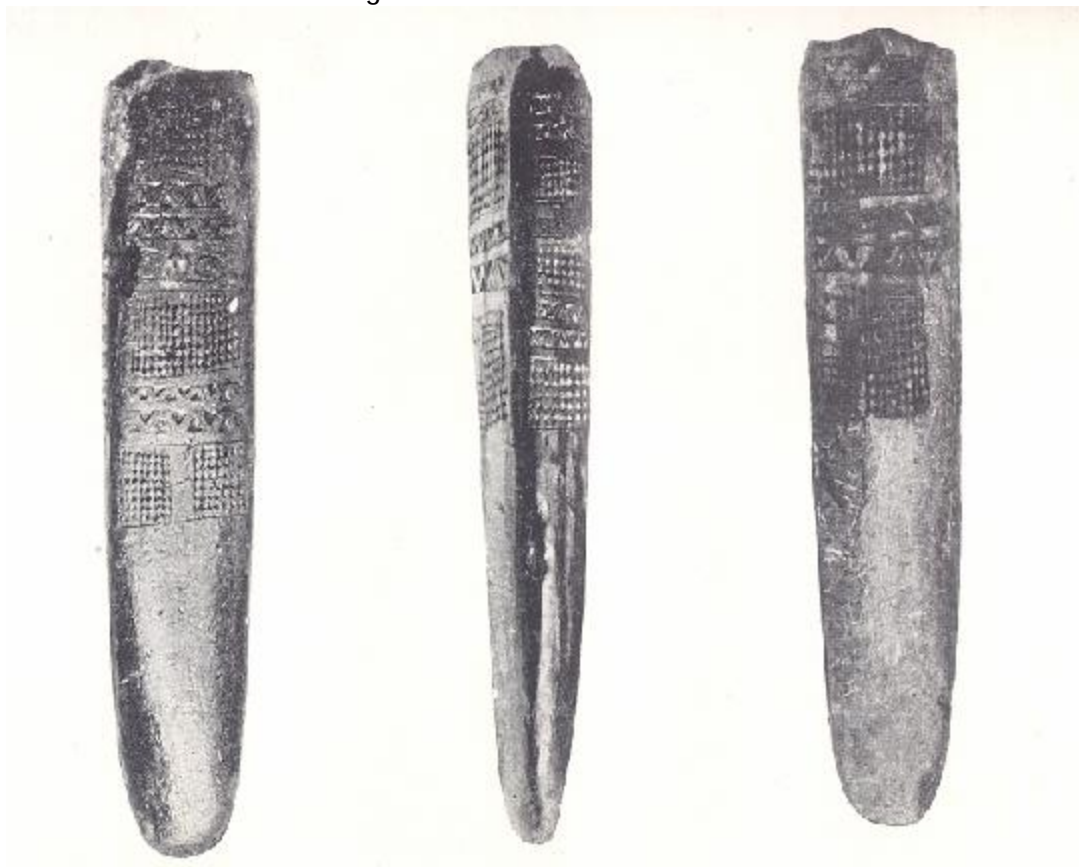
The cyclical observable period for Venus in its synodic period, has a four phase motion - appearance (263 days), long disappearance (50 days), appearance (260 days), short disappearance (8 days) = 583.9 days.<sup>90</sup> This means that any notation of this cycle could be recorded in a similar pattern, and the pockmarks on the Dhlo-dhlo stone are divided in this fashion and seem to be the tallied records of a naked-eye planet/moon observation with a circle and a crescent. There are many oral

<sup>89</sup> Huffman, T.N. 1996. *Snakes and Crocodiles*. Wits University Press

<sup>90</sup> Intervals fluctuate widely but commonly lie within about ten days of the quoted values.

Aveni, A. 1997. *Stairways To The Stars - Skywatching in Three Great Ancient Cultures*. John Wiley & Sons, Inc. Astronomy in the Maya Codices, Pg 42

traditions concerned with Venus and its relationship to the moon and sun, as this planet plays a major role in the Karanga/Shona culture,<sup>91</sup> that will be considered in more detail in a later following treatise.<sup>92</sup>



**Figure 28** The Monolith Stone originally found at Dhlo-dhlo now in the Zimbabwe National Museum in Hall, R.N. & Neal, W.G. 1902. *The Ancient Ruins of Rhodesia*. Methuen. Page 236.

---

<sup>91</sup> Lan, David. 1987. *Guns & Rain : Guerrillas & Spirit Mediums in Zimbabwe*. James Currey London and University of California Press Berkeley and Los Angeles.

Frobenius, Leo. 1931. *Erythrea*. Munchen.

Latham, C.K.J. 1986. *Mwari and the divine heroes : guardians of the Shona : pan Shona religion as an inspiration for nationality* / C.J.K. Latham. Grahamstown : Rhodes University, 1986. Thesis (M.A.)- Rhodes University, 1986.

<sup>92</sup> Clark, Stuart and Carrington, Damian. 12:53 04 December 2002. *ECLIPSE BRINGS CLAIM OF MEDIEVAL AFRICAN OBSERVATORY*. NewScientist.com.  
<http://www.newscientist.com/news/print.jsp?id=ns99993137>. © Copyright Reed Business Information Ltd.





**Figure 29** The Monolith Stone originally found at Dhlo-dhlo now in the Zimbabwe National Museum reproduced in Huffman, T.N. 1996. Snakes and Crocodiles – Power and Symbols in Ancient Zimbabwe. Johannesburg. Witwatersrand University Press.



**Figure 30** Detail of the Monolith Stone originally found at Dhlo-dhlo now in the Zimbabwe National Museum reproduced in Huffman, T.N. 1996. Snakes and Crocodiles – Power and Symbols in Ancient Zimbabwe. Johannesburg. Witwatersrand University Press.

Two constellations of particular importance to the BaVenda-BaSena that are used to reckon the time to begin ploughing, and so mark the beginning of each year's activities are **Tuda** (giraffe) containing the two brightest stars of the Southern Cross ( $\alpha$  and  $\beta$  Crucis) called nsadzi (female), with the two pointers to the Southern Cross ( $\alpha$  and  $\beta$  centauri) called ndona (male) and **Makhali** (rhinoceros or three pigs - **Nguruve**) containing the belt and sword of Orion ( $\delta\omega\zeta\kappa\theta$  Orionis). "The time for ploughing is when **nsadzi** is not visible, and **ndona** is just visible over the horizon soon after sunset; at this time **tshilimela** (Pleiades) is low on the horizon. These constellations are in these positions at the end of October (called the month of **Tshimedzi**). Tshimedzi, the month in which ploughing begins, is really the first month of the Venda Year. The moon that appears when the two lower stars of the constellation **Tuda** are just below the horizon and the two upper stars just visible is the **Tshimedzi moon**".<sup>93</sup>

On this particular evening, at the same time, as the setting **Tuda** (south west) conjuncts with the setting new moon (west), another very important asterism ascends, namely - **Makhali** with the three stars - Saiph ( $\kappa$  Orionis), Alnilam ( $\epsilon$  Orionis) and Bellatrix ( $\gamma$  Orionis), appearing in line on the horizon, in the east.

This arrangement is the possible signal for various rituals to begin and which is discussed in detail in the forthcoming publication.

The tradition however, stipulates that **Tshimedzi moon** is "when **nsadzi** is not visible, and **ndona** is just visible over the horizon soon after sunset and is the first moon that appears when the two lower stars of the constellation **Tuda** are just below the horizon and the two upper stars just visible."<sup>94</sup> Which is a concept ritualistically passed down in tradition and yet is very difficult to prescribe in areas lower or higher in latitude than Great Zimbabwe and therefore may be the place of

---

<sup>93</sup> Stayt , Hugh A. 1968. CONCEPTI ONS OF THE UNI VERSE Meteorology-Astronomy-Time and the seasons-Numbers. Chapter XI X and XXII Rain-Making and Fertility of Crops (pages 309 - 315) in THE BAVENDA . CASS LI BRARY OF AFRI CAN STUDI ES - GENERAL STUDI ES - No 58 Editor Adviser: John Ralph Willis. Frank Cass & Co. Ltd. 1968 London. Printed by Thomas Nelson London. - "Between the time of tuda's appearance in that position and its reappearance there more than twelve lunar months have elapsed. A lunation is about 29½ days, so that twelve of these, together with approximately 11 days, will make a sidereal year of, roughly speaking, 365 days. This discrepancy may be adjusted by having two years of twelve lunar months and then a year of thirteen lunar months".

<sup>94</sup> Stayt , Hugh A. 1968. CONCEPTI ONS OF THE UNI VERSE Meteorology-Astronomy-Time and the seasons-Numbers. Chapter XI X and XXII Rain-Making and Fertility of Crops (pages 309 - 315) in THE BAVENDA . CASS LI BRARY OF AFRI CAN STUDI ES - GENERAL STUDI ES - No 58 Editor Adviser: John Ralph Willis. Frank Cass & Co. Ltd. 1968 London. Printed by Thomas Nelson London

origin for this practice.<sup>95</sup> Nsadzi hardly reaches the horizon at the same time, when south of Great Zimbabwe and to the latitude north of Zimbabwe, nsadzi disappears too soon below the horizon. At Great Zimbabwe nsadzi sets as two stars exactly at the same time on the horizon.

Very specific rituals exist that occur at the equinox and solstice which identify the rain period as beginning on Tshimedzi moon, some of these rituals involved a fire ceremony and was a tradition of charming rain by ritual sacrifice amongst the Shona-Lemba-Venda as well as Lovedu people which required a procedure of 'counting and naming the stars'.<sup>96</sup>

In order to make the rainfall a rain-goddess is chosen to sacrifice a male victim - by placing the drugged or slain victim on a large fire and "the rain falls when the body bursts upon the pyre."<sup>97</sup> In addition, "In his description of the Hungwe rain

---

<sup>95</sup> The Great Zimbabwe - Great Enclosure platform Area is located at Longitude 30°56' 0" East and Latitude 20°17' 0" South.

<sup>96</sup> Freeman-Grenville, G.P.S. 1962. Select Documents From The First To The Earlier Nineteenth Century. - Duarte Barbosa, An Account of the East Coast c. 1517 - 18 p:129. Oxford: Clarendon Press

Frobenius, Leo. 1923. Das sterbende Afrika :Veröffentlichung des Forschungsinstitutes für Kulturmorphologie. München: O.C. Recht.

Frobenius, L. 1931. Erythräa: Lander und Zeiten des heiligen Königsmordes. Berlin: Atlantis Verlag.

Hall, R.N. 1909. Prehistoric Rhodesia. London: Maskew & Miller.

Hall, R.N. & Neal, W.G. 1902. The Ancient Ruins of Rhodesia. Methuen.

Krige, E.J. and Krige J.D. 1965. The Realm of the Rain-Queen - A study of the Pattern of Lovedu Society. Oxford University Press

<sup>97</sup> N.H.W. 1926. The Darwin Ritual Murder. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, No. 4, December 1926. pg. 61 - 62. Edited by Guy A. Taylor. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

Wilson, Agnes. 1931. The Human Sacrifice. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, No. 9, 1931. pg. 6 - 10. Edited by A. B. D. Spicer. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

Kirkaldy, A. 2005. Capturing the soul. The Vhavenda and the missionaries, 1870-1900. Protea Book House, Pretoria.

Harald von Sicard. 1966. Karanga Stars. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, Volume 9, No. 3, 1966. Pages 42 - 65

ceremonies, Leo Frobenius mentions that God is "here" called Ndemba and that the sacrifice, a black, hornless bull, is said to have the same name. In the case of a particularly severe drought the rain priestess Nehanda used to sacrifice to the Mbire rain priest Mavudze. Frobenius stresses the point that the day for the rain offering is determined by the observation of the stars. Then again, in a belletristic form, A. Wilson wrote in NADA, 1931, about the so-called "Darwin murder", the human rain sacrifice at Miti michena in the Tavara country in 1923. One of the main features recurring in her account is the naming and the counting of the stars. When the name of the "rain star" is called out by the priest (A. Wilson does not mentioned it), the victim is slain. It is improbable in view of the important role of the rain priestess Nehanda in the Tavara cult, that in our case the rain star was called Nehanda (Venus).

It may rather have been Ndemba or Mademba, and "Mademba, ndiku- teme" may have been exclaimed by the priest at the moment of the victim's immolation, when he cut its throat...If this explanation of the name can be accepted, then Ndemba or Mademba would not be the name of God, but of the rain star, in spite of the fact that Frobenius (p. 148) mentions Ndemba as alternative for Mwari in a tale told among Makoni's Hungwe. Before arriving at a definite conclusion it would be necessary to ascertain whether the original name of Ndemba does not lead us close to something like a star cult.<sup>98</sup>

The rainmaking ceremonies performed by rainmakers at the breaking of the drought link the descendents of the builders of Great Zimbabwe with the pre-Islamic practice of the *anwā* system, where the weather is predicted or foretold by counting and naming certain stars and providing use of the stars as markers to determine seasons, winds and rain or the correct time for planting.

---

<sup>98</sup> von Sicard, Harald. 1966. Karanga Stars. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, Volume 9, No. 3, 1966. Pages 42 - 65

Frobenius, Leo. 1923. Das sterbende Afrika / Leo Frobenius. Veröffentlichung des Forschungsinstitutes für Kulturmorphologie. München : O.C. Recht.

N.H.W. 1926. The Darwin Ritual Murder. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, No. 4, December 1926. pg. 61 - 62. Edited by Guy A. Taylor. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

Wilson, Agnes. 1931. The Human Sacrifice. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, No. 9, 1931. pg. 6 - 10. Edited by A. B. D. Spicer. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

The concept of **naw'** (plural **anwā'**) represents potential times of rain linked with the risings and a **naw'** is generally defined as the dawn setting of a star or asterism in the west at the same time as an opposite star rises with the sun in the east as well as with winds and temperature.<sup>99</sup>

Amongst the terrace cultivators of southern Highlanders of Yemen, the verb to plough - '**talama**', associated with one of the earliest references in the tenth century literature with the growing of sorghum (dhurah) by al-Hamdani<sup>100</sup>, is the root word used in the Yemenite concept of 'agricultural marker stars' - '**ma'ālim al-zirā'ah**'<sup>101</sup>, with the emphasis being the root - '**lim**' or '**lam**'.

The use of agricultural marker stars (**ma'ālim al-zirā'ah**) throughout Yemen involves the use of variations of the classical Arab science of using an astronomical reckoning system of lunar stations (**manāzil al-qamar**)<sup>102</sup>. The idea of substituting locally important stars or asterisms for the classic stations extends back at least to the Rasulid times, and probably to the tenth century. There are variations from region to region and era to era. Another system for planting sorghum amongst the terrace cultivators "in al-Ahjur is a local shadow scheme. As the sun rises in the morning, the top of the plateau of Husn al-'Arus (located east of the valley) casts a shadow (ghawm) on the western side of the valley wall in al-Ahjur. This shadow appears to migrate as the sun moves along the ecliptic during the course of the year. By observing where the shadow falls at dawn, it is possible to construct a simple seasonal calendar. A landmark (**ma'lam**) is fixed to mark the time when sorghum should be planted"<sup>103</sup>.

---

<sup>99</sup> Varisco, D. M. 1987. The Rain Periods in Pre-Islamic Arabia. Arabica, Tome xxxiv, Pages 251 -256. Page 252.

Varisco, D. M. 1989. The Anwā' Stars According to Abu l-shāq al-Zajjāj. In Zeitschrift Für Geschichte Der Arabisch-Islamischen Wissenschaften. Band 5. Johann Wolfgang Goethe-Universität, Frankfurt am Main.

<sup>100</sup> Al-Hamdani, Abu Muhammad al Hasan. 1884 -1891. Sifat jazirat al- 'Arab. Leiden. Page 199.

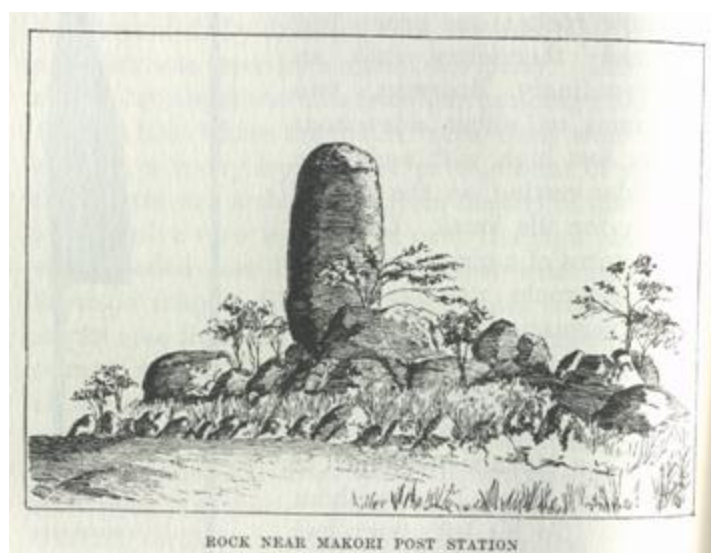
<sup>101</sup> Varisco, D. M. 1985. The Production of Sorghum (Dhurah) in Highland Yemen. Arabian Studies (Cambridge). 7:53-88. Page 60 - 62. " In the medieval Yemeni almanacs reference is made to a special planting period of sorghum called al-'ashr al-mukhtārah (lit., the ten select (days) )...the correlation with the Gregorian calendar would be about April 4-14. This period was defined as the middle of a thirty day period which was considered optimum for planting sorghum after the spring rains."

<sup>102</sup> Varisco, D. M. 1985. The Production of Sorghum (Dhurah) in Highland Yemen. Arabian Studies (Cambridge). 7:53-88. Page 60 - 62. About Lunar stations see footnote 29 page 71.

<sup>103</sup> Varisco, D. M. 1985. The Production of Sorghum (Dhurah) in Highland Yemen. Arabian Studies (Cambridge). 7:53-88. Page 62-63.

The '**Ndzalama**' rock, usually chosen from nature or fashioned and found central to a Tsonga-Shangaan settlement, may be named after the shadow-rock used to indicate the ploughing or '**talama**' period.

Other words like isi**Lim**ela (Pleiades - Zulu) and tshil**im**ela (Pleiades - Venda) are associated with the pre-Islamic Yemenite word -ma'**ālim** al-zirā'ah (agricultural marker stars)<sup>104</sup> and are found in words like abe**Lim**i (farmers - Zulu) to **Lim**a (plough - Zulu), **Limpopo** (one of the first river valleys to be characterized by ploughing), Lemba (traders who sold the ploughs/hoes) and the possible origin of the people described as **Limiin** by Ibn Battuta in 1331<sup>105</sup>.



**Figure 31** An 'Ndzalama' Rock found at Zimbabwe by JT Bent. In Bent, J.T. 1969. (Reprinted from 1896) *The Ruined Cities of Mashonaland*. Books of Rhodesia. Page 254.

<sup>104</sup> Varisco, D. M. 1989. The Anwā' Stars According to Abu I shāq al-Zajjāj. In *Zeitschrift Für Geschichte Der Arabisch-Islamischen Wissenschaften*. Band 5. Johann Wolfgang Goethe-Universität, Frankfurt am Main. P145.

Varisco, D. M. 1987. The Rain Periods in Pre-Islamic Arabia. *Arabica*, Tome xxxiv, Pages 251 -256.

Wade, R.P. 2005. "Preliminary Research Into Archaeoastronomical Aspects Sub-Saharan Africa" in proceedings of The First Workshop on Theories, Methods, and Future Collaborations in African Cultural Astronomy. March 27- April 1, 2006 Cape Coast, Ghana (in press).

<sup>105</sup> Defrémery, C and Sanguinetti, B.R. 1854. *Les Voyages d'Ibn Batoutah*. Vol II. Paris. Pp 179 - 96 in Freeman-Grenville, G.P.S. 1962 *Select Documents From The First To The Earlier Nineteenth Century* by Clarendon Press. Oxford. Page 31... "Their faces are scarred like the Limiin at Janada. A merchant told me that Sofala is half a month's march from Kilwa, and that between Sofala and Yufi in the country of the Limiin is a month's march. Powdered gold is brought from Yufi to Sofala."



Rainmakers use a similar process to the **anwā** in that before rain can be foretold, the stars are counted and named according to a very secret incantation – known only to the Rain Queen.<sup>106</sup> A seemingly magical use therefore, of using the stars as markers to determine seasons, winds and rain based on the astronomy practices shared since pre-Islamic times.

The Karanga/Shona term used to describe how the 'stars call the weather' is, coincidentally -'chando chinod**anwa**'<sup>107</sup> and the **Makhali** asterism conjunction with the new moon of Tshimedzi is a possible example of a **naw'**.

#### 4.2.4 Cognitive Cosmological Principle of Spatial Organization at Tshiendeulu

Amongst the descendents of the Mapungubwe and Great Zimbabwe, namely the Venda- and Shona-speaking populations. The definitions involving the concept of mhondoro, specifically of the Shona Korekore-speaking peoples of the Dande area in Northern Zimbabwe – epitomizes the complicated relationship between astronomical aspects and society.

David Lan<sup>108</sup> examines the part played in the liberation of Zimbabwe by the Shona mhondoro (royal ancestor) spirits as protectors of the land and bringers of the rain. I draw comparisons here with the Venda Sacred Area of Tshiendeulu and the distinct similarities between the possible Royal descendants of Great Zimbabwe that I hope to show in further research that exist at Tshiendeulu and those of the Dande Shona people who also claim descent from Great Zimbabwe.

In the 1950's, Nthangeni Netshiendeulu, a keeper of the grave of Dambanyika, who lives at the mountain of Tshiendeulu adjacent the Njelele River Valley in Venda land near Makhado/Louis Trichardt, invited a school inspector Pieter van Heerden to accompany him on a tour of the sacred area of Tshiendeulu. Together they visited

---

<sup>106</sup> Personal communication Prof Mathole Motshekga, Mulalo Nemavhandu and Dr Kgalushi Koka 2001 January – Kara Heritage Institute – descendants of the Vhatavhatsinde - Vhakwebho clan of rain-makers in the Venda and Modjadji areas of the Northern Province of South Africa. Prof Motshekga also confirmed that monoliths are used to sight certain stars at the Rain Queen's residence in the Tzaneen area and that the astronomer-priests are called 'makuapasi'.

<sup>107</sup> Harald von Sicard. 1966. Karanga Stars. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, Volume 9, No. 3, 1966. Pages 45.

<sup>108</sup> Lan, David. 1987. Guns & Rain : Guerrillas & Spirit Mediums in Zimbabwe. James Currey London and University of California Press Berkeley and Los Angeles.

the earliest settlements that were established by some of the first people to have inhabited the Venda region. Specifically, Nthangeni Netshiendeulu revealed to a white man - Pieter van Heerden the exact cave that entombed the Great Zimbabwe king Dambanyika and the cave that shelter the sacred objects, one of which is the mysterious Ngoma Lungundu.

The Tshiendeulu people therefore have evidence that may prove their legitimacy as claimed in the legends such as the Legend of Ngoma Lungundu, that they are indeed the 8<sup>th</sup> generation descendants that came from Great Zimbabwe when it disbanded in the 14<sup>th</sup> century. They established a settlement on the top of a mountain called Lwandali, which after the death of Dambanyika became known as Tshiendeulu (the place of the grave) and was since then strictly revered as a sacred area.

Thereafter the descendants established Dzata I and Dzata II and were never allowed to set eyes on the people of Tshiendeulu ever again. The original ruins of Mbwapenga are likely to be the earliest erected structures of the descendants of the royal family that fled Great Zimbabwe. The annotated version in the appendix hereby re-publicizes and presents the first English translation of the announcement of the finds originally made by Pieter van Heerden in the early 1950's. (See Appendix 11 page 188).<sup>109</sup>

No archaeological work has recorded the structures on Lwandali/Tshiendeulu other than the findings of Pieter van Heerden.<sup>110</sup> Although extensive excavations prevailed in the nearby vicinity ever since <sup>111</sup>, the ruins of Tshiendeulu have never been exposed or documented.

I located an area covering roughly 2km<sup>2</sup> at Tshiendeulu that has never been documented and are the oldest ruins apart from Mudzimungale which were made contemporaneous to Mapungubwe according to the Makhadzi Tshinateho Nkonene Netshiendeulu and her consort Samuel Netshiendeulu the descendants of Ntangani Netshiendeulu. A burial area at the river is littered with cremated skeletal remains which have been buried for roughly ten years and then placed in a ritual hut and burnt. The astronomical aspects of Tshiendeulu, its comparison with Nehanda, Modjadji and Mapungubwe are further researched in detail in a later publication.

The Landscape of Tshiendeulu area reflects the expressive use of space of other related descendants that fled Great Zimbabwe and when compared demographically

---

<sup>109</sup> Appendix 11 - Tshiendeulu the Grave of Dambanyika

<sup>110</sup> Van Heerden, Pieter. 1959. Die Bouvalle van Vendaland Bantoe 11. Page 3-20.

<sup>111</sup> Loubser, J. 1990. Oral Traditions, Archaeology and the History of the Venda Mitupo. African Studies. Volume 49, Number 2, 1990.

with in this case the Dande area in Zimbabwe as described by David Lan, there are confirmations of the idea that there is an underlying cognitive cosmological principle of spatial organization as prescribed by Huffman:-

“Fourthly, since spatial order organizes people, spatial and social organizations are different expressions of the same thing, and the underlying structure must be part of a society’ world-view. Finally, groups of people sharing the same world-view organize their settlements according to the same principles wherever they live (provided they are free agents).

Although one world view would hypothetically generate more than one spatial pattern, the reverse is highly improbable: empirical evidence indicates that the complex internal organization of a settlement is most likely the specific product of a specific world-view.”<sup>112</sup>

The youngest brother of Nthangeni Tshiendeulu – Thomas Netshiendeulu, who lives at Tshiendeulu and is almost a century old is the present grave keeper of Tshiendeulu and is also the equivalent of a spirit-medium or mhondoro -medium that speaks directly to the ancestor spirit of Dambanyika. He lives in a village surrounded by three hilltops closest to Tshiendeulu called Mutanda, Dande and Mudzimungale. Thomas Netshiendeulu and the Great Makhadzi (Queen or ritual sister of the king or Chief) Tshinateho Nkonene Netshiendeulu of Tshiendeulu are rain – makers.

In the Dande area of Zimbabwe, David Lan specifically exemplifies the role-played by an ancient female spirit medium called Kunzaruwa. The name of her spirit was Nehanda.<sup>113</sup> The three areas with similar names Mutanda, Dande and Mudzimungale are also found in the Mazoe region near Harare. The concept of mhondoro is detailed in Appendix 12, page 256<sup>114</sup>

---

<sup>112</sup> Huffman, T.N. 1996. Snakes and Crocodiles. Wits University Press. Page 6.

<sup>113</sup> Nehanda means Venus.

<sup>114</sup> Appendix 12 – Concept of Mhondoro Amongst the Korekore Speaking People in North-Eastern Zimbabwe.

#### 4.2.5 Rain making, Astronomy and the Concept of Mhondoro

The chiefly lineage claims that its ancestors control the rain.

From the following extract<sup>115</sup> from a journal published by João dos Santos in Portugal in 1609 it is clear that possession by royal ancestors or mhondoro has taken place in northern Zimbabwe for at least four hundred years:

“Every year in the month of September, when the moon appears<sup>116</sup>, Quiteve ascends a very high mountain situated near the city called Zimbaoe, in which he dwells, on the summit of which he performs grand obsequies for the kings, his predecessors, who are all buried there...When the king has feasted for eight days, he begins his lamentations for the dead...until the devil enters into one of the Kaffirs of the assembly, saying that he is the soul of the dead king, father of him who is engaged in these ceremonies, come to converse with his son... he begins to cough and speak like the dead king who he represents, in such a manner that it means the Kaffirs recognize that the soul of the dead kin has come as they expected... Then all withdraw, leaving the king alone with the demoniac, with whom he converses amicably as if with his dead father, asking him if there will be war, and if he will triumph over his enemies, and if there will be famine or misfortunes in his kingdom, and everything else which he wishes to know”

Dos Santos' account suggests that it was not known in advance who the mhondoro would possess; that mediumship had not become the institutionalized role, almost the profession that it is today.

“Throughout the whole of their professional careers, the lives of the mhondoro mediums are constrained by a number of ritual prohibitions. By adhering to these prohibitions the mediums present the illusion that they are not simply the mediums of the chiefs of the past but that they actually are those very chiefs returned physically to earth.

---

<sup>115</sup> Theal, G. McG. 1898-1903. Records of South Eastern Africa. Cape Town: Government Printers. 9 vols. Vol. VII, p.197

<sup>116</sup> The month of 'September' was probably determined like it is today with the conjunction of the southern cross stars called Tuda amongst the Venda and the new moon at the setting of Makhali (Orion stars). Known as the first moon of the rain month Tshimedzi or Tshimedzi Moon. A New Year's Day that takes place usually at the Vernal Equinox. It is also usually the first day of Ramadan and Rosh Hashanah. See: H.A. Stayt, The Bavenda. Cass Library Of African Studies - General Studies 58, 19 (225 -229) Ed J.R. Willis. Frank Cass & Co. Ltd. Thomas Nelson (London 1968).

Each year offerings for rain are made at each mhondoro's shrine but the mhondoro is unable to produce the rain for his province by himself. The request must be sent up a chain of mhondoro until it reaches the most senior, the mhondoro who is in charge of the realm as a whole.<sup>117</sup>

Whenever rituals of possession of mhondoro take place, the colour red is absolutely forbidden. No one wearing any shade of red may attend. If the mhondoro sees this colour the medium will die. These rituals only take place on nights when the moon is in the sky. On nights when the sky is dark, the mhondoro are unable to enter their mediums and speak to their descendents.

The most important possession rituals take place only at full moon.

The phases of the moon regulate another sphere of activity as well, day to day agricultural work in the fields. In the weekly and monthly cycles, certain days are observed. These are known as zvisi (sing. chisi). On these days no agricultural work or hunting may be done. In the weekly cycle two zvisi are observed. Which days these are varies from area to area whereas the two rest days in the monthly cycle are the same everywhere. The first chiropa, is the day after the non-appearance of the moon in the sky. Rusere, the second day following this, is indicated by the reappearance of the moon. The name simply means the 'eighth' and it is probable that it derives from one of the rest days observed in the calendar of the Mwene Mutapa state. Not everyone observes rusere, but chiropa is universally observed. On chiropa, the day after the moon has vanished from the sky, the moon is said to be dead (mwedzi wafa). Chiropa is the rest day following the death of the moon.

---

<sup>117</sup> von Sicard, Harald 1966. Karanga Stars. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, Volume 9, No. 3, 1966. Pages 42 - 65

N.H.W. 1926. The Darwin Ritual Murder. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, No. 4, December 1926. pg. 61 - 62. Edited by Guy A. Taylor. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

Kirkaldy, A 2005. Capturing the soul. The Vhavenda and the missionaries, 1870-1900. Protea Book House, Pretoria.

Wilson, Agnes. 1931. The Human Sacrifice. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, No. 9, 1931. pg. 6 - 10. Edited by A. B. D. Spicer. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mar don Printers.

Of all the prohibitions the mhondoro mediums are subject to, the most powerful is the avoidance of blood (ropa). Mediums believe that if they see blood they will die. The other type of blood explicitly avoided by the mediums is the blood of menstruation and childbirth.

Young children who die before their teeth have emerged must be buried in the wet soil on the banks of a river. If they are buried in dry soil this will cause drought. Adults, by contrast must be buried in dry soil. If an adult is buried in wet soil, the spirit will become a dangerous ngozi rather than a kindly midzimu and this must be prevented at all costs.

The fullest demonstration of how age and authority of the lineage are associated with dryness and bones occurs at the burial of a chief. At the death of this most senior member of a lineage and a future mhondoro. The body is not buried immediately as happens with ordinary people. It is laid out on a platform either in a hut or an enclosed grave, with pots placed beneath to collect the bodily fluids as they emerge. Only when all the wetness of life has drained away and nothing but hard, dry bones remain may the head of the royal lineage be placed in the earth with his ancestors.

The black/white; rain/no rain; death/lightning distinctions are also made by the Tonga of the Zambezi Valley. Colson<sup>118</sup> reports that animals sacrificed to the ancestors for rain must be black, any white on their skin would bring lightning with rain. White if a dry spell is required. Tonga sacrifice black animals to their ancestors because 'black is the colour of rain clouds'.

The central symbol of this transition from life into death is the moon. Among the Korekore, as in many other societies, the menstrual cycle is very closely associated with the cycles of the moon. This is explicitly recognized by the women. The phrase used to express the idea of menstruation is *kuenda kumwedzi*, to go to the moon. To fail to menstruate is *kudarika mwedzi*, to jump over the moon. It is no coincidence that precisely the same symbol is central to the expression of male, ancestral fertility. It is as if the symbolism of biological reproduction, in reality the most significant source of fertility and creativity, has been stolen by men to lend luster to their own cheap-jack construction of cloth, beads, sticks and beer. Without

---

<sup>118</sup> Colson, E. 1977. "A Continuing Dialogue: prophets and local shrines among the Tonga of Zambia", in R Werbner (ed.), *Regional Cults* (London Academic Press, ASA Monograph, no 16), pp.119 – 39



the moon the mhondoro cannot appear. Though it is not always in the sky it always returns. One of the songs sung frequently at funeral goes:

aenda-enda, achadzoka (s) he has gone, (s) he will return  
aenda-enda, achadzoka

The same sentence is repeated over and over again. Like the moon, we die and we come back to life and it is the creation of this second life, the life of the mhondoro, of the fertility of the earth, of rain and of the past that is achieved by men through rituals of possession.”<sup>119</sup>

#### 4.2.6 Hypothesis - Mapungubwe

A study was made to investigate the idea that Mapungubwe was formed by a rain-making community was examined in detail by Maria Schoeman.

Schoeman aimed to identify and clarify the archaeological signature of rain-control sites in the Shashe-Limpopo Confluence Area (SLCA), by making use of a landscape-based approach to investigate rain-control in the ideology of SLCA farming communities. Schoeman investigated the archaeology of ritual by viewing rain-control as materialised ideology, by assessing the material culture and spatial manifestation of rain-control, its apparent transition from ritual to residential sites, and how these transitions articulated with the assumed ritualised landscape.

<sup>120</sup>

An exploration was made to determine the local manifestations of rain-control and their relationship with the ideologies of farming communities in the period leading up to SLCA state formation, between AD 1000 and AD 1250, as well as the relationship of the Leopard's Kopje elite with hunter-gatherers and other farming people on the same landscape - as it was conjectured that this relationship was partly grounded in ritual and raincontrol.<sup>121</sup>

---

<sup>119</sup> Lan, David. 1987. *Guns & Rain : Guerrillas & Spirit Mediums in Zimbabwe*. James Currey London and University of California Press Berkeley and Los Angeles. (summarized).

<sup>120</sup> Schoeman, Maria Hendrieka. *CLOUDING POWER? Rain-control, Space, Landscapes and Ideology in Shashe-Limpopo State Formation*. 2006. Phd Thesis. University of Witwatersrand. Page i.

<sup>121</sup> Schoeman, Maria Hendrieka. *CLOUDING POWER? Rain-control, Space, Landscapes and Ideology in Shashe-Limpopo State Formation*. 2006. Phd Thesis. University of Witwatersrand. Page i.

Schoeman regards this period of rain-control as gradually being removed from nature and positioned to a farmer society where the eventual conclusion was that rain-control was nationalized and located on Mapungubwe hill - a centralisation that was initially resisted by the rain controllers.<sup>122</sup>

Exploration of any astronomical data that may exist in the archaeological or ethnographical record of the area became superfluous together with any possible cosmic references regarding rain-making in formulation of a deeper cognitive assessment of a site.

Instead, excavations were made on sites that were assumed to be rain-making sites by their location, inferred status and age, amongst other factors. The main hypotheses however rest heavily on the location of so-called 'cupules', grain-bin bases and rudimentary ritualization areas, for which unsubstantiated proof was found, i.e., 'cupules' are still utilized by the Thevula people living near to Mapungubwe as a type of grinder for making a relish of a specific plant and not purely for ritualizing rain.

Games (Mankala) also found next to the so-called 'sacred' cupule areas may indicate that the original inhabitants had a low esteem for the assumed sacred areas, however, Schoeman contends that the games formed part of the rituals used to make rain - together with ritualized farm zones on the hilltop at Mapungubwe.

---

<sup>122</sup> Schoeman, Maria Hendrieka. CLOUDING POWER? Rain-control, Space, Landscapes and Ideology in Shashe-Limpopo State Formation. 2006. Phd Thesis. University of Witwatersrand. Page i.



**Figure 32** Figure VII 28 on page 119 Chapter VII, JC hill: Photograph of cupules and an 'incomplete' game board on mid southern side. In Schoeman, Maria Hendrieka. CLOUDING POWER? Rain-control, Space, Landscapes and Ideology in Shashe-Limpopo State Formation. 2006. Phd Thesis. University of Witwatersrand.

At Mapungubwe an elementary search revealed possible cosmic referenced structures on the hill of Mapungubwe<sup>123</sup>.

The first archaeologists referred in the early 1930's to the extent of Stone Circles on Mapungubwe Hill. These phenomena were regarded as grain-bin platforms and most likely destroyed in the process of excavations. A prospector Richard Rorke first mentioned stone structures in an affidavit made to the law firm Adams & Adams in Pretoria 1928.

The set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53". They were parts of affidavits drawn up at the time by the earliest archaeologist at Mapungubwe to accurately reconstruct the series of disturbances to the area, during the time of desecration of the main graves.

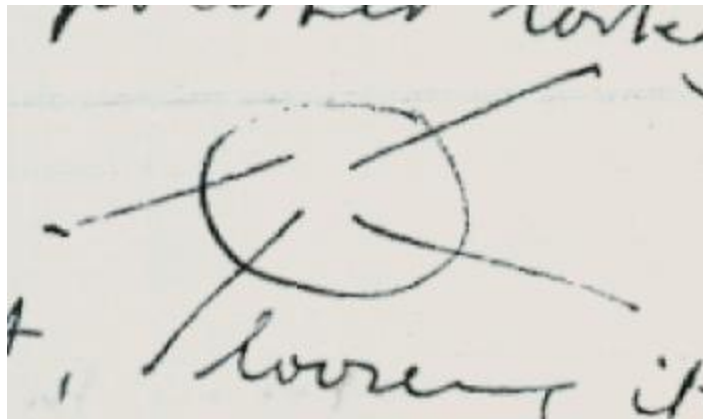
---

<sup>123</sup> Badat, Noor-Jehan Yoro. 25 September, 2004. The real Lost City is back on the map. The Star Newspaper (South Africa). <http://www.the-star.co.za> The real Lost City is back on the map

Muller, Karl. 25 September 2004. Rainmaking, the stars, and a song of sacrifice. . The Star Newspaper (South Africa). <http://www.the-star.co.za> Rainmaking, the stars, and a song of sacrifice

Richard Glen Rorke of Pretoria, Baron von Leesen, A. Parendorf, Barend Lottering and some "natives" first arrived on the gravesite in May 1929 or 1930 to prospect for metals (later mentioned as being August 1928): -

"Rorke, (cf. affidavit) who was on site in August '28, notes positively that he found, - on wall side near - depression a circle of 4 upright stones (in inclined position) (monoliths) above 2 to 3 ft high (a fifth lying flat), black, very shiny (polished looking), one with chip out, square shaped [sketches indicate how they are arranged and shows a chip in one monolith] of these found he pulled one out, loosening it with his prospecting hammer. Too heavy, - he left it lying. - Thus 3 still standing - did not dig, - nor did Lottering - Could account for 3' hole we found. Suggests Frobenius."



**Figure 33** Sketch indicating how monoliths are arranged over the grave of the 'King of Mapungubwe'. University of Pretoria-Mapungubwe Archives pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53". Affidavit by Richard Rorke which first mention stone structures in Adams & Adams of Pretoria 1928.



**Figure 34** Sketch indicating how one of the monoliths over the grave of the 'King of Mapungubwe' has a chip. University of Pretoria-Mapungubwe Archives pages titled

“UP/AGL/D/68” together with “UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53”. Affidavit by Richard Rorke which first mention stone structures in Adams & Adams of Pretoria 1928.

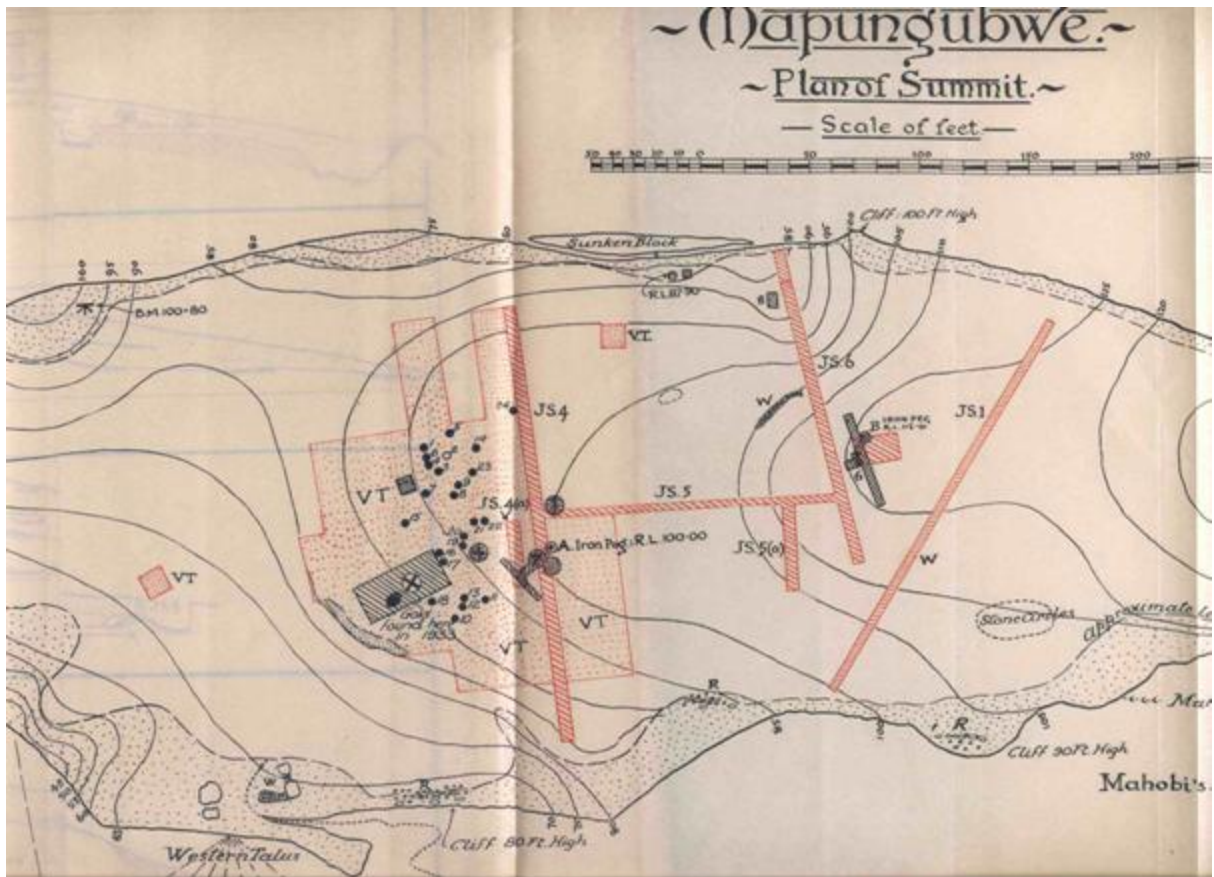
Here we have an accurate account of a structure that is shown to the party, by 'one of the natives' (sic) as being a 'Chief's grave'!

This grave was marked quite clearly as a circular arrangement of shiny, polished-looking, black square-shaped monoliths. Which are relatively heavy for a prospecting hammer! Moreover, how would by 'one of the natives' identify the grave site, unless it was marked by some means?

Other stone circles are shown on a surveyed map by Prof C van Riet Lowe and in some cross-sections of the east-wall in JS1 in the later publication of excavations by Leo Fouché as well as archived items housed at Witwatersrand University<sup>124</sup>.

---

<sup>124</sup> Fouche, Leo. 1937. Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937.



**Figure 35** Plan of Mapungubwe Hill showing earliest excavations. Fouche, Leo. 1937. Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937.

In, Fouché, Leo. 1937. Mapungubwe: Ancient Bantu Civilization on the Limpopo evidence of the extent of the circles is found in the following references: -

Page 4 " Fortunately, also, the Transvaal discovery was a sealed site. Besides Lotrie and the van Graans, only two other parties of Europeans are known to have reached the summit of Mapungubwe in recent times. Some prospectors climbed the hill in May 1929, and although they removed some valuable pottery, they did no digging or other damage<sup>4</sup> [according to an affidavit by Mr. R.G. Rorke, a member of the party.] We found only one sign of recent disturbance on the hill: a stone circle (one of many that appear to have served as foundations for grain-bins) had been excavated to a depth of 4 ft.



This may have been the work of Frobenius, who was in the neighbourhood in 1929 and is said to have been on Mapungubwe as well."<sup>125</sup>

Page 5 " Apart from the ornaments recovered (mainly copper bangles, gold plate and tacks and beads of gold, glass and ostrich egg-shell) many flagged-stone and "cemented" platforms, hearths and retaining walls were revealed in the excavations undertaken."<sup>126</sup>

Page 8 " The air photographs revealed.... On the summit, too, terrace walling, hut and grain-bin foundations were clearly shown, where our surface explorations had failed to find them."<sup>127</sup>

Page 13 " When cutting through the surface soil two stone circles came to light, one of which was visible beforehand, while the other was just below the surface. In one of these a small crude pot was found. It was necessary to remove one circle but the other was left intact (pl. vii, 2)."<sup>128</sup>

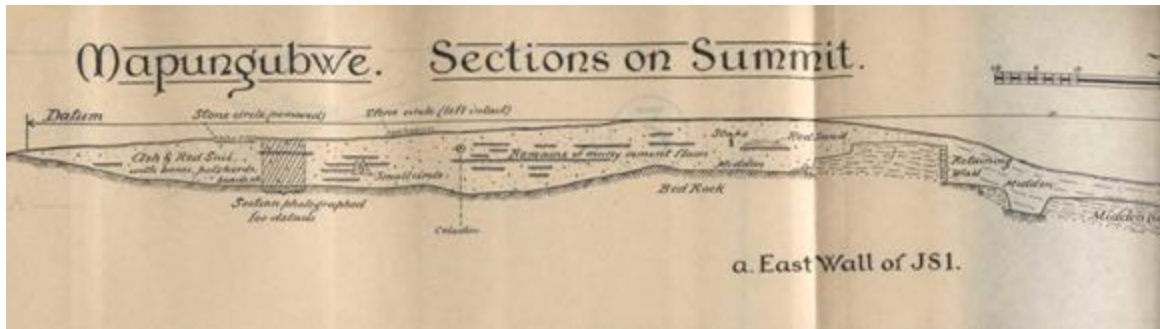
---

<sup>125</sup> Fouche, Leo. 1937. *Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations at Mapungubwe from February 1933 to June 1935*, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937. page 4.

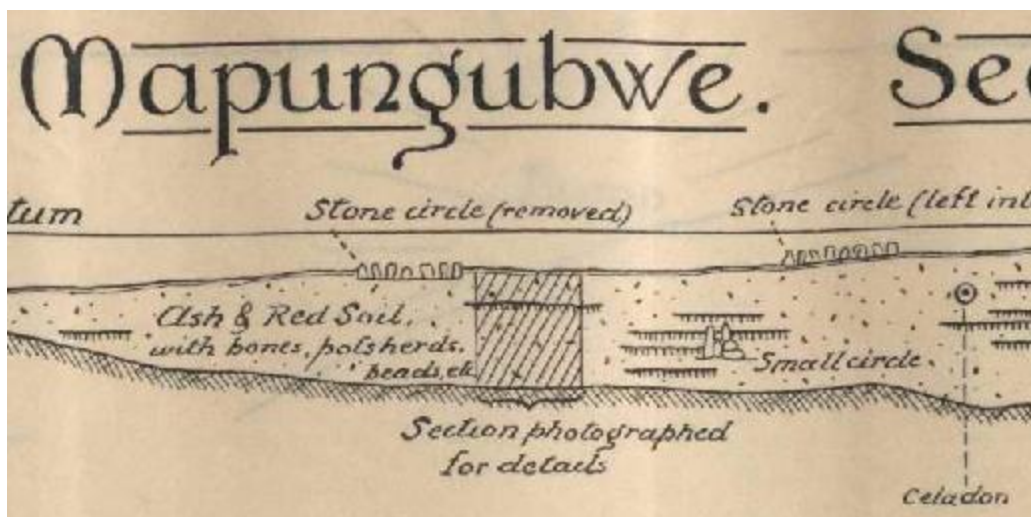
<sup>126</sup> Fouche, Leo. 1937. *Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations at Mapungubwe from February 1933 to June 1935*, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937. Page 5.

<sup>127</sup> Fouche, Leo. 1937. *Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations at Mapungubwe from February 1933 to June 1935*, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937. Page 8.

<sup>128</sup> Fouche, Leo. 1937. *Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations at Mapungubwe from February 1933 to June 1935*, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937. Page 13.



**Figure 36** Section of Profile of trench showing stone circles in Fouche, Leo. 1937. *Mapungubwe: Ancient Bantu Civilization on the Limpopo*. Reports on Excavations at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937. Page 13.



**Figure 37** Detail of Section of Profile of trench showing stone circles in Fouche, Leo. 1937. *Mapungubwe: Ancient Bantu Civilization on the Limpopo*. Reports on Excavations at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937. Page 13.



**Figure 38** Stone circle on Mapungubwe hill, excavated by earliest archaeologists - Photographs from set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53".



**Figure 39** Stone circle on Mapungubwe hill, excavated by earliest archaeologists - Photographs from set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53".



**Figure 40** Stone circle on Mapungubwe hill, excavated by earliest archaeologists - Photographs from set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53".



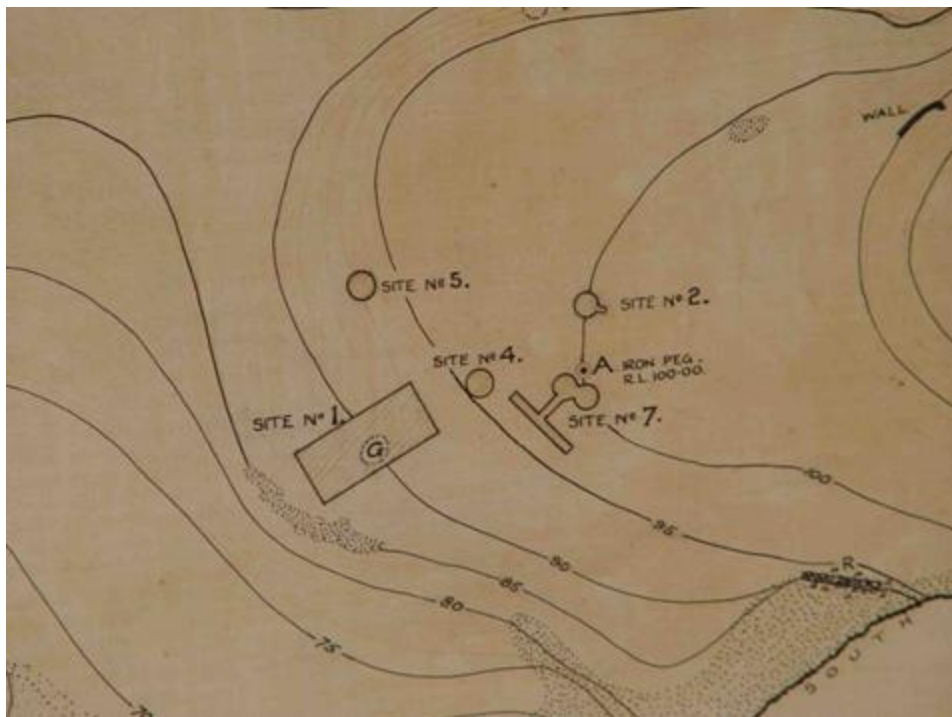
**Figure 41** Air photo of Stone circles revealed on Mapungubwe hill, excavated by earliest archaeologists - Photographs from set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53".



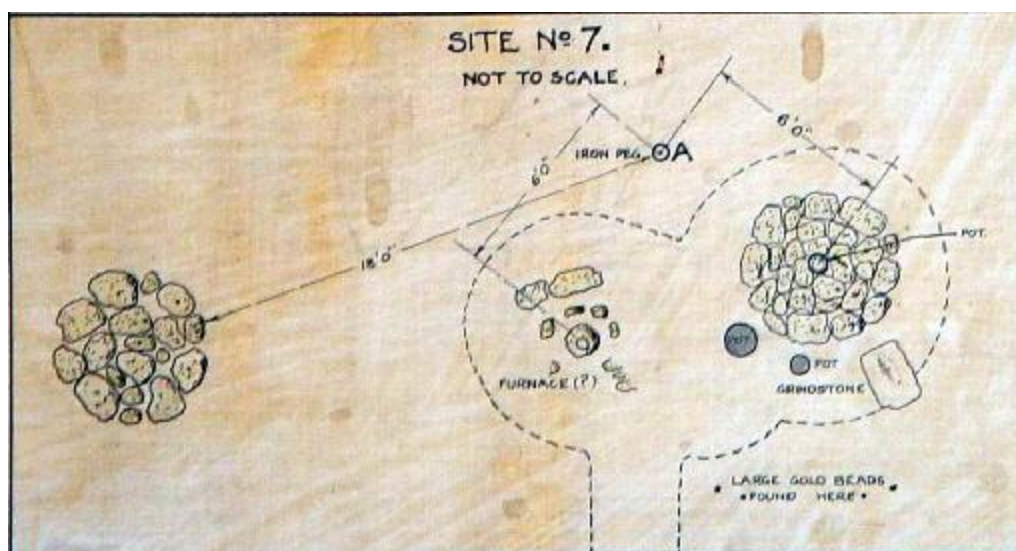
**Figure 42** Air photo of Stone circles revealed on Mapungubwe hill, excavated by earliest archaeologists - Photographs from set of documents that provide the first knowledge of the structures are found in the University of Pretoria - Mapungubwe Archives under pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53".

In the map of the summit Prof C van Riet Lowe shows preliminary excavations done which are circular excavations and very little is revealed other than in his plan of the summit. The circular structures appear to have been many and varied, and in some cases no doubt grain-bin foundations and supports for milling stones and lower grinders. But a few cases indicate the presence of pots and these are likely found to have been utilized as depicted in the Song of Mapungubwe for rain-making, with some having possible cosmological orientations.





**Figure 43** Plan of first excavations found in the records of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University of Pretoria. See Figure 48 page 109.



**Figure 44** Detail of Site 7 in Plan of excavations titled - Mapungubwe Contoured Plan of Summit by Prof C van Riet Lowe, with details of excavations of sites 1,2,4,5,6 and 7. First record of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University of Pretoria. See Figure 48 page 109.

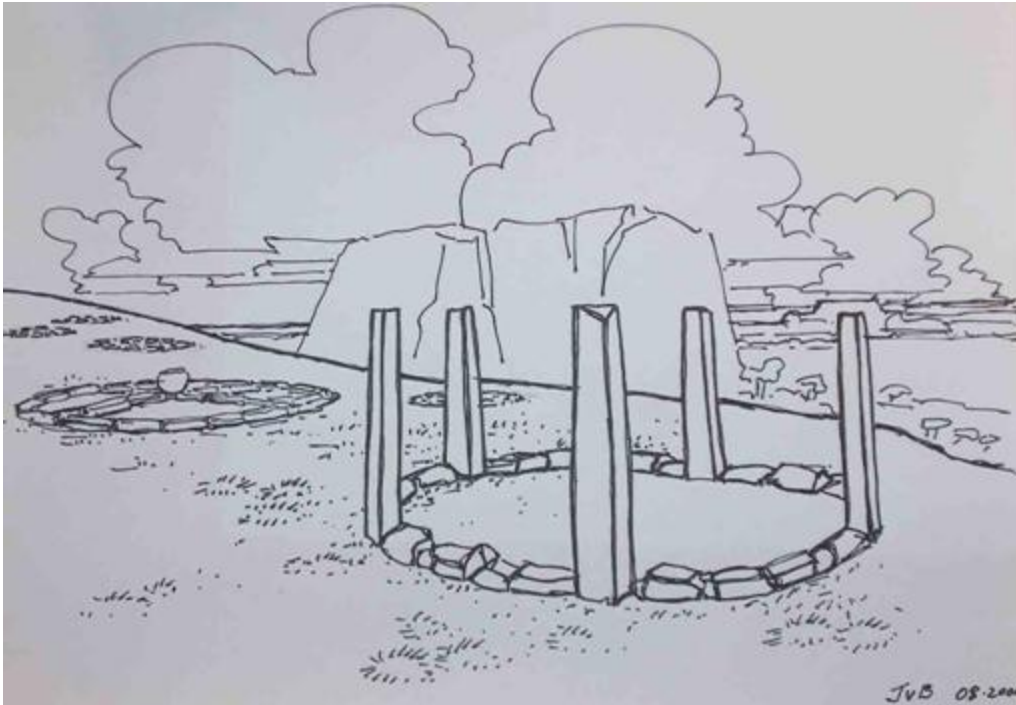


The 2004 Mapungubwe calendar, produced by the Mapungubwe Archive at Pretoria University, includes a song, which was recorded from "a very old man" by Gerard Moerdijk, who owned a farm near Mapungubwe.

"For the offering of rain, clay pots are filled with sorghum.  
And if it does not rain?  
Then the last offering is a 10-year-old child.  
When the jackal begins to call 'Ma-pun-gub-we, ma-pun-gub-we', meaning,  
'many children are dead', it is the season of drought  
Many people gather, and call upon the Rainmaker,  
Then clay pots are filled with sorghum  
And young women carry these pots to the summit of the hill,  
Via the secret ladder  
They place the pots down upon the ground,  
And then the snake comes to bite them,  
Some survive, some do not  
Singing and dancing takes place, and a ten-day old goat is killed,  
Cremated, and placed in a clay pot,  
Then, the young girls put more pots down on the ground,  
And the vultures come to peck their eyes out,  
Then there are festivities, dancing, eating and drinking,  
And the witchdoctor comes to sniff out the young boy of ten years old  
He is burnt, and placed in a pot,  
Once again, the young girls carry the pots up the hill.  
THEN IT RAINS."<sup>129</sup>

---

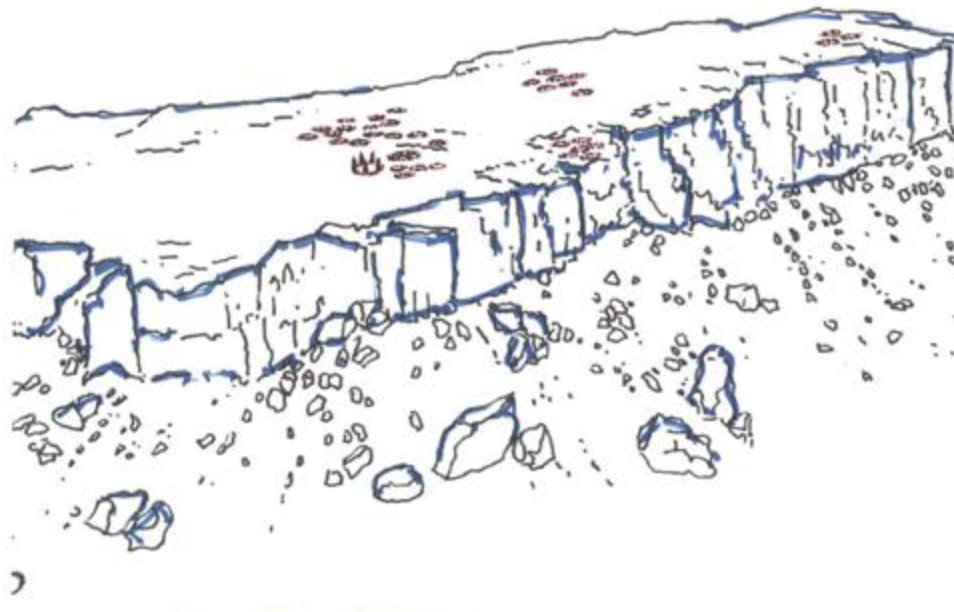
<sup>129</sup> Tiley, Sian & Webster, Roger (ed) 2004. The 2004 Mapungubwe Calendar. Mapungubwe Archive, Pretoria University.



**Figure 45** 'Stonehenge' of Mapungubwe. Reconstruction of arrangement of 'polished-looking' monoliths over the 'Chief's Grave' - that appear to have been fashioned from crystalline dolerite (columnar-jointed basalt) found at a nearby igneous dyke intrusion - by Jan Willem van Bergen<sup>130</sup> and Richard Wade August 2004.

---

<sup>130</sup> Van Bergen, Jan Willem. 2008. From flatness to centeredness: defining empathy in design and why nature is the best designer. Special Issue: Design as Empathy. South Africa Journal of Art History (In Press).



**Figure 46** Schematic Distribution indicating 'Stonehenge' and stone circles of Mapungubwe – by Jan Willem van Bergen and Richard Wade August 2004.

In subsequent laboratory work and archive research (Sept 16<sup>th</sup> 2004) the following came to light:

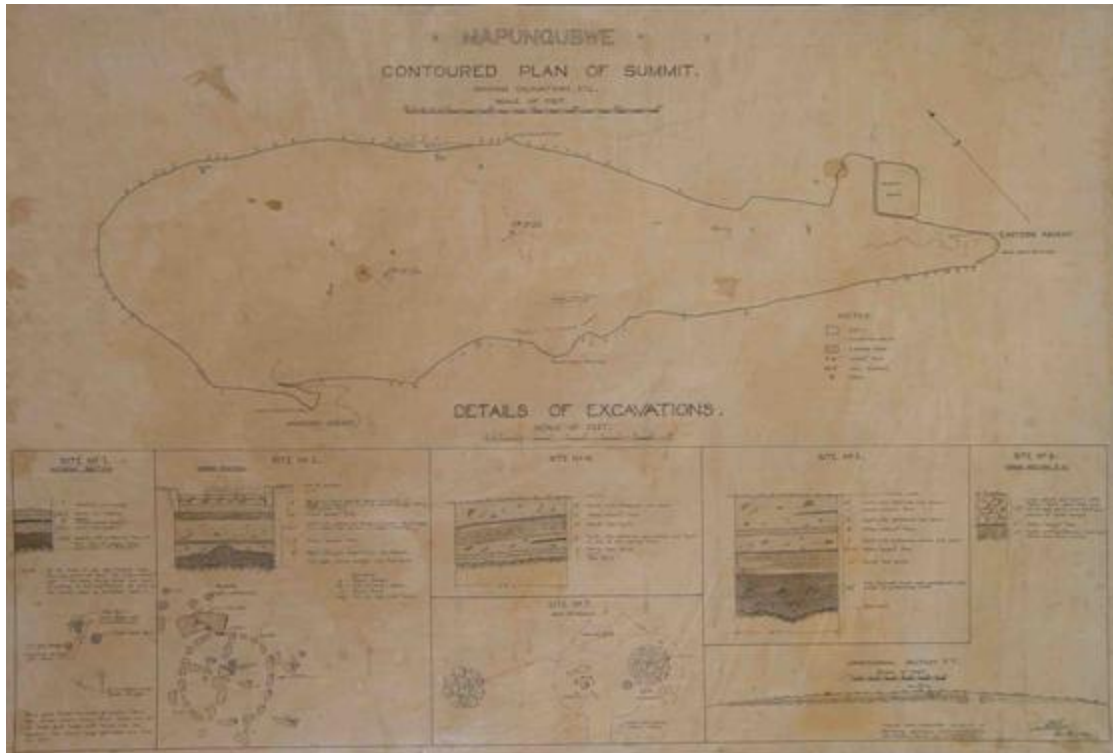
“ The remains of this skeleton, which have only recently been handed over to us, are so fragmentary that neither reconstruction nor description could serve any purpose. It is important to note, however, the mode of burial. The skeleton was found lying on bed rock in a very charred condition. Professor Mackintosh, Professor of Forensic Medicine at this University and government Pathologist, reports that the bones had been burned while the flesh was still on them. They had been subjected to a strong heat over a fairly long period. The charring cannot be due to adventitious burning such as the burning down of a hut, but to deliberate firing. Further, associated with these remains are charcoal fragments of a wooden vessel. The rim is beveled from both faces and seems to have been undercut. Other fragments of the vessel show remains of an incised pattern. There are also evidences of iron ornaments.”<sup>131</sup>

---

<sup>131</sup> Fouche, Leo. 1937. Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London Cambridge University Press. 1937. Page 149.

At Mapungubwe 16-24th June 2004, references of primary sources were consulted together with Nikki Haw and Sian Tiley and a document under the authorship of B.Malan - I D no 1323, code

It is therefore possible that human sacrifice/cremation did take place on the hill of Mapungubwe and that the skeleton M<sub>6</sub> indicates that the remains were interred in a rudimentary grave that went down to bedrock. A likely place of burning is that which is found in the record of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University of Pretoria<sup>132</sup>.



**Figure 47** Plan of excavations titled – Mapungubwe Contoured Plan of Summit by Prof C van Riet Lowe, with details of excavations of sites 1,2,4,5,6 and 7. First record of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University of Pretoria.

In the plan of excavations titled – Mapungubwe Contoured Plan of Summit by Prof C van Riet Lowe, there are details of excavations of sites 1,2,4,5,6 and 7 where of particular interest is the Detail of Site 2 that has a layout of monolith stones in a

---

UP/AGL/D/806/1, we located skeletal material found on Mapungubwe hill and in specific a skeleton with an original field number 11 later designated M<sub>6</sub> then given the Department number A627 with photograph (No.6).

<sup>132</sup> Under curatorship of Sian Tiley..

circle with two almost straight lines of stones crossing each other within the circle of monoliths.

They are described as being, "two layers hand-packed stones on earth fill inside 5 feet 2 inches diameter circle of nineteen upright stones 13 to 20 inches long." This lies above a 4inch thick yellow 'cement' floor, which in turn lies above a 13 to 15 inch layer of "earth with potsherds, bones, charcoal, ostrich egg-shell beads and portion of copper bracelet."

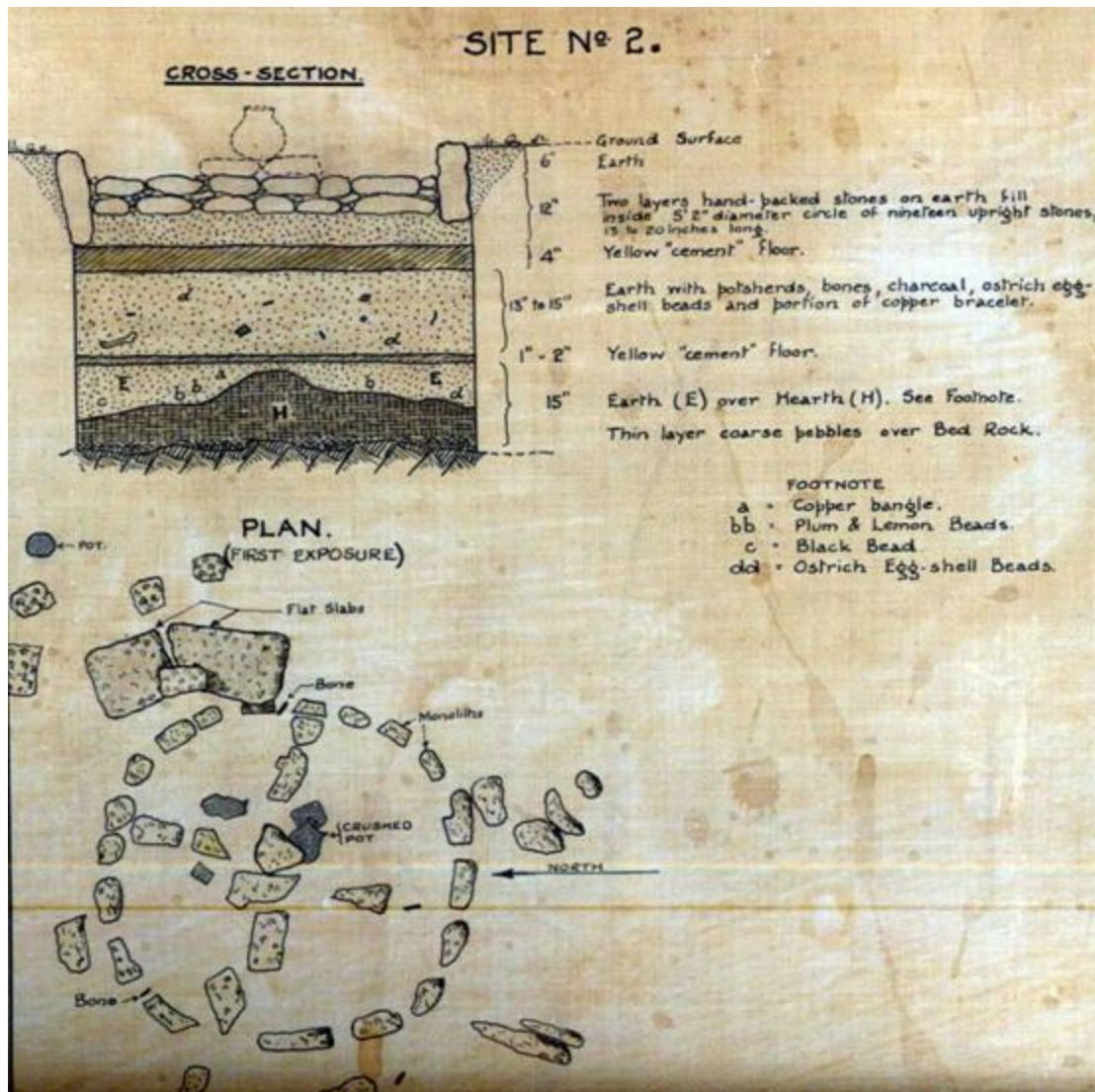
A 1 to 2 'inch' yellow 'cement' floor then separates the layer that consists of an earth fill and charcoal lying above bedrock on the summit. The total thickness of the layer is 15 inches and in the earth fill was found a "copper bangle, plum and yellow beads, a black bead, and ostrich eggshell beads." The hearth layer is almost 15 inches thick and implies a rather large bonfire or many smaller fires over a period.

The straight lines of stones crossing each other within the circle of monoliths would appear to have aligned precisely east-west and north-south.

A compass direction is given alongside which when extrapolated for magnetic declination would give an angle of 17° from the north-south line of stones. Implying that that the east-west line of stones may have aligned with the rising and setting sun of the vernal equinox when they were placed in their positions -Tshimedzi Moon. There is also a pot found in the midst of the circle.

This arrangement of stones, pot and the associated charcoal with bones, bangles and beads may be a record of a **Mademba-Ndikuteme** type rainmaking ceremony. Burnt human fragments are to be expected in association and the skeletal remains at burial M<sub>6</sub> are further evidence to this type of ritualistic human sacrifice or cremation similar to burial methods found at Tshiendeulu.





**Figure 48** Detail of Site 2 in Plan of excavations titled - Mapungubwe Contoured Plan of Summit by Prof C van Riet Lowe, with details of excavations of sites 1,2,4,5,6 and 7. First record of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University of Pretoria. See Figure 48 page 109.



### 4.3 Conclusion

The reconstructions of applications of this means can lead to an ideological resurrection of the past rather than a simplified taxonomy based on visible treasures. African astronomy is linked to structures and real people, to a real past and can be applied to a potential future. The means to locating their aspects lies in a revision of methodology.

Archaeoastronomical methodology is like the study of cosmology, where there are a growing number of independent relevant observations with the number of hypotheses.

"In one anthropological study, every one of the more than 60 separate cultures examined was found to have several common characteristics, including "faith healing, luck superstitions, propitiation of supernatural beings, ... and a cosmology." Apparently, to be human is to care how the physical world came to be, whether it has boundaries and what is to become of it. Modern cosmology is a highly sophisticated subject funded by governments with hundreds of millions of dollars a year. It is unquestionably interesting, but is it, even in its modern guise, convincing?

The current Big Bang paradigm has it that the cosmos is expanding out of an initially dense state and that by looking outward into space, one can, thanks to the finite speed of light, look back to much earlier epochs. This understanding owes much to two accidents: astronomers' discovery of redshifts in the spectra of distant nebulae and the fortuitous detection of an omnipresent background of microwave noise, which is believed to be the remnant of radiation from a hot and distant past. Set in the theoretical framework of Einstein's general theory of relativity, such observations lead to a model that makes predictions and can thus be tested.

Of late, there has been much excitement over precision measurements of the cosmic background radiation and the discovery of very distant galaxies of great antiquity. There is even talk of a "concordance model" in which all of the observations come together to paint a coherent picture of how the universe must be constructed.

It is true that the modern study of cosmology has taken a turn for the better, if only because astronomers can now build relevant instruments rather than waiting for serendipitous evidence to turn up. On the other hand, to explain some surprising observations, theoreticians have had to

create heroic and yet insubstantial notions such as "dark matter" and "dark energy," which supposedly overwhelm, by a hundred to one, the stuff of the universe we can directly detect. Outsiders are bound to ask whether they should be more impressed by the new observations or more dismayed by the theoretical jinnis that have been conjured up to account for them.

My limited aim here is to discuss this dilemma by looking at the development of cosmology over the past century and to compare the growing number of independent relevant observations with the number of (also growing) separate hypotheses or "free parameters" that have had to be introduced to explain them. Without having to understand the complex astrophysics, one can still ask, at an epistemological level, whether the number of relevant independent measurements has overtaken and comfortably surpassed the number of free parameters needed to fit them-as one would expect of a maturing science. This approach should be appealing to nonspecialists, who otherwise would have little option but to believe experts who may be far too committed to supply objective advice.

What one finds however, is that modern cosmology has at best very flimsy observational support".<sup>133</sup>

Archaeological epistemology in this sense has more hypotheses than actual fieldwork in sub-Saharan Africa and so is developed in a rapidly variable philosophical milieu according to new discoveries. To derive 'cosmologies' from structures in this context is practically dependent on untested data and mythologies rather than actual circumstantial evidence as in most aspects of natural sciences.

Sub-Saharan African cultural astronomy in general is hidden therefore in a deep milieu of meanings and concepts, interwoven through time in a process of morphological changes. Concepts that are difficult to discern outright and yet profoundly inherent to the various practices found throughout the continent.

With a prevalence for the underlying origins of cosmic references for structures pertaining to navigation, trade, fertility, rain-making rituals, agricultural practices, cosmology, religious adherence, concepts of time-keeping and reactions to natural phenomena.

---

<sup>133</sup> Disney, Michael J. Sept-October 2007. Modern Cosmology: Science or Folktales? American Scientist. <http://www.americanscientist.org/template/AssetDetail/assetid/55839?&print=yes>

Sub-Saharan Africa has a rich reaction and legacy to the vast resource of the sky through time and requires a new language to view the astronomical aspects veiled in folklore tales, rock art and structures. Although there are no known 'Stonehenges' throughout the sub-continent, it must be remembered that the vast riches of the earliest civilizations of the world does come from Africa in the form of Egyptian structures pertaining to cosmology, astronomy and formation of the first religions and concepts of time.

It is easy to be distracted by the kilometers upon kilometers of stone ruinfields and formations of ideas that prevail but rarely have they been documented successfully to date. The Dhlo-dhlo stone is seen on the one hand as a status symbol and symbolic rendition and maybe it is indeed one of the earliest African attempts to document the Venus cycle to predict eclipses - therefore being a sort of 'Rosetta Stone' to understanding the 'hieroglyphs' of symbols in African art.

Perhaps Mapungubwe, Meroe (Nubia), Nabta, Namoratunga, Great Zimbabwe, Mpumalanga ruinfields all share a structurally archived reverence for the vast resource of the sky in less architecturally designed monumentalization for a special reason. Perhaps it is just a matter of definition. This thesis attempts to systematize the search for these references and to help identify the language of concepts required.

Cosmic references are not to be ignored. The human need to encapsulate time in a structure albeit a monolith or the Burj Dubai skyscraper is an inherent part of being and expression. When these are identified and reconstructed in the final analysis of most studies -a richer depth into the intangible ideologies of the past are brought into perspective.

In this dissertation, I propose a few of the clues that point to possible solutions of a great mystery. Further investigation of the poorly known astronomical traditions of sub-Saharan Africa may clarify connections between the traditions discussed here, 'rainmaking practices', moon-bowls, the Venus cycle, the earliest calendars of Africa, the megalithic astronomical cultures north of Africa, and the cryptic stones at Nabta in Egypt<sup>134</sup>

But the significance of the findings presented here is clear and straightforward. Despite the lack of records as in the northern hemisphere, we do not have to

---

<sup>134</sup> Campbell, Keith. 2002. "ARCHAEO-ASTRONOMY OF SOUTHERN AFRICA". Engineering News (SA) Vol 22, No.15 April 26th 2002 page 19 - 20.

assume that the nearest supernova event in many millennia was necessarily invisible. Skywatchers in ancient Africa may have seen and recorded it.

Furthermore, astronomy is seemingly part of a long tradition, some of which is hinted at in the links concerned with the first capital of Mapungubwe. The ethnography, history and naming of stars all purport to cultural connections and trade relationships, but the astronomical aspects are existent even though not according to a western or eastern perspective.

As a research initiative I advocate that a typical survey consider the cosmic references and spatial organization as prerogative rather than a linear 'relic' hunt for features and details of sediments. Preservation and conservation of an area must provide for the cosmological dimensions and 'sacredness' as opposed to particularistic or processualistic definitions.

Interpretations can lead to destruction and desecration and should be avoided from the start of research. A record of all oral tradition is paramount and detailed aerial as well as structural documentation essential. Clues to specific ethnographic nuances must take into account the cosmic references through cognitive approach. In doing so a provision is addressed to attainment of the causal attributes and relationships of structures in their precise contexts. Hypotheses thereafter then lead to a greater deductive rather than inductive nomenclological explanatory ordering of the data.

This study has in many respects excluded the San and Khoi star lore as well as the enormous work done by various researchers in southern Africa and early Rhodesia (Zimbabwe), which will be initiated together with the theoretical background and philosophy of archaeoastronomy in a full doctoral thesis.

Cultural Astronomy is an interdisciplinary research area that encompasses the many relationships between humans and the sky including archaeoastronomy, ethnoastronomy, history of astronomy, and how astronomy has inspired humanistic expressions. This methodology can bring about a greater understanding to perplexing questions and will add to a new dimension in finding the causal relationships between relatively difficult and forgotten ideological domains.

The stellar lore and knowledge of times and seasons throughout the pre-trade and early-trade era archaeological sites have yet to be determined. Expressions which may have fallen away at the introduction of the time-keeping means of later contacts - whose only possible remains are still to be gleaned in the myths such as

those of the 'Abyssinian'<sup>135</sup> or 'people of Zeng' as described by the earliest ethnography<sup>136</sup> and that can be reconstructed by studying the archaeoastronomical aspects of rock art, artifacts and structures<sup>137</sup> and human response through expressions in megalithic archives of celestial patterns and galactic events.

It is for this reason that the United Nations Scientific and Cultural organization (UNESCO) has called for the establishment of Archaeoastronomical World heritage Sites to be revealed in sub-Saharan Africa and the initiative is presently being established with a database of 'World Heritage & Astronomy' led by Dr Christoforos Mallouris and Anna Sidorenko of the World Heritage Committee (WHC)<sup>138</sup>.

Dr. Jarita Holbrook<sup>139</sup> of the Bureau of Applied Research in Anthropology at the University of Arizona together with the Edward Bouchet Abdus Salaam Institute,

---

<sup>135</sup> Da Silva Rego, A. 1952. Portuguese Contributions to the Ethnological and Geographical Knowledge of Africa During the XVI th Century. In South African Journal of Science. Vol. 49, no. 3-4, October - November. Pages 93-103.

Freeman-Grenville, G.P.S. 1962 Select Documents From The First To The Earlier Nineteenth Century by Clarendon Press Oxford.

Wainwright, G.A. 1949. The Founders of the Zimbabwe Civilization. In Man, No. 80. June. Pages 62-66. See page 62.

Al -Mas'udi: The Ivory Trade circa 915 AD. In Select Documents From The First To The Earlier Nineteenth Century by G.P.S. Freeman-Grenville 1962 Clarendon Press Oxford. Page 15.

<sup>136</sup> Bleek, W.H. & Lloyd, L.C. 1911. Specimens of Bushman Folklore. London. G.Allen.

Schapera, I. 1963. The Khoisan Peoples of South Africa . Routledge & Kegan Paul. Pages 160, 202, 413-418

<sup>137</sup> Galloway, A. 1935. Stone structures on the Uashin Gishu Plateau, Kenya Colony. In South African Journal of Science. Vol.32, 3. Pages 656-668.

<sup>138</sup> 17th November 2004 First meeting in Venice. ASidorenko@unesco.org and c.Mallouris@unesco.org

<sup>139</sup> Dr. Jarita Holbrook Bureau of Applied Research in Anthropology Haury Anthropology Building Room 316 University of Arizona Tucson, AZ 85721-0030 USA FAX: 1+520-621-9608 Emailed Submissions will be accepted at holbrook@u.arizona.edu <mailto:holbrook@u.arizona.edu> or astroholbrook@yahoo.com mailto:astroholbrook@yahoo.com>.

Holbrook, J. Urama, Johnson O. & Medupe, Thebe R. (eds.), African Cultural Astronomy – Current Archaeoastronomy and Ethnoastronomy Research in Africa. Springer Science+Business Media B.V. 2008

the National Society of Black Physicists, the University of Nigeria, and the University of Cape Coast has announced the first workshop on the cultural astronomy of Africa. March 27- April1, 2006 Cape Coast, Ghana.

There is great interest in any literary studies, artistic analysis, oral histories, archaeological, and anthropological research in this regard and the University of Pretoria will partake in the establishing research methodology of African Astronomy. The ultimate objective is to render the established heritage sites in virtual landscapes or 3-D models with starry backgrounds for further simulation research and preservation. UNESCO has therefore approved a database -The African Database project called ALUKA, with funding from the private sector (Andrew W Mellon Foundation), housed in New York and working together with the University of Cape Town and University of Pretoria<sup>140</sup>.

In conclusion, sub-Saharan African cultural astronomy in general is hidden therefore in a deep milieu of meanings and concepts, interwoven through time in a process of morphological changes. Concepts that are difficult to discern outright and yet profoundly inherent to the various practices found throughout the continent.

Africa has a rich reaction and legacy to the vast resource of the sky through time and requires a new language to view the astronomical aspects veiled in folklore tales, rock art and structures.

Perhaps Mapungubwe, Meroe (Nubian), Nabta, Namoratunga, Great Zimbabwe, Mpumalanga ruin fields all share a structurally archived reverence for the vast resource of the sky in less architecturally designed monumentalization for a special reason.

Perhaps it is just a matter of definition. This thesis attempts to systematize the search for these references and to help identify the language of concepts required.

In the same way that art and architecture reflects the processes of stylistic ecology of human design through time, astronomy processes languages of exactitude that define relationships between time and nature and archaeology determines the historical patterns and processes of cultural change.

---

<sup>140</sup> Keeton, Claire. Sunday 13<sup>th</sup> November 2005. African Sites Get Digital Treatment. Sunday Times (South Africa).page 12. The project is presently headed by Rahim Rajan for ALUKA (New York) and the University of Cape Town's Geomatics Department under Prof Heinz Ruther. [Heinz.ruther@ebe.uct.ac.za](mailto:Heinz.ruther@ebe.uct.ac.za) +27 21 6503573.



Archaeoastronomy therefore searches for the fundamental structures of expressions of exactitude that reflect time throughout these processes of change and how humans systematize the cyclical changes of cosmic reference.

By utilizing methodology established in archaeology archaeoastronomy contextualizes pre-existent formulations of the celestial mechanics thereby providing reconstructions of past ideology and events as well as applications for present problems solved in the past.

Cosmic references are not to be ignored. The human need to encapsulate time in a structure albeit a monolith or the Burj Dubai skyscraper is an inherent part of being and expression. When these are identified and reconstructed in the final analysis of most studies –a richer depth into the intangible ideologies of the past are brought into perspective.

## 4.4 Appendices

### 4.4.1 Appendix 1 - Sub-Saharan Africa: Cultural Astronomy's Heart of Darkness

Snedegar, Keith. 1999. **Sub-Saharan Africa: Cultural Astronomy's Heart of Darkness**. Essays from *Archaeoastronomy & Ethnoastronomy News*, The Quarterly Bulletin Of The Center For Archaeoastronomy and ISAAC. Number 32 June Solstice 1999.

#### **Sub-Saharan Africa: Cultural Astronomy's Heart of Darkness**

by Keith Snedegar, Political Science and History Dept., Utah Valley State College

There is no more deeply primeval experience than to gaze overhead at the Milky Way arching from horizon to horizon on a pitch-dark African night. And with good reason: our species originated in Africa; it was from there that our ancestors first looked up and pondered the mysteries of the cosmos. It should strike everyone as odd, then, that cultural astronomers have paid relatively little attention to Africa. The eve of a new millennium is an appropriate time to revisit, or for many of us to contemplate for the first time, the astronomical heritage of humanity's home continent before it is too late.

With the spectacular exception of ancient Egypt, Africa has not been well served by scholarship on cultural astronomy. The disruptive consequences of slavery, colonialism, and racism imposed upon Africans in modern history, and perpetuated in a real way by continuing discrimination, at times of a quasi-scientific "Bell Curve" variety, are inescapable. There are those who would say that cultural astronomy has precious little to do with race relations, but surely the African lacuna in our multidiscipline-which embraces so many societies and time periods within its global domain--is more telling than coincidental. On the other hand, it must be said that the Afrocentric backlash against academic discrimination and neglect has had, at best, mixed results. For instance, sensational claims of advanced astronomical knowledge for the Dogon people of Mali have given African cultural astronomy an "ancient astronaut" sort of reputation. New Age enthusiasts continue to be inspired (Andoh 1999). Not only is more responsible scholarship called for, more judicious if sympathetic presentation to wider audiences is sorely needed.

In terms of research, cultural astronomy's origins as a subdiscipline of archaeology have contributed to the neglect of Africa. Quite naturally archaeoastronomers have a strong predilection for material culture, especially monumental architecture. To be somewhat unfair one might say the more monumental the architecture, the better. The relatively unimposing nature of Sub-Saharan monuments has not attracted a great rush to document astronomical alignments, symbolic geometry's, and celestial iconography's. But perhaps the breakthrough study has just been made. In 1997 McKim Malville identified some very suggestive alignments at a megalithic complex in the southern Egyptian desert at Nabta, a site of seasonal habitation for nomadic pastoralists between 11,000 and 4,800 years ago (Malville et al. 1998). One stone circle exhibits a line-of-sight 'window' at an azimuth of 62 degrees; the rising mid-summer sun would have been visible in that direction circa 6,000

years BP. This is quite fittingly the oldest astronomically aligned structure yet discovered anywhere on the planet.

Another well-known megalithic site, Namoratunga II, near Lake Turkana in Kenya may well have aided calendrical observations around 300 B.C. (Lynch and Robbins 1978). Unfortunately, in recent years no other Sub-Saharan monuments have been surveyed for their archaeoastronomical potential. Numerous sites merit such investigation: the Senegambian stone circles, the Central African Republic's Bouar megaliths, and ruins in the Great Zimbabwe tradition. With the prospect of discovery we should no doubt expect many negative results. I am personally skeptical that any alignments could be found in the irregular architecture of the Zimbabwe sites. At all events, someone should look for them. If only there were more copy cats of Lynch, Robbins and Malville than of high-school shootists!

However, the lion's share of Africa's astronomical heritage is not locked in silent stones; it exists in still-living and exceedingly rich oral traditions. For among nonliterate peoples knowledge is passed from mouth to ear. Western scholars only began to appreciate the realm of African orality after Ruth Finnegan's *Oral Literature in Africa* (1970). (Ironically, Finnegan is best known for her erroneous claim that there was no such thing as African epic poetry—since the 1970s dozens of African epics have come to light.) Astronomy in the African oral record remains an undeveloped subject, although its potential can be gauged by the achievement of the only monograph to date on African cultural astronomy: Muusa Galaal's *Stars, Seasons, Weather in Somali Pastoral Tradition* (1992). Conducting his research in the 1960s Galaal relied entirely on oral texts as the Somali language did not have a standard written form before that time! Who knows what information could be had from the griot of West Africa or the isibongi of southern Africa? Or even from common folk who remember the stories their grandparents told them. Oral tradition, sadly, is an endangered resource; the indigenous societies that had created and sustained it have, in this passing century, been negatively transformed. On a recent visit to the University of the North-West in Mmabatho, South Africa, I heard from a professor that the local people had forgotten most of their sky lore but had a great appetite for cell phones and NBA t-shirts. It is hoped that a student research project in Setswana oral knowledge will be initiated within the next academic year.

There are other positive signs. Members of the United Nations Working Group on Space Sciences in Africa have expressed an interest in recovering indigenous astronomy's for purposes of promoting culturally relevant science education. Meanwhile, Thebe Medupe, one of the leading black astronomers in South Africa, is participating in a TV documentary "Cosmic Africa" on indigenous knowledge. Much more could be done. It goes without saying that others should join in the great enterprise of recovering Africa's astronomical heritage. After all, "Mistah Kurtz--he dead."

### References

- Andoh, Anthony K. 1999. *Creation Secrets of the Dogon Shaman, the Star Sirius and the New Age Prophecies*. North Scale Inst. Pub.
- Finnegan, Ruth. 1970. *Oral Literature in Africa*. London: Clarendon Press.
- Galaal, Muusa. 1992. *Stars, Seasons, Weather in Somali Pastoral Tradition*. Niamey: CELHTO.
- Lynch, B.M. and L.H. Robbins. 1978. "Namoratunga: The First Archastronomical Evidence in sub-Saharan Africa." *Science* 200: 766.
- W.B. Fawcett, "Uneven Development, Colonialism, and African States: Views from Smaller Swahili Towns in Coastal Tanzania". *World Archaeological Conference 4 Proceedings 1999*. (In Press). (University of Cape Town 1999).

### Alignments and Orientations Again

Iwaniszewski, Syanislaw. 1995. *Alignments and Orientations Again*. *Essays from Archaeoastronomy & Ethnoastronomy News, The Quarterly Bulletin Of The Center For Archaeoastronomy*. Number 18 December Solstice 1995

Alignments and ancient observation places (ancient observatories?) are one of the main concerns of archaeoastronomy. In the last issue of A&E NEWS Dave Dearborn addressed a series of questions concerning the nature of observatories. His preoccupation with orientations and observatories mirrors a particular phase of the development of our discipline but our attitudes towards what we define as astronomical orientations and observatories are changing. This essay intends to form part of a larger dialogue concerned with multiple approaches to the study of orientations.

At the beginning of modern archaeoastronomy, the search for astronomical alignments and ancient observatories was a common methodological practice. Early archaeoastronomers (called astro-archaeologists in those times) were really obsessed with very precise astronomical orientations and the monuments and places where such alignments were detected, were naturally considered as ancient observatories. Where less precise alignments were discovered, early archaeoastronomers talked about different levels of astronomical competency and later separated scientific (and more precise) astronomy from ceremonial (less precise) astronomy. At that time alignments and not monuments were the goals of scientific activity.

In archaeoastronomical practice, alignments and orientations have been separated from material objects for a long time. In my view, alignments and orientations form one of the possible classes of attributes that characterize material objects. Archaeologists usually deal with a variety of material culture objects, be they pottery shards, lithic artifacts, iron implements, architectural remains or even human skeletons, and try to order them into a meaningful pattern. This can be achieved through the identification of resources, materials and technologies used for the object fabrication, description of their macroscopic (physical dimensions, color, shape, ornaments, etc.) and microscopic (chemical composition of raw sources, biological identification of organic remains, etc) attributes and the establishment of their spatial and temporal relationships. Therefore, alignments and orientations should be viewed as artifactual (macroscopic) attributes.

Alignments and orientations do not exist without artifacts. Similarly, the quality to be red, or redness when separated from a red jar becomes an abstract concept losing its sense.

Redness, particular diameter or an orientation are abstract concepts which manifest themselves in material objects. The visual line that links a particular monument or place with horizon features associated with certain astronomical events, exists through this artifact. So, when we speak of alignments, we cannot separate them from artifacts, ultimately those are the artifacts that have certain meaning and this meaning may be stressed or emphasized by particular alignments.

Traditional archaeology has dealt with orientations in a very narrow sense. Orientations of architectural features or human burials were treated as attributes used for typological purposes. Archaeological reports present summary statistics of how many structures (usually houses, temples or tombs) or skeletons are oriented in such and such direction to conclude that in particular archaeological cultures such were general orientation patterns. In case of human burials differences of gender in respect to certain orientations have been observed. However, it should be emphasized that orientation trends were used only for the establishing of typological criteria.

Processual or "new archaeology" has interpreted orientations in terms of society's adaptation to natural environment. Particular orientations have been analyzed to define their adaptive function (for example in terms of offering a better protection against prevailing winds, minimizing of temperature extremes, or improving air circulation inside structures). Contextual or post-processual archaeology has emphasized orientations' social and symbolic significance. Orientations towards celestial objects or other natural phenomena or objects have been interpreted as strategies that "could have produced a higher authority" of a certain class of monuments. It has been also postulated that where architectural structures or human skeletons were oriented in the same direction, it might have symbolized "social relations of identity between the social groups who erected them".

Landscape archaeology intends to reconstruct ancient cultural landscapes. Such investigation identifies basic landmarks around which cultural landscapes were created. Their location in space may be emphasized through particular orientations which project human attributes onto distant horizons, creating meaningful skylines. But there may be also a reverse situation: particular locations of oriented monuments may be explained in terms of visibility of prominent features on horizon with its astronomical associations attached. Each of the currents of modern archaeology treats orientations in a different form. Yet cultural and social anthropology reveal how people use space to mark social distinctions of gender, age, rank, religion, ethnicity, etc.

What I want to say exhibiting these examples is that material objects may possess a variety of meanings. Orientations, considered as an attribute may also carry multiple meanings. Orientations and alignments are polysemous in nature. A particular set of meanings may be attached to orientation patterns of different classes of artifacts. The orientation of the dead does not necessarily express the same patterns as do the tombs in which they are deposited. The (invisible) corpses of the dead may relate to different sets of meanings if compared to the (visible) elaborated funeral monuments. Less precise astronomical observations may appear where previously very precise ones were found. The meanings of locations are not fixed for ever and particular locations and monuments,

especially those of long duration, may change their meanings with the passage of time. As Dave observes, today's Intihuantana bears different meanings than some 500 years ago. What was an observational device! yesterday, may be converted into a token today. Another example is the evolution of the use of clocks in culture.

Last but not least, the meaning of alignments depend on our research purposes. Dave trained as a scientist is interested in types of observations performed, and how they were made technically. Trained as an archaeologist I would rather look for the social meaning of such observations, decode their meaning in order to reconstruct the cognitive models of the world, analyze their particular function in culture systems and finally try to associate particular patterns of orientations with other cultural features. Our approaches are different but complementary since both of us study astronomy in its cultural context. Only in this sense archaeoastronomy (as a part of cultural astronomy) involves a true cooperation between physical and social scientists.

#### 4.4.2 Appendix 2 – General Overview of Archaeoastronomy Methods<sup>141</sup>

##### Artefactual analysis

- The Antikythera mechanism (main fragment)

In the case of artefacts such as the Sky Disc of Nebra, alleged to be a bronze age artefact depicting the cosmos, the analysis would be similar to typical post-excavation analysis as used in archaeology. An artefact is examined and attempts are made to draw analogies with historical or ethnographical records of other peoples. The more parallels that can be found, the more likely an explanation is to be accepted by other archaeologists.

Another well-known artefact with an astronomical use is the Antikythera mechanism. In this case analysis of the artefact, and reference to the description of similar devices described by Cicero, would indicate a plausible use for the device. The argument is bolstered by the presence of symbols on the mechanism, allowing the disc to be read <sup>142</sup>.

##### Symbolic analysis

In some cases the use of an artefact may be known, but its meaning may not be fully understood. In such cases an examination of the symbolism on the artefact may be necessary.

---

<sup>141</sup> The following Overview is drawn from the following reference dealing with Historical and Cultural Archaeoastronomy, which is an open-source development of the discipline Archaeoastronomy.  
<http://en.wikipedia.org/w/index.php?title=Archaeoastronomy&action=edit&section=32>

<sup>142</sup> 2006. April. [http://ecuip.lib.uchicago.edu/diglib/science/cultural\\_astronomy/](http://ecuip.lib.uchicago.edu/diglib/science/cultural_astronomy/)



A mundane example is the presence of astrological symbols found on some shoes and sandals from the Roman Empire. The use of shoes and sandals is well known, but Carol van Driel-Murray has proposed that astrological symbols etched onto sandals gave the footwear spiritual or medicinal meanings.<sup>143</sup> This is supported through citation of other known uses of astrological symbols and their connection to medical practice and with the historical records of the time.



**Figure 49** Diagram showing the location of the sun daggers on the petroglyph on various days 2001. August. [http://en.wikipedia.org/wiki/History\\_of\\_astronomy](http://en.wikipedia.org/wiki/History_of_astronomy)

More problematic are some petroglyphs. Symbols on rock are one such class of symbol which are occasionally argued to possess astronomical meanings. An example is the Sun Dagger of Fajada Butte which is a glint of sunlight passing over a spiral petroglyph. The location of the dagger on the petroglyph varies throughout the year. At the solstices a dagger can be seen either through the heart of the spiral or to either side of it. It is proposed that this petroglyph was created to mark these events. If no ethnographic nor historical data are found which can support this assertion then acceptance of the idea relies upon the reader's

<sup>143</sup> van Driel-Murray, C. 2001. Regarding the Stars, TRAC 2001: Proceedings of the Eleventh Annual Theoretical Roman Archaeology Conference Glasgow 2001. eds. M Carruthers, C. van Driel-Murray, A Gardner, J. Lucas, L. Revell and E. Swift. Oxbow Books. 2002, 96-103, ISBN 1842170759

own belief as to whether or not there are enough petroglyph sites in North America that such a correlation could occur by chance. It is helpful when petroglyphs are associated with existing peoples. This allows ethnoastronomers to question informants as to the meaning of such symbols<sup>144</sup>.

### Alignment analysis



Figure 50 The Sun rising behind the Heel Stone at Stonehenge 2001. August.  
[http://en.wikipedia.org/wiki/History\\_of\\_astronomy](http://en.wikipedia.org/wiki/History_of_astronomy)

The most public image of archaeoastronomy is the practice of alignment analysis. This is the study of the orientation of structures and calculating the direction in which they face. In the case of Stonehenge it is well known to face the rising midsummer sun. In the case of the pyramids of Egypt they face north, probably to face the circumpolar stars.<sup>145</sup>

The use of alignment analysis may vary depending upon the researcher. As a coarse stereotype archaeoastronomers from an historical background tend to have an idea which is then tested by examining structures for alignments. Astronomically-minded archaeoastronomers may analyze large numbers of sites and attempt to find statistical patterns. This approach was particularly employed in early papers by pioneers in the field such as Alexander Thom who conducted extensive fieldwork at megalithic sites and concluded many sites were situated to observe the moon.<sup>146</sup> In this instance the aim was to prove that there is an astronomical problem which requires an historical explanation. This

---

<sup>144</sup> Krupp, E. C., ed. 1978. *In Search of Ancient Astronomies*. Garden City, N.Y.: Doubleday & Company, 1978 (and New York: McGraw-Hill Book Company, 1979 paper back reprint).

<sup>145</sup> Spence, K. 2000. Ancient Egyptian Chronology and the astronomical orientation of the pyramids, *Nature*, Vol 406, 16 November 2000, 320-324.

<sup>146</sup> Michell, John. 2001. *A Little History of Astro-Archaeology*. Thames & Hudson

Krupp, E.C. 1988. *Light in the Temples, Records in Stone: Papers in Memory of Alexander Thom*. 473-499, ISBN 0521333814

latter approach continues to an extent in some modern research but it has comparatively little direct impact on mainstream archaeology<sup>147</sup>.

One reason the statistically-led approach has proven unpopular with archaeologists and anthropologists was stated by the anthropologist Keith Kintigh:

"In light of the fact that archaeoastronomers bring considerable energy and expertise to their efforts, what accounts for archaeologists' indifference? I think the principal reason is that archaeologists see archaeoastronomers as answering questions that, from a social scientific standpoint, no one is asking. To put it bluntly, in many cases it doesn't matter much to the progress of anthropology whether a particular archaeoastronomical claim is right or wrong because the information doesn't inform the current interpretive questions."<sup>148</sup>

Recent statistically led research has tended to be more discriminating, choosing archaeologically associated sites and where possible referring back to historical or ethnographic records to place the findings in a social context.

An alignment is calculated by measuring the azimuth, the angle from north, of the structure and the altitude of the horizon it faces. The azimuth is usually measured using a theodolite or a compass. A compass is easier to use, though the deviation of the Earth's magnetic field from true north, known as its magnetic declination must be taken into account. Compasses are also unreliable in areas prone to magnetic interference, such as sites being supported by scaffolding. Additionally a compass can only measure the azimuth to a precision of a half a degree.<sup>149</sup>

A theodolite can be considerably more accurate if used correctly, but it is also considerably more difficult to use correctly. There is no inherent way to align a theodolite with North and so the scale has to be calibrated using astronomical observation, usually the position of the Sun. Because the position of celestial bodies changes with the time of day due to the Earth's rotation, the time of these calibration observations must be accurately known, else there will be a systematic error in the measurements. If one is measuring buildings which were unlikely to be orientated by their builders to within fractions of a degree then a

---

<sup>147</sup> Iwanizewski, Stanislaw. 1995. Alignments and Orientations Again. Essays from Archaeoastronomy & Ethnoastronomy News, The Quarterly Bulletin Of The Center For Archaeoastronomy. Number 18 December Solstice 1995 (Appendix 1 page 119)

Ruggles, Clive L.N. 1999. Astronomy in Prehistoric Britain and Ireland. Yale University Press.

<sup>148</sup> Kintigh, K. 1992. I wasn't going to say anything, but since you asked: Archaeoastronomy and Archaeology, Archaeoastronomy & Ethnoastronomy News 5, 1992

<sup>149</sup> 2006. October. [Brunton Pocket Transit Instruction Manual, p. 22](#)

theodolite can be more trouble than it is worth. Horizon altitudes can be measured with a theodolite or a clinometer<sup>150</sup>.

### Recreating the ancient sky

Once the researcher has data to test, it is often necessary to attempt to recreate ancient sky conditions to place the data in its historical environment.

- Declination



Figure 51

A time lapse photo showing the stars as they appear to rotate around the celestial pole, as a result of the earth's rotation about its axis. 2006. September. Wikipedia - <http://en.wikipedia.org/wiki/Archaeoastronomy>

To calculate what astronomical features a structure faced a coordinate system is needed. The stars provide such a system. If you were to go outside on a clear night you would observe the stars spinning around the celestial pole. This point is  $+90^\circ$  if you are watching the North Celestial Pole or  $-90^\circ$  if you are observing the Southern Celestial Pole. The concentric circles the stars trace out are lines of celestial latitude, known as declination. The point on the horizon due East, if the horizon is flat is the celestial equator which has a declination of  $0^\circ$ . The visible declinations vary depending where you are on the globe. Only an observer on the North Pole of Earth would be unable to see any stars from the Southern Celestial Hemisphere at night (see diagram below). Once a declination has been found for the point on the horizon that a building faces it is then possible to say if a specific body can be seen in that direction.

- Solar positioning

---

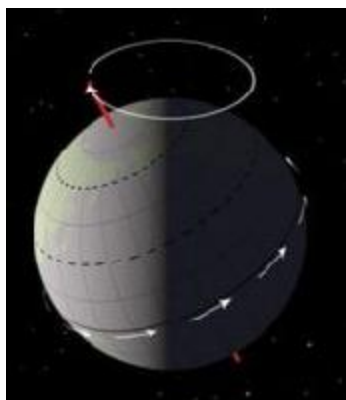
<sup>150</sup> 2006. October. [Brunton Pocket Transit Instruction Manual, p. 22](#)

While the stars are seemingly fixed to their declinations the Sun is not. The rising point of the Sun varies throughout the year. It swings between two limits marked by the solstices a bit like a pendulum, slowing as it reaches the extremes, but passing rapidly through the mid-point. If an archaeoastronomer can calculate from the azimuth and horizon height that a site was built to view a declination of  $+23.5^\circ$  then he need not wait until June 21 to confirm the site does indeed face the summer solstice.

– Lunar positioning

The appearance of the moon is considerably more complex. Its motion, like the Sun, is between two limits - known as lunistics rather than solstices. However its travel between lunistics is considerably faster. It takes a sidereal month to complete its cycle rather than the year long trek of the Sun. This is further complicated as the lunistics marking the limits of the movement of the moon on an 18.6 year cycle. For slightly over nine years the extreme limits of the moon are outside the range of sunrise. For the remaining half of the cycle the Moon never exceeds the limits of the range of sunrise. However, much lunar observation was concerned with the phase of the Moon. The cycle from one New Moon to the next runs on an entirely different cycle, the Synodic month. Thus when examining sites for lunar significance the data can appear sparse due the extremely variable nature of the moon.

– Stellar positioning



**Figure 52** Precessional movement. 2006. September. Wikipedia - <http://en.wikipedia.org/wiki/Archaeoastronomy>

Finally there is often a need to correct for the apparent movement of the stars. On the timescale of human civilisation the stars have maintained the same position relative to each other. Each night they appear to rotate around the celestial poles due to the Earth's rotation about its axis. However the Earth spins rather like a spinning top. Not only does the Earth rotate, it wobbles. The Earth's axis takes around 25700 years to complete one full wobble. The effect to the archaeoastronomer is that stars did not rise over the horizon in the past in the

same places as they do today. Nor did the stars rotate around Polaris as they do now. In the case of the Egyptian pyramids, it has been shown they were aligned towards Thuban, a faint star in the constellation of Draco. The effect can be substantial over relatively short lengths of time, historically speaking. For instance a person born on December 25 in Roman times (roughly 2000 years ago) would have been born under the astrological sign of Capricorn. In the modern period a person born on the same date is now a Sagittarian<sup>151</sup> due to the precession of the equinoxes.

- Transient phenomena



**Figure 53** Halley's Comet depicted on the Bayeux tapestry 2006. September. Wikipedia - <http://en.wikipedia.org/wiki/Archaeoastronomy>

Additionally there are often transient phenomena, events which do not happen on an annual cycle. Most predictable are events like eclipses. In the case of solar eclipses these can be used to date events in the past. A solar eclipse mentioned by Herodotus enables us to date a battle between the Medes and the Lydians, which following the eclipse failed to happen, to May 28, 585 BC<sup>152</sup>. Other easily calculated events are supernovae whose remains are visible to astronomers and therefore their positions and magnitude can be accurately calculated.

Some comets are predictable, most famously Halley's Comet. Yet as a class of object they remain unpredictable and can appear at any time. Some have extremely lengthy orbital periods which means their past appearances and returns cannot be predicted. Others may have only ever passed through the solar system once and so are inherently unpredictable.

Meteor showers should be predictable, but the meteors are cometary debris and so require calculations of orbits which are currently impossible to complete. Other events noted by ancients include aurorae, Sun dogs and rainbows all of which are as

---

<sup>151</sup> 2006. October. [Astrological Things What is Your Sign, Really?](#)

<sup>152</sup> 2006. October. Herodotus, [The Histories](#), I.74



impossible to predict as the ancient weather, but nevertheless may have been considered important phenomena.

### Some Major topics in archaeoastronomical research

- The use of calendars



**Figure 54** Aztec Stone of the Sun replica in El Paso, Texas, cast from the original to be found in the National Museum of Anthropology and History. A religious artefact showing how the Mexico people thought about time. 2006. March 12<sup>th</sup>.

[http://en.wikipedia.org/wiki/List\\_of\\_artefacts\\_of\\_archaeoastronomical\\_significance](http://en.wikipedia.org/wiki/List_of_artefacts_of_archaeoastronomical_significance)

A common justification for the need for astronomy is the need to develop an accurate calendar for agricultural reasons. Ancient texts like Hesiod's Works and Days, an ancient farming manual, would appear to contradict this. Instead astronomical observations are used in combination with ecological signs, such as bird migrations to determine the seasons. Ethnoastronomical work with the Mursi of Ethiopia shows that haphazard astronomy continued until recent times in some parts of the world.<sup>153</sup> All the same, calendars appear to be an almost universal phenomenon in societies as they provide tools for the regulation of communal activities.

An example of a non-agricultural calendar is the Mayan Tzolkin which is a cycle of 260 days. This count is based on an earlier calendar and is found throughout Mesoamerica. This formed part of a more comprehensive Maya Calendar which combined a series of astronomical observations and ritual cycles.<sup>154</sup>

Other peculiar calendars include ancient Greek calendars. These were nominally lunar, starting with the New Moon. In reality the calendar could be paused or days

---

<sup>153</sup> Turton, D. and Ruggles, C.L.N. 1978. Agreeing to Disagree: The Measurement of Duration in a Southwestern Ethiopian Community, Current Anthropology Vol. 19.3, 1978, 585-600

<sup>154</sup> A.F. Aveni, A.F. 1989. Empires of Time, Basic Books, 1989, ISBN 0465019501

skipped which confused citizens to inscribe dates by both the civic calendar and ton theoi, by the moon.<sup>155</sup> The lack of any universal calendar for ancient Greece suggests that coordination of panhellenic events such as games or rituals could be difficult and that astronomical symbolism may have been used as a politically neutral form of timekeeping.<sup>156</sup>

– Myth and cosmology



**Figure 55** The constellation Argo Navis drawn by Johannes Hevelius in 1690. 2006. March 12<sup>th</sup>. [http://en.wikipedia.org/wiki/List\\_of\\_artefacts\\_of\\_archaeoastronomical\\_significance](http://en.wikipedia.org/wiki/List_of_artefacts_of_archaeoastronomical_significance)

Another motive for studying the sky is to understand and explain the universe. In pre-scientific times myth was a tool for achieving this and the explanations, while not scientific, are cosmologies.

The Incas arranged their empire to demonstrate their cosmology. The capital, Cusco, was at the centre of the empire and connected to it by means of ceques, conceptually straight lines radiating out from the centre.<sup>157</sup> These ceques connected the centre of the empire to the four suyus, which were regions defined by their direction from Cusco. The notion of a quartered cosmos is common across the Andes. Gary Urton, who has conducted fieldwork in the Andean villagers of Misminay, has connected this quartering with the appearance of the Milky Way in

---

<sup>155</sup> McCluskey, S. 2000. The Inconstant Moon: Lunar Astronomies in Different Cultures, *Archaeoastronomy: The Journal of Astronomy in Culture* Vol 15. 2000, 14-31

<sup>156</sup> Salt, A. and Boutsikas, E. 2005. Knowing when to consult the oracle at Delphi. *Antiquity* Vol 79:305, 2005, 562-72

<sup>157</sup> Bauer, B and Dearborn, D. 1995. *Astronomy and empire in the ancient Andes: the cultural origins of Inca sky watching*, University of Texas, 1995, ISBN 0292708378

the night sky.<sup>158</sup> In one season it will bisect the sky and in another bisect it in a perpendicular fashion.

The importance of observing cosmological factors is also seen on the other side of the world. The Forbidden City in Beijing is laid out to follow cosmic order though rather than observing four directions the Chinese saw five, North, South, East, West and Centre. The Forbidden City occupied the centre of ancient Beijing.<sup>159</sup> One approaches the Emperor from the south, thus placing him in front of the circumpolar stars. This creates the situation of the heavens revolving around the person of the Emperor. The Chinese cosmology is now better known through its export as Feng Shui.

There is also much information about how the universe was thought to work stored in the mythology of the constellations. The Barasana of the Amazon plan part of their annual cycle based on observation of the stars. When their constellation of the Caterpillar-Jaguar falls they prepare to catch the pupating caterpillars of the forest as they fall from the trees.<sup>160</sup> This provides planning for food procurement at a time when hunger could otherwise be a problem.

A more well-known source of constellation myth are the texts of the Greeks and Romans. The origin of their constellations remains a matter of continuing and occasionally fractious debate.

- Displays of power

---

<sup>158</sup> G. Urton, *At the crossroads of the earth and the sky: an Andean cosmology*, University of Texas, 1981, ISBN 029270349X

<sup>159</sup> E.C. Krupp, *Skywatchers, Shamans and Kings*, John Wiley and Sons, 1997, 196-9, ISBN 0471329754

<sup>160</sup> M. Hoskin, *The Cambridge Concise History of Astronomy*, CUP, 1999, 15-6, ISBN 0521576008



**Figure 56** The Intihuatana ("tie the sun") at Machu Picchu is believed to have been designed as an astronomic clock by the Incas, while some have speculated about the site's possible astrological role. 2006. March 12<sup>th</sup>.

[http://en.wikipedia.org/wiki/List\\_of\\_artefacts\\_of\\_archaeoastronomical\\_significance](http://en.wikipedia.org/wiki/List_of_artefacts_of_archaeoastronomical_significance)

The most common popular image of archaeoastronomy is the expression of hidden knowledge and power. By using stellar symbolism one can make claims of heavenly power.

By including celestial motifs in clothing it becomes possible for the wearer to make claims the power on Earth is drawn from above. It has been said that the Shield of Achilles described by Homer is also a catalogue of constellations.<sup>161</sup> In North America shields depicted in Comanche petroglyphs appear to include Venus symbolism.<sup>162</sup>

Solstitial alignments also can be seen as displays of power. In Egypt the temple of Amun-Re at Karnak has been the subject of much study. Evaluation of the site, taking into account the change over time of the obliquity of the ecliptic show that the Great Temple was aligned on the rising of the midwinter sun.<sup>163</sup> The length of the corridor down which sunlight would travel would have limited illumination at other times of the year.

---

<sup>161</sup> Hannah, R. 1994. [The Constellations on Achilles' Shield \(Iliad 18. 485-489\)](#). *Electronic Antiquity* 11.4, 1994, 15-6

<sup>162</sup> E.C. Krupp, *Skywatchers, Shamans and Kings*, John Wiley and Sons, 1997, 252-3, ISBN 0471329754

<sup>163</sup> E.C. Krupp, *Light in the Temples, Records in Stone: Papers in Memory of Alexander Thom*, ed. C.L.N. Ruggles, 1988, 473-499, ISBN 0521333814

In a later period the Serapeum in Alexandria was also said to have contained a solar alignment so that, on a specific sunrise, a shaft of light would pass across the lips of the statue of Serapis thus symbolising the Sun saluting the god.<sup>164</sup>

The use of astronomy at Stonehenge continues to be a matter of vigorous discussion.

### Popular Sites and Artifacts regarded as Archaeoastronomical <sup>165</sup>

Some of the prominent so-called archaeoastronomical and world heritage sites as well as various known tourist and cultural landscapes throughout the world: -

- Bolivia - Tiwanaku, the Kalasasaya and its alignments
- Brazil - Calçoene
- Korea - Cheomseongdae
- Egypt - Great Pyramids of Egypt, Nabta Playa
- France - Carnac
- Germany - Goseck circle, Nebra skydisk. A bronze disc said to date from the Bronze Age which portrays the cosmos. From Nebra, Germany. Golden hats
- Indonesia - Borobudur
- Mediterranean - Antikythera mechanism A device for plotting positions of heavenly bodies. (Found off the island of Antikythera, Greece), Malta Megaliths, Sardinia Megaliths, Spain Megaliths and the host of sites researched by Michael Hoskin and Clive Ruggles
- Mexico - Chichen Itza, the caracol, Monte Alban, zenith tube, Teotihuacan :- the pecked-cross circles as survey-markers, Uxmal, Venus alignment of the "Governor's Palace", Xochicalco, zenith tube
- Peru - Cusco, Machu Picchu
- Republic of Ireland - Brú na Bóinne
- Romania - Sarmizegetusa Regia
- Russia - Arkaim and Megaliths throughout Black Sea Area
- Sweden - Ale's Stones
- United Kingdom - Ballochroy, Callanish stone circle, Kintraw, Minard/Brainport Bay, Stonehenge – see research areas of Michael Hoskin and Clive Ruggles  
<http://www.amazon.co.uk/Cambridge-Illustrated-History-Astronomy-Histories/dp/toc/0521411580>
- United States - Cahokia, City of the Sun, Chaco Canyon

---

<sup>164</sup> 2006. November. [Rufinus, The destruction of the Serapeum](#)

<sup>165</sup> 2006. March 12<sup>th</sup>.

[http://en.wikipedia.org/wiki/List\\_of\\_archaeoastronomical\\_sites\\_sorted\\_by\\_country](http://en.wikipedia.org/wiki/List_of_archaeoastronomical_sites_sorted_by_country)  
[http://en.wikipedia.org/wiki/List\\_of\\_artefacts\\_of\\_archaeoastronomical\\_significance](http://en.wikipedia.org/wiki/List_of_artefacts_of_archaeoastronomical_significance)

- China - Han Dynasty silk comet atlas Drawings of comets unearthed from Han tomb number 3 at Mawangdui, Changsha, China. The Gan Shi Xing Jing (the first star catalog, produced during the 5th century BC )

### **Pretelescopic Astronomers**

It is believed that the Chinese were the first pretelescopic astronomers due to evidence such as the Gan Shi Xing Jing (the first star catalog, produced during the 5th century BC ). This primitive form of astronomy was once a crucial facet to science and technology in China. It was once claimed that if a Chinese astronomer were to inaccurately predict the occurrence of a comet or eclipse, he would be ordered to a beheading.

Even though the Chinese were among the first to document stellar activity, some of the oldest observatories on Earth are still speculated to exist today throughout regions of Korea, Egypt, Great Britain, Cambodia, et cetera.

China also bears a fair sum of pretelescopic observatories such as the Beijing Ancient Observatory—a facility built during the 13th century and equipped with a wide array of revolutionary instruments, including an armillary sphere, a quadrant, a theodolite and a sextant.<sup>166</sup>

### **Introduction of the telescope**

Even though telescopes existed during the age of some pretelescopic observatories, they were not used to fulfill astronomical endeavours until the introduction of Galileo Galilei's "perspicillum" in 1609. A creation that was later amended by Johannes Kepler in his book *Astronomiae Pars Optica*.<sup>167</sup>

### **Examples of Archaeoastronomical Artifacts**

- The Nebra sky disk

The Nebra sky disk is associatively dated to c. 1600 BC and attributed to a site at Nebra, Saxony-Anhalt in Germany. It is a bronze disk of around 30cm diameter, patinated blue-green and inlaid with gold symbols interpreted by some as a sun or full moon, stars (including a cluster interpreted as the Pleiades) and a crescent with

---

<sup>166</sup> Hetherington, Barry (1992) *A Chronicle of Pre-Telescopic Astronomy*, John Wiley & Sons, Inc. ISBN 0-471-95942-1

<sup>167</sup> 2001. January 18<sup>th</sup>. [Institute and Museum of the History of Science - Pretelescopic astronomy](#)



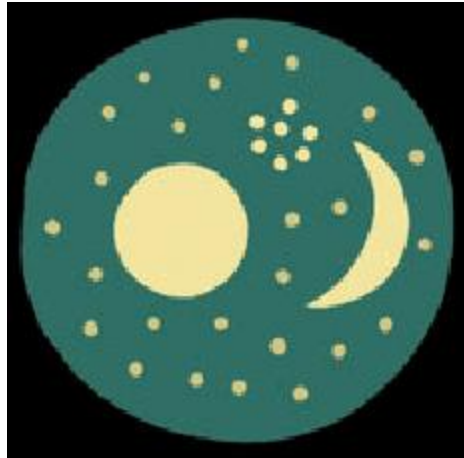
multiple strokes, interpreted as a sun boat with many oars. It has been associated with the Bronze Age Unetice culture.

The find sheds new light on the astronomical knowledge and abilities of the people of the European Bronze Age, such as the builders of Stonehenge. Judging from the angles set by gilded arcs along the sky disk's circumference, it may be that the Bronze Age cultures in Central Europe made far more sophisticated celestial measurements far earlier than has been suspected.

If the disk is authentic then it may be argued that quantitative astronomy in central Europe may possibly date back 3,600 years. Egyptian representations of the sky are purely schematic at this time. The lack of a secure archaeological context for the disk however, means that it is difficult to accurately date or even authenticate it. It is unlike any known artistic style from the period and has been described as a fake by some archaeologists. Possibly a scientific instrument as well as an item of religious significance, the disk is a beautiful object; the blue-green patina of the bronze may have been an intentional part of the original artifact.

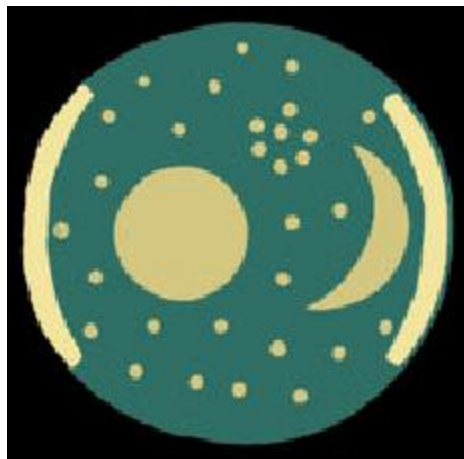


**Figure 57** Diagram of the disk in its current condition (a star and a part of the full moon was restored). 2006. November. [http://en.wikipedia.org/wiki/Pretelescopic\\_astronomy](http://en.wikipedia.org/wiki/Pretelescopic_astronomy)



**Figure 58** Initial state: On the left the full moon, on the right the waxing moon, and between and above, the Pleiades. 2006. November.

[http://en.wikipedia.org/wiki/Pretelescopic\\_astronomy](http://en.wikipedia.org/wiki/Pretelescopic_astronomy)



**Figure 59** Second state: Arcs are added on the horizon for the zones of the rising and setting sun. Individual stars were shifted and/or covered. 2006. November.

[http://en.wikipedia.org/wiki/Pretelescopic\\_astronomy](http://en.wikipedia.org/wiki/Pretelescopic_astronomy)



**Figure 60** Third state: Addition of the "sun boat".2006. November.  
[http://en.wikipedia.org/wiki/Pretelescopic\\_astronomy](http://en.wikipedia.org/wiki/Pretelescopic_astronomy)

– Conical Golden Hats

Four tall conical golden hats dating to between 1400 BC and 800 BC, have been found in Central Europe: one find in 1835 near Schifferstadt near Speyer dated to 1400-1300, one fragmentary find in 1844 near Avanton near Poitiers, one at Ezelsdorf near Nürnberg in 1953, dated to 1000-900, and one find of unknown origin, probably from Switzerland or Swabia, bought in 1996 by the National Museum of Berlin, dated to 1000-800<sup>168</sup>. The tallest of these is the Ezelsdorf one, measuring 90 cm. The 'hats' infer a relationship to the Moon's Metonic Cycle and it is as if a logarithmic table of the moon phases over 18 years was worn on the head. It is regarded that the similar use of (28 to 31) studs on each of the hats relates to the amount of times the moon is seen during lunation, over a period of a year and that each each circle can also represent a year as well.<sup>169</sup>

The hats are associated with the pre-Proto-Celtic Bronze Age Urnfield culture. Their close similarities in symbolism and techniques of manufacture are testimony to a coherent Bronze Age culture over a wide-ranging territory in eastern France and western and southwestern Germany. A comparable golden pectoral was found at Mold, Flintshire, in northern Wales<sup>170</sup>.

---

<sup>168</sup> 2006. March 17<sup>th</sup>. [Mysterious gold cones 'hats of ancient wizards'](#), Daily Telegraph 17 March 2002. Retrieved 15 May 2006.

<sup>169</sup>2001. January 18<sup>th</sup>. [Institute and Museum of the History of Science - Pretelescopic astronomy](#)

2006.November.[http://en.wikipedia.org/wiki/List\\_of\\_artefacts\\_of\\_archaeoastronomical\\_significance](http://en.wikipedia.org/wiki/List_of_artefacts_of_archaeoastronomical_significance)

2006. November. [http://en.wikipedia.org/wiki/Pretelescopic\\_astronomy](http://en.wikipedia.org/wiki/Pretelescopic_astronomy)

<sup>170</sup> 2006. November. [http://en.wikipedia.org/wiki/Pretelescopic\\_astronomy](http://en.wikipedia.org/wiki/Pretelescopic_astronomy)

The gold hats were first brought together for comparison and set in the broader context of the culture of Bronze Age Europe in a 1999 exhibition in Bonn, Gods and heroes of the Bronze Age: Europe in the time of Odysseus <sup>171</sup>



**Figure 61** Aventon gold cone from 1500-1250 BC. 2004. June 23<sup>rd</sup>. ["Mathias Schultz, "Der Kult der Sternmagier"](#)

– Antikythera Mechanism

---

<sup>171</sup> 2004. June 23<sup>rd</sup>. ["Mathias Schultz, "Der Kult der Sternmagier"](#)

1999. [Götter und Helden in der Bronzezeit: Europa im Zeitalter des Odysseus](#), exhibition, Bonn. 1999. Catalogue introduction, wall panel information

Antikythera ( ) is a Greek island with a land area of approximately 20 square kilometers, 38 kilometers south-east of Kythira. It is notable for being the location of the discovery of the Antikythera mechanism and for the historical Antikythera wreck.

The origins of the mechanism are unclear, as are the circumstances in which it came to be on the Antikythera ship. The ship was a Roman one, though there is no doubt that the mechanism itself was made in Greece <sup>172</sup>.

One hypothesis<sup>173</sup> is that the device was constructed at an academy founded by the ancient Stoic philosopher Posidonios on the Greek island of Rhodes, which at the time was known as a centre of astronomy and mechanical engineering. Investigators have suggested that the ship could have been carrying it to Rome, together with other treasure looted from the island to support a triumphal parade being staged by Julius Caesar.

Another hypothesis is that the mathematician Archimedes constructed the mechanism. The advanced geometry needed for the Antikythera mechanism's construction was developed by Archimedes and is unlikely to have pre-dated his discoveries. However, there is little to directly link Archimedes with the machine.

The device appears to have been constructed as a calendrical device using planetary movements <sup>174</sup>.

---

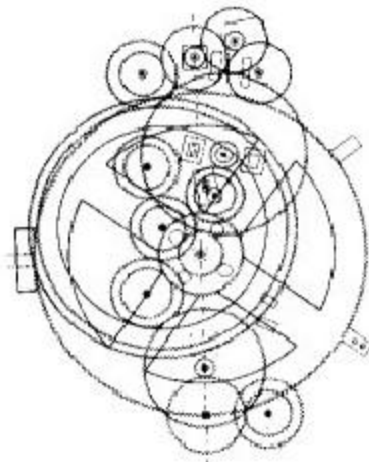
<sup>172</sup> Price, Derek J. de Solla. 1959. "An Ancient Greek Computer". *Scientific American*, June 1959. p. 60-67.

<sup>173</sup> Price, Derek J. de Solla. 1959. "An Ancient Greek Computer". *Scientific American*, June 1959. p. 60-67.

<sup>174</sup> Price, Derek J. de Solla. 1959. "An Ancient Greek Computer". *Scientific American*, June 1959. p. 60-67.



**Figure 62** The Antikythera mechanism (main fragment) 2006. November.  
[http://en.wikipedia.org/wiki/Antikythera\\_mechanism](http://en.wikipedia.org/wiki/Antikythera_mechanism)



**Figure 63** Schematic of the artifact's mechanism 2006. November.  
[http://en.wikipedia.org/wiki/Antikythera\\_mechanism](http://en.wikipedia.org/wiki/Antikythera_mechanism)





**Figure 64** The Antikythera mechanism as reconstructed by Paolo Amoroso side 1  
14<sup>th</sup> May 2007 <http://www.mogi-vice.com/Antikythera/Antikythera-it.html>



**Figure 65** The Antikythera mechanism as reconstructed by Paolo Amoroso side 2  
14<sup>th</sup> May 2007 <http://www.mogi-vice.com/Antikythera/Antikythera-it.html>

#### 4.4.3 Appendix 3 - Wheeler Seminar Research Compilation

##### Wheeler Seminar Research Compilation

1998. December 2<sup>nd</sup> <http://hej3.as.utexas.edu/~www/wheel/africa/namoratunga.htm>

1998. December 2<sup>nd</sup> <http://hej3.as.utexas.edu/~www/wheel/africa/nabta.htm>

SUMMARY - Like ancient people everywhere, Africans wondered at the sky and struggled to make sense of it. Evidence that they did so with creativity and intelligence has been slow to permeate academic studies of archaeoastronomy and wider public understanding. This evidence is not just in myths and calendars, but in ancient megalithic observatories. Two are known, Nabta in southern Egypt that predates the famous site at Stonehenge and other European megaliths, and Ng'amoritung'a on the shores of Lake Turkana in Kenya where the logic of a 2000 year old calendar predates any European influence. Other such artifacts undoubtedly await discovery. This site is an introduction to the astronomy of ancient Africa

1998. December 2<sup>nd</sup> <http://hej3.as.utexas.edu/~www/wheel/africa/index.htm>

##### Namoratunga

The cultural background of Namoratunga (sometimes rendered "Ng'amoritung'a," a spelling perhaps closer to the original language) lies shrouded in much mystery, as does its purpose. Evidence for the Namoratungans' cultural heritage is found in the rock art found at Namoratunga I. These [petroglyphs](#) closely resemble brands on livestock that the Turkana use. These cattle brands could have come from a common past as Lynch points out in his response to Robert Soper's challenging paper. The cattle brands seem to point to the fact that the Namoratungans probably were ancestors to the present-day Cushitic and Nilotic-speaking peoples.

The cattle burials at Namoratunga I are very interesting though because of the lack of explanation. Were these burials ritual sacrifices or did they see these cows as gods? There seems to be a cattle burial connection between Namoratunga and the Nabta area because Wendorf, a noted expert on Nabta, wrote a paper on cattle burials in the Sahara.

The most striking connection between Namoratunga II and the present day peoples is the connection with the [Borana calendar](#) of the modern-day Cushites. If Mark Lynch's astronomical alignments were right, then this would provide much evidence towards the Namoratungans being the ancestors of the present-day Cushites. The other interesting tie here is that the Borana calendar only works if precessed back to [300 BC](#). This date is very near the radiocarbon date for Namoratunga I. An unanswered question in all of this is why a calendar which does not work anymore is still being passed down. All of this seems to provide much evidence for the Namoratungans being the ancestors of the current day Cushites still living near Lake Turkana.

(L. Bowman)

## **Namoratunga**

### **Robert Soper: A Realistic Reevaluation of Namoratung'a**

In a startling yet vital article in *Azania*, a publication of the United Kingdom in Eastern Africa (vol. 17, 1982), Robert Soper refreshingly addresses many important questions concerning various aspects of preceding research done in a special area of the Turkana District of North-Western Kenya. This area, called Namoratung'a II or Namoratung'a-Kalokol after a nearby village, is a site boasting 20 peculiar polygonal basalt columns and has been surrounded with mystery and predictions of possible ancient astronomical significance officially since Dr. Mark Lynch and Dr. L. H. Robbins independently and jointly surveyed the area in the 1970's. In his article, Mr. Soper accounts for his own survey of the disputed area and, in reference to the initial surveying, addresses much questionable data as well as some debatable techniques of taking original measurements. He then, after addressing additional issues not even raised by the original surveyors, draws his own conclusions concerning the possible astronomical site however emphasizing a need for further investigation.

To set up arguments later in the article, Soper introduces the reader to two additional sites located approximately 160 km south of the primary Kalokol site, one containing eleven presumed gravestones and another made up of one hundred and sixty two gravestones, together labeled, because of their close proximity, Namoratung'a-Lokori or, in some references, Namoratung'a I. Here, in reference to Dr. Lynch's assertion that the three sites are "approximately contemporaneous and culturally related," (Soper, 145) Soper relates his doubts, stating the sites are of rather different character and not associated with any local settlement sites. Expanding later in the article, he addresses the issues Lynch used to construct a relationship between the two sites. The first, as Soper concedes, is difficult to argue either way and is whether there is a direct relationship between gravestones at each site (as the Kalokol site, Lynch suggests, contains gravestones in addition to those with possible astronomical significance alone). The second concerns possibly related petroglyphs on stones from each site. As Soper argues, while there is a similarity between some of these ancient pieces of art, there is much to be questioned as to whether the builders of the site produced all or even any of them.

The third major issue raised by Soper concerning the supposed connection of the sites rests on Lynch's description that the Namoratung'a II site was, in fact, dedicated to calendrical makeup and use. As the Eastern Cushites made up the Borana Calendar, Lynch's thought that the stone sites in question were influenced if not completely designed and built by them as well implies that at least the Kalokol site was used for some kind of astronomical observations with the goal of calendar making in mind. Soper's response, self-affirmed later in the article, suggests the site in fact has no astronomical significance, thus implying the resourceful Eastern Cushitic speakers simply erected stones with no direct or presently sensible reason for doing so, which, he states, is highly unlikely. Adding to his doubt that the Eastern Cushites were the connection between the sites, Soper points out that in the making of the Borana calendar, a very Eastern Cushitic creation, there is no mention of stone pillars being used for assistance.

Much of Mr. Soper's argument and contention concerning Namoratung'a's astronomical significance as stated by Dr. Lynch is based on his own resurveying and the many discrepancies that were found between his and the initial data collected on Dr. Lynch's own expedition. The data in question was that collected concerning possible alignments of nineteen of the twenty stones (one is flat and displaced) with seven stars and constellations popularly used for astronomical purposes; Triangulum, the Pleiades, Aldebaran, Bellatrix, Central Orion, Saiph, and Sirius (see [African stars](#) and the [Borana calendar](#) in [300 BC](#)). Using the same reference points as Lynch (the highest points of the stones), Soper found error in angle measurement ranging from 1 to 17 degrees, gross errors he attributes to likely magnetic anomalies or instrumental error. From this error he concludes that Lynch's astronomical hypothesis cannot be maintained.

Another pervasive issue Soper raises in his article is that of dating the sites. As he reports, radiocarbon dates of two bone samples from the larger Lokori sites have been taken from, as he states, bone apatite (330+-165 BC) and bone collagen (AD 750+-100), bone outsides and bone insides, respectively. Soper addresses Lynch's claim that the first is likely correct because, from his knowledge, apatite is more reliable and it fits the linguistic dating more reliably. What Soper takes issue with is the lack of foundation for Lynch's claim of linguistic dating. As his own research found, in fact no linguistic reconstruction places Eastern Cushites as far south as Lokori at any time on this side of Lake Turkana (existing between and not far east of the sites) and that, while this is not "significant negative evidence," linguistic reconstruction can provide no evidence of absolute dating anyway. Further, Soper asserts that when the unlikelihood that the site was used for astronomical purposes is coupled with this fact, the chance of a Eastern Cushitic connection becomes that much more unlikely.

Concluding his many remarks and arguments of the previous accounts of the Namoratunga sites, Soper offers an alternate hypothesis. In forming his hypothesis, he introduces very interesting aspects not addressed by Lynch or in any other report. He attempts to use the presence of different types of pottery found around Lake Turkana, south down the Rift Valley, and as far north as northern Tanzania to help account for some kind of cultural presence. For, as it was found by Lynch, nowhere within a 190 km radius around the Lokori site is there sign of some kind of ancient settlement site. The types of pottery identified in the article and their likely makers were Nderit ware by Southern Cushites and Turkwel ware and its possible Eastern Nilotes or, maybe, Western or Southern Nilotes. Soper asks if, perhaps, Namoratunga could be a further mystical remnant left by one of these cultures; however, acknowledging its shortcomings in research, Soper recognizes that it is nothing more than another possible hypothesis. (J. Greenbaum)

#### Citations

Soper, Robert: "Archaeo-astronomical Cushites: Some Comments with further Comment by B. Mark Lynch;" *Azania: The Journal of the British institute in Eastern Africa*, vol. 17, 1982. pp. 145-162

Lynch, B.M. and L. Robbins: "Animal Brands and the interpretation of rock art in East Africa;" *Current Anthropology*, vol. 18, 1977. pp. 3, 538-539

## **Namoratunga**

### **Summary of Doyle and Wilcox Article**

The article "Statistical Analysis of Namoratunga: An Archaeoastronomical Site in Sub-Saharan Africa?" written by Laurence R. Doyle and Thomas J. Wilcox examines the probability of randomly obtaining 25 or more stone alignments with seven random positions in the sky as a test of the possible astronomical alignments of the stones at Namoratunga II.

The article begins with a synopsis of previous work conducted at Namoratunga II by Lynch and Robbins in 1978-1979. Their research introduces the first evidence for possible archaeoastronomical stone alignments at Namoratunga II. Later analysis conducted by Soper in 1982 suggested possible deviations in the calculations of alignments, conducted by Lynch and Robbins, due to the stone's magnetic properties. Soper also raises the issue of the utility of the pillars with respect to the Borana calendar. He is skeptical that the Borana calendar even dates back to 300 BC, the age of the site proposed by Lynch and Robbins. These issues are taken head-on in the Doyle and Wilcox article.

Doyle apparently revisited the site and took his own measurements of the alignments. He found 25 two-pillar alignments with the [300 BC](#) horizon rising positions of the seven [Borana calendar](#) stars. He also reports 25 two-pillar alignments with the 300 BC setting positions of the seven Borana stars and suggests that alignments on the eastern horizon only may underestimate the number of alignments.

Measurements taken by Soper at Namoratunga II used the highest point of the stone as the line of sight. Doyle and Wilcox contest this assumption and use the geometric center of the stones, as seen from above, for their reference points. Testing of the alignments in 300 BC was performed by a program run on a NASA supercomputer to determine the probability of the alignments occurring at random. The numerical experiment was run 10,000 times and the likelihood of having 25 or more alignments arise by chance is 0.0041. The most feasible number of stone alignments occurring at the site is 13.

The authors do a good job of critiquing their work. They discuss possible sources of error in their research. These include: overestimating the accuracy of alignments, too broad a definition of alignment, stone shifting, and location of pillar measurement. Evidence is then presented to support the validity of their claims.

I feel this article handles the questions raised about Namoratunga II in a very practical and comprehensive manner. Though there is still research to be performed, as the authors admit, I believe that the evidence does point to Namoratunga II being a significant archaeoastronomical site. (N. Griffin)

### **Nabta and Ng'amoritung'a**

Nabta and Namoratunga II are both megalithic sites in Africa, and are thought to be astronomically related. Both could also be ceremonial sites. At both sites the rocks are tilted unlike many megaliths such as Stonehenge, where the rocks are perpendicular to the

ground. This information suggests that the people who built Namoratunga II could somehow be connected to the people who built Nabta thousands of years earlier.

Many differences between Nabta and Namoratunga II weaken the suggestion that the two could be connected. Nabta has been excavated and studied thoroughly, and radiocarbon dated to have been built around 6000 B.C. Namoratunga II was not excavated. It was assumed to have been built around 300 B.C. because that was the radiocarbon date on a related site. Nabta is reasonably well established to be astronomically related, with orientations north/south and with the summer solstice. There has been much discussion about whether Namoratunga II's astronomical alignments are correct or not, although the preponderance of evidence seems to be that it is. Nabta and Namoratunga II are also different because the Nabta calendar deals with alignments with the Sun, and Namoratunga II aligns with the stars. Nabta was a burial site. The bones of cows were found there. Namoratunga I was a burial site, but bones have not been found at Namoratunga II.

Many differences also exist in the way the two megaliths were built. Nabta consists of several sites spread out over approximately one square mile. Namoratunga has three sites spread out over a greater area. Nabta sites are circular, but Namoratunga II is more linear. The rocks themselves are also different. The rocks at Nabta are much bigger than the rocks at Namoratunga II, which are only about one meter high, or less. Nabta's rocks are unshaped, but the rocks at Namoratunga II have been shaped to have four flat sides and a slanted top. The rocks at Namoratunga II also have [petroglyphs](#) on them and the rocks at Nabta do not. Many pieces of pottery that had symbols on them were found at Nabta, but no pottery was found at Namoratunga II.

It can be theorized that the same line of people who built Nabta could have migrated south over the thousands of years that passed between the construction of the two megaliths, and built Namoratunga II. Cultural changes over the large time span could account for the differences between the two megaliths. Not enough evidence exists to come to a conclusion.

(H. Price)

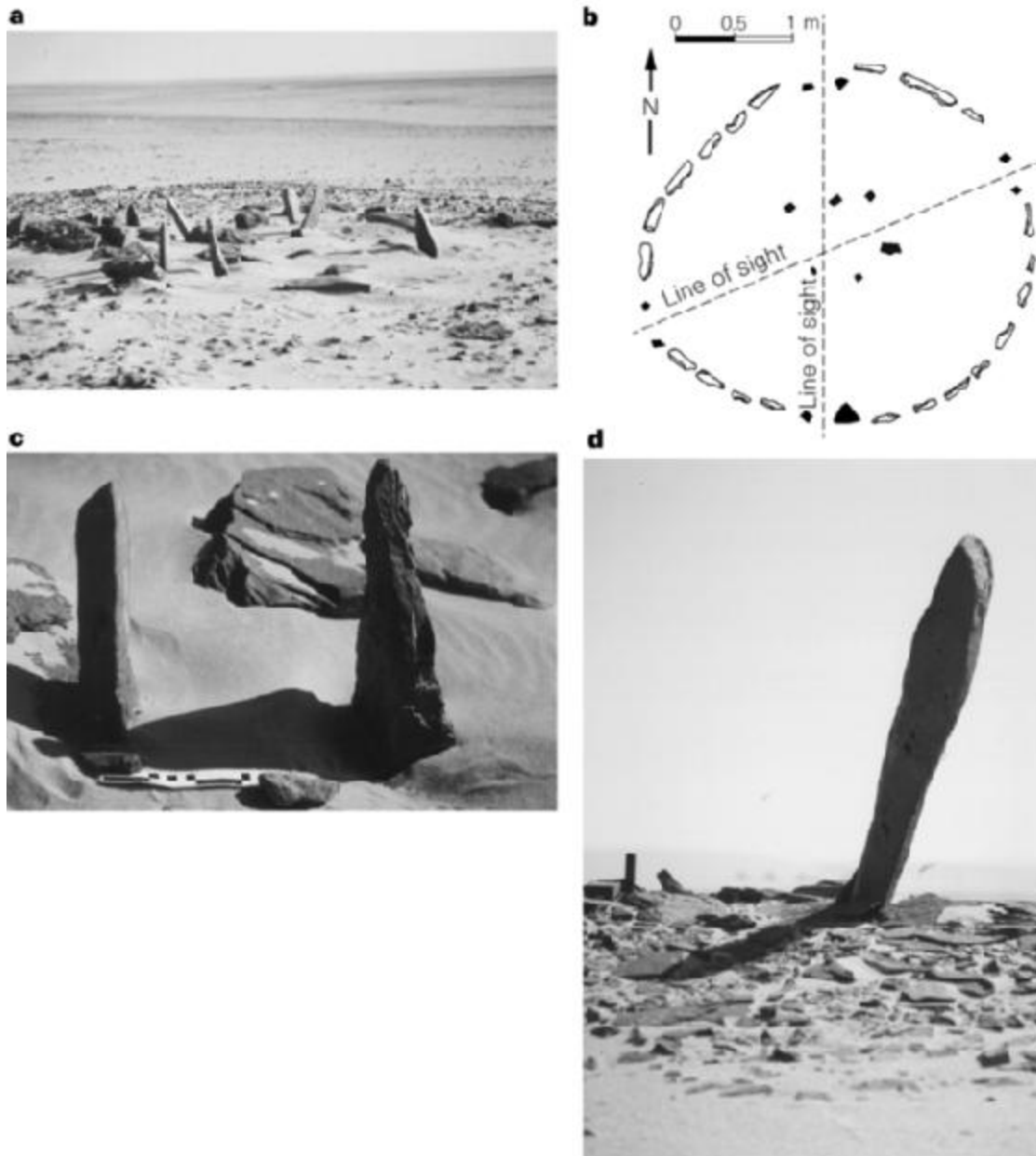




Namoratunga - Photograph by Jens Finke and Maria Helena Barreira



Nabta Monolith  
John (Kim) Malville and Fred Wendorf



5a - d Monoliths at Nabta. Malville, J. M., Wendorf, F., Mazar, A. A., & Schild, R. 1998. Megaliths and Neolithic astronomy in southern Egypt. *Nature* 392, 488 (1998) (Letters to Nature).

### **Nabta**

There exists a site in southern Egypt that is the oldest astronomical site in the world. This site, called Nabta, was created some 6500 years ago by a Neolithic people who were concerned with the progress of the year. The circle of standing stones allowed the people to determine when the solstices occurred as well as rainy seasons. This sub-Saharan culture is likely to be the predecessor of the Egyptians. The site was excavated by [Fred Wendorf](#) and John (Kim) Malville.

Stones, some more than 9 feet tall, were set in a circle to predict the coming solstices. The people had to drag these monstrous stones for more than a mile, thus showing a great dedication to their task. Scientists have discovered that there is an east-west sighting among the megaliths, as well as a north-south lining.

During the first three weeks before and after a solstice, the standing stones would cast no shadow in the noonday sun, due to their proximity to the equator. Seasons were thus followed, including the rainy season, very important to a cattle-raising, agricultural society. There have been several other alignments found, but their significance is yet to be determined.

It also seems that the Nabtians were worshipers of [cattle](#), much like the Egyptians who come later. Several [cattle burial sites](#) are located at Nabta, at least one of which has a clay housing with a roof. This care to the burial site of cattle shows the importance of cattle in the Nabtian society.

There were several pieces of pottery found at Nabta. Most of which comes from the Neolithic people who built the site. The pottery is completely covered with designs, thus making it easily identifiable. The lips of the pottery jars, however, were not decorated.

Human remains were also found at Nabta, but only the jawbone was left available to Wendorf to examine, the rest being confiscated by the Egyptian museum in Cairo. The study of this jawbone led Wendorf to an interesting conclusion: the Nabtians were of sub-Saharan descent, not of middle eastern. He deduced this based on the size and structure of the teeth and jaw compared to different ethnic groups. The conclusion undercuts the mainstream theory that Egyptian society was founded by Mesopotamians and Syrians. The idea that the Egyptian society was truly of African descent is revolutionary indeed. Yet it is backed with good evidence from the Nabta site, such as the jawbone and knowledge of the cycle of aridity in the region.

The Nabta region goes through an aridity cycle. That is to say that the area fluctuates between being fertile and arid due to weather patterns. Currently the area is extremely arid, yet at the time of the Nabtians, the area was fertile indeed. There is much evidence of agriculture in the region, along with evidence of a flourishing culture. There were found numerous deposits of charcoal (which comes from organic sources) and many deposits of floral fossils, including grass roots, palm, wood fragments, fruit, and barley grains. This cycle would cause people to migrate into and out of Nabta, making it feasible that the Nabtians migrated north to found the Egyptian culture after Nabta itself became arid.

The 6500 year old astronomical site at Nabta is evidence of a developed culture. They had knowledge of astronomy, the calendar year, and the science needed to construct the stone circle to keep track of their knowledge. Nabta was once home to a flourishing people, but the change in the weather forced the people to migrate (possibly to Egypt). The Nabtian culture is preserved only in the stones and pottery they left behind. Thus, all we know is from the work of Wendorf and Malville, and what we can extrapolate from that.

(J. Clendenon)

## **Nabta**

### **Symbols in the Sand**

Roughly one hundred kilometers to the west of the Nile River in southern Egypt lies a basin with myriad stones placed in various alignments. Five arrangements seem to be somewhat linear, branching off in several different directions. Another stone formation is circular, with small openings at four opposite sides of the circle. This region is known as Nabta, and has recently been investigated by archaeologists and astronomers exploring its historical function.

Perhaps the most important note to make about Nabta revolves around the radiocarbon dating that was used extensively on the site. The dates determined by carbon samples shows that Nabta could not be younger than 4,800 years old. Some of the alignments, if not all of them, are probably much older than this. This means that the megaliths at Nabta predate most other similar sites, such as Stonehenge. The region of southern Egypt where Nabta is located became inhabitable as early as 11,000 years ago. There is evidence of people living in the vicinity about 10,000 years ago. There seem to be three eras of occupation of the basin, divided by periods of drought. Early in the Neolithic age, the inhabitants constructed villages, one of which had walk-in wells. While it is thought by the excavation crew that the ancient nomads only lived in the region during the rainy summers, these wells may have allowed for year-round occupation.

The megaliths in the alignments are generally about 2 m by 3 m, and are made from sandstone. After they were carried for 0.5 km or more, each stone was partially buried in the ground. The stone circle is believed to be astronomically related. There are two lines of sight: one north-south, the other a seemingly obscure angle at first glance. When researched in greater detail, the second line of sight matches up with what astronomers calculate the azimuth of the summer solstice Sun was 6,000 years ago. The north-south line of sight, as well as the direction of the bases of the megaliths may have been important for the navigation through the Sahara Desert. There is also a possibility that the spatial arrangement of the megaliths suggest a connection between the Sun, water, death, and the fertile Earth.

Such a complex accomplishment this early on in history has many of Nabta's investigators questioning the importance of this ancient culture. It is possible that after the final exodus of these early inhabitants, the foundation of a stronger cultural base was laid out. This would have lasted until the more advanced Egyptian society we are familiar with today developed. (J. M. Britt)

### **Nabta and Ng'amoritung'a**

Nabta and Namoratunga II are both megalithic sites in Africa, and are thought to be astronomically related. Both could also be ceremonial sites. At both sites the rocks are tilted unlike many megaliths such as Stonehenge, where the rocks are perpendicular to the ground. This information suggests that the people who built Namoratunga II could somehow be connected to the people who built Nabta thousands of years earlier.

Many differences between Nabta and Namoratunga II weaken the suggestion that the two could be connected. Nabta has been excavated and studied thoroughly, and radio carbon dated to have been built around 6000 B.C. Namoratunga II was not excavated. It was assumed to have been built around 300 B.C. because that was the radio carbon date on a related site. Nabta is reasonably well established to be astronomically related, with orientations north/south and with the summer solstice. There has been much discussion about whether Namoratunga II's astronomical alignments are correct or not, although the preponderance of evidence seems to be that it is. Nabta and Namoratunga II are also different because the Nabta calendar deals with alignments with the Sun, and Namoratunga II aligns with the stars. Nabta was a burial site. The bones of cows were found there. Namoratunga I was a burial site, but bones have not been found at Namoratunga II.

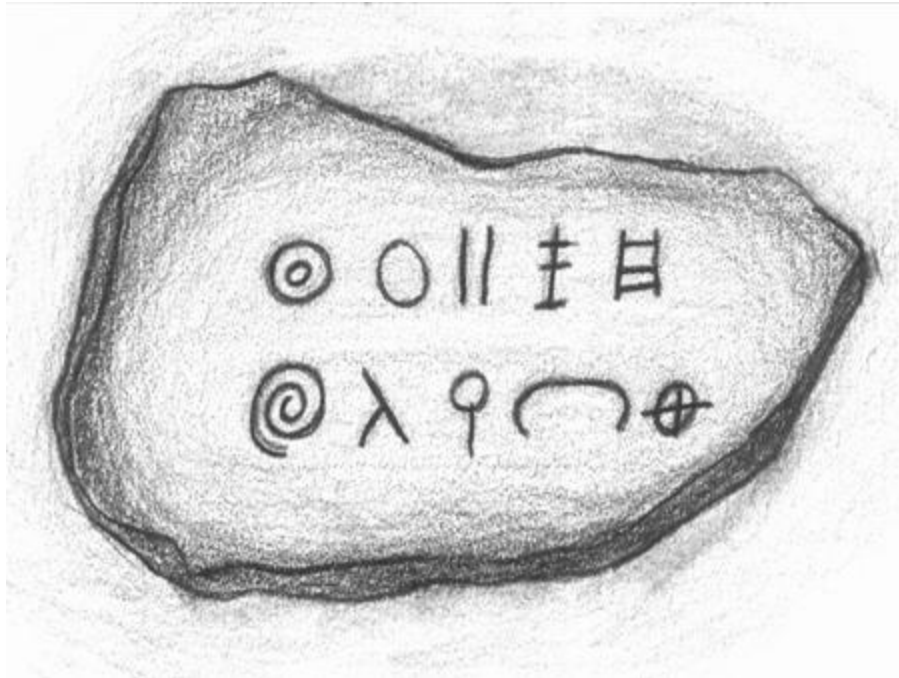
Many differences also exist in the way the two megaliths were built. Nabta consists of several sites spread out over approximately one square mile. Namoratunga has three sites spread out over a greater area. Nabta sites are circular, but Namoratunga II is more linear. The rocks themselves are also different. The rocks at Nabta are much bigger than the rocks at Namoratunga II, which are only about one meter high, or less. Nabta's rocks are unshaped, but the rocks at Namoratunga II have been shaped to have four flat sides and a slanted top. The rocks at Namoratunga II also have [petroglyphs](#) on them and the rocks at Nabta do not. Many pieces of pottery that had symbols on them were found at Nabta, but no pottery was found at Namoratunga II.

It can be theorized that the same line of people who built Nabta could have migrated south over the thousands of years that passed between the construction of the two megaliths, and built Namoratunga II. Cultural changes over the large time span could account for the differences between the two megaliths. Not enough evidence exists to come to a conclusion. (H. Price)

### **Petroglyphs and Ancient Arts**

There are petroglyphs at Namoratunga I and Namoratunga II that share aspects of modern cattle brands and help to link the cultures of then and now. Mark Lynch (Azania, Vol XVI I, 160, 1982) identifies at least ten of the Namoratunga designs on contemporary Turkana livestock.

At the Lokori and the Kalokol Namoratunga sites, rock art was found on several of the pillars. Lynch listed twenty- three symbols that he found in his survey of Namoratunga II. Many of these symbols are the same symbols used by the Turkana people as [brands for their livestock](#). It could be possible that these Turkana symbols are from the same ancestral pool of animal brands as Cushitic and Nilotic speakers in the past, but this would mean that many other peoples would recognize the symbols. Recent inquiries have found that the Masai, Pokot, and Samburu tribes do recognize the symbols, although less of them than the Turkana.



The Turkana elders consistently recognized the symbols when about twenty of them (taken in groups of two and three), were asked to identify them when drawn in the sand. They could also draw them in the sand when given the name of the symbol.

It is a fact that all rock art can not be directly dated through patination processes, and Namoratunga is no exception. The patination at the Lokori site ranges from the symbols being completely patinated, in the same state as the rest of the rock that they are on, to being completely fresh. This means that the art could have been executed at any time after the pillars were erected. The conflict with the idea of the art being made after the pillars were erected is that art is only found on the male graves and only the builders of the graves would know who is buried where and what gender they are.

An explanation for the different levels of patination could be that people recopied the designs on top of the original designs at a time after the graves were erected, or people could have added symbols on the same pillars that had original designs. The latter could be an explanation of the Turkana not recognizing all of the symbols.

The art at the Kalokol and Lokori Namoratunga sites is very similar. The art at the Kalokol site is all completely patinated and that rocks used are a harder, different type of rock. Elsewhere in Africa, there is rock art that has astronomical undertones. For instance, in the San Rock paintings of South Africa, there are incisions in the rocks that depict [comets or fireballs](#), and stars. After much analyses though, they are believed to be symbols that represent streaks of light or meteors seen when entering a trance.

Other forms of art were found at several sites. For instance, the ancient Egyptian site, Nabta, contained art all over the pottery that was excavated. In wooden bowls and walking



sticks, astronomical representations were obvious such as star formations, and crescent shaped moons.

Body decorations are found to this day in Africa that represent celestial objects. The women of the Chopi tribe and other tribes in Mozambique incise circles on their foreheads to represent the full moon. Men of the Muyanga clan in Namibia, whose name derives from "the heat of the sun", tattoo their backs with pictures of sun-rays to depict the rising sun, and with lines on their forearms to represent meteors. Women from other tribes in Namibia decorate their lower lips with jewelry such as polished quartz pieces, which they believe to be fallen stars.

(M. Hymen)



Brian Warner (in *Astronomy Before the Telescope*, British Museum Press, 1996, page 314)]

- This image clearly represents a comet or meteor with a long tail

### **African Stars**

The modern culture of the Borana have a calendar based on the rising of the new Moon or the setting of the full Moon. This calendar has ancient roots and the question of how the calendar works and whether the people who constructed Namora tunga II used the same calendar is central to the possibility that Namora tunga II is an ancient astronomical site. Here is a summary of some of the [key stars and constellations](#) of African lore and the stories that go with them.

### **The Borana Calendar**

The Borana Calendar plays a large role in the analysis of Namoratunga II, The Borana calendar is based on the rising of the new Moon with various asterisms. The question for Namoratunga II is where these key stars were in 300 BC.

### **Sky of Kenya in 300 BC**

Brian Warner (in Astronomy Before the Telescope, British Museum Press, 1996, page 315) gives a photo of a bone tally stick (a baboon fibula) with 29 notches giving 28 spaces that could represent the days of the lunar cycle.

Photograph of Bone Tally Stick



### Sky Of Kenya in 300 B.C.

One of the key features of many [African astronomical events](#) is the first rising of Canopus. Canopus rises in June, marking the onset of the dry winter season South of the Equator. Traditionally, the first man to spot it rising after its transition behind the Sun would be awarded a cow.

Here is how Canopus appeared in **300 BC** rising with the Sun  
 (These images were produced by the "Starry Night" planetarium program)

June 18th  
(Still Undetectable)



June 21st  
(Morning Cow Was Won)



June 24th  
(Clearly visible to all)



Here is how Canopus appeared in **1998** rising with the Sun

June 24th  
(Still Undetectable)



June 27th  
(Morning Cow Was Won)



June 30th  
(Clearly visible to all)



Things were not much different 2300 years ago than the rising of Canopus now, so this tradition could be very ancient.

For half the year, the [Borana Calendar](#) is based on the sequential rising of the new moon with various asterisms. [Namoratunga II](#) is supposed to be [pointing at the key asterisms](#) as they were in 300 BC. The next series of images shows the sequential rising of the new Moon in 300 BC.

March Sky of Kenya



April Sky of Kenya



May Sky Of Kenya



June Sky Of Kenya



#### 4.4.4 Appendix 4 - Star Lore Of South Africa

Wade, R.P. 2001. Star Lore Of South Africa. MWeb Online Encyclopedia. NASPERS

<http://www.mweb.co.za>

##### STAR LORE OF SOUTH AFRICA

Richard Wade

Beliefs about star lore in general includes that it is possible to touch the sky at the horizon but some share the medieval European view of the danger of falling down a bottomless precipice. The earth is thought to be a large flat disk floating in water, roofed by the dome of the sky, which meets the circumference of the disk at the horizon, where one would need to pound maize in a kneeling position because there is no room to stand upright, with the pestles resting against the sky- known as 'the place where the stampers are leaned'.

Stars are suspended from the sky and meteors are falling stars that have broken away. Another view is that they are doors into the sky or the eyes of departed husbands who wish to see their wives and children.

Compared with the inhabitants of Asia and Europe, the African peoples of the southern end of the continent appear to have shown a limited but specialized interest in the sky. They sought the intervention of their ancestor spirits when plagued by illness, drought or crop pests, and the future was foretold by mediums, who interpreted the wishes of the spirits. In Asia and Europe astrologers divined the future using the position and pattern of the stars.

The notion of stars as torches or fires is common, for example, they are believed to be candles or torches carried by the ancestor spirits, and that a shooting or falling star, is an arrow shot from the bow of a spirit against an evil wanderer. There are various other interpretations of falling stars such as heralding a death; a sorcerer, on his, or usually her, travels; your future wife is to be found where the star falls: or simply that you will be lucky.

If the southern African tribes have shown relatively little interest in the stars this cannot be said of the San or 'Bushmen'. They were more familiar with the appearance of the night sky and relied on the light of the stars to find their way back to camp after a hunt. Just as the evening star lights the path of the for a bachelor, so the bright stars Sirius and Canopus shine for the San. Believing that a star's brilliance was due to the sun's heat, it was the custom to point a burning brand from the fire to these stars as soon as they appeared, an example of imitative magic. One of their myths tells how a certain girl of their tribe, wanting more light from the sky, threw up the white ash from an old fire to form the Milky Way. She is also reputed to have torn up the red and white roots of a plant and to have thrown the pieces towards the sky where they formed the red and white stars. Like other cultures they believe that a falling star announces a death, and when the 'hammerkop' bird, sees the star, it flies to the bereaved relatives to break the news.

An eclipse of the sun is an evil omen, either foretelling the death of a leader or a famine or a pest. It is believed that where the sun rises, a bird fancier guards some large and peculiar birds, and that one of these escapes and swallows the sun for a short time, causing the eclipse. An eclipse of the moon signals the death of a prominent person such as a Chief or spiritual leader.

Two months after an army (impi) had left for the Zambezi valley there was a lunar eclipse which to those left behind was taken as a sign that not only had the raid been successful but that a Chief had been slain in battle, conclusions which were subsequently confirmed. A less fortunate raiding party in 1885, whilst crossing the Kalahari en route to lake Ngami, were worried by the non-appearance of the expected full moon. Anxiety turned to terror when the eclipsed moon at last showed its horns of light, and the impi, thinking itself bewitched, turned for home. A march in which many died of thirst in the desert. Perhaps the most famous and well-known solar eclipse in Africa occurred on 25th November 1835 whilst the migrating Ngoni under Zwangendaba, were crossing a drift on the Zambezi River near Zumbo.

The moon is supposed to be racing with the sun across the sky, being always left behind, and finally beaten in the race when the new moon appears. The new moon is called the 'little moon' and the waning moon is said to be 'dying' or 'going dark'. The waxing moon with points of the crescent turned upwards is said to be a basin holding all the coughs and colds and a waning moon with the tips pointing downwards is the basin inverted and upsetting all the colds over the earth.

Hailstones are connected vaguely with the stars and it is considered unlucky to count the stars, and a child is forbidden to do so, as if he does he will wet the hut during the night, only a rain-maker astronomer-priest may count and name the stars, in total secrecy.

Sirius is the most observed star. When it appears as an evening star it is 'asking for supper'. When it is the morning star, rising early in the morning during the winter months, it is called 'the horn'. The first appearance of Sirius each year used to be the signal for the beginning of the harvesting. The first man to spot it climbed up a high hill and blew a horn to spread the glad news, and was afterwards rewarded by the chief with the present of a cow. That day the young boys drove all the chief's cattle half a day's journey from the village and then left them unattended. The first animal to reach home safely was greeted with the trilling of the women and there was great rejoicing at the chief's village.

Canopus is the second brightest star in the night sky and is known simply as 'brilliant star' or 'The Harbinger', as it was a morning star that rose during harvest time. Achernar, when appearing as the morning star, is a sign that the cold weather is about to set in. It is called the 'little horn'. Aldebaran is identified as a morning star in winter and is the first star seen on opening the door, telling the women that it is time to begin the stamping. The 'Pulling out the dawn' star appears in the winter as a morning star and is seen high in the sky in the evening. There was much diversity of opinion about this star, some informants having noted that it did not appear regularly. It is the planet Venus.

When Spica rises before the sun it is known as the 'Wildebeest star' as this is usually also the time when herds are highly synchronized in their reproduction corresponding roughly with November/December as the 'Wildebeest Month'.

Two constellations are of particular importance as they are used to reckon the time to begin ploughing, and so mark the beginning of each year's activities. The 'Giraffe' contains the two brightest stars of the Southern Cross ( $\alpha$  and  $\beta$  Crucis), called the 'female', with the two pointers to the Southern Cross ( $\alpha$  and  $\beta$  Centauri), called the 'male'. The !Xu San people knew the Giraffe stars as 'the lions'. The 'Rhinoceros' is the only other constellation. It contains the belt and 'sword of Orion' ( $\delta$ ,  $\zeta$ ,  $\theta$  Orionis), the 'sword' being the rhinoceros' horn. The three stars are also known as the 'three wild pigs' or the 'For God I Cut You' stars.

The 'ploughing stars' or Pleiades star cluster, shows that the time for ploughing has arrived and there is a proverb that goes "If the Digging Stars set in sunny weather, they rise in rain; if they set in rain, they rise in sunny weather", and exactly at the first appearance of the new moon when the 'female' (Giraffe) is not visible, and 'male' (Giraffe) is just visible over the horizon soon after sunset with the Pleiades low on the horizon around the end of October, then it is the time to call for rain and is the start of the 'Wet month' and a very special time begins.

It appears that the three stars of Orion called 'Rhinoceros', 'three wild pigs' and the 'For God I Cut You' stars are amongst those chosen for a most sinister event, for at this exact time when The 'Giraffe', Pleiades and moon form a conjunction marking the 'New Year's Day', the three stars of Orion will ascend on the eastern horizon and are hailed with fires. The rainmaking ceremonies then commence with the words, "For God I Cut You!" or "Mademba-Ndikuteme!" and a sacrificial victim was chosen at this stage to be cut at the throat and then thrown on a fire to coax the rain - and 'the rain would always fall when the entrails burst forth'.

This "Mademba-Ndikuteme" conjunction with the new moon marks the New Year's Day in Southern Africa and usually occurs on the same day as 'Rosh Hashanah'.

The method of charming rain by star asterisms is well known in the records of medieval Yemen (Anwā system) and may have been introduced by the ancestors of the Balemba (people of Sayuna), who purportedly built Great Zimbabwe.

Through Archaeoastronomical research, it was found that the Great Enclosure at Great Zimbabwe may have functioned as an observatory, which gives credence to the myths and legends of their descendents, now also living in South Africa, who say that they were led to the site where they state they built Great Zimbabwe by a "star which stood on top of the hills" - a star which "never came back". Preliminary research has produced evidence that the ruins of Great Zimbabwe are the remains of an astronomical instrument, designed as a general calendar and used to predict the New Year and the correct time to start ploughing and sowing. The star turns out was most likely to be the supernova - RX J0852.0-4622, the



nearest, most brilliant and recent supernova to have occurred during history, in the constellation of Vela in the early 14<sup>th</sup> century.

“They were guided by a star which came every evening and showed the direction. They followed the star until the star stood on top of the little hills of Zvishavane. Here the community settled under the Kingship of Mhani...In Zvishavane King Shabi of the Mhani tribe ruled for a long time but all the time the star came in the evening reminding them that God was not satisfied with the place where they should settle permanently. One evening they set out and followed the star in a Southern direction until the star reached the mountain where it stood on the mountain...the fifth clan was good in the observation of the stars and other heavenly bodies. Members of this clan could foretell what the stars meant by certain positions. They led the other suburbs in the observation of the phases of the moon and to determine the seasons...During the evening on the hills the star shone showing that they had not arrived at the place where God of heaven had directed them to go... They crossed the river and established a city on the mountain and in the valley...The settlement was named Zimbabwe after the founder... This lineage is sometimes called the star lineage of the Basena. It is spread over many areas in South Africa as well as in Zimbabwe... After the establishment of this village the star never came back since then.”

**References:**

- Legesse, A. 1973. *Gada: Three Approaches to the Study of African Society*. New York: Free Press.
- Doyle, L.R. and Frank, E.W. 1997. *Astronomy in Africa*. in *Encyclopaedia of the History of Science Technology & Medicine in Non-Western Cultures*. Edited by Helaine Selin. Kluwer Academic Publishers.
- Stayt, Hugh A. 1968. CONCEPTIONS OF THE UNIVERSE Meteorology-Astronomy-Time and the seasons-Numbers. Chapter XIX and XXII Rain-Making and Fertility of Crops (pages 309 - 315) in *THE BAVENDA*. CASS LIBRARY OF AFRICAN STUDIES - GENERAL STUDIES - No 58 Editor Adviser: John Ralph Willis. Frank Cass & Co. Ltd. 1968
- von Sicard, Harald 1966. Karanga Stars. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, Volume 9, No. 3, 1966. Page 43.
- N.H.W. 1926. The Darwin Ritual Murder. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, No. 4, December 1926. pg. 61 - 62. Edited by Guy A. Taylor. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mardon Printers.
- Wilson, Agnes. 1931. The Human Sacrifice. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, No. 9, 1931. pg. 6 - 10. Edited by A. B. D. Spicer. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mardon Printers.
- Frobenius, Leo. 1923. *Das sterbende Afrika* / Leo Frobenius. Veröffentlichung des Forschungsinstitutes für Kulturmorphologie. München : O.C. Recht.
- Mc Cosh, F. W. J. 1979. The African Sky. In N.A.D.A. - The Southern Rhodesia Native Affairs Department Annual, No. 12, 1979. pg. 30 - 44. See page 34. Edited by A. B. D. Spicer. Published by the Southern Rhodesia Native Affairs Department. Facsimile published 1972 by Books of Rhodesia Publishing Company. Mardon Printers.
- Frobenius, Leo. 1931. *Erythrea*. Munchen
- Da Silva Rego, A. 1952. Portuguese Contributions to the Ethnological and Geographical Knowledge of Africa During the XVI<sup>th</sup> Century. In *South African Journal of Science*. Vol. 49, no. 3-4, October - November. Pages 93-103.

- Bleek, W.H. & Lloyd, L.C. 1911. *Specimens of Bushman Folklore*. London G.Allen.
- Schapera, I. 1963. *The Khoisan Peoples of South Africa*. Routledge & Kegan Paul. Pages 160, 202, 413-418
- Galloway, A. 1935. Stone structures on the Uashin Gishu Plateau, Kenya Colony. In *South African Journal of Science*. Vol.32, 3. Pages 656-668.
- Mathivha, M.E.R. 1992. *The Basena/Vamwenye/Balemba*. Morester Printers. . ISBN 0620 09482 6 Published by Prof. M E R Mathivha Copyright © 1992 First Edition/ First impression 1992 Morester Printers (01521) 931831 South Africa.
- Keane, A. H. 1901. *The Gold Of Ophir*. London: Edward Stanford
- Chapin, J.H. 1967. Vernacular month names from Zambia. *African Studies*, vol. 26 (1967).
- Dornan, S. S. Moon Lore amongst the Bantu. *Native Affairs Department Annual*. 1927, 29 - 35. (N.A.D.A., pp. 32 - 34.)
- Aschenbach, B. 1998. Discovery of a Young Nearby Supernova Remnant. *Nature* 396 (6707): 141-142.
- Iyudin, A.F., Schönfelder, V., Bennett, K, Bloemen, H., Diehl, R., Hermsen, W., Lichti, G.G., Van Der Meulen, R.D., Ryan, J. & Winkler, C. 1989. Emission from 44Ti associated with a previously unknown Galactic supernova. *Nature* 396 (6707): 142 -144.

#### 4.4.5 Appendix 5 - Astronomy and World Heritage Initiative

##### Astronomy and World Heritage Initiative

2006 October 26th. <http://whc.unesco.org/en/initiatives/32/>

The cosmos has captivated the imagination of civilizations throughout the ages. The efforts of those cultures to understand or interpret what they see in the sky are often reflected in their architecture, petroglyphs, and other cultural representations.

The objective of the Astronomy and World Heritage thematic initiative is to establish a link between science and culture on the basis of research aimed at acknowledging the cultural and scientific values of properties connected with astronomy. The identification, safeguarding and promotion of these properties are the three lines of actions for the implementation of this programme. Its goals are:

to offer a methodological framework for associated actions to open the pathway for cooperation between States Parties and academic communities and to share knowledge.

##### Background

The sky, our common and universal heritage, forms an integral part of the total environment that is perceived by mankind. Including the interpretation of the sky as a theme in World Heritage is a logical step towards taking into consideration the relationship between mankind and its environment. This step is necessary for the recognition and safeguarding of cultural properties and of cultural or natural landscapes that transcribe the relationship between mankind and the sky.

Properties relating to astronomy stand as a tribute to the complexity and diversity of ways in which people rationalised the cosmos and framed their actions in accordance with that understanding. This includes, but is by no means restricted to, the development of modern scientific astronomy. This close and perpetual interaction between astronomical knowledge and its role within human culture is a vital element of the outstanding universal value of these properties. These material testimonies of astronomy, found in all geographical regions, span all periods from prehistory to today.

##### Why "Astronomy" and "World Heritage"

As there are few properties related to science on the World Heritage List, and the scientific value of cultural properties related to astronomy is not always recognized, the World Heritage Centre, in close collaboration with the State Parties and ICOMOS, have developed the thematic initiative "Astronomy and World Heritage" in response to the ever-growing concept of World Heritage, and the Global Strategy for a Balanced, Representative and Credible World Heritage List adopted by the World Heritage Committee in 1994.

This Initiative provides us with an opportunity to identify properties related to astronomy located around the world, to preserve their memory and save them from progressive deterioration. Support from the international community is needed to develop this activity which will allow us to help preserve this sometimes very fragile heritage.

Projects

[Cyber forum http://whc.unesco.org/en/projects/74/](http://whc.unesco.org/en/projects/74/)

Focal Points - Sidorenko-Dulom Anna

Jan 1, 2005 - Jun 1, 2005

Practically, it is materialised as a web-based information management system accessible on the web-site of the World Heritage Centre (WHC). It will build on the existing framework of the WHC web-site.

Objective - the objective of our contribution is to develop internet tools allowing the preparation of a database of sites related to the theme of the project and to improve communication between the partners.

Strategic objectives: -

credibility of the world heritage list

conservation

capacity building

communication

Initiatives

[Astronomy and World Heritage Initiative](http://whc.unesco.org/en/initiatives/32/)

<http://whc.unesco.org/en/initiatives/32/>

This travel through time and continents presents the development of architectural forms and landscapes related to the observation of the sky from the appearance of the first sacred places up to the present time.

Information presented (in gathering phase) is the result of the collaboration between experts working in the framework of the initiative 'Astronomy & World Heritage'.

The aim of the initiative is to establish a link between science and culture on the basis of research aiming at the acknowledgement of the cultural and scientific values of properties connected with astronomy. The identification, safeguarding and promotion of these properties are its three lines of actions.

#### 4.4.6 Appendix 6 - African Astronomical History Symposium

##### African Astronomical History Symposium

2005 September 1st. <http://www.saa.ac.za/assa/aahs>

Held in Cape Town, 2005 November 8 & 9

The first African Astronomical History Symposium took place under the auspices of Astronomical Society of South Africa (ASSA) and its Historical Section on 8 and 9 November 2005 in the new auditorium on the former Royal Observatory site in Cape Town. It was one of several meetings taking place around the opening of the Southern African Large Telescope (SALT) on 10 November. The occasion was an opportunity to talk about the increased interest in the traditional beliefs of the indigenous peoples of southern Africa as well as an opportunity to reflect on the contribution of the (mainly foreign-founded) observatories to main-line scientific astronomy.

Chris de Coning, Director of the ASSA Historical Section, called it a "ground-breaking event as it was the first-ever symposium covering the whole of Africa's astronomical history. Prior to this event, the only other truly historical astronomical symposium in South Africa was the John Herschel Bicentennial Symposium held on 6 March 1992 under the auspices of the Royal Society of South Africa."

About 62 delegates attended, from all parts of South Africa as well as several from other continents. Four of the invited guests came from distant places; namely Prof Jarita C. Holbrook (University of Arizona, Tucson), Prof J. McKim Malville (University of Colorado), Dr W. Orchiston, James Cook University, Townsville, Australia, and Prof Keith Snedegar (Utah Valley State College).

The proceedings of the Symposium will be published in African Skies during 2006. This publication will be available free on the Web, but to give a flavour of the meeting, brief summaries are given here.

##### 8 November - Indigenous African Astronomical Ideas and Beliefs

The first day was devoted primarily to indigenous African astronomical ideas and beliefs, while the second dealt with contributions to modern astronomy.

The first talk, by Prof McKim Malville, was on the subject of "Astronomy and Stelae at Nabta Playa". Nabta Playa is in southern Egypt and was at one time (11000 to 5000 years ago) a valley that received rains and was fertile. The region contains cattle burials, complex stone structures with astronomical alignments and stelae (standing stones).

The following three talks dealt with the beliefs of a more recent African people, the /Xam bushmen. Firstly, Dr Jeremy C Hollmann of the Natal Museum in Pietermaritzburg spoke on "The Sky's things: /Xam Bushman cosmology". This group lived in the Northern Cape

Province. He presented /Xam narratives in which the nature and origins of 'the sky's things' are explained.

W.P. Koorts and A. Slotegraaf (ASSA) (talk presented by Slotegraaf) spoke on "/Xam astronomical references in GR von Wielligh's Boesman-Stories". Von Wielligh was the Surveyor-General of the Transvaal Republic and collected bushman tales in the NW Cape at about the same time as the more famous Bleek and Lloyd pair. In "Comets in bushman paintings", Brian Fraser (ASSA, Johannesburg) showed a selection of slides of bushman drawings said to represent comets from the collection by Bert Woodhouse and asked the audience to draw their own conclusions on the matter.

The following two talks dealt with the astronomical beliefs of present-day indigenous peoples. Tembo Matomela (Iziko Planetarium, Cape Town) discussed Xhosa beliefs and celestial nomenclature. The reappearance of the Pleiades (Isilimela) was used to set the date of initiation ceremonies. Lerothodi Leeuw (University of Chicago) discussed the astronomical beliefs prevalent in the Setswana linguistic area (parts of South Africa and Botswana), with special reference to the Moon and Venus.

Thebe Medupe (SAAO) and colleagues from UCT presented a paper on "The Timbuktu Science Project". In Timbuktu there are many manuscripts written in Arabic characters, but sometimes in the local language, on a variety of subjects, including astronomy. The manuscripts date from the middle ages and are contained in a number of libraries, most of them private. The project aims to study them, including an investigation of their originality, and will produce translations of the more important ones.

Anne Rogers presented an account of the research that went into the film "Cosmic Africa", a documentary. Extensive interviews were conducted through interviewing village elders, sky experts, shamans, historians and various other experts from seven countries. The final film concentrated on the early Egyptian site of Nabta Playa, on the Dogon people of Mali and the Ju/'hoan culture of NE Namibia. A special showing of "Cosmic Africa" took place at 6pm.

The first part of the afternoon contained talks of a more organisational nature about the future of Cultural history studies. Dr Jarita Holbrook talked on "The cultural astronomy of Africa - recent studies", in which she summarised the gradually expanding numbers of presentations and articles on the subject, including the conferences of the recent past and intended for the near future.

Prof Keith Snedegar (Utah Valley State College) talked on "Problems and prospects in the cultural history of South African astronomy". He reflected on the manner in which South African astronomical history was presented in the past. Studies or regional ethno-astronomies has value in advancing relevant science education. Snedegar's interests uniquely cover both the areas of traditional and of scientific astronomy and he discussed the historiography concerning both amateur and professional groups.

The second part of the afternoon was intended to be a discussion of "Social and historical aspects of the proposed NRF Astronomy Frontiers Programme", facilitated by Ms Candice

Levieux (NRF). The AFP is a comprehensive plan for the structure and funding of astronomy in the future and the discussion was intended to cover what might be called the humanistic aspects of the programme – for example studies of the place and meaning of the night skies in African society past and present

Prof Keith Gottschalk (University of the Western Cape and current Chairman of the Cape Centre of ASSA) gave an interesting and provocative talk on the promotion of astronomical studies from a political point of view. He commented on the value of the subject as seen by the post-apartheid government and its support of projects such as SALT, the proposed SKA and a National Space Agency.

Dr Otsile Ntsoane of the Department of Science and Technology spoke on indigenous knowledge systems.

The last paper of the afternoon, by Drs K.J. de Beer and M.J. Hoffman (University of the Free State), was about the value of astronomical history, traditional and scientific, as an aspect of tourism in, for example, the Northern Cape.

#### Poster papers

I.S. Glass: "Royal Observatory, Cape of Good Hope: the vanished past" This poster showed an index map of the site and photographs of many vanished or changed buildings.

Graham Rodgers: "San scientific astronomy" The San used an astronomical instrument, a modified form of digging stick and bored stone, to site and orientate observing shrines.

W.P. Koorts: "The nature of the Dawn's Heart Star" One of the most developed San narratives is the story of the Dawn's Heart Star, which is here interpreted in detail, with critical remarks on Bleek's account



**Group photograph of African Astronomical History Symposium attendees**



Photograph by Maciej Soltynski

**Alphabetical list of attendees:** Prof M. E. Bailey, Miss P. Booth, Mrs G. Borchers, Mrs C. Botha, Ms E. Brits, Dr K. de Beer, Mr C. de Coning, Prof D. Dravins, Mr M. Dyszel, Prof A. P. Fairall, Mr E. Foster, Mr B. Fraser, Dr M. Gaylard, Dr I. S. Glass, Mr K. Gottschalk, Mr M. Hannibal, Mr B. A. Hendry, Mr A. W. Herder, Mr J. Hers, Dr J. C. Holbrook, Mr J. C. Hollmann, Mrs J. Houston, Mr R. Hurly, Mr P. Hurly, Mr & Mrs E. & S. Ingamells, Mrs M. Joubert, Dr E. Knox-Davies, Mr M. Koitswe, Mr W. P. Koorts, Ms L. X. Labuschagne, Ms E. Lastovica, Dr L. Leeuw, Ms C. Levieux, Mev M. M. Louw, Prof J. McKim Malville, Mr S. Manxoyi, Mrs M. R. Masekoameng, Dr M. Masoga, Mr T. Matomela, Dr T. Medupe, Mr K. Meiring, Mr C. Middleton, Mrs A. Naudé, Dr O. Ntsoane, Dr H. M. Oluseyi, Dr W. Orchiston, Mr G. B. Rodgers, Ms A. Rogers, Dr P. Seitzer, Prof J. Shochot, Mr A. Slotegraaf, Prof D. Smit, Prof K. Snedegar, Mr M. G. Soltynski, Dr & Mrs P. D. & E. Toens, Mr B. S. Togoe, Mr C. R. G. Turk, Dr J. O. Urama, Prof B. Warner, Prof J. Zaaiman.

#### 4.4.7 Appendix 7 - The First Workshop on Theories, Methods, and Future Collaborations in African Cultural Astronomy

##### **The First Workshop on Theories, Methods, and Future Collaborations in African Cultural Astronomy**

[2006. January 6th. http://www.ceao.arizona.edu/eclipse/](http://www.ceao.arizona.edu/eclipse/)

The First Workshop on Theories, Methods, and Future Collaborations in African Cultural Astronomy - March 27- April1, 2006 Cape Coast, Ghana

"Cultural Astronomy is an interdisciplinary research area that encompasses the many relationships between humans and the sky including archaeoastronomy, ethnoastronomy, history of astronomy, and how astronomy has inspired humanistic expressions. The Edward Bouchet Abdus Salaam Institute, the National Society of Black Physicist, the University of Nigeria, and the University of Cape Coast announce the first workshop on the cultural astronomy of Africa.

The organizers are seeking abstracts for presentations on the latest research results and reports of projects in progress. Abstracts should be less than 500 words and should clearly state your research hypothesis, method of data collection, and major results. We are interested in literary studies, artistic analysis, oral histories, archaeological, and anthropological research."

See conference proceedings in In Holbrook, J. Urama, Johnson O. & Medupe, Thebe R. (eds.), African Cultural Astronomy - Current Archaeoastronomy and Ethnoastronomy Research in Africa. Springer Science+Business Media B.V. 2008.

Paper submitted, received and reviewed February 2006: -

Wade, R.P. 2005. "Preliminary Research Into Archaeoastronomical Aspects Sub-Saharan Africa" in proceedings of The First Workshop on Theories, Methods, and Future Collaborations in African Cultural Astronomy. March 27- April1, 2006 Cape Coast, Ghana.

#### 4.4.8 Appendix 8

### Government Memorandum - Returning Identity Of Capital Formation To Actors: Matatielesega/Mesp Study to Director-General DEAT

06 October 2006 02:56 PM

#### BUILDING RESILIENCE TO IMPACTS OF GLOBAL CLIMATE CHANGE ON THE STATE OF THE ENVIRONMENT: CAPITAL FORMATION TO BUFFER SEISMIC SHIFTS IN ENERGY AND MATERIALS TRANSFER SYSTEMS IN THE CAPITAL BASE OF THE GLOBAL ECONOMY

Howard Benkenstein (author)  
Deputy Director Environmental Resource Economics  
Department Environment and Tourism (DEAT)  
Government of South Africa  
Private Bag X447  
Pretoria 0001  
South Africa  
Tel: +27 (12) 310-3704 Fax: +27 (12) 322-2682  
E-mail: [HBenkenstein@deat.gov.za](mailto:HBenkenstein@deat.gov.za)

#### AIM

To bring dead capital into production to buffer climate-induced changes in consumption dependent on materials and energy transfer systems contributing to Gross National Product (GNP), the macroeconomic indicator used in a System of National Accounts (SNA) to measure wealth of nations.

#### SUMMARY

Thermodynamics of the industrial revolution depend on applications of the kinetic theory of mass (energy as a property of mass), whereas thermodynamics of living processes in the biosphere depends on applications of quantum theory and exchange of massless particles known as gauge bosons (energy as a property of space). Integrating the two by bringing dead capital in the biosphere into production can shift the social equilibrium towards the Pareto optimum by liberalizing capital formation under neo-liberal macroeconomic policies. The concept of capital as a materials and energy transfer system provides a base on which to build the knowledge to increase employment and equity in the process of delivering goods and services with laws of primary science. Conformance with the laws, applying them practically and ensuring that the identity belongs to the actors has the logical consequence that the social constructs of good custom, command-and-control legislation, incentives and taxes that follow, will satisfy human wants and improve human welfare in environmentally sustainable growth and social development.

Thermodynamics of the industrial revolution are characterized by Import Substitution Industrialisation (ISI) to increase GNP of developing economies. Reviving dead capital utilizing energy as a property of space in economies using materials and energy transfer systems dependent on energy as a property of mass, liberalises capital formation. It changes urban and rural sprawl into clustered human scale settlement patterns whose agrarian character provides a comparative economic advantage for trading with industrialized nations in natural goods and real estate services. The associated lifestyles, under climate change regimes, can cause seismic shifts in global markets.

Driving biodiversity conservation of Protected Areas with liberalization of capital formation in human settlement patterns around them provides Corporate Social Responsibility Programmes with a "*sal biodiversity conservation buffer zone*" vehicle to create better lifestyles for an industrial working class bearing the brunt of rural land degradation and urban waste/pollution in the migrant labour systems characterizing ISI in developing countries. Declaring more protected areas with this *science of liberation* can accelerate the implementation of the social plan of *political liberation*.

At the same time, it neutralises the *class struggle* with improved performance in the *economic struggle* to increase employment and equity, supported by neo-liberal macroeconomic policies driven by a *circulating elite* created by increasingly basing politics on *primary science*

Thermodynamics, ecology, economics, accounting, and management of economic activities can all be understood in one head when the constructivist method of teaching primary science is used to familiarize thinking patterns with the concepts on which the knowledge of these disciplines is built.

The practical application of laws of primary science in the constructivist method of teaching is illustrated in Al Gore's latest movie on climate change "An Inconvenient Truth". Al used good digital still and video cameras and Apple computer multimedia presentations to do the teaching. He has appointed Steve Jobs, CEO of Apple, to do the marketing and advertising for the movie.

Our educational system teaches thermodynamics, ecology, economics, accounting and management to produce engineers, ecologists, economists, accountants and managers who don't understand each other. The words in the text of this submission that are taken from these "big five" disciplines are like subtitles in a movie, and the familiarity with the concepts on which these disciplines are built is like the multimedia context to the subtitles. The copywriter and graphic design to match sub-titles with multimedia context is all that is required to turn this submission into a 3-minute TV news documentary that everybody can understand. Global climate change to create a common global identity with a common concern. Role-players like Richard Branson, George Soros and Steve Jobs have assumed this identity in their responses to Al Gore's movie, but they need help from the bottom.

The aim of this submission is to serve the need that entrepreneurs, financiers, marketing and advertising people at the top have to think globally and act locally to start the ball rolling in building resilience to climate change with a layering of this common identity from global-African-uMzimvubu catchment, rather than Global, South African, to Johannesburg WSSD event. Natural identity bypasses SNA's accounting that interferes with the pricing mechanism. SNA's externalise the cost of land degradation in developing countries in the sums done in industrialized countries whose foreign economic policies run the global neo-liberal economic regime.

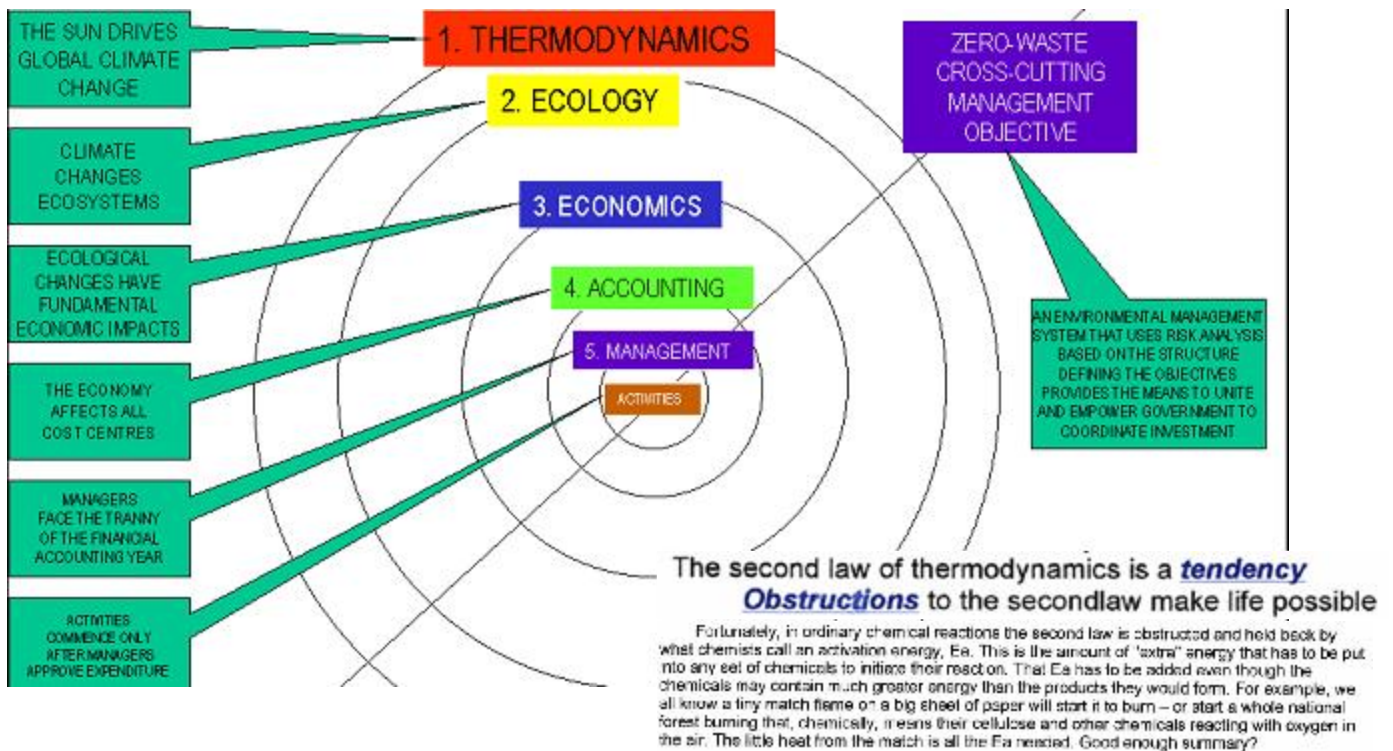
## BACKGROUND AND DISCUSSION

### The wealth of nations based on energy and materials transfer systems

The wealth of nations depends on the science of using capital invested in materials and energy transfer systems for the business of exchanging goods and services. It is driven by the incentive of satisfying human wants and improving human welfare in sustaining consumption in the economy.

Money provides a trusted medium of exchange for anonymous transactions, which allows effort to be focused on the incentives of doing business without having to waste time on social deadweight losses like mechanics of barter transactions or client finding customer.

Adam Smith came into the picture with his treatise on "The wealth of nations" after the European Renaissance, when knowledge of thermodynamics fulfilled the narrowly conceived purpose of building more efficient machines to support the industrial revolution. Capital investment in materials and energy transfer systems based on the science of the kinetic theory of mass got a big kick-start from trade chains starting with *low entropy* thermodynamics of coal, oil and natural gas based industries, bypassing ecological capital running on quantum theory-based *higher entropy* growth.

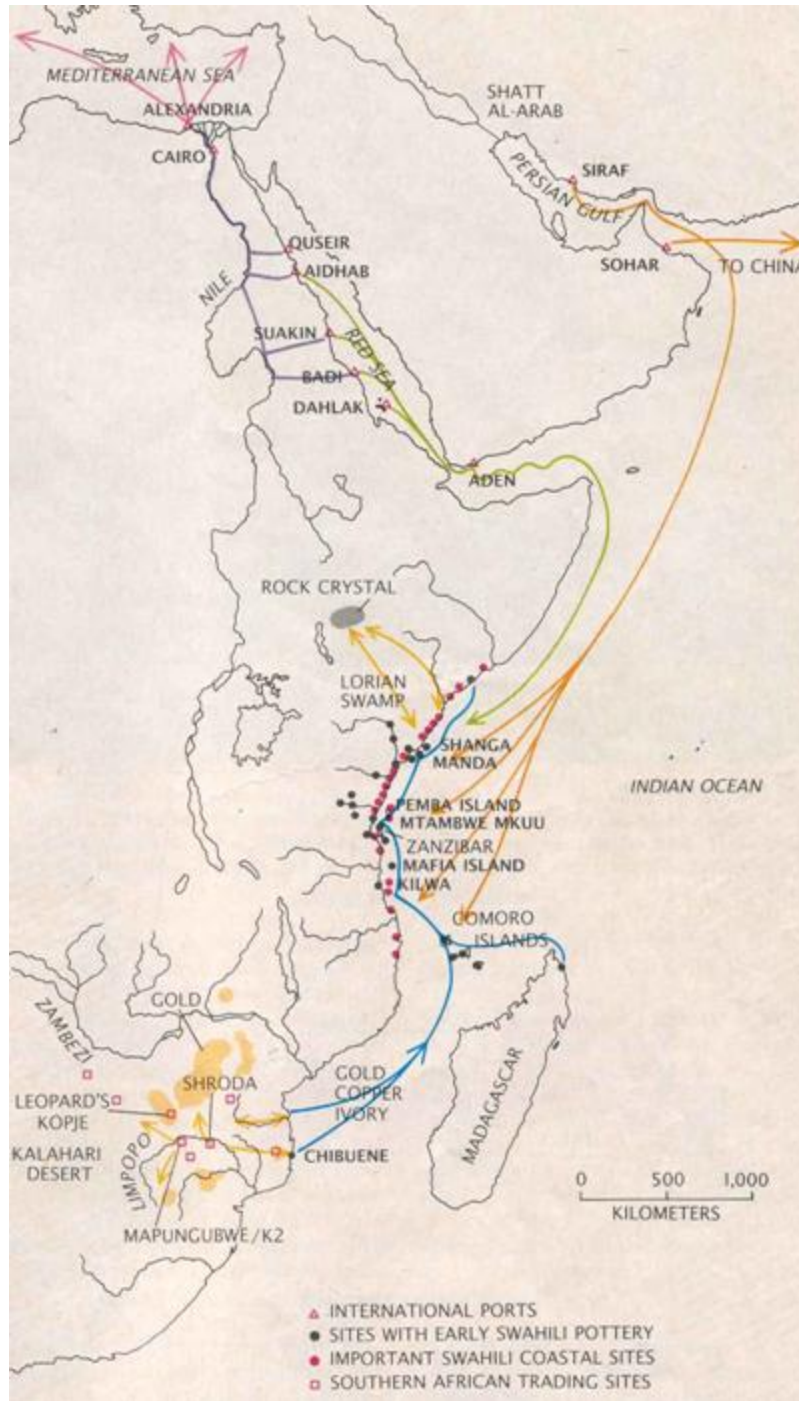


Whilst thermodynamics was successfully applied to liberalise capital formation in plant and machinery through the kinetic theory of mass (lower entropy production processes), it simultaneously failed to increase capital in trade-chains starting with quantum theory energy flows through ecological systems to the economy (higher entropy production processes). A modern industrial approach thus optimizes by adding  $E_a$  in changing energy properties of *mass*. Reducing  $E_a$  to ambient in changing energy properties of *space* instead, is the way of ecosystems. Switching benefit stream optimisation from *quantum theory energy flows*, to *kinetic theory of mass energy stocks*, changed clustered human settlement patterns to urban and rural sprawl. This has converted much of the biodiversity of terrestrial, freshwater, estuarine and marine habitats into dead capital with resource use pricing that has optimized only low entropy energy transfer systems.

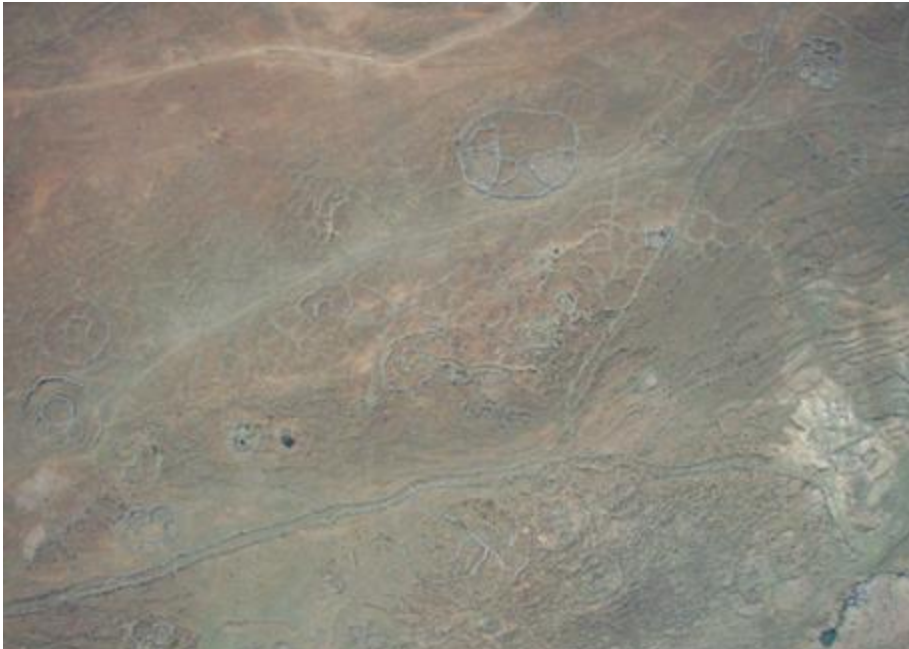
### The dual capital formation that built the platform for Adam Smith's capitalism

Sustainable trade routes of the Swahili corridor are partly responsible for growth in capital formation that sustained Europe after the "Dark Ages". This platform gave people time to create knowledge for thermodynamic applications of the kinetic theory of mass in machinery as capital for the neo-liberal economic regime of Adam Smith's economics. Sustainability was, however built from *integration* of quantum theory and kinetic theory of mass-based capital in the trade routes.





The dual energy transfer systems that built Adam Smith's platform for capitalism



THE SCIENCE OF AFRICAN LIBERATION –  
ENVIRONMENTALLY SUSTAINABLE INTEGRATION OF  
AGRARIAN AND INDUSTRIAL ECONOMIES



Terracing over thousands of kilometres of the veld in Southern Africa, stretching from the uMzimvubu catchment draining from the Drakensberg escarpment, up to Inyanga in the Chimanimani Mountains in Zimbabwe, provide evidence of extensive quantum theory-based capital formation in soil biodiversity for dryland cropping. This capital in soil biodiversity is associated with an abundance of stone structures that demonstrate unmistakable astronomical alignments useful for weather forecasting essential for increasing agricultural production in the Southern African climate.

The staggering level of effort required to do this would be absolutely pointless in the absence of an economic incentive to engage in surplus cropping trading with the miners. It speaks of *dual* energy and materials transfer systems based on quantum theory in ecosystems and kinetic theory of mass in metal refiners' fires.

**The value of biodiversity in the science of African liberation**



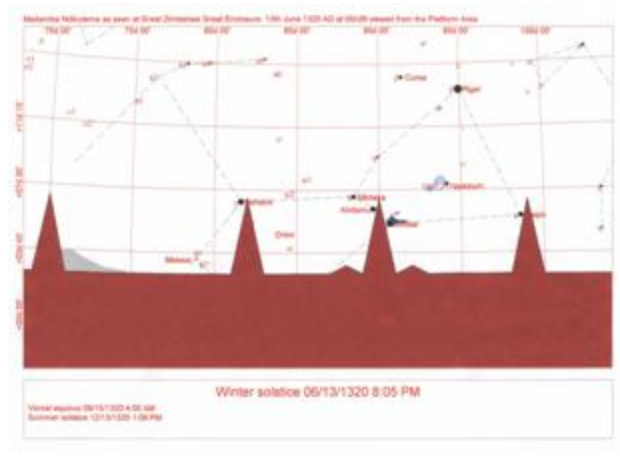
Role players in Adam Smith's wealth of nations only occupy half the stage in a neo-liberal economic regime that drives capital formation with the kinetic theory of mass. The opportunity to use the whole stage can be utilized by satisfying human wants and improving human welfare by reducing activation energy levels in quantum theory-based energy and materials transfer systems. These allow *biodiversity based production* to take place at higher entropy levels. This method of increasing benefit streams liberalises capital formation by bringing the dead *capital* of terrestrial, freshwater, estuarine and marine systems into *production to create new wealth* from biodiversity.

*Plate 5 Nationalist leaders Joshua Nkomo (left) and Robert Mugabe (second from left) being greeted at Salisbury airport in 1962 by a veteran of the 1896 uprising. The ceremonial axe with which they are being presented is identical to those used by spirit mediums and symbolises the legitimate ownership of the land (See Plate 3.)*



REINTEGRATION OF AGRARIAN AND INDUSTRIAL ECONOMIES

African liberation is capital formation on the whole platform African science created for Adam Smith



### **Funding archaeology for sustainable capital formation in the West Indian Ocean Region**

Integration of high and low entropy thermodynamics in capital formation with a sustainable energy and materials transfer system in the Karanga Empire was in part responsible for building the platform for Adam Smith's capitalism. Mercantilism exploiting raw materials from colonies made it possible for the pugnacious, insensitive and practical approach of the islanders of Britain to use the half-truth of low entropy thermodynamics (and the trust in monetary exchange inspired by the Bank of England), for bankrolling national debt. This served to eclipse the European empire and eventually led to domination of colonial expansion in establishment of the British Empire. The 1896 uprising in Zimbabwe and the Bambata (hut tax) rebellion at the same time in Zululand, were both against income skewness abuses of money's property as a trusted medium of exchange. This subjugated equity holders in a higher entropy agrarian economy to labour, in the working class of a capital formation process the British controlled with low entropy industrial production.

The traditional elite was not deceived by the mantle of the capitalist economic elite (disguising thermodynamic underpinnings), to engage in a class struggle instead of an economic struggle. In 1962, to liberalise capital formation by reintegrating agrarian and industrial economies, they hit the scientific principles underpinning the neo-liberal economic regime dead centre when the ceremonial axe symbolizing legitimate ownership of the *land* was handed over to the appointed African liberation leaders at Harare airport. Their mixed traditional and modern attire signifies that *science* of African liberation is rooted in integration of agrarian and industrial energy and materials transfer systems to liberalise *capital formation* with dual high and low entropy strategies for exceeding activation energy thresholds.

The energy dependence of the wealth of nations on the kinetic theory of mass was not perceived by other price-takers. To these role-players, the primary science underpinning both Adam Smith's and Karl Marx's concept of capital remained hidden in the shadows of money it produced and money's ability to finance long drawn-out wars abroad, a foreign economic policy game in which the USA superseded British dominance when it succeeded in pegging the value of the dollar to gold at Bretton-Woods after World War II. When this all came unstuck in 1973, the petrodollar crisis again exposed the energy science of a neo-liberal economic regime determining the wealth of nations. Running on a "half-baked" philosophy of energy and materials transfer systems, impressive GNP could be traced mainly to low entropy production under the kinetic theory of mass. This controlled exchange rates, which aided and abetted G7 nation economic expansion into developing economies through strictures imposed by the Bretton-Woods Institutions on lending.

In the West Indian Ocean region of the Trade Routes in particular, the above lending conditions permitted a neo-liberal regime of foreign investment to openly increase corruption in, and thereby control over, capital formation in exploited developing African economies in a manner insensitive to overarching societal objectives that the environmentally sustainable integration of agrarian and industrial economies achieved in the Karanga Empire golden era. An *identity of capital formation* nevertheless remains rooted in the cultural heritage of the trade routes. This identity with capital formation determines *value* of archaeology and archaeoastronomy of these sites in applied science of African liberation. Identity defines where our best interests lie and in so doing reinforces property rights in these areas in providing the cornerstone for *sustainable capital formation*. This provides a framework for quantitative methods for valuing heritage sites in extended cost-benefit analysis in EIA processes. It establishes the economic reasons for funding archaeology.

### **Scientific rationale for introducing macroeconomic reforms to resolve the land question**

As the 1970's wore on, a floating gold price associated with cyclical price volatility of commodity markets played havoc with the second leg of South Africa's twin macroeconomic growth strategy for Import

Substitution Industrialisation (ISI) and expansion of mineral exports, notably gold. Sanctions blocking access to capital markets which South Africa's competitors had access to, both exacerbated the deprivations of an economically marginalised majority and sapped resources to finance wars funded by the apartheid regime foreign economic policy to combat the African liberation movement in the South. In the ensuing political change, the energy and materials transfer system of a neo-liberal economy generating GNP largely from coal energy remained unchanged, hidden under the mantle of political liberation. The economic RDP never got into GEAR, and despite laudable fiscal frugality imposed to escape the strictures of the Bretton-Woods lending agencies, liberation leaders carried on doing the same thing while expecting a different outcome.

Industrial revolution thermodynamics, disguised in the euphoria of subsuming the economically marginalized majority from the working class to *bourgeoise* society, relentlessly opened up South Africa's economy to the socially insensitive overtures of an internationally based economic elite. This took the form of continued investment in capital formation in one-sided low entropy macroeconomic growth. An *open mind* on thermodynamics can enable African society to resist the pursuit of a neo-liberal economic orthodoxy that has been so well branded by the international economic elite that it has become an end in itself. The identity of capital formation associated with trading centres like Great Zimbabwe and Mapungubwe provides a marketing tool in that prides free the identity of Africans from a global economic elite and allows them to take possession of it to break the shackles of a Western education on African minds in *applied science* of liberation.

The integration of the "big five" disciplines of thermodynamics, ecology, economics and management in primary science education has the potential to create societal objectives that conform to the criteria of equity, efficiency and sustainability. Such objectives unite and empower government to coordinate investment. Economic cluster group cooperation between institutional structures that have been formed by Western education can in this way remove the imposition of a Western identity on the everyday life of individuals in developing country economies. In so doing this can induce African society as a whole to invest where the best interests of African society lie in a twin macroeconomic growth strategy of *integrating* low entropy industrial with high entropy agrarian capital formation under a regime underpinned by *good science* for improving delivery.

The identity of capital formation during the Trade Routes era, in Southern Africa at least, succeeded in integrating industrial and agrarian economies. This is closer to interests of African society than modernisation is. Related industrialization of agriculture needs to take second place to production from capital formation in soil biodiversity-generated energy and materials transfer systems.

The VAT zero rating on fertilizers and pesticides needs to be addressed. A tax-shifting exercise to instead impose a VAT zero rating on composting will strengthen the quantum theory capital base in soil biodiversity. This should be amplified by adjusting agricultural lending agency policies to enable traditional leadership to optimize *land rehabilitation* for building economic resilience (to climate change), replacing the current lending policy of optimizing for production accounting (tyranny of the financial accounting year). The tax-shifting and lending policy adjustments form a self-contained package for introducing land and agrarian reform with a neo-liberal economic policy.

### **Intervention to renew the identity of capital formation in an African heritage project**

The site of the Holy City of Moria, a tabernacle erected in the Limpopo Province, South Africa, is marked by the crater of a nearby meteorite strike whose advent was interpreted as a sign of the times in a resonance that struck a chord in the political economy of natural resource wealth. It mobilized organization for social change in the political struggle, class struggle and economic struggle towards a Just South Africa.

In African heritage, it re-awakened the awareness of an ancient people and capital formation associated with the Trade Routes up the Swahili Corridor in the West Indian Ocean Region. The business people in the economic struggle and trade union leaders in the class struggle owe the human spirit with which they were imbued to their economic origins in the Karanga Empire era of capital formation in an integrated

industrial and agrarian economy whose archaeological remains in metallurgical melting ovens and terraces for surplus cropping surround Morija City.

The closest economic link from mining in the present day industrial economy to traditional agriculture in the economically marginalized agrarian society under traditional leadership governance is the trading in indigenous soil biodiversity taken from rehabilitated mining areas. This accelerates soilification in and around mine tailings to increase cost-effectiveness of surface rehabilitation of mining areas required by law. An innovation in mining rehabilitation in Venezuela provides another linkage to agrarian economies in circular metre-diameter holes bored into mined surfaces to provide pockets for soil biodiversity in composted material. This provides a social plan for subsistence for remnant mine labour communities left behind. After the capital depletion associated with mining construction has run into the diminishing marginal returns prompting mine closure, workers are left destitute. A South African innovation introduced a perforated waste 2l plastic beverage container buried to the neck in the soil in the middle of the 1m circular hole to provide a water-efficient means of root irrigation that is five times more efficient than drip-irrigation.

The heritage project this suggests to rebuild the ancient link between industrial economies driving agrarian economies in using the mining-related soil biodiversity trading to form capital on the ancient terraces. Through export-oriented surplus cropping of natural products and medicines the collateral in land can be created to secure loans to finance capital formation in mining of the gold and platinum group of metals.

A capital requirement for establishing this identity is the funding of the archaeological work needed to do the interpretation necessary to show the descendants of the ancient people who did this agriculture-based mining, firstly the authenticity of the rich African heritage around Morija City. Secondly the business people of the African liberation movement linked with Morija City need to build an understanding of how to use their original identity with an integrated industrial and agrarian society to reconstruct the capital formation process by collectivizing effort in the context of present-day markets and cosmopolitan society under an export-oriented neo-liberal macroeconomic policy.

In particular, the archaeo-astronomy linkages to weather forecasting from astronomical alignments in monolithic structures needs to be linked to providing authenticity of the sign of the times that started the reawakening in the cosmic event that occurred when the meteorite hit the earth. In the great political theories, symbolism, myth and legend are the base from which charismatic leaders deliver goods and services based on good science that can create Pareto's "circulating elite".

### **Extending the renewal of the identity of capital formation to the social plan for mining**

Gold mines around Johannesburg are nearing closure after a century of mining that has constructed the deepest mines in the world. These mines represent part of South Africa's twin macroeconomic growth strategy, which in the apartheid era, traditionally recruited mine-workers from captive labour markets in former "homeland areas" like the "Transkei". This area has the most surplus water and a hydro-electric scheme on the uMzimvubu river is being planned. It borders on the Drakensberg/Maloti Trans-frontier Conservation Area shared with Lesotho to the north. In terms of the social plan of political liberation, mines are required by law to have a social plan for mining to internalize the social costs of insecure tenure of migrant workers associated with cyclic price volatility of commodity markets and diminishing marginal returns of mines nearing closure.

The Matatiele Nature Reserve, including a mountain lake, in the uMzimvubu catchment watering the Transkei is soon to receive Protected Area status as part of the scientific plan to conserve biodiversity in the mountain catchment area. A socially sensitive implementation of the scientific plan opens the door to capital formation in the buffer area on the Transkei side of the nature reserve through the social plan for mining. The mountain catchment area provides good winter grazing with palatable perennials like *Themeda triandra*. An arrangement with Chief Magadla's people at the bottom of the mountain to create a carbon sink from grass land rehabilitation with a high-intensity short duration grazing scheme using the nature reserve as a "cushion" to assist the recovery of degraded grassland in the traditional authority area would

dovetail with the need to produce a mosaic-type habitat essential for the breeding of the rare Rudd's Lark, which keen "birders" all over the world come to see. At the same time, the removal of dead top hamper by an appropriate grazing regime would assist in fire management in the nature reserve.

The area is known for its "natural red meat" and bull replacement with valuable indigenous Nguni stock can add the value of bilateral symmetry in hide patterns sought after in up-market interior design. This indigenous breed is tick-resistant due to the fact that it has oil glands, which secrete a tick-repellant substance on the hide, and this would cut costs associated with dipping. The value of indigenous biodiversity in Nguni cattle can be augmented by mining rehabilitation soil biodiversity trading for compost acceleration in the mining-related circle cultivation micro-irrigation in e-Village and e-commerce development at the bottom of the mountain. Collateral in the form of land could be converted into capital in zero-waste to landfill technology to make durable intrusion and extrusion moulding construction material from organic fibre and waste plastic, as well as compost from garden waste, while retrieving 2l used plastic beverage containers for circle cultivation.

A no-fence agreement would allow access of game animals from the nature reserve to the surplus cropping area as part of the carbon sink grassland rehabilitation deal. This would allow the game animals access to micronutrients, which are deficient in the leached mountain soils. Soil design in the circles using the indigenous soil biodiversity method of soilification could enhance this. Extending the social plan for mining capital formation programme to the adjacent trans-frontier conservation area with Lesotho would be a logical roll-out. Building on success with the Matatiele Nature Reserve Protected Area in a large-scale programme to create carbon sink capital formation zones will assist biodiversity management in both Lesotho and South Africa's heritage in the Drakensberg escarpment as a provider of natural products and real estate lifestyle services. From there, the social plan for mining could serve to anchor an African identity of capital formation in integrating industrial and agrarian economies right up the coast of the West Indian Ocean Region.

### RECOMMENDATIONS

It is recommended that in principle, resources be allocated to:-

- The archaeology and archaeo-astronomy necessary to establish the authenticity of an African identity of capital formation based on integration of industrial and agrarian economies.
- The capitalization of a heritage project including marketing and advertising to show how land and agrarian reform can provide the collateral for securing loans for sustainable mining under an African identity of capital formation.
- The capitalization of human resource training required to form capital under the social plan for mining to build resilience to climate change on land degraded under the influence of the migrant labour system associated with mining/ISI in developing economies associated with the heritage of the ancient Trade Routes up the Swahili corridor.
- Macroeconomic reforms for sustainable development that provide incentives for traditional society associated with an African identity of capital formation to secure greater access to natural resource wealth from energy and water through capital formation based on collateral created by land and agrarian reform. These incentives should be amplified by wealth taxation on economic sectors built on unequal access to natural resource wealth from energy and water. The incidence of taxation should be designed to divert capital and entrepreneurship to surplus labour and land to support liberalization of capital formation.
- Specific investigations to replace the VAT zero-rating on fertilizers and pesticides with a VAT zero-rating on composting goods and services in a tax-shifting exercise. This should integrate quantum theory – based energy and materials transfer systems with those based on the kinetic theory of mass, in order to create a capital base for a more eco-efficient macroeconomic trajectory for building resilience to climate change.



#### 4.4.9 Appendix 9 - African Astronomy

Holbrook, Jarita. 1998. **African Astronomy**. Essays from Archaeoastronomy & Ethnoastronomy News, The Quarterly Bulletin Of The Center For Archaeoastronomy and ISAAC. Number 28 June Solstice  
1998. Essays from.

<http://www.wamumd.edu/~tlaloc/archastro/ae28.html>

##### **African Astronomy**

by Jarita Holbrook, History Dept. UCLA

The title of this paper "African Astronomy" tends to cause readers to scratch their heads in confusion and ask for more details as to what exactly it means. Does it mean academic or European astronomy conducted on African soil? Not in this case. Instead, "African Astronomy" refers to the astronomical beliefs, artifacts, and practices of indigenous African peoples. Why study African Astronomy? The night sky is the heritage of all peoples and each took countless generations to watch, justify and map the heavens in addition to defining their relationship with it. Indigenous European, Arabic, American, and Polynesian astronomies have been the focus of many scholars over the last century. These works have revealed a surprisingly intimate knowledge and understanding of the night sky and its phenomena. There is a decided lack of scholarship on African astronomy.

However, two African sites of astronomy have been studied in great detail: Egypt and the Dogon region of Mali, West Africa. My research goes beyond these two sites to sites all over Africa where various forms of astronomy have been and in some cases are still being practiced today, thus I leave it to the reader to review the extensive literature on those two sites. A brief overview of the types of astronomy and the locations in Africa where they are practiced are presented. Several sites exist but detailed astronomical analysis has not been conducted. Thus, in addition to describing established sites of astronomy, I present many sites where research still needs to be done. I hope this article serves as a starting point for individual projects on African Astronomy.

Star Lore: Star Lore refers to the myths and legends surrounding celestial bodies. Examples of star lore include the names of the planets, stars, and constellations along with the stories created about them. Star lore often incorporates origin and creation myths of people as well as insightful tales that reflect important aspects of their culture. For example, in Greek/Indo-European culture, the constellation Canis Major is the faithful dog of the hunter, the constellation Orion, reflecting an idealized and permanent relationship between man and dog. While in Egyptian star lore Orion becomes Osiris, the Lord of everything, while Sirius, the brightest star in Canis Major, becomes Isis his female companion, enough said. Africa extends from 35 degrees north to 35 degrees south covering an area of 11.6 square miles (Europe is 3.8 million square miles).

The star lore of Africans spanning the continent focus on the constellations visible in their sky. As one travels from North Africa to South Africa Polaris, the Big Dipper and the



Pleiades give way to Orion, Sirius, Canopus, the Magellanic Clouds, and the Southern Cross. Thus the star lore of North Africa differs from the star lore of southern Africa. Instead of telling the star lore of the various African peoples, I summarize a few of the regions/peoples and those celestial bodies that are important to them. The Pleiades and Sirius figure largely in the star lore of the peoples of Mali (Bass 1990) and Ethiopia (Lynch & Robbins 1983, Aveni 1993), and Sirius, and Canopus appear in the star lore of South Africa and Botswana (Snedegar 1997, Cuff 1997). Physically Sirius, Canopus, the constellation Orion, and the star cluster the Pleiades are bright distinctive objects in the night sky, this is most likely the reason for their distinction in African star lore. The Milky Way which spans the sky and Venus which is bright and remains close to the Sun are focused on all over Africa (Senkintu 1956, Aveni 1993, Doyle 1997). While the Southern Cross is important to the Zulu, Sotho, and Tswana of southern Africa and is recognized as a navigation constellation (Cuff 1997, Snedegar 1997). For a treatment of the legends and myth behind the stars and constellations see the bibliography that follows.

**Equinoxes and Solstices:** Due to the 23.5 degree tilt of the polar axis of the earth, the apparent motion of the Sun, in addition to traveling east to west over the course of a day, travels south, to north, to south over the course of a year. The north and south extremes of the Sun's path are called the solstices, and the equinoxes mark the half-way points in between the two. For the northern hemisphere, winter solstice is when the Sun is the furthest south, and the summer solstice is when the Sun reaches its northernmost position. For the southern hemisphere, the seasons are reversed. The equinoxes are when the sun rises due east and sets due west at the Earth's equator. Africans in Zimbabwe, Togo, and Benin built physical structures aligned to the positions of the solstices and equinoxes.

In the Great Zimbabwe stone city, a chevron pattern is bisected by the solstice Sun (Doyle 1997). Great Zimbabwe was built around 400 AD and a finished city around 1350 AD. It is credited to the Karanga people. In Togo and Benin, the Batamalimba people have designed their houses such that their crossbeams are aligned to the equinox sunrise and sunset (Aveni 1993). Finally, there are over 1600 stone circles in Senegal, the Gambia, and Togo which have yet to be astronomically analyzed in great detail (Posnansky 1982), however in East Africa, the stone circle, Namorotunga II, has been shown to be an astronomical calendar (Lynch 1983, Doyle 1997).

**Calendrical Systems:** Agricultural calendars, migration calendars, and rain schedules are all important to African people. Possibly the oldest lunar calendar is the Ishango bone dated at 6500 b.c. (Van Sertima 1983, Aveni 1993). The Ishango bone was found at the site of a fishing village on the shores of Lake Edward which border the Congo (Zaire) and Uganda. The lunar cycles regulate the tides and marine activity, thus it's not unexpected to find a lunar calendar along the shores of a lake (Aveni 1993).

The problem of following a lunar calendar is that it doesn't accurately measure the solar and seasonal year. Twelve months only adds up to 254 days about 11 and a quarter days short of the 265 and one quarter days of the solar year. The Borana of Ethiopia follow a lunar calendar but add an extra month to compensate for this difference (Aveni 1993, Ruggles 1987). But as a result, telling time among the Borana is not a simple matter but

debated because of this. In the Congo (Zaire) the Milky Way is called "God's clock" and is orientated east-west during the wet season and oriented north-south during the middle of the dry season (Aveni 1993). In Mali, the Bozo people migrate along the delta of the Niger river when the Pleiades transit overhead and begin their fishing season when the Pleiades leave the night sky (Bass 1993). The equinoxes, solstices, and stars all follow the solar cycle, thus observing these phenomena establishes a more exact year than following a lunar calendar.

**Stellar Navigation:** Stellar navigation is a method of using the stars to determine directions when traveling at night. During my field work in Tunisia, North Africa, I discovered that the fishermen of the Kerkennah Islands still used stellar navigation to reach their fisheries at night (Holbrook 1998). Since then I've unveiled several sites of stellar navigation all over Africa. A second site which I am researching is the Afar people in Eritrea (Holbrook 1998). During the struggle for independence which ended in 1993, the Afar were consulted to navigate troops at night. Other potential stellar navigation sites are in Senegal, Ghana, Nigeria, and Madagascar. Most but not all of the sites are associated with ocean travel.

**Summary:** My preliminary findings on African Astronomy reveals a continent rich in astronomical traditions. I have presented four of these traditions as separate from each other, but in fact they overlap in interesting and unexpected ways. Such as stars being named for their use in navigation or being named for the season which begins with their appearance. In addition to the four topics mentioned here there are several more focusing on the moon, the sun, the major planets, and the relationship between the stars and man. I continue to search the literature for mention of African astronomical traditions as well as taking trips to Africa to interview people about their astronomy.

#### References

- Aveni, A., "Africa's Socialized Astronomy", in *Ancient Astronomers*, Montreal: St. Remy Press, 1993.
- Bass, T. A., "Camping with the Prince", in *Camping with the Prince*, Boston: Houghton Mifflin, 1990.
- Hunter, Havelin, "African Observers of the Universe: The Sirius Question", in *Blacks in Science: Ancient and Modern*, Van Sertima, I., New Brunswick, N.J.: Transaction Books, 1984.
- Doyle, L., Frank, E. "Astronomy in Africa", *Encyclopedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, Helaine Selin, Dordrecht: Kluwer, 1997
- Holbrook, J. "Tunisian Stellar Navigators", *Archeoastronomy & Ethnoastronomy Newsletter*, submitted.
- Lynch, B. M., Robbins, L. H., "Namoratungu: The first archaeoastronomical evidence in sub-saharan Africa", in *Blacks in Science: Ancient and Modern*, Van Sertima, I., New Brunswick, N.J.: Transaction Books, New Brunswick, NJ, 1983.
- Ruggles, C., "The Borana Calendar: Some Observations", *Archeoastronomy Supplement II*, pg 35, 1987
- Sekintu, C.M., Wachsmann, K.P., *Wall Patterns in Hima Huts*, Kampala: the Uganda Museum, 1956.
- Van Sertima, Ivan, "The Lost Sciences of Africa: An Overview", in *Blacks in Science: Ancient and Modern*, Van Sertima, I., New Brunswick, N.J.: Transaction Books, New Brunswick, NJ, 1983.

#### For readings on Star Lore:

- Cuff, K. "African Skies", publication of the Lawrence Hall of Science Holt Planetarium, UC Berkeley, 1997
- Snedegar, K., "I khwezi", *Mercury*, pg 13, Nov 1997.

#### **4.4.10 Appendix 10 – Sacrificial Practices Amongst the Lovedu People and Ritual Deaths in Southern Africa**

##### **Sacrificial Practices Amongst the Lovedu People and Ritual Deaths in Southern Africa**

The Kingdom of Modjadji is situated in the Limpopo Province and comprises of a rural community of over 150 villages. The Balobedu or Lovedu Kingdom has a population of more than a million people. Apart from her ruling duties, the Queen of Modjadji has the duty of providing her nation with rain and the fertility of the land.

In the many legends that are told about the origins of Queen Modjadji the most acceptable version is that an old Karanga chief from the Kingdom of Monomotapa (south-eastern Zimbabwe), was told by his ancestors that he must impregnate his daughter, Dzugundini. This would bestow on the princess rainmaking powers, which would expand the wealth of his kingdom. This princess was called Modjadji or "the person of the sun". Each queen trained her successor in the rainmaking rituals, and then disappeared by drinking poison.

Early In the 19th century Modjadji's tribe, now known as the lovedu, moved further south into the fertile Molototsi Valley, where they founded present day Ga-Modjadji.

The reigns are as follows: -

Rain Queen Maselekwane Modjadji I (1800-1854)

Rain Queen Masalanabo Mankhatene Modjadji II (1854-1895)

Rain Queen Khetwane Modjadji III (1896-1959)

Rain Queen Makoma Modjadji IV (1959-1980)

Rain Queen Mokoape Modjadji V (1981-2001)

Rain Queen Makobo Constance Modjadji VI (2003-2005)

The present rule is now with the brother of the late queen, Mokgomana (Prince) Mpapatla Modjadji together with the Modjadji Royal Council.

In May 1998, Michael Modjadji, brother of Queen Mokoape Modjadji V, died. He was the queen's closest relative and proxy.

The destined successor to Modjadji V and mother to Makobo Constance Modjadji VI, Princess Maria Makhaele Modjadji, died on the 25<sup>th</sup> June 2001 two days before the death of Queen Mokoape Modjadji the V on 28<sup>th</sup> June 2001. Both died during the time of the Winter Solstice 21<sup>st</sup> June 2001 and a Solar Eclipse marked the event.

Mokgomana (Prince) Masopha Edwin Modjadji died on 12<sup>th</sup> August 2005, two months after his sister Queen Makobo Constance Modjadji VI died, at the time of the Winter Solstice in June 2005.

**“CONDOLENCES BY PREMIER OF THE NORTHERN PROVINCE, ADV. NGOAKO RAMATLHODI, AT THE BURIAL OF HER MAJESTY QUEEN MODJADJI THE V, 1 July 2001**

We have come to bury Modjadji, the Queen of Balobedu of the Northern Province. We are bidding farewell to the grand daughter of Monomotapa and a distance cousin to the Masingo who rule the Venda people today.

We are here to celebrate the life of a remarkable woman, and an incredible man, for she was a mother and father in one. In a dual role she married wives and fathered children as well as giving birth to her own offspring, one of whom is being buried with her today.

Modjadji, the Queen's fame was and remains legendary. As the Queen of Kings, her giant shadow was cast over the length and breadth of our country, continent and indeed beyond the wide seas. Her mythical powers as the rain Queen went far beyond the realm of doubt. For this we are most grateful, as she singularly validated our being as Africans with tremendous force. She epitomised our past, our present and our future with unsurpassed eloquence.

Our Queen added in no small measure to the dignity of her throne. Most of the time, she did this at a great personal sacrifice. She followed the rules of her throne, and reigned with calm, dignity and tremendous fortitude. She leaves a giant footprint on the sands of time. We salute her. She knelt on her knees in returning the salutations of us, the commoners. She honoured our feasts without breaking the rule to always be separate and thus archiving the miracle of being present and absent at the same time. She was a great human being who gave laughter when circumstances so permitted.

Wise men and women must still tell us the relationship between the recent eclipse and the demise of our Queen. Could it be that the heavens chose to mourn her death in the most spectacular show? Last weekend, we buried her ancestral cousin, Kgoshi Molepo. It was at that funeral where her other cousin, Vhamusanda Vho Khosi Kutama lamented the death of several Magoshi in our Province, this very year. The initiated would know that a Queen or King always sleeps on a pillow. If indeed the royalty we have been burying in recent months was meant to accompany our great Queen, today we summon her great Spirit to put an end to the deaths and usher in tranquillity to Bogoshi in our province and elsewhere in our amiable land.

The Queen is dead. Long live the Queen.

Issued by: Office of the Premier, Northern Province, 1 July 2001 " <sup>175</sup>

Ritualized deaths, sacrifices and cannibalism are a prevalent throughout Africa and various activist movements have issued a protest specifically for southern Africa in the light of the rampant extent of the practice. In the 2004 December issue of Five Minutes To Midnight Griffin, Keshish and Perrella presented the following article: -

"Muti Medicine <sup>176</sup>

**By Mark Griffin, Sasoun Keshish and Eric Perrella**

Muti medicine is a system of African holistic healthcare that involves the use of human body parts and vital organs to produce medicine. The word "Muti" derives from the Zulu word for medicine. Certain beliefs state that this medicine can increase the luck and health of a person who consumes it. Muti medicine is prepared by traditional healers known as Sangomas, who resort to barbaric means in acquiring their medical specimens.

The preparation of these medicines requires that Sangomas dismember their victims while they are still alive in the belief that by doing so, they will be more powerful. The Sangomas operate mainly through a business-based perspective, where they conduct their practices to obtain money. They collect money from customers who wish to have Muti murders carried out, customers who purchase Muti medicine from them, and by selling their concoctions in black markets.

The leading cause of death from acute poisoning in South Africa is from traditional medicines such as Muti, causing 51.7% of mortality rates. These deaths occurred from medicine acquired directly from the Sangomas or the black market shops that deal with them.

Most Muti victims are innocent children who are lured, murdered and dismembered. Children are primary targets as they are susceptible to attacks due to their being weaker and defenseless. Young children are also targeted as it is believed that due to their young age, they have used up very little of their good luck and health. Screams of these young children are also believed to make Muti medicine more powerful by waking the spirits and empowering them. According to Muti traditions and beliefs, the power of

---

<sup>175</sup> 1st July 2001. <http://www.info.gov.za/speeches/2001/010914145p1001.htm>  
SouthAfrican Government Information [www.gov.za](http://www.gov.za)

<sup>176</sup> Griffin, M. Keshish, S & Perrella, E. December 1<sup>st</sup> 2004. Muti Medicine. In Five Minutes to Midnight. Volume 2, Issue 12. <http://i2r.org/fmm/issues/december2004/article3.html>

a virgin is greater than one who is sexually active.

The many body parts and organs of a person are believed to have different significant effects. The hand of a victim that is buried in front of a store is believed to drive in customers. The genitals of the victims are believed to bring luck and health to the consumer. The brain may provide knowledge and intelligence, while consuming the eyes would grant far-sightedness.

Muti victim remnants are usually discarded in flowing bodies of waters such as lakes and rivers, hindering any identification processes the police and investigators undertake.

These murders occur to enhance personal power, health and bring good fortune to a person. This good fortune can come in terms of having a thriving business or to win the lottery. Ingesting Muti medicine produced with another's healthy heart or kidney is believed to cure heart and kidney ailments.

Conservative estimates say that there have been at least 300 Muti murders in South Africa over the past decade. These numbers do not allot the numerous people that have perished as a result of HIV from Muti practices.

However, instances of Muti murders are increasing. Although most Muti murders occur in South Africa, there are an increasing number of cases in European nations. There have been barbaric cases in England, Italy, Belgium and Germany. Muti practices have been increasing in South Africa, as well, where children are going missing every week from townships. These missing children are assumed to be forced into prostitution and muti murder.

Numbers are difficult to collect as the investigation of Muti murders is complex and difficult to undertake in the current South African police institutions. Many witnesses do not come forward as they are afraid that the Muti murderers will seek revenge upon them.

Something must be done to improve conditions in South Africa. The people must be provided with alternatives to Muti medicine as many Muti murders are a result of lack of access to professional medicines and healthcare - Sangomas provide basic healthcare to an estimated 80% of South Africa's 45 million people, most of whom cannot afford Western-style healthcare.

Local governments must commit themselves to providing alternative means of medical care for their citizens. Education is key, and citizens must be taught about the criminal aspects of Muti medicine, as well as their ineffectiveness. With an informed public, action can be taken to prevent further Muti killings and provide alternative means to healthcare. Innocent lives are being lost for beliefs that eating, drinking or anointing oneself with



another person's organs and body parts will provide power, health and luck. United and educated communities can help put an end to Muti murders and killings.

### Sources

Crawford, Cathryn. "Ignorance in Africa." American Daily. 10 July 2003. 4 November 2004.  
<<http://www.americandaily.com/article/3927>>. Dynes, Michael. "Magic medicine' murders bedevil South Africa." Times Online. 4 October 2003. 4 November 2004.  
<<http://www.timesonline.co.uk/article/0,,3-840639,00.html>>.  
"FACTNet Alert: Cultic ritual child murders: England + South Africa." FACTNet. 2 April 2002. 4 November 2004.  
<[http://www.factnet.org/cults/Sangoma/Muti\\_Murder.html?FACTNet](http://www.factnet.org/cults/Sangoma/Muti_Murder.html?FACTNet)>. "Four Page Appendix to 13 January 2000 Letter to Folb, Extracted from Referenced Report." GAI A Research. 4 November 2004.  
<<http://gaiaresearch.co.za/pharmapact/Folb%20%20Append%20Jan%202000.pdf>>. "I was forced to kill my baby." 2 April 2002. 4 November 2004. <<http://news.bbc.co.uk/1/hi/uk/1899609.stm>>.  
"Muti medicine: Herbs and murder." CNN. 19 April 2002. 4 November 2004.  
<<http://archives.cnn.com/2002/WORLD/europe/04/19/mandela.muti/>>. Peta, Basildon. "Harvest of death feeds occult's macabre trade." The New Zealand Herald. 27 August 2004. 4 November 2004.  
<<http://www.nzherald.co.nz/index.cfm?ObjectID=3587554>> "

Further articles dealing with Southern Africa were collected by the equivalent of Amnesty International for this practice in the world, called F.A.C.T. Net - Fight Against Coercive Tactics Network: - <sup>177</sup>

### Muti murders

March 18, 2005 - [Man to Hang for Muti Murder](#)  
February 07, 2005 - [The Witchcraft Murder](#)  
26 Jan 2005 - [Couple appear for 'muti killing'](#)  
January 6, 2005 - [Little progress made in 'muti murder' probe](#)  
27 Sep 2004 - [Reward offered in suspected muti murder](#)  
2003-08-14 - [Grisly killings supply S. African body parts demand](#)  
15/04/2003 - [Muti murder claims 6-yr-old](#)  
April 20, 2002 - [Goal of human sacrifice](#)

<sup>177</sup> F.A.C.T. Net - Fight Against Coercive Tactics Network. April 22<sup>nd</sup> 2007.  
<http://www.factnet.org/cults/Sangoma/index.html#Muti%20murders>



Sun 14 Jul 2002 - [Horrific murders in name of ritual medicine](#)

April 19, 2002 - [Muti medicine: Herbs and murder](#)

2 April, 2002 - ['I was forced to kill my baby'](#)

[FACTNet Alert 2nd April 2002](#)

[Human Sacrifice in London? Mutilated Body Sparks Fears of 'Witch Doctors' at Work](#)

[October 30, 2001 Police tell of muti murder](#)

[January 2001 Muti - By: pueros](#)

[11 April 1999 Police eye muti head-hunters](#)

[04 October 1998 Delmas deaths the work of muti killers](#)

[May 14, 1998](#) In the new South Africa, a chilling link with the past - Ritual killing for body parts still holds a disturbing power.

[Muti Murders](#) - South African Police Services

[Muti Medicine](#) (by Mark Griffin, Sasoun Keshish and Eric Perrella)

**4.4.11 Appendix 11 - Tshiendeulu the Grave of Dambanyika**

Tshiendeulu the Grave of Dambanyika

THE RUINS OF VENDA LAND

By Pieter W. Van Heerden

&

THE LEGEND OF NGOMA LUNGUNDU

By E. Mudau

Annotated and translated by  
Richard Peter Wade

## THE RUINS OF VENDA LAND

The subjoined article was specially written for the readers of "Bantu" by Mr P.W. van Heerden, Inspector of Bantu Education for the Soutpansberg-Sibasa circuit. Mr Van Heerden is particularly well acquainted with the Bantu of his environment and the facts provided by him follow the popular parlance of the Bantu.

Readers must not expect a scholarly argument confirming or denying one or the other scientific view on these ruins, but should accept them in the light that the Bantu see them, as expounded Mr Van Heerden.

### *THE RUINS OF DAMBANYIKA*

To the north of the capital of the Venda chief, Mphephu, the much discussed ruins of Dzata, the almost legendary capital of the first Vhavenda, who settled in this well-watered and fertile Nzhelele valley, within the Soutpansberg range, are situated. Here in the silence of the secluded countryside, where the calls of the herdboys yonder behind their herds can be heard, lie the Zimbabwe-like ruins, mainly toppled over and neglected.

One afternoon I visited the ruins in the company of the uncle of Mphephu. Although the ruins have been declared a National Monument and fenced in, they are in a critical condition. If help is not forthcoming to conserve this historical monument from an earlier era of the history of our country, they will disappear and only piles of stones will mark the site where once stood a flourishing capital of the Vhavenda.

These dilapidated walls of Dzata set me wondering whether these inaccessible fastnesses of the Soutpansberg do not harbour other secrets from the days of yore.

Inquiries eventually led me northwards through the mountains, along mountain tracks, which could be negotiated on foot only. The precipitous heights proved almost impassable in places, but I eventually stood on the first plateau, a fertile and well-watered region that, from the Nzhelele-valley, discloses nothing of its character.

On top of this extensive plateau, cultivated fields stretched out solidly to all sides, heavily laden with the finest grain that it was my privilege to see.

(Photograph no. 23)



Beautiful scenery is found in the vicinity of Lwandali

And still the route led northwards, across the plateau, over mountain ridges and cliffs, along precipitous footpaths, across another plateau and eventually it loomed up before me – Tshiendeulu Mountain, the object of my journey.

(Photograph no. 5)



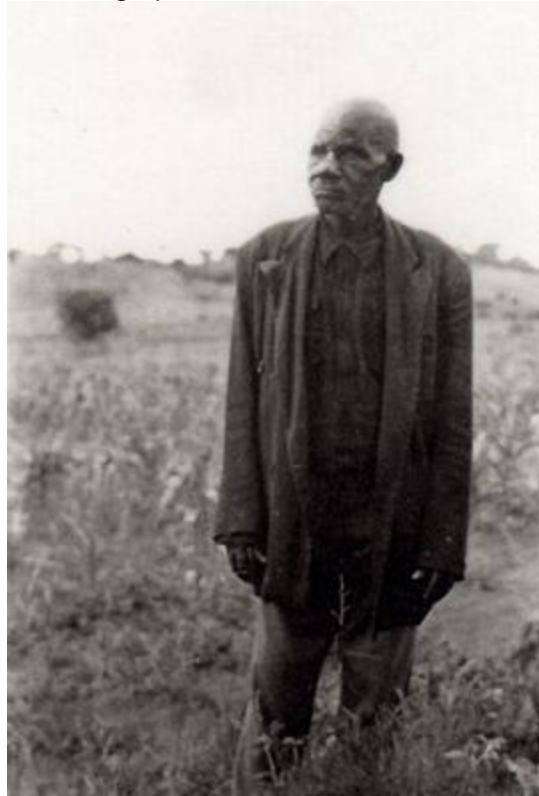
Tshiendeulu Mountain – approximately 1,000 feet above the plateau

I arrived here on the invitation of headman Nthangeni Netshiendeulu who had learnt of my interest in the past of the Vhavenda.

Before you descend into the valley on the southern side of Tshiendeulu Mountain, you cannot but admire the splendour of the scene in front of you. The immense mountain towers high above the plain and rises at least a thousand feet higher than the surrounding terrain. The precipitous rock-face sporadically covered with dense bush, imbues one with trepidation and awe for the unspoilt nature, here still in its purest virgin form, miles and miles away from the nearest civilization.

And then a thought strikes you that here, yes, there in front of you over the summits of the mountains the first Vhavenda, on their trek to the south, must have come. In their thousands they must have been – men, women and children, with their flocks of goats, herds of cattle and their domestic utensils...

(Photograph no. 22)



Netshiendeulu

Suddenly you hear: "Ndaa!" and supervisor Mudau, who acts as interpreter, returns the greeting: "Ndau- muhali, Vhamusanda!" and you realise you are face to face with Netshiendeulu, the "high priest" of the Mphephu people, the custodian of the "Ngoma-lungundu," the sacred drums of the Vhavenda.

Netshiendeulu is a friendly, smallish man, whose face is covered with wrinkles. His greying hair is an indication that he must be advanced in years, although his stride is still buoyant.

Deliberation takes place. Plans are made which important places will be visited and when. During the discussions you are amazed at the strength of the Venda tradition that a reasonably powerful chief like Mphephu, may not look Netshiendeulu in the face when the latter is addressed. According to the tradition the chief will die when he sets eyes on this man. Exactly how this came to be, I shall explain later.

There are various places of interest. We decide to view the ruins of Mbwapenga, the first known ancestor of Netshiendeulu. Mbwapenga was, according to our informant, the contemporary of the famous Dambanyika, the first Venda chief who settled south of the Phembe (Limpopo). Mbwapenga belonged to the first group who settled here



in the new country. On the southern slopes of Lwandali Mountain (now known as Tshiendeulu) he built his first village.

Through masses of dense shrubs and rambling creepers, through “haak-en-steek” bushes and “wag-’n-bietjie”, through patches of aloes, over huge slabs of rock and higher up the mountain, Netshien-deulu led us. At times we had to crawl on all fours through the twilight of the primeval forest, out of which strange birds took raucously to the air. And meanwhile you began to wonder whether you would ever again return to the civilised world. Your hands, arms and face are full of scratches and fresh bright blood shapes miscellaneous patterns on your skin. Here in the dense virgin forest it is humid and deadly quiet; the heat rises in suffocating airlessness out of the dark, rich soil, covered with centuries’ soft rotten leaves and when you listen, you only hear the sounds your companions make as they too negotiate the difficult bush. Suddenly there is silence.

The crooked finger of Netshiendeulu points to a few rocks. Your eyes roam through the twilight. The ruins of Mbwapenga, most probably the very first wall that the Venda erected south of the Limpopo! You stand in the presence of remote antiquity. Round about you lie the ruins, admittedly not walls anymore, yet nevertheless ruins.

(Photograph no. 1)



Ruins of Mbwapenga’s settlement on the southern slopes of Lwandali

Then you crawl through thick creepers and struggle against the mountain slopes. Unmistakable signs of an early settlement: heavy, thick walls roughly stacked of undressed stones, perhaps hurriedly – and you are astonished at the thickness of the walls and the size of this very first Venda village.

The tracks of time lie heavily on these ruins because they are overgrown and covered in vines and with difficulty you discern the entrance to the village. Amongst the slabs of rock you detect an overgrown pathway in the entrance – a footpath over which thousands of feet must have passed. This is the village of Mbwapenga, eight generations in the past.

(Photograph no. 2)



All that is left of the entrance to the village

According to your spokesman Nthangeni Netshiendeulu, Mwapenga was the maternal uncle of Dambanyika, the first known chief of the Vhasenzi, the actual rulers of the Vhavenda. Dambanyika followed soon after on the trail of this vanguard and eventually found himself in this vicinity and built his first royal village on the summit of Lwandali, a thousand feet above the surrounding area! It sounds impossible and you voice your doubt, but Netshiendeulu assures you that it is true. And what is more, he will prove it. After a last glimpse at the handiwork of ages past, the pathway again leads downhill, through dense virgin forest, over rocks and fallen tree trunks, until you emerge at the foot of Lwandali in the torrid heat, as perspiration streams down your body.

After an hour's rest in the shade of a friendly tree, Netshiendeulu points to a footpath, which meanders in the direction of the eastern slopes of Lwandali through the shady trees. What now? No, to the ruins of Dambanyika and they are on the summit of Lwandali! And you become conscious of the seriousness of the task before you as you look up towards the perpendicular cliffs that stand like rugged towers soaring against the dark blue sky. Our protests are ignored and we are to follow Netshiendeulu's uncle, who is already disappearing in a jogtrot amongst the trees. High up on the mountain ominous dry trees reach premonitorily up to the sky. And long shadows begin to form on the eastern face of Lwandali and you are thankful for the shade. Slowly we wind our way up the mountain, holding on to tree trunks and behind you the precipice yawns wider and deeper. Somewhere a troop of baboons take fright and utter warning screams and shrieks as they flee headlong over the cliffs. A bird flies up raucously and a few hadidas pass overhead and utter their hoarse cries. You shudder again when you look at the abyss under you. Involuntarily you cling desperately to rock and tree. You gasp for breath on account of the rarer air.

Eventually you stand on top of the mighty Lwandali. In the distance on the plain to the north the copper mines of Messina are visible and just a little distance further on lies Rhodesia. You are looking as it were right into the country from whence the Vhavenda immigrated. Huge euphorbia trees in their hundreds grow here. Other

shrubberies grow in profusion and it is clear that nobody ever sets foot here. Here on the summit it is desolate and quiet. A hare, aroused from its lair by the unusual commotion, disappears quickly into the undergrowth.

Ever westwards we are led. Here on the highest summit of Lwandali you are shown the remains of the large village, the first settlement of the followers of Dambanyika, the first known chief of the Vhasenzi. The rough stone walls appear to be of a temporary nature, as if the tribe had moved in a hurry. There are no signs that this place was inhabited for any length of time.

(Photograph no. 3)



On top of Lwandali. The first place of residence of Dambanyika the first known Venda chief

The existence here on top of Lwandali must have produced its quota of problems. Water was available only from fountains and streams at the foot of Lwandali. For a moment you stand here in the past, here at the ruins of a nation that came to make this land their own. Here lie the old ruins and you are told that you are the first white person to lay eyes on these ruins, indeed the first white to reach the summit of Lwandali! You are here in the presence of history, of a tradition that lives from generation to generation.

And in the afternoon, with ruins and heavy euphorbia tress around you, you listen to the history of this tribe. After the death of Dambanyika, his followers, on his command, moved away from the mountain. There being no chief, they were under the command of the Makhadzi, who established a new town three miles away on the plain south west of Lwandali. Dambanyika ordered his followers never to come near Lwandali, or use the products of the area – even honey was forbidden. The last command of Dambanyika was obeyed and a new village under the rule of the Great Makhadzi, who was also responsible for the safety of Vele, the “crown prince” until he could succeed Dambanyika, arose.

Here on the fertile plateau an unfamiliar village took shape. Round walls were carefully built. Passages and outer walls and entrances were constructed. Higher and higher the walls rose here on the northern slopes of Tumvi.

(Photograph no. 6)



The immediate surroundings of the original Dzata

To the north on the other side of the valley, Manambeni and Magunduni lie, while in the distance, to the north-east the summits of Lwasoli and Lwandali were visible. In the east there were the slopes of Maswuni Mountain where flocks and herds grazed amongst the game.

The capital of the Vhasenzi under the rule of the Great Makhadzi was known as Dzata. Here they stayed for many years. With a start you wake up from your reverie: "Dzata? But surely Dzata lies in the Nzhelele valley near Mphephu's capital?" "No, but that is not the real Dzata – the right one is here on the plateau!" This unbelievable statement is difficult to absorb. "Wait until tomorrow – then we'll go and see the real Dzata!" And there below in the valley the shadow of Lwandali lengthens towards the east, while the sun here on the summit still shines brightly.

You struggle down the sheer mountain slopes and you wonder nostalgically whether the Venda of today, descendants of the stalwart old Vhasenzi, remember the traditions and glory of a rich and abundant past?

#### THE DZATA OF NYAMULANALWO: THE GREAT MAKHADZI

With the morning sun behind you and green pastures around, the footpath winds along the foot of Tumvi. The grass is still laden with dew, while Netshindeulu, the "youthful" greybeard heads purposefully westwards. In the course of the walk penetrating questions about the history were posed. "This Dambanyika, the first noted chief of the people who later came to be known as the Vhavenda, how did he meet his death?"



Netshiendeulu stops for a brief moment. His eyes dwell over the cliffs of Lwandali. A kind of fogginess fills his eyes as his finger points to the eastern slopes of the mountain. "That is where he died. His grave is also there." No, we do not understand. Tell us. Netshiendeulu resumes his walk on the winding track. "Dambanyika was fond of hunting. On this particular day he took his dogs Mutshena and Mazwipalile along. It proved to be the last time that he was seen alive. When he was still missing the following day, a search party set out led by one of the dogs, which arrived whining at the capital of Lwandali during the night. The dog led the party round the mountain to a cave where it stood whimpering and swinging its tail. The men then saw that the opening of the cave was filled with huge rocks, which were impossible to move. After unsuccessfully trying to remove the rocks, they were addressed by Dambanyika. "Men, there is nothing to do but to leave me here where I shall die. This cave of Lwandali will be my grave. Lwandali will be the sign of my grave.

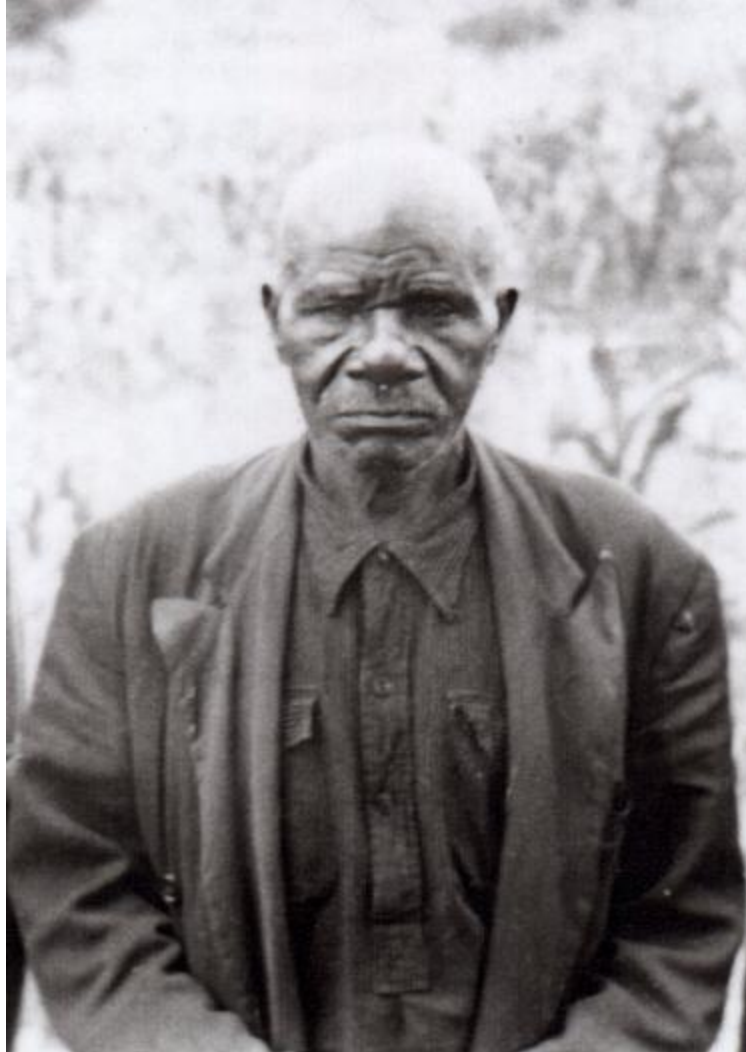
(Photograph no. 4)



Tshiendeulu Mountain from the south-east

You may not live on it and you will have to move. Nobody is to eat fruit that grows here and even the honey will be taboo. Let Nyamulanalwo lead my people to another place and let her raise Vele so that he can succeed me. And let the son of Mbwapenga remain behind to tend to my grave, from now onwards for many years to come. Furthermore he will be the guardian of the ngoma-lungundu, which has to be kept near my grave. And the son of Mbwapenga will be responsible for the rain and good crops. Go now, my people, go in peace."

(Photograph no. 24)



Nthangeni Netshiendeulu

Again Netshiendeulu stopped and turned towards the hazy summit of Lwandali. "The people duly moved away and my ancestor, the son of Mbwapenga became the first guardian of the chief's grave and he and his successors became known as Netshiendeulu, because Tshiendeulu means cemetery.

Nyamulanalwo carried into effect the last commands of her chief and built a new capital to the south west and called it Dzata. From that day Lwandali became known as Tshiendeulu, even to this day. We have arrived at the great Dzata."

And we get our first glimpse of the forgotten Dzata through dense undergrowth and huge euphorbia trees. Beautiful dry masonry, the handiwork of ages past, appears undamaged in places.



(Photograph no. 25)



DZATA RUINS - This photo shows the building structure of the Dzata ruins

"This is the entrance to the great Dzata," Netshiendeulu explains and once more centuries speed past while we stand in the presence of events of days gone by. In places the ruins are well preserved.

(Photograph no. 12)



DZATA RUINS - Note the fine stonework

Up to eight feet high the fine masonry stands, flat stone upon flat stone, accurately and thoroughly built, without mortar anywhere in between. It reminds you

immediately of Zimbabwe, but the finish is coarser and not of the excellent workmanship of the latter.

(Photograph no. 8)



DZATA RUINS – Note the fine workmanship on the rough foundations

And while Netshiendeulu leads the way through passages and wild creepers, you begin to form an idea of the size of these ruins. You cannot grasp the fact that you stand here in the presence of a monument from the past.

(Photograph no. 7)



DZATA RUINS - Foundations

You ask Netshiendeulu if other whites have been to these ruins? "No, you are the first – wait a bit, let me see – oh yes, the Rev. van Rooy, missionary of the Dutch Reformed Church and also another person were here. They and you are the first whites to have set foot within the walls of this Dzata."



(Photograph no. 9)



DZATA RUINS – Note stacking on rough foundation stones

One is amazed at the solid stonework and the manner in which these ruins have been preserved.

(Photograph no. 13)



DZATA RUINS – Note the similarity of the stones

“What became of Nyamulanalwo, the Great Makhadzi?” Netshiendeulu finds a shady place under the huge euphorbia trees within the silent walls of the first Dzata and sits down and relates how the Great Makhadzi and her followers after many years, moved away from this place. She led her followers south and into the fertile Nzhelele valley, and here a second Dzata was built – the Dzata that was known. It seems as if the tragic death of Dambanyika cast a shadow over the Vhasenzi so that they experienced a feeling of danger and chiefly they were worried about the safety

of Vele, who was to succeed Dambanyika. That is why they moved away from the plateau and the ancestor of Netshiendeulu and his followers remained behind in the shadow of Lwandali. Since then the descendants of Dambanyika may not face the descendants of Netshiendeulu because it was believed that the descendants of Netshiendeulu possessed supernatural powers. This custom is observed until this day. "What happened to the Great Makhadzi?" Netshiendeulu explains that the Great Makhadzi disappeared in the same mysterious fashion as Dambanyika. Until this day nobody knows what actually happened to her." But others contend that it was Dyambeu who died in the cave?" Netshiendeulu insists that it was Dambanyika who died in the cave and not Dyambeu. "Who was Thoho-ya-ndou?" "He was also known as Tshiseve, a son of a younger brother of the unfortunate Dambanyika, who died on the trek southwards (the brother). This Thoho-ya-ndou was also under the care of the Great Makhadzi. He (Thoho-ya-ndou) later disappeared. But that is another story."

In the scorching afternoon sun the ruins are explored further. You follow the passage that leads from the northern entrance.

(Photograph no. 16)



DZATA RUINS – Note the building style. This wall is collapsing on the left side

There are unmistakable signs that huge, rough stones were used in the construction of the walls, mainly as foundations. Other sections of the walls are well preserved and the uniformity of the building blocks appears as if they were especially pieced together.

(Photograph no. 14)



DZATA RUINS - Near the main entrance on the north

Netshiendeulu then takes you to an immense round structure within the ruins. "This is the place where tribal decisions were taken – the royal council chamber." These walls are high – up to eight feet. You notice that rougher stones were used... Perhaps they were erected in haste, who knows? You also notice that a section of this wall apparently collapsed and was later carefully repaired in the pattern of the outer walls.

(Photograph no. 10)



DZATA RUINS – An old wall repaired according to the new style of building (top right corner)

But the surprise is even greater. Netshiendeulu indicates that we should follow him. We are led through maize fields on the outside of the ruins of Dzata. Approximately two hundred yards in a western direction, we come across another series of ruins.



In places the walls have been well preserved, but alas, with the ploughing right up to the walls and even inside, these ruins are destroyed to a great extent.

(Photograph no. 15)



DZATA RUINS – Collapsed walls

Those that still stand are built in the beautiful style of the ruins of the royal village. "These," Netshiendeulu explains, "are the ruins of some of the followers of the Great Makhadzi." You climb on to a high wall and around you in all directions you notice more of these interesting relics. You reflect that perhaps the time is ripe for these ruins to be saved for our descendants. What secrets lie buried here? Back under the shade of the euphorbia trees, your thoughts return to the past.

(Photograph no. 11)



DZATA RUINS – Note the bonding



Here in front of you lies the western entrance to the village. A little further on you notice a spherical mound. A scrapheap? You ask Netshiendeulu whether this is true? Yes, he thinks it is the scrapheap of the village. With a small spade that you have brought along, you commence digging an experimental hole and at a depth of fifteen inches you find ash and further down, some pieces of bone come to light, quite a number of them, because these people were hunters. Eventually in front of you there lie potsherds with a pattern that reminds you of claypot shards that were dug up at Zimbabwe; a pair of leopard's teeth, buffalo teeth, pieces of marrow bone and the past lives once more! Meanwhile Netshiendeulu is watching your activities closely and he is highly amused that you are digging in a scrapheap.

And late in the afternoon you take leave of the great Dzata, the size of which is difficult to determine because dense shrubs and climbers have made it part and parcel of the primitive jungle. But you have made a detour of the circumference of Dzata and came to the conclusion that this place must have been the centre of a great community. You decide that further research into this Dzata is necessary. Nature, here in the high mountains, acted as guardian of this great and interesting part of the history of the Vhavenda and you are thankful that a person such as Netshiendeulu, faithfully kept the traditions and historical facts alive as his ancestors were instructed by Dambanyika. You are thankful that, despite the absence of a written historical record, so much information still remains at the disposal of the Vhavenda. You are thankful for the work of the great Makhadzi, Nyamulanalwo, and you wonder what story the high mountain peaks would be able to tell should they be able to speak.

But the great shadows of the evening had already fallen and the plateau was silent. A group of hadida birds with their eerie, hoarse calls shock you back to the present and there, on the summit of Tshiendeulu Mountain, linger the last rays of the sun.

#### THE CAVE OF THE NGOMA-LUNGUNDU

As the first rays of the rising sun appear on the Soutpansberg, the many villages come alive and smoke curls lazily into the morning air. This morning our journey will take us north-eastwards to the slopes of Tshiendeulu Mountain where the sun already shines on the high crags. Vultures and eagles drift lazily in the blue sky.

The footpath meanders through the dense land of maize. Netshien-deulu deliberately leads us northwards. Your thoughts return to the ruins of the great Dzata that was visited yesterday, and to the Vhasenzi and their journey southwards.

"From where did the Vhasenzi originally come?" you ask in the course of the conversation. Immediately Netshiendeulu answers: "From the country of the Barozwi, situated on the banks of a great river, the Congo." Well – how would Netshiendeulu know about the Congo, here on the plateaux of the Soutpansberg where he grew up and without a doubt never left the area? According to him the Vhasenzi came from that area – he does not doubt that for a moment.

"What about Zimbabwe?" you ask. "Who built that?" But the white man pronounces the word wrongly! It is Dzimbahe. In the language of the Vhasenzi the meaning is "houses of stone." "Who inhabited these houses of stone?" you want to know. Naturally the chief and his following and therefore "Dzimbahe" to this day means a

royal house. When the Vhakaranga speak of this place (Zimbabwe) they also mean "houses of stone." According to Nthangeni Netshiendeulu the meaning of "Zimbahe" is royal house. The ancient Vhasenzi also spoke of the "zimbahe" across the Vhembe (Limpopo) and thereby they meant "royal place," i.e. the place from where the people originally came.

"Here we are." And Netshiendeulu raises his curved hand. You feel a strange tickling, for here begins the adventure that you could only dream about. At last you are about to behold the "Sacred Drums" (the ngoma-lungundu) with your own eyes. But no, Netshiendeulu still has to make considerable arrangements. The rest of the party is to remain behind because it is forbidden for locals to see the sacred drums, with the exception of himself and the "Khotsimunene." Only the white man and the supervisor Mudau will go along. And there he once more takes the road and we follow in single file. The footpath twists through mealie lands. The sun scorches down and the atmosphere is extremely oppressive, although it is still very early. Netshiendeulu heads straight for the steep slopes of Tshiendeulu Mountain and before long the pathway zigzags into the first dense scrub at the foot of the mountain. It winds through the shade, over rocks, through ditches and alongside fearful precipices. We begin to stoop and soon we are on all fours while hookthorns catch at your clothes and gouge painful wounds on your arms and legs. Of direction by now you know nothing, because the footpath has long since disappeared. You find it difficult to see where you are going because you are blundering over rocks, and tree roots ever higher and higher. The dense virgin forest, through which lianas and other climbing plants grow, suddenly is steeped in twilight. You can only see one or two patches of blue through the dense canopy of leaves.

And then there is the sound of voices; it sounds as if somebody is praying. For a moment you involuntarily hesitate, but you struggle valiantly forward and inquisitively peer over the edge of a huge boulder. And then you notice that Netshiendeulu and his companion lie flat on their faces and they crawl mumbling further up the steep mountain side. One hears ancient names of well-known chiefs and you recognize a praise poem, which is used only for praising great chiefs.

Suddenly they bow their heads again and a respectful "Ndaa!" slips from their mouths. At the same time you notice that you are in a dim cave and when your eyes grow accustomed to the strange light, you notice the two drums in front of you – the "Ngoma-Lungundu!"

(Photograph no. 26)



THE GREAT NGOMA (left) - with the smaller one next to it

Netshiendeulu seats himself comfortably in the silent shade, while you struggle to assimilate the fact that you are in the presence of the legendary “sacred drums.” May photos be taken? “Naturally – you are an honoured visitor and the very first white who has been allowed into this sanctuary.”

You notice that the cave lies deep under a huge inclining rock. Here in the cave they are protected from all sorts of weather: these drums that signify so much for these people. Many people maintain that the existence of these drums is a figment of the imagination, but here they are right in front of you!

There are two of them, viz. the large one “Matale” and the smaller “Thungwa ya Matale.” The larger drum, as well as the smaller one are of the same shape as the well known drums used by the ordinary people, approximately 23 inches long, 18 inches wide and 14 inches high. They are made from wood, with a handle on all four corners. The drum itself is round in shape and covered by a tightly-drawn oxhide, fastened to the drum by wooden pegs and has a largish hole in the bottom. It is decorated by fine woodcarving. The handles of the drums are known as “madamu” (nipples) of the drum. The wooden pegs are known as the “khokho dza ngoma.” The other drum is made in the same pattern, although smaller.

Netshiendeulu touches one of the drums deferentially and hands it to you. You feel the lightness of the drum and marvel at the expertise employed by the creator of these instruments. In the dust of the cave you notice pieces of an old drum that must be at least hundreds of years old. When the old drums perish of old age, they are replaced time and again. And there, suddenly, the riddle is solved of the apparently continued survival of these instruments; the pursuance of a tradition as old as the Vhavenda themselves!

(Photograph no. 17)



Remains of old drums that have perished

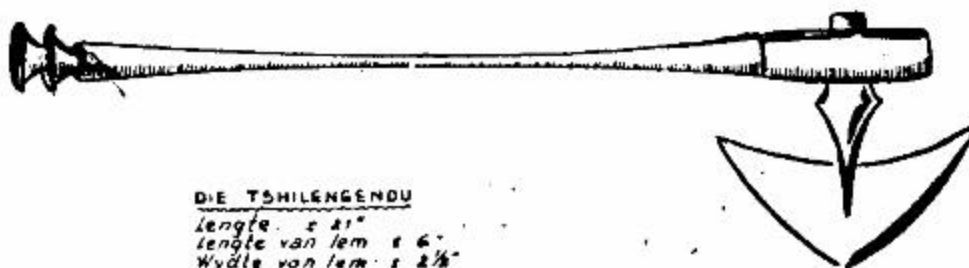
When you turn back for a last look, Netshiendeulu and his companion are once more on their knees retreating backwards, continually muttering and bowing their heads until they are out of sight of the drums. Then they turn away and follow the difficult trip through dense undergrowth on the mountainside. After hours' of struggling, you emerge once more into the scorching sun.

#### INTERESTING ANTIQUES OF NETSHIENDEULU

##### THE TSHILENGENDU (BATTLE AXE) OF NETSHIENDEULU

We sit under the shady trees at the humble home of Netshiendeulu. Questions were asked to which prompt answers were given. In the course of the afternoon, Netshiendeulu showed us various interesting items, which he inherited from his ancestors. These things are fast disappearing, but you are thankful for the privilege to be present when the dignified old Keeper of the Royal Graves relives the past.

Sketch of the tshilengendu - (battle axe)



Length: 21 inches  
Length of blade: 6 inches  
Width of blade: 2 ½ inches

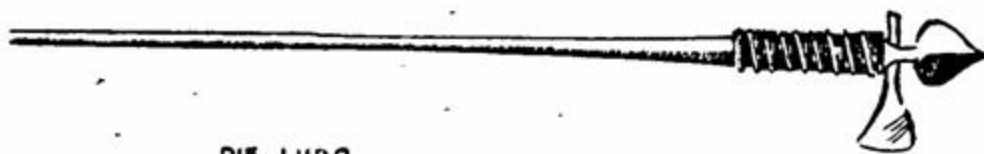
He handles the instruments with care and tenderness. "This tshilengendu – battle axe - has an interesting history... And then he proceeds to relate how this very axe was used by his ancestors to execute magicians and condemned persons; how in the war between Mphephu and the Swazi, this self same axe was stolen by the Swazi robbers who left it in the fork of a tree where the men of Netshien-deulu found it. "What about the present?" It is used once per year at the Thevhula ceremonies in the winter months when offerings are made to the ancestors.

The shaft of the axe is cast from one piece of iron and exquisitely finished. The blade and the spigot by which it is attached to the shaft are made of another piece of iron. Its length is about twenty-one inches and the expertise is unrivalled.

### THE CEREMONIAL STAFF

And this is the "Ludo." In front of you you see a very small axe of the same type as the battle-axe, but it is not an axe.

(The ludo)



DIE LUDO  
Lengte: 2 3/4 - 6"  
Dikte: 3/8" met verdikking bo-aan

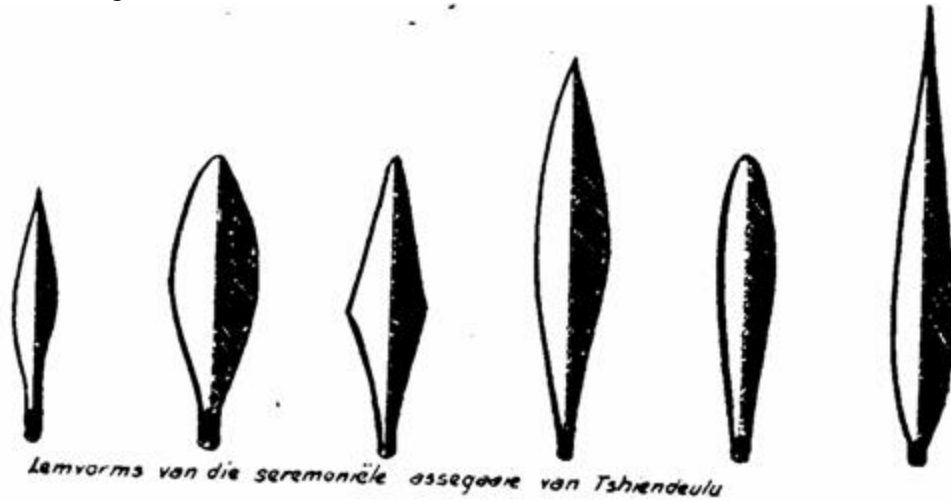
Length: 3 1/2 feet  
Thickness: 3/8 " with thickening at the top

The shaft is 42 inches long and is made totally of iron. "But what is it then?" you ask. "It is actually a staff used by the Makhadzi," Netshiendeulu explains. "On the same day that the chief receives the traditional axe (the tshilengendu), i.e. on the day that he starts to rule, the Makhadzi receives this 'ludo.' "

### CEREMONIAL ASSEGAIS

And thus we arrived at the ceremonial assegais, which are also used in ancestral worship. There is one for each ancestor. The length of the assegai is 42 inches, the thickness approximately 3/4 - 1 inch and the blades vary from 3 - 9 inches. Each son of the house of Tshiendeulu is bound by tradition to prepare such an assegai when his father passes away. Thus they differ in pattern and decoration. Netshien-deulu takes each assegai in his hand and names the ancestor for which it was prepared. They are:

(Ceremonial assegais)

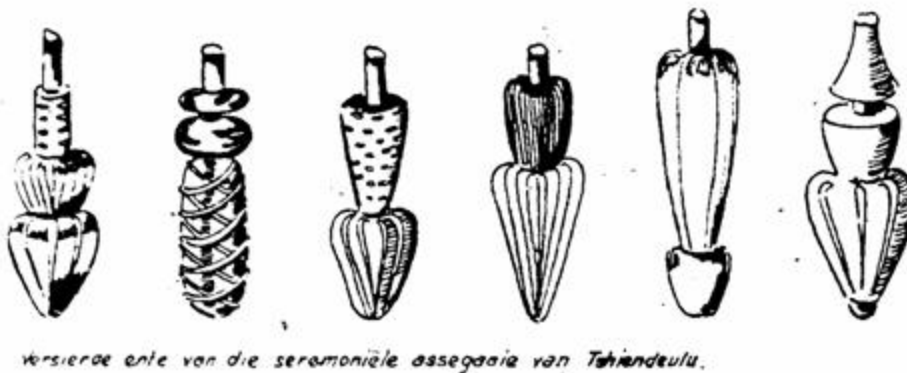


Blade shapes of the ceremonial assegais of Netshiendeulu

- Mbwapenga
- Tshidulu
- Tshumbewane
- Tshidongo
- Mathavhala
- Navela

When Nthangeni Netshiendeulu eventually dies, his son will prepare a ceremonial assegai for his father.

(Shaft ends of assegais)



Decorated shaft ends of the ceremonial assegais of Netshiendeulu



### THE TSHIDZUNGULUWE

Netshiendeulu led us to these later ruins. You are able to see that they are from an earlier period, because the characteristic style is there. Mbwapenga, the maternal uncle of Dambanyika, built them. Eight generations have lived here in the second home of Mbwapenga. They are as old as the Dzata we visited yesterday. When the Great Makhadzi moved away from the mountain, Mbwapenga, who became the first Netshiendeulu, built his second home here.

Deep within these ruins, covered by dense grass and shrubs, Netshien-deulu shows us the famous "tshidzunguluwe." For a moment you are astonished – in front of you is the largest clay pot that you have ever set eyes upon. It is old, very old, because it is covered in stonemoss just like the stones nearby. In actual fact it resembles the stones in its vicinity, but it nevertheless is a clay pot. Perhaps it came along with the move to the south of the Vhembe. Nobody knows.

Netshiendeulu explains: "Out of this pot Mbwapenga drank his beer during the domba and other ceremonies. After his death it was declared sacred and sealed. It has never been opened. You study it attentively, for here is yet another link with the past. The seal appears unbroken after centuries' exposure to the elements. "What will happen if the seal is broken?" you want to know. Netshiendeulu shakes his head. "It is better left unopened, because tradition has it that a huge whirlwind will arise and sweep all people into the sea." We therefore remained at a safe distance from the tshidzunguluwe, admiring the handiwork of whoever was responsible for it and which could last for so long. One then wonders if it would not be better for this old heirloom to find a last resting place in a museum, instead of in the open under trees?

### THE MYSTERIOUS RUINS OF MUDZIMUNGALE

At last we are homeward bound. The interesting few days have passed. To the beautiful plateau and its friendly inhabitants we reluctantly say goodbye. It is as if the people here in the vicinity of Tshiendeulu still cling to the past. The stone wall tradition has become part of them. They are the subjects of Chief Mphephu, but they are not allowed to reside in his vicinity, because they are also the subjects of Netshiendeulu, the Keeper of the chief's grave. Thus an old tradition is perpetuated and maintained. Netshiendeulu accompanies his visitors, because there are more ruins that he would like to show the white man. Along murmuring streams and cool fountains the road leads back through fertile mealie lands and rocky heights, south eastwards, back to civilisation. At about half way Netshiendeulu signals that we are to turn left. We clamber over huge boulders and scramble up the incline. Netshiendeulu indicates that we have reached the place. We look around but perceive only huge boulders and dense bushes. But wait, Netshiendeulu knows his locality. He takes us into the bushes.

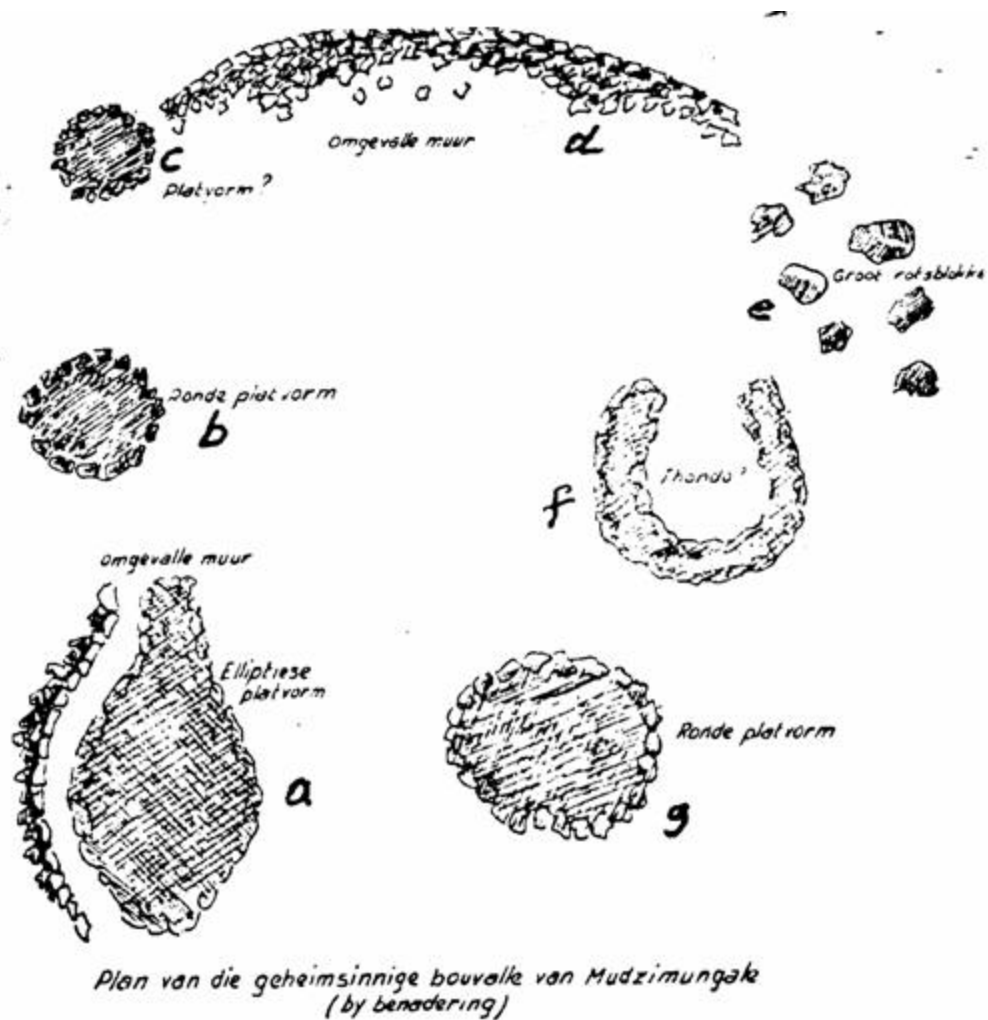
(Photograph no. 18)



MUDZIMUNGALE: a cleared space in the bush

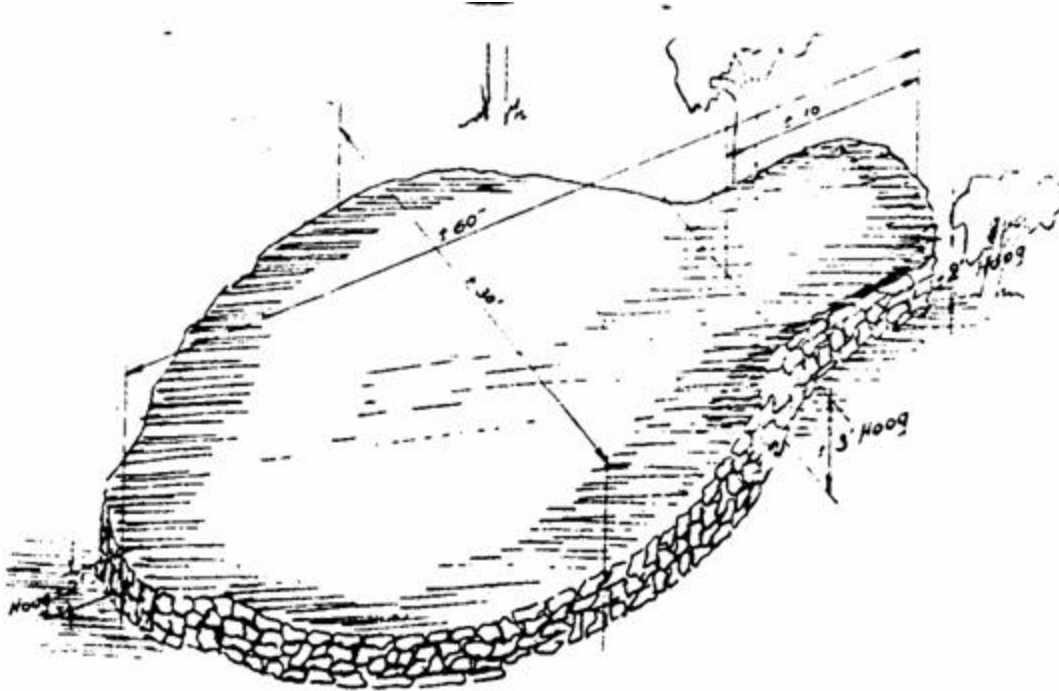
In front of us we see the characteristic stacked walls. The stones are green with age and the bushes are so dense that you cannot get near the wall. An opening through the bushes is made with difficulty. At last: You climb the wall. But you stagger back in surprise. This is not a wall, but a platform.

Plan of the mysterious ruins of Mudzimungale (approximately)



- elliptic platform showing collapsed wall
- round platform
- small platform
- collapsed outer wall
- huge boulders
- Thondo?
- Round platform

We walk carefully on the floor of the platform, peep through dense foliage and come to the conclusion that these ruins are not in the same category as those of Dzata. You carefully climb back and circle the bush (platform). These platforms are filled with smaller stones to the height of the outer wall. The platform is clearly elliptic.



*Elliptic platform (Ruwé skets)*

Rough sketch of elliptic platform, showing approximate measurements

It is about 60 feet in length and 30 feet wide. The northern wall is about 3 ½ feet high and the southern side about 2 feet. The platform has a type of built-up butting face on the northern side – it is about 4 feet wide and 10 feet long. It is lower at the beginning and rises gradually until it reaches the height of the platform. On the south-western side the wall has collapsed.

Ten feet further in the bush you come across another wall and another platform but this one is round and approximately 3 feet high and 18 feet in diameter. On the eastern side the walls have collapsed, but it is clear that even this platform had been filled up with smaller stones just as the elliptic platform. About 15 feet further there is another wall.

(Photograph no. 19)



MUDZIMUNGALE: another cleared space

It is a circular wall of rough stones stacked together – one upon the other. To the north there is another collapsed wall, densely overgrown and practically unrecognisable. The ruined wall suddenly ends in an irregular platform. Some 6 feet away there is another platform, smaller than the others and round in form.

(Photograph no. 21)



MUDZIMUNGALE: the size of the stones used

Upon further investigation you note that the platforms lie in a rough circle. The outer wall is built of huge uneven rocks with a collapsed entrance on the north side.

Netshiendeulu is questioned (about these ruins). No – how would he know who built these platforms? When his ancestors settled here, this place was here. Nobody knows what took place here. They only know about these ruins. It must have been



their predecessors who are responsible for these ruins. The place is known as Mudzimungale.

And so we left the hill with its mysterious ruins. Who knows what these dumb rocks may be able to tell? Was it a place where the gods were worshipped? Was it the capital of a ruler with his thondo?

Netshiendeulu stood against the horizon and waved goodbye to us with his tattered old hat. Behind him Tshiendeulu Mountain towered in the midday sun, like a guardian jealously watching over his precious treasures – treasures from the time-honoured past of the Vhavenda who found a new home in the Soutpansberg.



Pieter van Heerden





Richard Wade

### Expedition to Tshiendeulu March 2007

Tshiendeulu Mountain coordinates: -

22° 49' 60.00" South

30° 10' 60.00" East

On the 2<sup>nd</sup> March 2007 Richard Wade embarked on a reconnaissance of the Tshiendeulu with six colleagues to meet with the grave keeper of Tshiendeulu.

One of the son's of Nthangeni Netshiendeulu, Samson Netshiendeulu and his son Eric Netshiendeulu met with Richard Wade and formal contact was made for the first time at the foot of the mountain at the Netshiendeulu homestead. Over a period of a day various members of the family were introduced and the whereabouts of Pieter van Heerden's document were established, of the trip he took to Tshiendeulu in the early 1950's with Nthangeni Netshiendeulu.

Richard Wade presented Samson Netshiendeulu with a copy of the document made by Pieter van Heerden in the 1950's with the father of Samson Netshiendeulu.

On 6<sup>th</sup> March 2007 Richard Wade received a call from Azwindini Netshiendeulu, son of the head lady or vhoMakhadzi of Tshiendeulu also requesting a copy of the document, specifically the photographs of Nthangeni Netshiendeulu, for Her Majesty the Makhadzi - Tshina teho Nkonene Netshiendeulu. Tshina teho Netshiendeulu is the daughter of a brother of Nthangeni Netshiendeulu called Jim.

Another brother of Nthangeni Netshiendeulu is Thomas Netshiendeulu. Thomas is the present grave keeper of Tshiendeulu and tends to the grave of Dambanyika and the sacred objects that are kept with the Ngoma Lungundu in a cave near to Dambanyika's grave. He is very old and lives in the homestead of the next grave keeper in line - Eric Netshiendeulu. Thomas is the only person that is allowed to go onto the sacred area of Tshiendeulu Mountain where Dambanyika had his original settlement after leaving Great Zimbabwe nine generations previous.

Richard Wade therefore has established the exact location of Ngoma Lungundu and the grave of Dambanyika, which is the cave that was closed in a rock fall that entombed Dambanyika. Many subsequent calls and electronic Cellphone messages (SMS's) were sent to Richard Wade from Eric, Azwindini, Samson and the Makhadzi Netshiendeulu to help draw awareness to the sacred site. Adjacent to Tshiendeulu on the plateau and in the Njelele Valley below are found the remains of the earliest settlements by the descendents of Dambanyika, namely Dzata I and Dzata II.

Dzata I and Dzata II were built after the death of Dambanyika and are regarded as the remains of the earliest settlement of the original settlers that came from Great Zimbabwe when that Empire supposedly fell into decline in the 14<sup>th</sup> century. However, on the top of Tshiendeulu Mountain the actual original structures of the very first settlement of

Dambanyika are found to exist. This is not known and the grave keepers have purposefully misled many archaeologists and anthropologists throughout the years.

On receiving the document of their father's trip with Pieter van Heerden, for the first time, the Netshiendeulu families have formally requested Richard Wade to help establish their lost city and draw the awareness to the immense importance of the sacred area and profound legacy that has never been recorded of the Royal descendents of the Great Zimbabwe.

**Photographs of Tshiendeulu Expedition March 2007**



Richard Wade, Dr Magdel le Roux, Lawrence Bale, M J Mungulwa, N Mafadza (Lemba elders), Prof Tudor Parfitt and His Royal Highness King Tony Mphephu Ramabulana



Tshiendeulu Mountain, previously known as Lwandali before it became the grave of Dambanyika



Homestead of Netshiendeulu family the Grave keepers and vhoMakhadzi of Tshiendeulu





Mother of the present vhoMakhadzi of Tshiendeulu



Dzata I



Dzata I





Tshiendeulu Mountain with the Cave of the Grave of Dambanyika in the centre



Samson Netshiendeulu and the present Lemba Leader

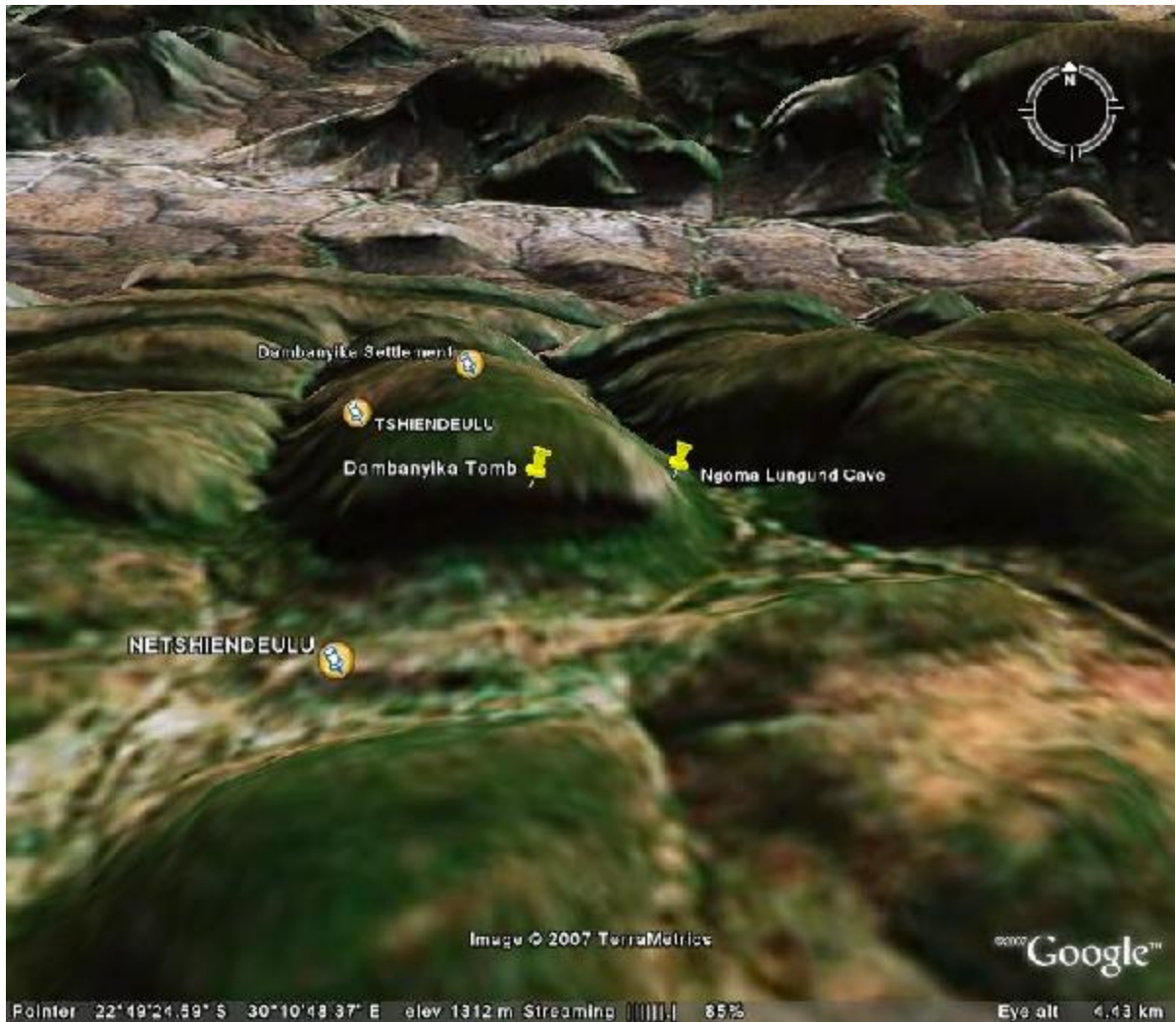


Dzata I, Dzata II in relation to Tshiendeulu Mountain. Njelele Valley is to the left



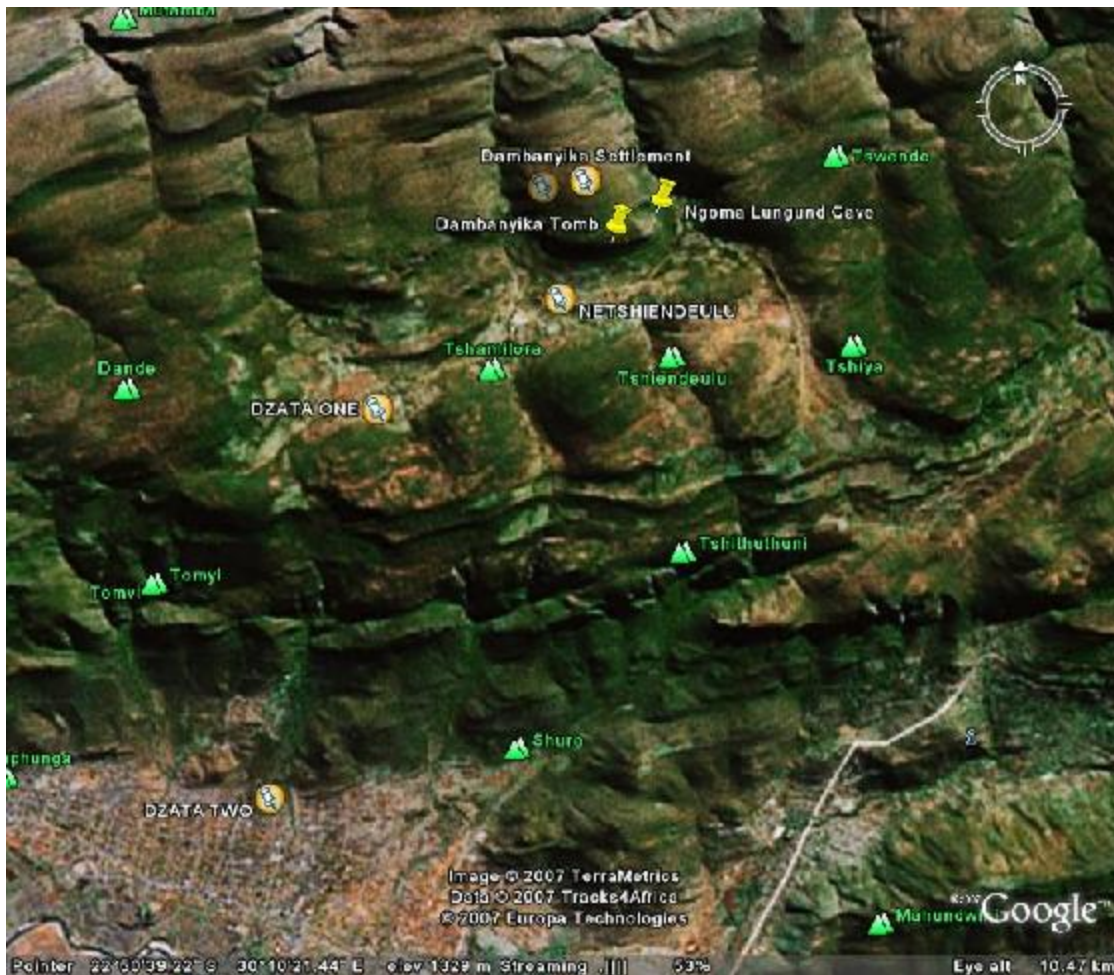


The Valley on top of the Tshiendeulu Mountain



The Sacred Area of Tshiendeulu where Dambanyika made his original Settlement as well as the Cave where Dambanyika was Entombed in a Rock fall and the Cave of the Sacred Objects – Ngoma Lungundu





Tshiendeulu area or Lwandali Mountain, was changed to 'the place of the graves' after Dambanyika was entombed in the mountain. The original Dambanyika settlement is very sacred ground and his followers were ordered to leave the area at the time of Dambanyika's death when they established one and then Dzata two. Dambanyika's maternal uncle Mwapenga then became the keepers of the grave and so changed their lineage name to Netshiendeulu.

## The Legend Of NGOMA LUNGUNDU

### 1.

"The ancestors of the Vhavenda were very fond of songs and musical instruments of various sorts. Different instruments were played by men and women, and they were especially fond of collective music-making, when ecstatic scenes might be witnessed. Such occasions were for instance when the whole people foregathered to dance matangwa and tshikona, the young men danced and perspired, and the girls sat in the centre watching them, whilst relieving one another at the drums, the older females pranced about and trilled and the old men squatted around the beer pots and enjoyed themselves. These are things that every Venda child of today still knows from personal experience. In all the rites of initiation, such as Vhusha and Domba, the drums also played a most important part.

Amongst all their musical instruments, however, the greatest and that which was feared and revered most by all the people, was the instrument of the royal ancestor spirits, the Drum of Mwali, the Ancestor God of the Vhasenzi and the Vhakalanga. This drum was called the Voice of the great God, Mambo wa Denga (King of Heaven), the Lord of all the ancestor spirits.

### 2.

We have seen that the most important musical instruments were the drums, and amongst the drums again the greatest one of all was called Ngoma-lungundu or Thundundu. The people honoured it feared it because it was believed to be the drum of the dead. It was brought hither by the VhaSenzi, who are today called VhaVenda. It is said that the drum belonged to their departed ancestors at the time when they were still living at Matongoni, yonder up north, in a country of great rivers and lakes, in a country of dense forests and jungles; a country overflowing with water and with many forests and fruit, of bananas growing in many groves and of tubers and pea-nuts in great variety. In that country lay the old dwelling sites of the VhaSenzi and VhaLemba, who later came hither to Zoutpansberg to the country of the original VhaVenda who were called VhaNgona. The chief of the latter was Tshivhula, whom the VhaSenzi, upon their arrival accompanied by the VhaLemba, drove away; and he went westwards and settled in what is today Hananwa, around the Blauwberg.

The chief kraal of the VhaNgona was called Ha Raphulu. It was situated on the mountains of Vuvha near the small hill called Tshivheulwa. This place the VhaVenda fear even today; and on the ancient kraal sites of the VhaNgona they do not build, for that is tabu. This because the Vhasenzi were the enemies of the VhaNgona.

All the VhaNgona are said to have come into this country in very ancient times. The people whom they found already in occupation were the VhaLembethu of Ha Mutele, those who exorcise the malombo spirits. Their chief was Mutele himself. Others of the same race were the people of Makuya and Thengwe.



All these tribes had different sorts of musical instruments. The VhaLemba had the deze (with metal tongues) and a kind of drum that was beaten for the rites of the circumcision lodge. The VhaNgona had the xylophone. Ma tangwa is something new in this country, having first been taken up by Magoro's people.

Ngoma-lungundu was the sacred drum of the Vhasenzi, who had brought it with them from the North, from Ma tongoni or "The Graves".

Their king was greatly feared by all his people, for he could work miracles with this drum which they called the drum of the gods. His village was built on a mountain, and was of tremendous size. Its walls were built with huge stones; it was impregnable. The houses were built of shining slabs. The drum itself was never seen by anybody except the high priest and the king. A special house has been built for it of beautiful slabs. This building was huge, so big that many thousands of people could not fill it. The roof was constructed of huge logs cut in the forests. In one chamber was placed the sacred thing itself, namely Ngoma-lungundu, the drum of Mwali.

### 3.

The king was called by the name Mwali, and the high priest was known as Dzomo-la-Dsimu, the mouthpiece of God. To him the king gave directions to transmit to the people. He it was who could be seen, for Mwali himself was tabu to look upon. The drum Ngoma-lungundu also was beaten only by him and by the king.

Whenever the councillors heard a trumpet sound, they assembled in the courtyard and awaited what announcement was going to be made by the king through the mouth of the high priest. When they were all assembled there, the drum would be heard once. All the people would fall on their faces and make humble obeisance saying, "Great king, male elephant, light of the country, great ancestor spirit, ruler of heaven." No man was permitted to see the king, they merely heard what he spoke to the high priest in a tremendous voice that reverberated in a terrifying manner.

The king usually spoke from his private hut which might not be visited by anyone. The place was guarded by his lions. Snakes with a head at either end kept all the fences to the sacred place closed. The lions were called the dogs of the king; whenever they heard the sacred drum, they began roaring in a terrifying way, praising their master.

Indeed, this king was indeed very sacred, so that they treated him as a god or an ancestor spirit. If the rain did not come the councillors came the high priest and begged for it. He would then hear their prayers and transmit them to the king. Then there would be heard the drumming of Ngoma-lungundu, the lions would respond with their roaring, and this would show that their words had reached the king and had been well received. Then the trilling of the woman would respond to the roaring of the lions and all the people would assemble. A great din would commence.

Then when the drum sounded again, a dead silence fell. Mwali began to speak in a tremendous voice that was heard throughout the city of Matongoni.

Every person would be seated with his eyes on the ground, covering up his face, because of the tabu that forbade people to gaze on his countenance. All the people, womenfolk included, were under a strict tabu not to look at him. Whosoever should gaze at him was immediately slain.

The high priest also was not looked in the face, but with him the fear was not so great as with the king. Ngoma-lungundu also was tabu to people, it might not be looked at, and the drum-stick with which it was beaten was equally tabu. He who beat the drum was the high priest himself, a man from the blood of the Vhasenzi. Before beating the drum, he would kneel at the door and salute the great drum. Then he would enter but remain on his knees and make obeisance and say, "Great spirit, my master and of people and of animals and everything! You, omen of clouds, drum of the spirits, god of the heavens!" Then only would he take the drum-stick and beat softly, so that people who were far away could not hear it.

Those who heard it would be the princes within the royal precincts near to the house of the drum. They would immediately raise shouts of rejoicing that the people of the city must prepare themselves and rejoice before the drum. Then all at once the ululations of all the royal city would be heard around. Upon hearing this shouting of the princes throughout the town, all the people would remain quiet to hear the noise of Ngoma-lungundu. This was their way of honouring the drum of the gods. For the drum also the people regarded as a mudzimu, even as they feared Mwali himself as if he were an ancestor spirit.

Then the royal precincts would again echo to the blowing of sable horns. Suddenly the noise of the ancestor drum would be heard, making the whole hill resound, the hill of the ancestor spirits that was tabu to all men excepting the high priest and Mwali himself. Thereupon all the people would ululate, the men and youths using all the instruments they had, sable trumpets, impala horns, bugles, flutes, whistles and so forth and making a tremendous din all over the hill.

#### 4.

All this would take a long time, until at last silence would supervene when the trumpet sounding from the sacred place was heard. This was a signal to the people to be silent, that Mwali might speak and lay his laws and injunctions upon his people, thundering the while with the noise of many waters rushing over a cataract. His interpreter was the high priest himself.

When all the people were silent, the drum again would be heard, the people would fall onto their knees and salute the king. Then in complete silence of man and beast, the king spoke from his sanctum near the hill. What he said was not understood, for it was more like the great roaring of a heavy rain. Clouds were seen hovering over the mountain, blackening in a fearsome manner. Above this black cloud, a fire could be seen leaping and blazing. Lightning played and flashed.

Then the voice said, "Hear me, my children, I speak of great things, especially to you the councillors and great ones all! Abandon all your differences and quarrels, above all you, my children, born of my wives. You are the ones that set the people against one another, because you leave not our bickerings. The thieving amongst you exceeds all measure. The people groan under the burden of your government.

And you also, councillors and great ones of the tribe, listen well. You also are bringing to ruin all the country by raising up factions amongst my people. You have made laws which I, your ancestor, did not give you. Listen you, grandchildren and great grandchildren, both male and female, and you all my daughters' children, To all of you I say, leave off from bickering and quarrelling, and from all evil. If you do not, I shall afflict you. If you hear not what I say, I shall go forth from your midst. I shall vanish and go to live beneath the earth. From thence I shall slay you all with an earthquake. I shall cause you to sink away with all your cattle. Listen carefully, all of you! Give ear to me, your ancestor; do as your great grandfathers did before you, whom I governed in piece. They always hearkened to me with care, but now you live in factions and in quarrelsomeness."

The voice of the great grandfather was not easily understood for he was a very aged man. He was indeed greatly aged, for all the old men of the country were his grandchildren. Yet though he was thus aged his voice was very loud.

The pronouncement of the king having ended and having been translated through the mount of the high priest, the sacred drum was beaten loudly, all the people trembled and fell to the ground in their terror, many of them fainted with fear and fell to the ground unconscious and never awoke again.

Those that remained were weak with terror of that which Mwali had spoken in anger. Their fear was increased by a shaking of the earth, lightning and thunder in the cloud that covered the mountain and a great fire that blazed and shone over them.

The sharp voice of the high priest was heard above it all. Many of those who died, were old men and woman of the Vhasenzi. Of the VhaLemba however not one had died for they have been observant of the law.

What struck terror into people was that especially the sons of princes had been slain. Those who survived were very few.

The next morning at sunrise it was seen how many were the deaths. There was a calling to one another to come and look; in every household there was a weeping, for Mwali had slain people with the noise of Ngoma-lungundu, the drum of magic and of slaughter. This was the rod with which the old man punished his people, the noise of this drum worked miracles.

Many years past by and Ngoma-lungundu sounded no more, so that people again forgot that terrible rod of slaughter. Again there arose quarrels and fighting amongst the princes of the royal city and factions between the councillors. The fighting grew day by day; cheating and betrayal and many evils were done again and again.

Then one day there was heard the sounding of the death bringing sable horn. The people trembled, for they saw that another slaying was about to begin. A great sound of weeping went up amongst the people yet they did not omit to ululate in salutation, and to blow their instruments in praise of Mwali. This was done not only to salute the king and the high priest but also to soothe them as it was known that songs soften the king's heart when he was angry.

When they had stopped making their salutations, the cave of the ancestor spirits was seemed to be alight with fire that shone out. Then the drum of death, Lungundu, sounded with a sound of good omen; the people prostrated themselves and rejoiced.

Mwali spoke to them through the mouth of his high priest and said, " My grandchildren and great grandchildren, you trouble me today, why do you not listen when I lay my laws upon you, I your great grandfather. You scorn to listen to what I tell you. Your grandparents I slew because they would not hear me. Whence come these differences amongst you? The wars amongst you part you from me, your creator. Now I am going away as I told you. I go under the earth, far down below. Some other day I shall walk on the clouds. I say to you: dwell in peace. What I have said that I shall carry out. I you do not hear, I shall shake you from where I am below, under the soil of the earth".

The people still believe that Mwali sometimes walks on the clouds and under the earth. When an earthquake occurs, they say, "Our grandfather is passing" or "He is angry, and wants to kill people" and they ululate for him.

When these words have been pronounced, the people trembled greatly and feared to hear the noise of the killing of the spirit drum. All of them make obeisance, and ululations were heard on every side, that the king might not slay them.

Then however, a torrid noise was heard that struck terror into the people's hearts, that day there died countless people, and their cattle and sheep perished in a terrible way. The people went to the high priest that he might intercede for them.

Nevertheless a great epidemic broke out that ravished the whole city of Matongoni. And the king Mwali died, and with him came the end of the great city. Many people fled and scattered all over the country. Of the king it was said that he vanished and went under the earth and dwelt in Mubwumela mountain from which a rumbling may be heard at times. He did not die, he went down below.

Before Mwali vanished it is said that he gave all his magic to his eldest son who was always listened to the royal commands.

It is said that he was given a small drum of the spirits, which was also called Ngoma-lungundu. It also resembles the big drum of the spirits in magic and killing power. It was this small drum that helped the prince whenever he was surrounded by his enemies. In the wars it was this drum, Ngoma-lungundu that helped them the most, and which broke the strength of their enemies in the days of drought when no rain came, it was the salvation of the people, for it was the omen of the clouds and soon rain would fall.

The prince who received the magic drum was named Tshilume. He had always obeyed the high priest and the great ones, wherefore he did not share the unhappy fate of the others. They say that Mwali did not go away altogether, but returned from time to time and his lions were still there.

6.

On a certain day in the month of July, just after the harvest and when the cold wind was blowing, and whilst the gardens were still being grazed by the king's cattle only, in the evening at full moon, an alarm was heard at the chief's place, that the princes were fighting one another with spears in dispute over the chieftainship. There was a terrible commotion, for they had set the town alight and the fire had reached the sacred places and the kitchens. Huge flames were beginning to lick at the dwellings of the ancestor spirits themselves, the very shrine in which the great and sacred object, namely Ngoma-lungundu and all the sacred amulet spears of Mwali were kept.

The alarm was raised in the middle of the night. All the men began the work of quenching this fire. The whole king's palace was a mass of flames, for the fire and the fighting had become one confused mass. There was none to give a hand, for each was occupied with saving his family and his grain.

Many people perished, especially old men and woman and cripples, and cattle, and sheep and other animals. The country was covered with a heavy pall of smoke, and the next day those who had escaped the carnage saw no sun, for a great darkness reigned.

The fire raged on for four days, as the city was great and the mountain large. The fire also spread over the mountain of the spirits and destroyed everything; the forest burned. The whole country felt the heat of that fire. This was the end of the city of legend that was very great and was known in all the countries of the earth.

The descendants of Mwali who had begun this great dissension and had set the fire going, then fled and scattered over the country. There remained only the one who had not transgressed, who had always listened to the precepts of his elders, and the pronouncements of the king. This one was known as Mutumbuka-vhathu, of whom it is said that his father was Mwali, ancestor god of all the country; it was he who had been given the small drum that resembled the great one of the spirits. Its name was also the same, namely Ngoma-lungundu.

When the fire had died down, the people went up to the royal place to see what had happened. They came to the place of the high priest to hear from him what should be done, but found the building without inhabitants and everything that had been there was burned, only ashes and embers were left, everything smelt of fire. The cattle kraals they found empty, no single living thing was left, except a dog that had escaped from the fire by running into the bush far away. They shouted loudly to see whether the high priests were still there, but no answer came. Thereupon they entered all huts to see whether anything living was left; but they found nothing but desolation. They gave up all hope and were in great fear, for they saw that in the burial place (Tshiendeulu) the fire had also raged and that another was still glowing where the fence had been. They feared greatly, for they saw that the whole mountain of the spirits was burned, together with the house of the spirit drum and that other which it was tabu to approach. So they turned back and went to summon all the councillors and the headman to deliberate what should be done. They called also the headman of the VhaLemba who were in the country.

On that day of the great gathering, they decided that they must find out what had happened to Mwali, his high priest and those princes who, it was thought, had scattered in all directions. The councillors and all the great ones of the land agreed that the VhaLemba should enter Tshiendeulu, because to them nothing was tabu.

So the elders of the VhaLemba climbed up to the Great Place to see what had happened and to discover whether Mwali was still alive, and whether his drum was still there in his private quarters. The VhaSenzi on the other hand all remained yonder where they had been living when they were struck by the anger of the king.

7.

The old men went up, repeating salutations all the time until they reached the sacred precincts, but they found nothing left, and only the smell of fire.

They entered the great dwelling of the queens and younger wives, but found only desolation and ashes everywhere, They went on to the place of the sacred objects, where Ngomalungundu had been wont to stand, but found nothing. Everything was reduced to ashes. They became much afraid; they looked also at the place where the priest has always stood when he spoke to the people at the times when Mwali instructed him as to what should be done; there also they saw nothing left besides stones and walls.

They went on to the great sleeping place of Mwali himself, reciting praises as they went. They entered but found no living being, and everything that had been in there was charred to ashes. Only on the north side did they find glowing embers, but they could not see clearly for the heat, though there was neither smoke nor flame, but only burning embers. Here they prostrated themselves and spoke, "Mambo, king of heaven and of the earth! Shuffler! Fierce wild beast of the wilderness! Bull elephant! Creator of men! Ancestor of us all!"



Then suddenly there resounded in the ruined huts a terrible voice that thundered and spoke, "Call me hither my son who was obedient, that I may take leave from him. Go back you, and do not speak of what you have seen here, for if you divulge it, you will be visited with great dying amongst all your kin." He who spoke was Mwali himself, the great-grandfather of all the people. It is said that he was not burnt by the fire but simply changed himself and became fire and burnt together with that fire that was lit by his children who were fighting for the chieftainship. And the queens and the great drum also, it is said, did not burn but were changed by Mwali and became stones that stood there in the palace area.

The VhaLemba went back and told the people that Mwali wished to see the virtuous one amongst his sons, namely Mutumbuka-vhathu. All the people were ordered to assemble in the great meeting place of the ancestor spirits, that Mwali might speak to them and bid them goodbye, for he desired the righteous people to migrate with his son who was good, and who would govern them in peace without the dissensions of those other rivals. The VhaLemba, it was ordered should not be present on that day for to them nothing was tabu.

When the day arrived, all the VhaSenzi assembled with their womenfolk to hear what their ancestor had to say to them. And the righteous prince was also there.

Then suddenly there was heard a terrible rumbling from the mountain of the spirits, on which the royal city of Matongoni had been built. The voice spoke, "My beloved son! Come hither that I may confer with you, for it is you that always hearkened to me, and to you I shall give the kingship of my righteous people." So the prince went up to Tshiendeulu alone, though in fear of meeting face to face his father, the great ancestor spirit. He came to the private quarters, knelt and made salutation, and saw Mwali himself. He was commanded to depart from that country and migrate towards the south. There, he was told, he was to settle and govern the whole of the land beyond the Limpopo. Mwali then adorned his son in shining white cotton garments and beautiful madi and denga beads. He also gave him the small drum Ngoma-lungundu, and told him that it would be his defence against all evils. He gave him also spears and the banner of royalty and many insignia. He was told that if he could not carry all these things himself, he might go and call the VhaLemba, for they would be charged with the carrying of all these things on their march to the south.

8.

So Tshilume returned to where the people were assembled who were to be governed by him. He descended from the mountain shining like fire, though he burned not. And his eyes also flamed like fire. The people trembled and were afraid to see him wearing this terrible appearance. Seeing the people fearing him thus he put out the flames that were burning about him. Only then could the people approach near to him; they knelt before him, making obeisance with a great noise of salutation. On the mountain of the spirits there were also heard many ululations and the sound of sable trumpets being blown above.

The VhaLemba were now told that they were to be the bearers of the sacred objects; that they should go up immediately to the mountain to fetch whatever they would be shown by Mwali. They went and found the drum Ngoma-lungundu inside a huge covered basket, so heavy that four women could not carry it. It was provided with seven tassels so that it could be borne by the VhaLemba woman. Many baskets were also found filled with madi and denga beads. Chaplets filled other earthenware pots and all together there was so much that the people could not carry everything. The necks of the VhaLemba were nigh being broken by the carrying of all this.

When they were carrying everything in the company, they heard a voice coming from the mountain saying, "Ye children of my grandchildren, listen to what I, your great-grandfather, say to you. I say to you now, even as I told you long ago that your dissensions had troubled me for many years, behold today the fire has destroyed many things, and there is no reckoning how much my children have scattered and spoiled. As for me, I am now going. I go under the earth and into the clouds. All you who cherish this son of mine who listens to me, must hoe your gardens this year and prepare to leave the land. The sacred objects and the magic drum I give to Tshilume, who is king of all the country. Let all men acknowledge him.

On the day of the new moon of July, you will arise and proceed southward. The VhaLemba will tell you when those days have come near. Fear nothing everything will go well. The important thing is Ngoma-lungundu, which will help you greatly. Whenever enemies trouble you, beat the rain-making drum, and everything that lives will be seized with fear and fall down as in death, excepting you yourselves. In this way all the country will fear to undertake anything against you, because you are my grandchildren. Should rain be lacking, drum five times and everything will be well, soaking rains will come. Everything will go well for you, if you will beat this drum that I have given you. But one great thing there is also: Let there be no dissension in your midst. Have nothing to do with the rival princes who have destroyed this city of your earliest ancestors. The deed was done by them in their youthful disobedience. The loss will be theirs; their lot will be to wander for ever. They will be eaten by the wild animals of the forest and of the waters and of the deep caverns."

The voice of the king having finished speaking, acclamation was heard on all sides. Nevertheless some of the people scorned Tshilume, that he should be the king, they moved away to the west and others to the north. There also arose dissensions when some of the princes fought because they wanted to take the drum that Tshilume had been given by Mwali. But when things were at their worst, Tshilume beat the drum, and he carried the day.

That season the people displayed great activity in their gardens, in order to grow food for the road. When the month in question came, the VhaLemba shaved their heads, and the VhaSenzi prepared for the road.

That season the fruits of the field grew in great abundance, especially pea-nuts and calabashes and pumpkins. Every sort of cultivated plant bore bountifully, there was an abundant crop, a harvest of rejoicing ensued which compensated for the restraint that had been laid upon them by the tabus created by the fire.

9.

When the day of the great migration had arrived, Tshilume assembled all the members of the house of his maternal uncle, the VhaNdalamo, and his brothers of the house of his mother, and all those who supported him and the VhaLemba followed him and acclaimed him their king. Those who thus acknowledged him went with him. Their animals they took with them, cattle, sheep, goats, dogs and others, so that a tremendous herd was formed, to drive which was a great labour. The VhaLemba had the duty of carrying all the baggage of royalty, the madi, denga and tshikandwa beads.

This remained the office of the VhaLemba until they arrived here in Venda, the country of the VhaNgona. The VhaNdalamo were the bearers of the sacred objects, the spears and Ngoma-lungundu itself. The hour of their departure was in the night, when all the people who were their enemies and rivals were deep in sleep. The enemies were in their beds and heard no sound of what happened in the city, or in the whole of the country.

For when the drum of the gods sounded, all the enemies lay down in a deep sleep, the VhaLemba and VhaSenzi then went out of the city, following Tshilume, who marched with his brothers and his makhadzi and all the children. That which had plunged his rivals into deep sleep was the sound of Ngoma-lungundu, for its sound could break the strength of all enemies who fought against Tshilume, the son of Mwali. The drum was carried by six men, who bore it slung from a pole, for Mwali had laid the injunction upon them that it should never be placed upon the ground, for should that happen, the people would be visited with great misfortune and calamities. Thus it was tabu for it even to touch the soil, be it never so slightly. At sunset the bearers of the sacred objects would therefore lift it onto a tree or would build a platform for it, lest it touch the ground.

The people marched many days in peace. They were not troubled by anything, for they had their great drum that was feared by all the people of the country. Nor did they lack food, for all the chiefs or the countries they marched through feared to attack them and immediately brought them gifts, because they were the people of Mwali. The report of Ngoma-lungundu and the magic of Mwali were known everywhere.

After a month they came to the chief of the VhaKalanga. The king Tshilume sent his messengers to inform the VhaKalanga chief that he was being visited by a great force of the descendants of Mwali, the great king of all the country.

That chief, upon hearing that they were carrying with them the magic drum, feared greatly, and said, "We are your slaves, we bow before you. Behold yonder the girls that will be the chief's younger wives, make your choice amongst them. Behold also the cattle, pick out the fat ones and take them, together with the fat wethers, that they be my tribute, from me your slave. And inform the king that we VhaNyai pray him that the drum of the spirits may not be sounded here in our country, for we are in great fear. As to subjecting ourselves, have we not done so long ago!"

The messengers returned with a huge herd of cattle and with men who had been told to go and tender submission at the Great Place of VhaSenzi.

10.

Upon their arrival at the camp of their people, the king was surprised to see this multitude of girls and the herds of cattle and wethers. These things pleased him not when they told him, and he asked, "Why did you accept all these things and all these girls?" They replied, "We were afraid to refuse the request of the VhaKalanga chief, O king," But he told them, "But I do not desire him as my subject. Return all these belongings of the VhaNyai; I do not want them. And further, tell the VhaKalanga that we have not come to dwell here in Galanga, we are passing on our way to the south to a country of peace. They must not fear; if they trouble us not, we will do them no harm; but should they prove treacherous, they will suffer great things that will come upon them from me. I impress upon them that all the VhaKalanga must see that they do not fall out with the grandchildren of the gods." The messengers went and did as they had been commanded.

The king of the VhaSenzi, Tshilume, the son of Mwali, told his councillors that they must make a plan to migrate further. So they left that place preceded by the drum Ngoma-lungundu, then followed the king, his sister and members of his household and all those who followed him. In this manner they travelled on, all the time being lead by the sacred objects and Ngoma-lungundu. The VhaLemba marched with the king Tshilume himself, carrying the luggage of the royal household.

They left the place where they had built and proceeded further towards the south. They came to another VhaKalanga chief of those parts, one who was feared amongst all the VhaKalanga on account of his bravery in war. Nor were his own people less afraid of him.

The king of the VhaSenzi, Tshilume, sent his messengers to speak to the chief, to get permission to build and make gardens, for hoeing time had arrived. The land in that quarter was very good. Arable land was plentiful and grazing abounded, so that Tshilume desired very much to stay for good in this country. He gave the order, "Go and tell the VhaKalanga that I wish to see this great chief of theirs face to face, the chief whom people fear so much on account of the evil in his heart, so much that his very name is that of "Evil" (Tshivhi). Tell him that I am here, that I have been sent my mudzimu, namely Mwali, to live in his country. He must not fear that I might perhaps take away his chieftainship. No! What he must avoid is deceit and the cruelty of slaying the people of Mwali who have no guilt. Tell him that I wish to settle here in the valley of the Tshipene. His chieftainship is of the VhaKalanga, who are not VhaSenzi nor VhaLemba. These latter are my people, and are ruled by Mwali."

The messengers arrived at Tshivhi's place and whilst still outside his courtyard saw many people issuing forth from the royal place with spears in their hands and prepared for battle, they stayed outside the courtyard fearing to meet them, because they had already heard

that this chief had great cunning and a cruel heart. They heard the chief shouting with a great voice, "O ye VhaSenzi people! What seek ye here in my city and in my land?" They replied that they had been sent by Tshilume with a message for the chief himself.

Tshivhi replied, "Speak what you have come to say from where you are, for you VhaSenzi are evil men and cunning." In fear those messengers then spoke the whole message that had been given them by their king, especially because they feared the many men gathered around with spears and shields and in overwhelming numbers. When Tshivhi had heard what they had to say he ordered his people to kill them. They fled, but the VhaKalanga caught up with them, and all the VhaSenzi ambassadors were slain, not one survived to tell the tale.

Tshilume learning of this, was very wrath and sent men to and kill Tshivhi and his people, to avenge the crime of the VhaKalanga had committed upon his ambassadors. All now issued forth with their spears and shields. The chief himself also went out with them, preceded by the VhaNdalamo carrying Ngoma-lungundu.

11.

They found the VhaKalanga of Tshivhi awaiting them in the plain of Zwiatula, a great open plain. Here Tshivhi had drawn up his forces below a great mountain. Tshivhi had learned that the VhaSenzi were men of courage and of great magic, worked by the Ngoma-lungundu. But he scorned what people told him, saying that he would overcome Tshilume and his gods and all his people. He boasted that he had never been overcome by any other chief ever since his grandfathers ruled the VhaKalanga.

As the VhaSenzi now approached, the VhaKalanga commenced shooting poisoned arrows at them. Tshilume beat the drum of death: Nduu! Straightway the men of Tshivhi fell to the ground in a deep sleep and knew no more. Then Tshilume commanded his people to slay them all, but Tshivhi himself they must bear up and bring to him and not hurt him in any way. The VhaSenzi slew all those that were there, but Tshivhi they brought to where the king was sitting, that he might see what sort of man this was who had scorned Mwali. The VhaKalanga, it said, could not awaken until the great drum had sounded again.

When all the enemies had been slain, and their chief brought before the king still unconscious, the king Tshilume spoke, "Place him amongst you, so that when he comes to he cannot run away and escape." They did as they were commanded. Then Ngoma-lungundu was beaten once: Ngunduu! Immediately Tshivhi awoke and found himself in the midst of the VhaSenzi men. He fell into a great fear, not understanding in what way he had been brought here in the midst of his enemies who surrounded him on all sides. Tshilume said to him, "Young man, why did you thus despise and insult the great ancestor on the VhaSenzi, Mwali, the great Mambo, king of heaven? Now see, you are in the midst of these men of mine. All your men are those lying yonder on the plain. They are prostrate and will not rise again. All of them have been slain, knowing nothing, like you who have been brought here unconscious. We just happened to care to let you live; had we been like you, full of evil, we would have slain you also today."

Tshivhi started and trembled like a man seized with fever. He begged to be allowed to live and not to be slain. The VhaSenzi king granted him this for he was kind-hearted, and told his people to let him go and permit him to return home. They did as they were commanded by the king and sent him home.

Arriving there he was astounded to see what had happened to his people who had all died there on the plain, not understanding that these things had been done by Ngoma-lungundu. He merely remembered that they had been busy preparing themselves when they saw the VhaSenzi in the distance and that his men had shot arrows at them. All the rest and the sound of the drum he remembered nothing of.

He arrived home out of breath and sweating over his whole body, unable even to relate anything to those left at home when the army went forth, as he had gone out of his wits. The people asked him what had happened, but he gave them no reply, he simply shook his head and held his chin. In this fashion he continued for two days, until he was able to relate how all his men had died and how he had been seized without knowing anything and had found himself in the midst of his enemies. Then he also gave an account of what he had been told by Tshilume, the king of the VhaSenzi.

When the people heard that all these men had been slain, they were plunged in to grief. The widows of the dead men made a plan to revenge themselves by killing Tshivhi and all his wives. So one day they lay in ambush and rolled a great boulder down upon him which crushed him. He was killed outright, and thus died Tshivhi, a man whom all men feared, and who yet died at the hands of woman. His wives they also sent after their husband, for they killed them all. They did not touch the small children. From this arose the song of woman: "Tshivhi is the great lion that was feared by men, but was killed by woman. O my! The men were by Ra tshilumela laid to the rest from which there is no awakening."

As we have heard, Tshivhi was great fighter who was known throughout the country. The slaying of this warriors and his own death caused consternation in all the land, and the fear amongst the tribes was increased by Ngoma-lungundu, the drum of death and misfortune, the mouthpiece of the gods of the VhaSenzi.

One day the sounding of the big drum was heard, and on the next day there was a great sneezing amongst the VhaNyai. They found that they had been afflicted with a great and amazing epidemic. It raged for a few days only, but in these there died people without number of the VhaKalanga. This caused terror in all the countryside, and the people greatly feared to stand face to face with the VhaSenzi because they had the drum of death. After this all the tribes of the country were afraid to undertake hostilities against them, wherever they went the people immediately subjected themselves without fighting merely out of fear of the drum of the VhaSenzi.



The VhaSenzi dwelt in the country of the VhaNyai for three years. They hoed and did what they liked, for the country was theirs. And moreover, they began to marry the girls of the VhaNyai. Only the VhaLemba did not take part in the mixing of the VhaKalanga and VhaSenzi. The VhaSenzi in their disregard of the law took to wife the women of that country, and this was the beginning of degeneration of their race, for the VhaSenzi were handsome people, with long jaws and pure white eyes like ndalama shells; fine men of tall stature with long straight legs (not knocked kneed) and high skulls. From this there comes the proverb which says' "Though you wash and anoint yourself never so much, will you ever resemble the girls of the Nzhelele with the straight legs, the long jaws and eyes white like ndalama shell?"

The physical appearance of the VhaNyai on the other hand was not pleasing, they were "those to whom the ground is not far away," men with red eyes, short jaws and beetling brows.

Some of the children of these wives resembled their mothers. This was the beginning of the deterioration of the race of the VhaSenzi in respect of physique.

The VhaLemba however, even today do not permit intermix ture with any other race, and in respect of physical beauty it is said that they are very well formed. There is the phrase, "That girl is as beautiful as a MuLemba," which means that the girl is very handsome indeed.

Mwali came and showed himself in a fire that lighted up the top of the whole mountain. A great thundering was heard that frightened the people. The drum of the spirits sounded in praise of Mwali, the ancestor of the people; it was beaten by the new high priest who had been appointed by Tshilume and his sister. That night no one slept, for all the people made a great noise by playing all the instruments they had. A great sound of rejoicing was heard on every side though the people were glad with a joy that was mixed with fear. Then was heard a voice that spoke in a long drawn-out sound; what was actually said was not understood, for only Tshilume and his high priest understood it. They explained to the people what the ancestor spirits had said and what he desired all people to do. He had reminded the people that they must arise and must not be beguiled by this country of the VhaNyai, but must arise and go elsewhere, and no longer live there. They must migrate further south to the country they had been promised when they were still at Matongoni. Moreover, their ancestor was disgusted by what the VhaSenzi were doing, namely their marrying of the VhaKalanga women; those who were praised were the VhaLemba because they had not sinned. Tshilume himself was rebuked for what he had done, for he had married VhaKalanga; and he was enjoined to depart quickly, lest he be visited with a great slaughtering as punishment for his disobedience and that of this people.

Thereupon the king immediately ordered his people to prepare for departure when they should hear the sound of Ngoma-lungundu followed by the ululations of his younger wives and of everyone. Then the people must march behind the VhaLemba and the VhaNdamo, who would bear the sacred objects. The order was given that no one was to cross the course of the Zwiaila. Whosoever should attempt to cross would have misfortune visited upon his kin.

13.

The day for departure having arrived, the noise of the drum of death was heard, the chief's sister gave the sign and was followed by the other wives, then all the people joined in and one could hear a tremendous shouting on all sides, the dust raised by the people dancing for joy was tremendous, resembling a rain cloud.

The bearers of the sacred objects arose and marched southwards as they had been told; there lay the country of peace and beauty. The great multitude of people marched behind them singing loudly and dragging their feet. The VhaKalanga rejoiced at being relieved of the presence of these people of whom it was said that they were spirits in their own persons. They marched with great rejoicing until they eventually reached the country of Mubvumela, where the stream called Zwaila flowed; the stream that was not to be crossed, that had been made tabu by Mwali. Here the drum of the spirits fell to the ground because it had not been placed carefully in a tree. Yet it was tabu that it should touch the soil.

That very night there arose a tremendous storm that broke even big trees. This happened because the drum of the spirits had touched the soil. It was terrible, and the high priest was at a loss what to do in this predicament, everybody was at his wits end about what was happening. Next morning there rushed on them a great troop of fierce lions that had been sent by Mwali to kill the people who had sinned in not taking good care of his drum. In the shelters erected by the people there was utter confusion; lions rushed everywhere, with the fierceness of the dogs of Mwali. It availed nothing that the high priest poured libations. Many princes and commoners perished, others crossed over to the other side of the river that was tabu, in their terror of the dogs of Mwali, the fierce lions. The king himself poured libations upon seeing how his people were being slain. But not even this brought any relief; and he despaired on seeing his children dying and his people being massacred and others in flight. He went up the hill of Mubvumela and did not return.

Then one day the lions disappeared, but many people had perished. The mountain glowed red with fire; it was their ancestors who had come to see his descendants. A great voice was heard. The high priest rejoiced, thinking that perhaps Tshilume would return, but he only heard the voice say, "Tell the makhadzi that Tshilume has vanished and will not return to his people because they are disobedient and have sinned, and respect not my drum. Should they go on with this, I shall again send my dogs that have been finishing you off, because you did not listen to my commands." As great wailing arose, all the people shaved their heads in mourning, excepting the VhaLemba who shave every new moon only.

The new king who was then installed was a young man and the only one who had stayed when the lions attacked the people. He had remained with his sisters. His name was Tshikalanga, because his kingship was entered upon in the country of the VhaKalanga. He was given all the sacred objects and Ngoma-lungundu. Many people had been slain by the lions, others had fled, others remained in hiding because they no longer desired to go forward, seeing that the country they were in was fine and gave no reason for complaint. Moreover, travelling had fatigued the people very much.

They were told by Mwali to arise and cross the valley of the Zwiaila, and proceed southwards across the Limpopo, the great river with the pools, which was the younger brother of the Dzambwedzi (Zambezi). The people that now remained were not numerous. It was only a small group, which in time of war could achieve nothing. But Mwali told them not to fear anything. Their defence would be the great drum. That was to be the spear and shield of the VhaSenzi, the descendants of Mwali, the god of destruction.

Then there was heard the announcement of the high priest urging the people to pack up their luggage and turn their faces southward whither the drum was preceding them. They were told not to cross the Limpopo before Mwali told them. They were also told about the shaving of their heads in mourning for their chief Tshilume who had vanished at Mubvumela, so that the new king might find new hair on their heads at beginning of his reign. All the people did this, the heads and beards of all the men and the very old were shaven. On the day of departure the great drum sounded, the people received its noise with a great shouting and blowing of trumpets. A great commotion ensued as the people struck camp. This place is feared even today, it is called Mubvumela, it is the site of the settlement that Mwali built after leaving Matongoni. Here he dwelt with his son Tshilume, the king who loved his people and who was loved by all on account of his great humanity.

14.

They marched on until they came to the valley of the Limpopo, the river they had been forbidden to cross until ordered to do so. The order came that its water was not to be drawn by the VhaSenzi, but only by the VhaLemba. The people complied with these orders.

In that place they built a camp again, but were much troubled by malaria fever which fell upon the people with great virulence and took off many of them. The new king died there at Vhuxwa, (place of dying) and event which caused great sorrow amongst the people, afflicted as they were with fever. Their ancestor spirit Mwali spoke to the high priest that they should install a new king chosen from the sons of Tshikalanga, on whose name was Hwami, a man of peaceful disposition and kindly temperament. He was the king who first arrived here in the country of the Venda, bringing with him only a small group of VhaSenzi and VhaLemba who had escaped the various visitations of death that had come over the tribe previously.

Though Hwami had so few people left, he was not troubled by his enemies, for all of them feared Ngoma-lungundu and the ancestor spirits of the VhaSenzi and the VhaLemba, as they were so fierce in slaying. The cattle and other domestic animals had all perished. What was left was very little indeed; the bulk of them had been finished by the lions that had scattered them when they were still in the valley of Zwiaila. The great drum made their enemies peacefully disposed towards them; had it not been for this drum, this people must surely have perished entirely and have been overcome by the other tribes that it encountered.

Whilst they were still sojourning across the Limpopo, the report of their approach reached the Venda country. The VhaNgona became very alarmed, because they had heard what had been done to the VhaKalanga of Tshivhi who had all been laid down in sleep by the drum of Mwali, the ancestor spirit of the VhaSenzi, the drum of which the sound made people other than its masters faint in fear and lie down as in death. In this way the owners of the drum could do what they liked with their enemies, whether it be to bind them or slay them, everything was in their hands.

Many people in their fear of the drum, hearing that the VhaSenzi were coming, immediately made way for them and fled further southwards or westwards or eastwards. A great flight ensued from the country of the VhaNgona; villages were left in ruins and gardens were left unreaped.

Hwami came and settled on the mountain of Tshiendeulu in the country of the MaKwinda overlooking the Nzhelele valley. The owners of the country immediately subjected themselves without having thrown a single spear, for they feared the ancestor spirits of the VhaSenzi who burnt like fire though the bush did not burn and though the whole place around was alight with flames.

Hwami's people now made gardens, as the hoeing season had arrived, but rains had not yet fallen. They hoed and planted; the high priest, who was by now very aged, beat the drum of Mwali, so the rain might fall. Indeed a great rain came and the Nzhelele river ran full to overflowing.

15.

The MaKwinda lived in subjection to the VhaSenzi and were much troubled because their cattle were being continually seized by the king. So one night a certain man of the Kwinda broke into the town of the VhaSenzi and set a light to it; the whole place was burnt down but Ngoma-lungundu was saved from the flames by the VhaSenzi. A deep sorrow however was that the high priest has perished, and a great mourning was held by the VhaSenzi.

Hwami lacked the energy to undertake anything, for he was a man who hated strife. They dwelt in that place for four years but the people were not pleased with it and wished to go further. So Hwami moved on, but the VhaNdalamo refused to go that way, they left for the east, and settled in a place that is called "The plain of Tshishonga." Hwami and his people migrated southwards, and crossed the Luvuvhu and Klein Letaba. They went still further and eventually settled in the mountains that are today known as Mamabolo's. Then they moved further still, and arrived in the Pedi country, but here they did not stay long because it was cold, and their enemies did not fear Ngoma-lungundu, and above all remained unmoved when it was beaten. So Hwami returned with those people who still clung to him. But there were others who refused to return, and who continued to dwell in the south, together with some younger brothers of his who were tired of travelling around the country.

The VhaSenzi of Hwami and the VhaLemba who remained loyal now returned to the north, and settled in what is today called Muila's. Here they dwelt for many years, hoeing and harvesting, though Eleusine did not do well there, sorghum and millet and tubers doing better; pea-nuts were no use and fever troubled them much. So Hwami again suggested, "My people, let us return to the country in the north, yonder to the land of the VhaNgona, which more resembles the homeland of our ancestors. There the country is good and there are rivers with much water." The whole community of the VhaLemba disagreed, saying that they had now settled here and were no longer desirous of going to the country across the Luvuvhu.

So Hwami departed and crossed the Letaba and the Luvuvhu and came to the country of Tshivhula the chief of the VhaNgona, for he knew that the VhaNgona feared his spirit drum, so that here there would be no trouble. All the Vhasenzi migrated and came and settled in the Nzhelele valley, where they built a great town, which they laid out to resemble that of which they had heard from their fathers, namely Matongoni and the town of Mubvumela. This new town they called by the name of Dzata. The VhaNdalamo also returned and came to dwell with their cousins.

Having settled, they found peace, there were no dissensions, all the people lived together like actual brethren under their king Hwami. This king, they say, lived to a great age, he died having already seen his great-grandchildren and eventually having gone blind through age. All the VhaNgona were brought under subjection and even their great chief Tshivhula became a vassal, for the VhaSenzi had gone and beaten the drum for him yonder near Vuvha where he was living. All the people of Tshivhula trembled thinking that the same would be done to them as had been done to Tshivhi who had been laid to sleep with all his people. Tshivhula himself fled westwards to the country of the baHananwa. Hwami subjected the VhaNgona each in turn, until he became the sole ruler of all the country, his kingdom became great and he was feared far and wide. Hwami lived to a great age and four successive priests held office during his time. They all grew old and died of old age.

16.

When Hwami was dead, a great-grandson of his became the king, because all his sons had died of age. Amongst all those who were still alive there was none that was as old as Hwami, neither man nor woman. And his grandson also was very aged, having no black hair left, for Hwami had lived to an age where none remained who could remember his parents or who had seen his youth or even his age of manhood, amongst all the people. All the people called him by the name of Mutumbuka-Vhathu; the creator of men, as far as our memories go.

The name of his grandson and successor was Dyambeu, who also lived to a tremendous age.

When Dyambeu, became chief he went to the east, to the kingdoms of Mutele and Makahane, who had not yet bowed to his authority. These were the kings of the VhaLembethu. He took Ngoma-lungundu with him, that it might defend him against all his enemies. First he made for the country of Mutele, who had ruled over all the land of the VhaLembethu until he was conquered by Tshivhula, king of the VhaNgona. Approaching near

to the royal village, they sent messengers to ask Mutele whether he was prepared to become a vassal without the shedding of blood and fighting. The messengers upon their arrival shouted from outside the enclosure, "Hi Mutele! What do you say, will you fight with Mwali the god of the land? Tell us whether you will submit and give twenty girls as tribute. Bring also ten oxen and thirty goats. Do this quickly. Unless you do so, you will be smashed by the descendants of Mwali. Give us your reply quickly."

When they had spoken, Mutele invited them inside the village, but they refused to enter, though he begged them most instantly. They merely repeated their message about the payment of goods and everything that was demanded, including the large tribute of girls. They returned to report the matter wrongly and with lies, in order to set the two chiefs against one another. They told Dyambeu that Mutele had said, "The sun will not go down upon you if you come here, I shall smash you all forthwith, you with your funny little drums that are good for nothing. "When Dyambeu heard this, he became very angry. "At sunrise we shall see whether they can fight against Mwali," he said. And so next morning before the sun was well out, the VhaSenzi ascended the mountain of the VhaLembethu carrying with them Ngoma-lungundu, the death dealing drum.

Before they got there, they were met by Mutele and his men, who shouted that they were prepared to submit. But the VhaSenzi refused even to listen, they immediately beat the drum of death. Immediately the VhaLembethu fell to the ground unconscious, knowing no longer what they were doing; they all resembled corpses. The VhaSenzi of Dyambeu then slew all the VhaLembethu, excepting the woman. Mutele they did not kill with a spear; they strangled him in the way all kings are killed by tying a strand of plaited cotton and string around his neck; this is the manner in which all royalty must be killed. Great wealth and possessions were taken from the VhaLembethu, grain and stock and children. There was a great confusion of people all mixed up.

Leaving there, they went to Makahane, who was a man greatly feared by many people on account of his ferocity. Upon their approach they were immediately met by men sent by Makahane to tell the VhaSenzi to go back. Dyambeu refused to go back, and ordered them to tell Makahane that it were better for him to subject himself without delay before the great drum had sounded, otherwise if it did, things would go badly with Makahane's people. The messengers sent by Makahane went back and reported as they had been told, but when Makahane heard this he said, "I shall capture this little drum that they make so much of, of the ancestors of the VhaSenzi and the VhaLemba." So he summoned a great host of armed men, his warriors come armed with arrows and bows and shields and battle-axes of Ngoni workmanship. Great things were to happen that day, and a shout went up on all sides calling the people together.

17.

The VhaSenzi assembled in one place awaiting the attack of their enemies and fearing nothing, for they had their great drum with them. When the VhaLembethu were near, Dyambeu beat the Ngoma-lungundu: Ngindii, ngindii, ngindii! Straightway Makahane's men



were seized with great fear and fainting fell to the ground like dead men, together with their chief. They were attacked by the bodyguard of the king and all stabbed to death, excepting the chief himself, whom they strangled. Stock and girls were captured in great numbers and driven home. When all was over next morning, the big drum was beaten to let the people rest, that a day of tabu be observed in the country of the VhaLembethu.

Thus everything went well for the VhaSenzi and they became great chiefs. All the goods and chattels that were captured were taken home to Dza ta, the royal place that was built in the valley of the Nzhelele river, having subjected all the VhaLembethu they returned home rejoicing, carrying with them Ngoma-lungundu which was borne before the host.

They all assembled in the "Plain of Tshishonga," where they built a camp and for Ngoma-lungundu they constructed a shelter that was surrounded by the skulls they had cut from the bodies of the men of Mutele and from that of the chief Makahane. The private quarters of the king and of Ngoma-lungundu were clearly visible in the night on account of the fire that glowed there throughout the night until daylight, when it went out. Mwali himself was heard speaking from the hut of Ngoma-lungundu saying "Listen Ye, my children, tomorrow at dawn proceed in the direction of Tshiheni, in the country of the VhaTavhatsindi; overcome them with my drum and having done so, do not take the least bit of goods or chattels from them, for they are the children of the gods that dwell in Fundudzi lake, should you do so, you will be visited by great misfortune that will kill the people. Do exactly as I tell you."

When their ancestor spirit has ceased speaking, the countryside shook with an earthquake for a little while and clouds gathered in the sky. Dyambeu beat the drum Ngoma-lungundu so that a fog might cover the mountain of Tshiheni and the enemies might not see them approaching.

Immediately the whole countryside of Tshiheni, the home of the VhaTavhatsindi, became enveloped in a huge black mass of fog. The VhaSenzi followed Ngoma-lungundu, which was being carried in front with Dyambeu their king immediately behind. Dyambeu told them that not a single one should speak whilst they were on the march; for the VhaTavhatsindi were cunning people, nor might anyone ask a MuThavhatsindi, whom he might happen to meet, any questions; but whoever was encountered must be seized and slain lest he betray their presence and they be attacked by the enemy chief and the ancestor spirits of Fundudzi lake.

Upon their arrival they heard the lake roaring and moaning, for the local spirits were enraged and were beating their drums.

All of a sudden the dense fog lifted and the VhaTavhatsindi were able to see the VhaSenzi clearly and immediately came towards them though still far away. The high priest of Fundudzi rushed down to the lake to report (to the spirits) the news of the battle that was imminent.

Dyambeu in his arrogance boasted that he could conquer the VhaTavhatsindi without once beating the drum Ngoma-lungundu, for he saw that they were not numerous. So they hung up the drum in a tree, as it was tabu to place it on the ground, no matter how tired the bearer were, their duty was to hand it up or place it on top of something else. But the drum fell down, being blown by the wind, and touched the ground. The high priest of Dyambeu went and beat the drum without first making obeisance, because he saw that the VhaTavhatsindi were now very near, and Fundudzi also had risen against them.

But to beat the drum now was of no use, for they had already sinned by scorning the help of Ngoma-lungundu. So their enemies fell upon them with great ferocity, unconcerned about the sound of the drum. The high priest exhausted his powers of trying to get Mwali to help him. The VhaSenzi were slain, all of them, excepting Dyambeu himself, whom they seized and flung into the lake of the spirits of the VhaTavhatsindi.

When the VhaTavhatsindi had flung him in he sank, but one had again arose above the surface holding a firebrand. They were terrified and shouted to their gods in the water that they must kill him lest he escape to land again. Ngoma-lungundu did not escape either, for they took it and carried it to their chief's village on top of the mountain; and this was the first defeat of the VhaSenzi in Venda and it was caused by their having despised Mwali.

18.

The massacre that had taken place became known throughout the country and news also came that Ngoma-lungundu has been captured by the VhaTavhatsindi, a thing that caused astonishment everywhere, when this news reached their home in Dzata, the people fell into a great terror.

Those that remained immediately prepared to go and recover the drum that was their god. They set out in the night, preceded by the chief of the VhaNdalamo whose name was Tshishonga; he was a great and trusted warrior.

Those that remained immediately prepared to go and recover the drum that was their god. They set out in the night, preceded by the chief of the VhaNdalamo whose name was Tshishonga; he was a great and trusted warrior. They arrived and assembled in the plain where Dyambeu had first built his temporary camp when arriving there from the VhaLembethu country. Here they perceived Mwali bringing fire in the middle of the night. He spoke to them, "Here me, your ancestor. Those others scorned me, they let my drum hand in the sun and let it fall from the tree and get cracked, which enraged me very much. So I cast them off, and all of them have died. I now give you a horn, which you must blow on the day you attach the VhaTavhatsindi. On that day there must be none that eats sour porridge, for it weakens the limbs. You must not begin before you have heard me tell you that you must fight.

Mwali having finished speaking to Tshishonga, the people saluted humbly. They remained here for ten days eating meat and fruit of the stamvrug and others. In the night of the tenth day as the first red of daylight was seen, Mwali again spoke to them and said, "The dawn is here, arise and go in good faith to retake my drum, do not fear their spirits, for I am stronger than they, I am their king." The sun having risen, they went and Mwali gave Tshishonga the brass flute to blow, so that his enemies might fall asleep and lack strength, and they could break into their town. So there was great rejoicing amongst Tshishonga's people. The plain on which they had built their shelters is till today still known as the "Plain of Tshishonga".

Arriving in the country of the VhaTavhatsindi, they blew the flute of their ancestor and immediately stormed the chief place with great courage, their enemies in the meantime having been befallen by heavy sleep, the chief and the spirits included. They began by taking Ngoma-lungundu which they had hidden near the enclosure of the village. Once having recovered the drum, they started stabbing all the VhaTavhatsindi who had lost consciousness through the blowing of the flute of Mwali. The chief himself they seized and bound hand and foot in accordance with the commands of Mwali.

When the VhaTavhatsindi chief recovered consciousness he was very surprised to find himself bound hand and foot. He was, it is said, a very handsome person. The order was therefore given that he be taken home so that the people who had remained behind, and the makhadzi, might see what sort of person he was. The younger wives of the chief were also taken and sent to Dzata.

When they returned home there was great rejoicing amongst the people of the country and all the town, for there had been no peace since the drum had been captured. Nor had any rain fallen in the country, the people and the makhadzi all went out to meet the drum of Mwali as it was returning home together with the children of the royal house of the VhaNdamo. There was a great assemblage, the whole valley swarming with people. The drum arrived home with the people rejoicing, the old women dancing and the trumpets, flutes, bugles and other instruments all being blown in unison.

There was a great to-do. On the next day a general tabu was proclaimed, the people were to remain at home all day and keep quiet. They were commanded by the makhadzi to shave off their hair in mourning for Dyambeu, their king, who had perished in Fundudzi. This mourning lasted a whole month, during which the people did not work in all the country that was ruled by the VhaSenzi. All the people were shaven and the beards of men and the aged were also shaved off, indeed there was a very deep mourning.

19.

On the first day of the month, the fires were extinguished throughout the country so that the new month might begin with new ones. Mwali spoke to Tshishonga, the grandson of Dyambeu, and told him to place someone on the throne, as the people could not live without a king. The makhadzi selected the eldest son of Dyambeu as king, his name was Bele and he

was praised as “Bele of Mambo” i.e. the hyena of the king. He was a craftsman, one who used to make beautiful things, who carved wooden platters and other things out of logs. The coiling of wire to make bangles he also understood very well, having learnt all his craft from the VhaLemba.

On the day of his installation on the throne, very early before daybreak, Tshishonga beat the great drum of the spirits and all the people assembled and the ululations of the married women and the sound of sable horns and impala trumpets and bugles and other instruments was heard and one could hear the whole country resounding to the music. This took some time whilst they blew in unison, when everything would again be silent, as the drum was again beaten. The nobles and headmen came to the head kraal according to their clans. All the people gathered together at midday in the great courtyard where stood the throne built of stones for the new chief, by his craftsmen who were also his comrades.

The people having assembled, the makhadzi and the VhaNdalamo meet in the council chamber, and wait for the new chief, the new high priest and the chief’s deputy. There is a quaking of the earth for Ngoma-lungundu has sounded. The people assembled in the courtyard await the appearance of the princes and other great ones of the tribe. They come in to view, a great mass surrounding Bele on all sides, and his deputy, named “Seat of the spirits.” The new priest is of another hut, no longer that of old because the old ones have died out. His name was Gole-la-Mambo, from whom the house of Mphaphuli takes its origin. Mats are spread out, and the king and his priest and deputy seat themselves on them, covered with one huge kaross made of leopard skins. The old makhadzi arises, almost blind with age she is, and speaks, “You my grandchildren, listen to me who was begotten by Hwami your ancestor, by him who was himself a son of Mwali, the great spirit of heaven and earth. Mwali our common father has chosen this son of Dyambeu to be the chief over all the people of this country.

20

So saying, she tells Tshishonga to uncover the kaross which conceals the chief, his younger brother and the new priest. The drum is beaten by the makhadzi herself. The face of the new chief is red and shining, like the embers of a smouldering fire. Immediately Bele ascends the throne standing alone in the open place, whilst all the people maintain an impressive silence, the great ones and princes come and make obeisance before the throne, after them come the headmen, and then the common people. When this is over, they hear the drum sounding all of itself, being beaten by someone nobody could see, namely by Mwali himself.

They cannot see the drum any longer, as it is glowing like a fire. The people fall to the ground and recite praises and pay reverent homage. When this is over, the tshikona begins again, and the big drum is carried back to its place by the VhaNdalamo. The tshikona goes on, but Bele and his ndumi (deputy) are not to be seen, because they have left for their private quarters. In the night the tshikona blowers go

home, a great rain falls that frills the Nzhelele river in one night. The people rejoice and again blow tshikona in spite of the rain.

The tshikona continued for a whole month, until the day of the first-fruits ceremony on which it stopped. Every day the king had been in the habit of coming out very early at sunrise to sit upon his throne outside the courtyard.

The rejoicing was great everywhere, because in those days rivalries over the chieftainship were not common and the princes got on well with one another knowing that the king was chosen by Mwali and not by any person, so that even if a man should make a claim for the kingship he would not profit, since it was the drum of Mwali that chose the heir. No man knew which of the princes would be the heir. And even if the prince who was destined to be the king might be named by the great makhadzi, this was never divulged, so that nobody could perceive the truth. Whosoever should reveal the secret was immediately slain by the king, these things were done lest people kill him with sorcery. But above all they feared the power of Ngoma-lungundu and Mwali, for the priest did everything in his power to scare the people and was aided therein by the great ones and the makhadzi; so that it seemed dangerous to do what the king had forbidden, when he had been urged by the high priest and the great ones to give this command. On the day of the installation of the king, the oldest noble, the makhadzi and the high priest selected the one amongst the princes who pleased them most, that he become chief the next day. What one hears about the "great house" is just so much talk, for this is not a law that is much observed.

When the day has come for the trial, one of the makhadzis is put inside the hut in which the corpse of the deceased king was placed after his decease. She then bars the door on the inside, so as not to be seen. Now the princes are told to come and attempt to open the great hut. He who can open the door is the one to be the king. All of them had to make the attempt, but the one selected would have the door opened for him by the person inside the hut. Those who were not popular found the door barred, so that it might be said that they were not desired by Mwali. The hut where this test was held was that in which Ngoma-lungundu was kept and in which the deceased king was laid out, so that he might be seen by the next king before he was installed.

All these things, it was said, came from Mwali, the ancestor spirit of the people, who was terrible in his use of magic.

One having ascended the throne, the king was greatly feared by all, being now a person who conversed with Mwali and moreover one who was loved by all his ancestor spirits, with whom he conversed.

Now this Bele-la-Mambo was a good ruler, and the people loved him though he was also feared on account of his possession of the death-dealing drum.

The first person to fall out with him was Tshishonga, who lacked respect towards him, for it is common that he who knows that he has given you something, despises you when afterwards you grow overweening on account of it. Tshishonga perceived that he was no longer popular at the king's place, and so attempted to administer to the king a poison in order to kill him, but this came to light and he was driven out, and went to the east, where he settled at Tshivhilidulu near the Nzhelele river.

Here he built a great town of the VhaNdalamo; here it was that he settled. The king Bele realizing the increase in power of Tshishonga sent his men to fight him, but without result, for Tshishonga also had charms of his own, namely the horn that he had been given by Mwali at the time when the drum was captured by the VhaTavhatsindi. So Bele's men were beaten though they had gone out with Ngoma-lungundu. Though they beat it continuously, they were overcome.

So next day Bele went forth himself in all his state and with many warriors. On that day the battle was a bloody one, for great numbers engaged on both sides. Ngoma-lungundu sounded in terrifying fashion, but the VhaNdalamo took no harm, for Tshishonga blew his horn. The countryside shook and a great fire blazed on Tswime mountain, a fire that had not been lit by human hand, but which consumed many people. The whole mountain and the adjoining valley burned and the smell of scorched flesh went up. At that time hot springs burst forth that today are called Tshipise. The village of Tshishonga was consumed by this fire, the two kings caused one another great losses but eventually it was the king Bele-la-Mambo who was killed. The slain were numerous. Tshishonga won the day because he was the son of the makhadzi's family and knew the secrets of Mwali.

The Tshishonga clan are to the present day greatly honoured amongst the Venda. Even though someone else were the chief of the VhaSenzi, Tshishonga was also a chief at the same time, he ruled together with his sister's son the chief, so that there were two chiefs in one country. Hence the proverb, "The rulers are Thovhela and Tshishonga," meaning that the country has two rulers, though it is but one, Tshishonga used to live near Tswime mountain in the Nzhelele valley.

The place where the battle was fought is still tabu for the Venda chiefs to this day, but only for the great ones.

For many years they were at loggerheads and at Dzata there was no king, the government being in the hands of the uncles, whilst the rivals were fighting one another and quarreling, each for himself. The drum was in the hands of Tshishonga's people who had built a new town.

At Dzata a new king could not be installed because the sacred objects were not there, namely the horn and Ngoma-lungundu. The country no longer enjoyed peace, there was dissension everywhere, amongst them. Then the royal uncles begged Tshishonga to give them the sacred objects, but he slew them all at the same place where Bele had died, and



this strengthened the tabu which forbids chiefs to go there, so that even today it is absolutely forbidden to a chief of the blood. In this way many years passed. The people were split in factions, only coming together again when the members of the royal family were appeased by gifts of cattle and girls. Tshishonga returned to Dzata with his people in order to install a new king.

He installed Dimbanyika, a sister's son of the VhaNdamo. He was given Ngoma-lungundu and the magic flute of Mwali. Now Dimbanyika was told by Tshishonga to subject all the other chiefs who were living in the neighbourhood. Some of these were VhaNgona who had become rebels because there was no longer a king at Dzata.

22

Dimbanyika was one who listened to Tshishonga and did what he told him. This Tshishonga ruled the country though he was not the chief, merely working through the chief, who did what he wished him to do. Dimbanyika was popular with the people because he was on good terms with the VhaNdamo. He travelled far and wide and subjected the people by means of the drum and with the culture bone flute given him by Tshishonga. The country feared him, and his rule extended far and wide in Venda. He brought all the VhaNgona under his control.

After a time Tshishonga died, and Dimbanyika was free to do as he liked. His high priest Gole-la-Denga was a man who was much feared also, because he was looked upon as Mwali's servant and the possessor of much power. The chief Dimbanyika lived to a very great age, as his father Hwami had done before him, so that neither his father nor mother were remembered by any living person. Thus it is that some say he was a son of Mwali himself, because he could work such amazing miracles.

The town of Dzata grew and covered all the valley up to the hills of Mandiwana and Tshiendeulu and Tswime. Even the Vhakalanga across the Limpopo and far away in the north, and all the people in the east and the Sotho also acknowledged the supremacy of Dimbanyika, including also Tshivhula the Ngona chief tain who had been driven out and had fled westwards to the Blauwberg.

Dimbanyika seeing that his days were coming to an end, parcelled out the lands under his control to his sons, so that his realm might continue to exist even after his death. So he gave independent chief tainships to his sons Ravhura, Mandiwana, Munshedzi, Tshivase and Thoho-ya-Ndou. The senior amongst them was Munshedzi of the house of Ramabulana, whilst the youngest was Thoho-ya-Ndou.

When the chief was dead, the VhaNdamo met to install the new chief at Dzata, because they were the possessors of the magic objects, as they were of the house of the makhadzi. They made the youngest, Thoho-ya-Ndou, the chief, him to whom no area had been given. Tshivase had been given Phiphidi and all the area at present still occupied by him, and his

headquarters were at Phiphidi. Munzhedzi was given a huge area, as he was the eldest of them all. Mandiwana was given the north, from Tshiendeulu onwards.

Gole the high priest was given the area in the south-east, to guard that quarter against possible enemies who might want to attack the princes, and to check the illness-bringing winds that came from that direction and which troubled the people much. His headquarters were Tshitomboni.

The headquarters of Munshedzi were at Vuvha, where the VhaNgona had used to live; but not exactly on the old ruins of their dwellings, because that was tabu.

Another commoner who found much favour was Magoro, who was given the area of Mbwenda, so that he could support Gole Mphaphuli, both of them being appointed guardians of the royal sons.

23

The VhaNdalamo had installed, Thoho-ya-Ndou because he was their sister's son, and also because his father had been very fond of him on account of his obedience.

The people assembled, and the princes also, not knowing who was going to be the chief, since the one to point him out was the makhadzi, who had been married by the VhaNdalamo. It had already become the rule that the great makhadzi must be married by one of the VhaNdalamo of Tshishonga only, and that she must be in charge of the royal magic.

The princes met near the royal hut in which the sacred relics were. They were called up in turn to attempt to open the door of the hut. All of them, from Munzhedzi downwards, were unable to do so. When Thoho-ya-Ndou came along, the door opened easily, he entered and came out again with a basket full of bananas, which he offered to his elder brothers, "Eat," he said, "for these are said to be eggs of princes." But they in their anger, and gearing also to be bewitched, refused, because they saw that the bananas had been smeared with black medicine. He then took and ate, not caring about the medicine on them.

He again entered the hut and came out with a calabash full of beer, offered it to his brothers and said, "Drink of this, they say it is the water of princes." But they refused again, because it had been doctored with a red medicine on the calabash. So he drank of it himself.

The drum Ngoma-lungundu sounded, the people trilled, and the thsikona was blown to bring peace to the country, but the older brothers went home angry, unmindful of the exhortations that they should acknowledge Thoho-ya-Ndou. Each one of them went to his own home full of disgust, and Gole no less, because of what the VhaNdalamo and the makhadzi had done. They refused to bow to Thoho-ya-Ndou, and each ruled as an independent chief, for each had many people of his own. Gole and Magoro were on one side,

they lived together peacefully south of the Luvuvhu and Letaba rivers. Tshivhase subjected the Vhalembethu of Mutele and Makahani to himself.

Munzhedzi had an area larger than that of any other, and his power was such that he conquered the Tshivhula and Raphulu people.

At Dzata things were also well, and peace reigned there, the realm of Thoho-ya-Ndou surpassed that of all the rest. Because he had the sacred objects, Mwali spoke to him, and the VhaNdalamo and others supported him

In this way many years passed without any disturbance, nor was there ever scarcity at Dzata, but only in the areas of his elder brothers, whereas he lived in plenty.

However once Magoro and Gole got the brothers together and persuaded them to attack Dzata, with the help of some of the VhaNgona, in order to install whom they considered to be the rightful chief. Before they reached Dzata however, Thoho-ya-Ndou and his people left the town and went away northwards, whither no one knows today. He took his cattle and goods with him. Tavhura however turned back on the way, saying he wanted to fetch his club which he had forgotten, but when he went after them again he no longer could see their tracks, and heard Mwali tell him to go and live at Makonde.

When the enemy reached Dzata they found it empty and even the big drum and the sacred things gone. They tried to follow the tracks, but turned back for fear of a storm in which they thought their ancestor spirit himself was.

That is all. In the olden days people lived in fear of the spirits of their ancestors, and of the sacred amulets. And even today a chief who has no such sacred objects is not held in great esteem. We must add that it is said that a chief had to swallow the "pebble of the chieftainship," which came originally from the stomach of a crocodile. This gave him his supernatural virtue or "weight," as they call it. At the death of the chief this stone comes forth just before he dies, and when it is out he dies immediately afterwards. Only a rightful chief can retain this stone. However the great thing in the olden days was the drum called Ngoma-lungundu.

Everything was done for reasons of fear and ignorance, so that, since knowledge and independence of thought were unknown, the chief and his drum were what everybody feared and lost their faith in.

Today the light has come to us, and peoples' eyes have been opened. And yet crime and sin have increased since Ngoma-lungundu disappeared and no longer rules over us."

Source of information to Ngoma-lungundu

Extracted from E. Mudau 1940 and is explained by him in 'Preface to Ngoma-lungundu' in pages 8 to 9 of The Copper Miners of Musina and the Early History of the Zoutpansberg: Vernacular accounts by S.M. Dzi vhani, M.F. Mamadi, M.M. Motenda,, E. Mudau in Ethnological Publications Vol. VI II Edited and supplemented by other material by N. J. VAN WARMELO Government Ethnologist - Department of Native Affairs. Printed in the Union of South Africa by the Government Printer, Pretoria 1940 (G.P.S. 1843-1940-800).

"The original bearers of this myth or legend, according to E. Mudau, come from an area closest to 'Tshakoma' which is situated on the upper reaches of the Luvuvhu River nearest the Lutanandwa tributary that flows into the Luvuvhu.

He first heard this story in the early 1900's from his mother and a cousin of his mother called - 'Magodi'.

Magodi, in turn received this information from another old man called - Mutsila Ramasalerwa (a smith who worked iron and made amulets). They both lived at Maswie in Luvhalani's area at Tshakoma.

Mutsila Ramasalerwa's father - Ramphaga, was the source and originator to the knowledge. He also knew the history of the VhaNgona of Raphulu - the original inhabitants of Venda. Ramphaga was driven away by Matsheketshe's people of Mauluma where he was master of the western side, near to Tshivheulwa. Originally a VhaNgona area.

Ramphaga was the mother's brother of E. Mudau's mother.

The stories were originally told as folk-tales to the children in the evenings and were prevalent amongst others at Vhulaudzi. E. Mudau recorded these traditions for a literary competition held under auspices of the International Institute of African Languages and Cultures.

Other people contributing to information were:

Finiasi Mutsila of Maungani - concerning VhaLembethu and VhaNgona. Ne-Mugumoni of Luvhalani (a headman of chief Madzivhandila) concerning Ngoma-lungundu. Nkhumeleni Dzege concerning Ngoma-lungundu and Thundundu of the makhadzi Mutumbe, the mother of the clan of Madzivhandila.

The informants of E. Mudau declared that the people of Ravhura at Makonde knew about these matters best and that they feared being informants of their history as their powerful chiefs disdained this. (Ravhura's line takes precedence over the Royal houses of Venda).

A different version concerning lineage exists, according to the VhaNdalamo of Tshakoma - Mateos Mukhodobwane and Mbobvu Dzege, that maintain that the Royal house of the Vhasenzi was that of VhaNdalamo. Others declare that Ramabulana and Tshivase are sister's sons who assumed the chieftainship and clan-name of the VhaNdalamo, viz. Rambau".

Another Venda format of the legends of Ngoma-lungundu was published as:

Mudau, E & Mutenda M.M. 1958. "The drum of Ngoma-lungundu and Chief Ramabulana"  
History of the Venda people Northern Transvaal. By the Government Printer 1958. (Union of  
South Africa Native Department Affairs.)

#### 4.4.12 Appendix 12 - Concept of Mhondoro Amongst the Korekore Speaking People in North-Eastern Zimbabwe

##### Concept of Mhondoro Amongst the Korekore Speaking People in North-Eastern Zimbabwe

The following is a summary extracted from Lan, David. 1987. *Guns & Rain : Guerrillas & Spirit Mediums in Zimbabwe*. James Currey London and University of California Press Berkeley and Los Angeles, with notes and illustrations provided by R Wade:-

Unlike all other mhondoro mediums Nehanda is believed to have two separate, equally legitimate traditions of mediums. One in the Mazoe region near the capital, Harare, the other in Dande. A medium of the Mazoe Nehanda, a woman named Charwe, was a major leader of the 1896 rebellion against the new colonial state of Rhodesia. Together with another leader of the rebellion, the medium of Kagubi, she was sentenced to death and hanged. A powerful and prolific oral tradition grew up around her name. As hero of the national resistance she was rivaled only by Chaminuka, a mhondoro of the Zezuru peoples of central Zimbabwe who came to be regarded as her brother. In many of the new versions of old myths that grew out of the years of struggle, this brother and sister pair are characterized as the original founders of the Shona nation.





Mudau, E & Motenda, M.M. 1958 "The Drum of Ngoma-lungundu and Chief Ramabulana" History of the Venda People Northern Transvaal. By The Government Printer 1958. (Union of South Africa Department of Native Affairs).

#### 4.4.12 Appendix 12 - Concept of Mhondoro Amongst the Korekore Speaking People in North-Eastern Zimbabwe

##### Concept of Mhondoro Amongst the Korekore Speaking People in North-Eastern Zimbabwe

The following is a summary extracted from Lan, David. 1987. Guns & Rain : Guerrillas & Spirit Mediums in Zimbabwe. James Currey London and University of California Press Berkeley and Los Angeles, with notes and illustrations provided by R Wade: -

Unlike all other mhondoro mediums Nehanda is believed to have two separate, equally legitimate traditions of mediums. One in the Mazoe region near the capital, Harare, the other in Dande. A medium of the Mazoe Nehanda, a woman named Charwe, was a major leader of the 1896 rebellion against the new colonial state of Rhodesia. Together with another leader of the rebellion, the medium of Kagubi, she was sentenced to death and hanged. A powerful and prolific oral tradition grew up around her name. As hero of the national resistance she was rivaled only by Chaminuka, a mhondoro of the Zezuru peoples of central Zimbabwe who came to be regarded as her brother. In many of the new versions of old myths that grew out of the years of struggle, this brother and sister pair are characterized as the original founders of the Shona nation.



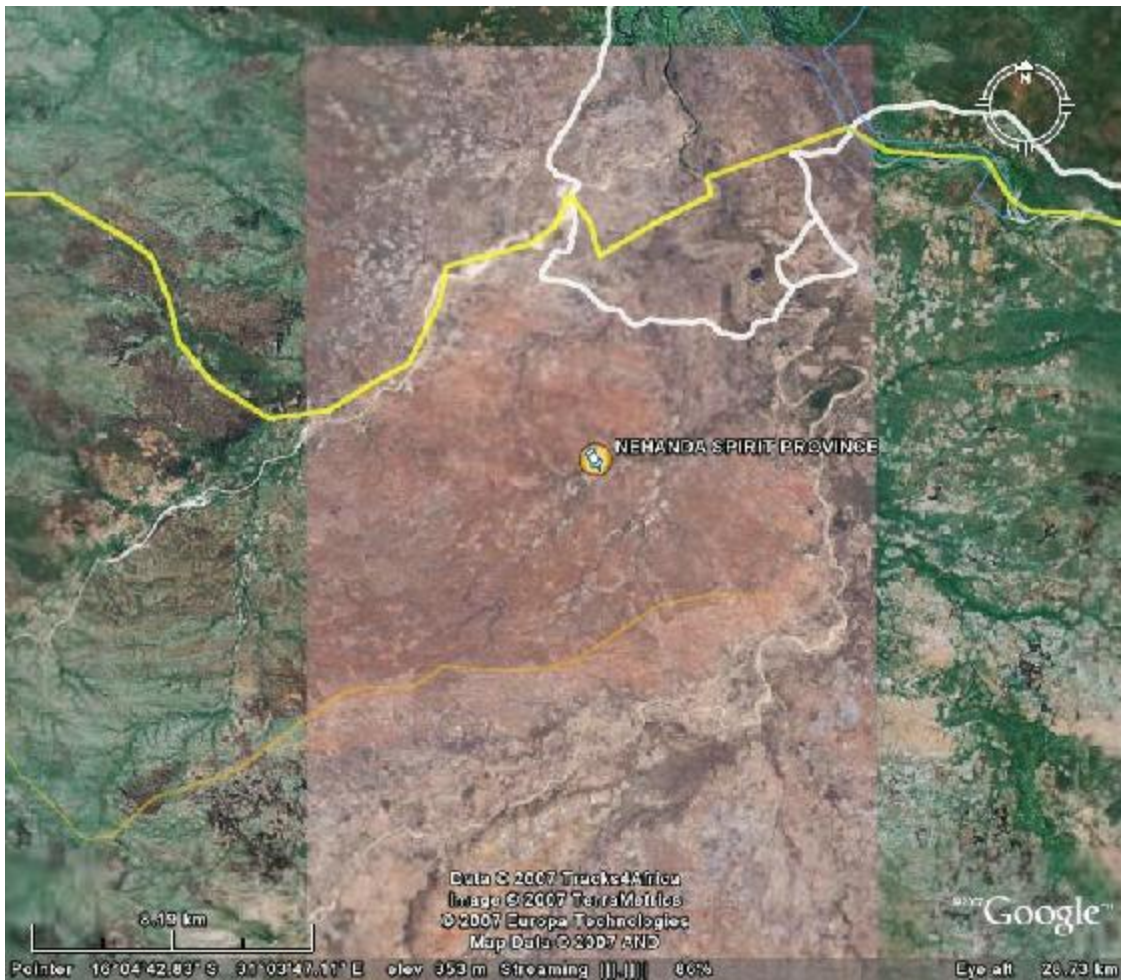


*Plate 15 The medium of Nehanda, hanged in 1895 (see Plate 1), bequeaths the authority of the ancestors to the first prime minister of Zimbabwe, Robert Mugabe. Many similar designs appeared on cloths printed to celebrate Independence in 1980*

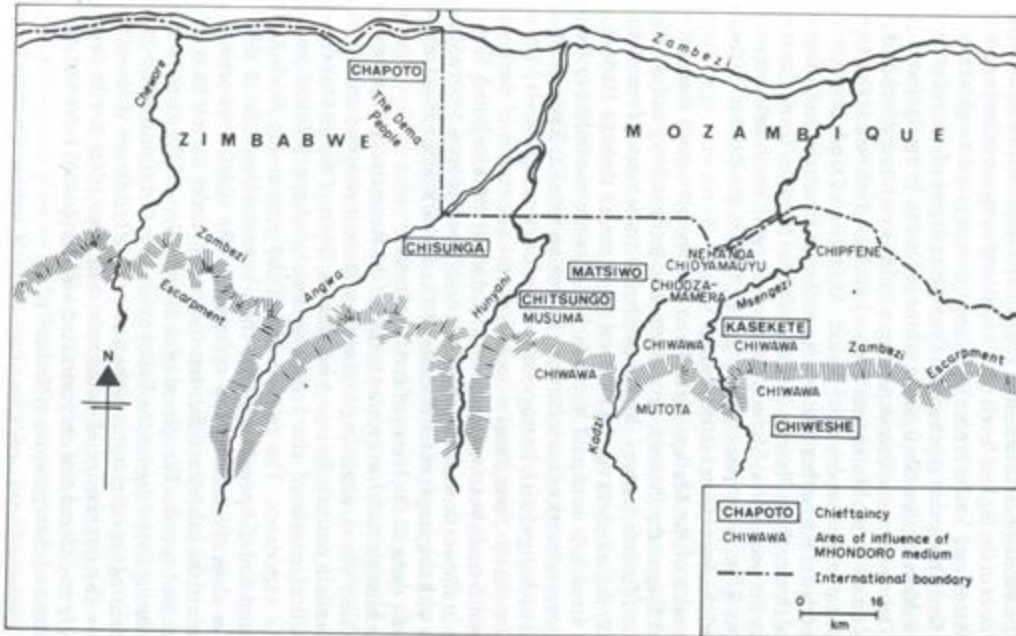


The Dande Area and the location of the Spirit Province of the mthondoro of Nehanda along the Zambezi River in Northern Zimbabwe / Mozambique, 800 km north of Tshiendeulu

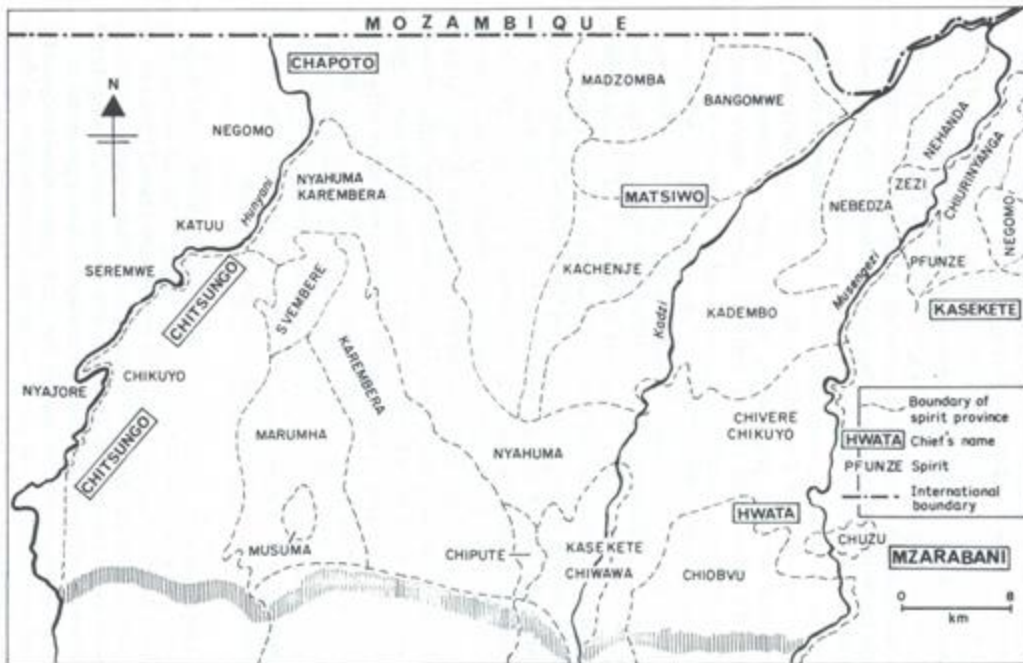




The Dande Area and the location of the Spirit Province of the mhondoro of Nehanda along the Musengezi tributary of Zambezi River in Northern Zimbabwe / Mozambique, 800 km north of Tshiendeulu



Map 2.2 The chiefs and the major mhondoro, c. 1980



Map 3.1 The mhondoro of southern Dande, c. 1960 (adapted from Garbett, 1977)

All men and women are expected to provide for and protect their families as best they can. Even when they die and leave their bodies in the grave they do not cease to care for their descendents. Women and men with their limited powers, their ignorance and weaknesses have been transformed into ancestors or *midzimu* who know the future before it happens and can cure every ill.

The form an ancestor takes is *mweya* (breath or air). Ancestors have no material form and so can be in all places at the same time. But they continue to have sensory experience. They can see and hear, they have emotions and desires. But they are never frivolous or mean. The welfare of their descendents is their sole concern. There is only one reason why they make a descendent ill. This is to give a sign that they wish to possess him or her, to speak through her or his mouth to all their descendents to warn that some disaster is about to strike or to complain that they have been forgotten and to ask that beer be brewed or a child named in their memory.

When a chief dies he is transformed into a *mhondoro* and becomes a source of the fertility of the land itself. He provides rain for the fields and protects the crops as they grow. Rain will only be withheld if the *mhondoro's* laws are disobeyed. If incest, murder or witchcraft take place drought follows and crops will fail. But if the descendents of the *mhondoro* obey his laws and perform his ceremonies in due time, they will live in peace and plenty.

The word *mhondoro* means lion. When a chief dies his spirit makes its way into the bush where it enters the body of a lion. Some people say that a few days after a chief is buried, a tiny lion without a mane crawls up through a hole left for it at the side of the grave and scampers off into the forest.

One of the most unusual features of the *mhondoro* is that each is thought to rule over a specific territory which he is believed to have conquered or been given when he was alive.

Two categories of people cannot become *midzimu*. These are *ngozi*, people who have led an unsatisfactory life, and the *muroyi* or witch. People who are childless cannot become *midzimu* because, so it is argued, they have no descendents to look after or to act as mediums for them. When such a person dies she or he becomes a *ngozi* who wanders through the villages angry and malicious, bringing harm and destruction for no other reason than its unquenchable fury and spite.

The second category of people who cannot become ancestors is the witch or *muroyi*. The typical act of witchcraft is cannibalism or, more accurately, necrophagy. Witches kill people, including their own children, or rob graves to find human flesh to eat. They commit incest and adultery. They run about to do their evil deeds naked at night. They ride on the backs of hyenas. They can transform themselves into hyenas, crocodiles or snakes at will. Hyenas, crocodiles or snakes act as familiars for witches, as may *zvidoma*, very small people the size of children who carry out the witches' commands.

The *mashave* (sing. *shave*) are the last category of non-material beings we need be concerned with. All *mashave* are the spirits of animals or foreigners. They are spirits that



emanate from outside known human society. The mashave shoulder no responsibility and have no message to communicate. Mediums of mashave never dance with mediums of midzimu or mhondoro.

When an ancestor feels the need to communicate directly with its descendents it chooses a woman or a man and uses his mouth to speak. It is said svikiro inobatwa nemidzimu, the medium is grabbed by the ancestor. The medium does not want to be possessed. Indeed possession is a hardship and a trial. It is the all-powerful ancestors who make their choice, 'grab' their mediums and take control of their lives. The medium is thought to lose all control of their lives. He is a person of no special powers and he is the source of the most significant powers on earth.

Unlike possession in many other societies, amongst the Shona possession is never spontaneous. It only occurs at highly structured rituals, which in Dande are known as humbikumbi for midzimu, and mashave for shave. These require weeks of preparation. Beer must be brewed, a team of drummers engaged, all members of the patient's lineage as well as his mother's kin must be invited and given time to arrive from their villages or from the towns. To accommodate town dwellers these rituals are usually held on Saturday nights, starting soon after dark and continuing until long after Sunday's dawn. At the height of the possession season, which starts after the harvest when grain for beer is plentiful, there may be two or even three possession rituals in most villages each week.

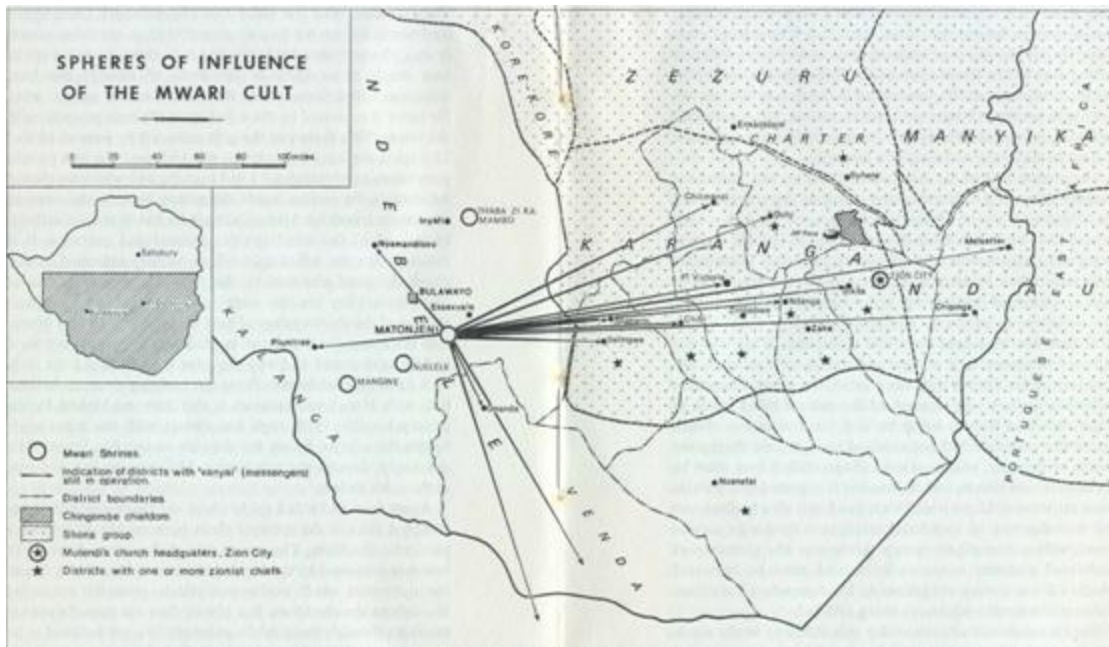
A mhondoro will never possess one of its own descendents.

Shona chiefs have no ritual functions, no 'mystical power over the land'. These functions and powers are entirely in the hands of medium of the chief's ancestors.

The duty of the chief is to rule. The duty of the spirit mediums is to advise the chief. Strictly speaking, it was not the medium who was thought to advise the chief but the mhondoro that possesses him. The living chiefs took responsibility for the spheres of politics and law while chiefs of the past were in charge of fertility and morality.

The mutapi (pl. vatapi) is the manager of the shrine of the mhondoro. His main responsibility is to act as an intermediary between the mhondoro and those who wish to consult with him. He interprets or explains the statements the mhondoro makes.

Another term frequently used to refer to the medium's assistant is munyai (pl. vanyai).



Extracted from: Daneel, M.L. 1970. *The God of the Matopo Hills: An Essay on the Mwari Cult in Rhodesia*. Mouton, Leiden (1970). Indicating extent of vanayi influence.

As new areas of land are opened up for cultivation, so the spirit realm expands. New mhondoro and new spirit provinces appear. Mutapi-munyai are chosen. As soon as their rituals succeed and the mhondoro speaks through his medium for the first time, the ownership of the spirit province is established. What belongs to the chief's ancestor belongs to the chief. As long as the mhondoro continues to supply rain to his followers, the chief's ownership of the land seems beyond question, beyond doubt<sup>178</sup>.

<sup>178</sup> President Robert Mugabe recently advocated that the land be returned to the people as a means to prolong his stay in government. By returning the land, new spiritual realms were opened and the ancestors returned. Rain was unfortunately not forthcoming at the time and so Robert Mugabe placed a censorship on all weather reports. The people therefore gave their support in return for their ancestor spirits. The Urban vote however was lost. Shortly thereafter, it rained more than ever before in Zimbabwe and Mozambique - 2001.

*Plate 5 Nationalist leaders Joshua Nkomo (left) and Robert Mugabe (second from left) being greeted at Salisbury airport in 1962 by a veteran of the 1896 uprising. The ceremonial axe with which they are being presented is identical to those used by spirit mediums and symbolises the legitimate ownership of the land. (See Plate 3.)*



The term mambo, meaning chief, is commonly used to refer to a medium. If you were near a medium's home and asked where the medium was, you would be directed without hesitation to the home of a medium. The gano or ritual axe which all mediums carry is a symbol of the ownership of the chieftaincy as is the unique fur hat which some mediums wear. Even more strikingly, a medium is given precisely the same burial as a chief. His body is allowed to disintegrate from the bone, before it is finally placed inside the earth. Very few mhondoro mediums are women.

The critical difference between n'anga and spirit mediums in Dande is that the n'anga do not become possessed.

Throughout the many changes in Dande over 150 years, two features have remained constant: the possession rituals of the mhondoro mediums and the belief in the power of the mhondoro to bring the rain. All mhondoro mediums may be addressed by the title samvura, literally 'owner of the rain'.

Even though Nehanda has been referred to as the spiritual rainmaker she had no rainmaking powers at all. Her father Mutota, also was regarded as the big rainmaker but only the mhondoro of the autochthonous Tavara people, Musuma has this power.

On the one hand the Korekore ancestors are responsible for providing the rain, the source of fertility and life. On the other hand the Tavara mhondoro is the only one who has this power. In ritual practice these two ideas are partially reconciled.

It is dangerous for mediums to see human corpses. They may not attend funerals.

Of all substances blood is the most dangerous to the mhondoro. If blood falls on the ground drought follows. Blood is as it were, anti-rain. By their ability to control the rain the mhondoro, the ancestors of the lineage, demonstrate that the only kind of fertility that is worth having is in their gift.

By contradiction there is found in the villages of many mediums a woman who is thought of as a wife of the mhondoro. She is known by the archaic term for women, mukaranga, which is also used to refer to the wife of the chief.

Within each chieftaincy and within each spirit province there live people who are not descended from these royal ancestors, who are not, as it were, entitled to the rain provided by them. These people are the 'strangers'. The threat therefore is that if these affines, who by definition are members of other clans and descendants of other mhondoro, arrive in sufficient numbers they will begin to perform their rituals to their mhondoro, their rain come to them and the land of the royals will fall under the affines' control. The royal lineages nonetheless assert their dominance over the strangers and affines living in their midst by transforming them all into vazukuru (sing. muzukuru) or descendants of the mhondoro in whose spirit province they live. You therefore treat the mhondoro of your hosts as if he were your own.

A pangolin or ant-eater (haka) usually curls up and waits to be taken to the mhondoro in whose spirit province it was found. Strict taboos surround the pangolin and the pangolin is treated like a mukaranga of the mhondoro.

**4.4.13 Appendix 13 - Map of the Dying Sun Chariot Temple and of the Pilgrims Way North (in on-site pamphlet by Hromnik, C.A. 1994 November. The Dying Sun Chariot: Suikerboschfontein, Komatiland. Cape Town).**



## THE DYING SUN CHARIOT

Suikerboschfontein, Komatiland

By Dr. Cyril A. Hromik



The axis of the Dying Sun Chariot Temple drawn through its door aims at the Winter solstice sunset behind the Qanda (egg-shaped summit) of Doornkop.

### SOUTHERN AFRICA: THE LAND OF GOLD

With the discovery of gold, ancient man moved from the age of stone to the age of metals, a transition which occurred somewhere between Indian and Mesopotamia. Man's search for gold caused Africa to enter the age of history. Not surprisingly, southern Africa, the world's greatest repository of gold, caught the attention of Indian prospectors and traders at least as early as the 1st millennium BC, if not earlier. The Buddhist literature of India refers to Africa's gold trade in pre-Buddhist times i.e. at least as early as the 6th century BC. The early prospectors left evidence of their search not only in the form of alluvial diggings, reef workings and ore processing plants, but also in agricultural terraces and religious structures built of dry stone. Since 1983, these structures have been the subject of study by this research team.

### SUIKERBOSCHFONTEIN IN KOMATILAND

The area of Suikerboschfontein hiking trail drains into the Komati River, the main commercial artery of the ancient gold-producing region known as Komatiland (Mpumalanga, Swaziland and northern Zululand). This region was prospected and traded during the 1st and early 2nd millennium AD by Dravidian (South Indian) goldseekers along with the emerging Quene (Hottentots) and, later, with Bantu speakers. Gold was found in the Komati valley and copper deposits were

detected in the immediate vicinity of Suikerboschfontein. Throughout this region, ancient prospectors and traders constructed numerous shrines, temples and other places of worship – some of them visible along this trail. Only a few of more than a dozen stone ruins at Suikerboschfontein have been investigated to date.

### THE CHARIOT

The most interesting of the ruins along the trail are the ruins of the Dying Sun Chariot temple, so named because of their shape and function. The temple consists of the shield-shaped body of the chariot and two wheel-like compartments attached symmetrically to each side. Several auxiliary structures are attached to the chariot from outside. The well-preserved body of the chariot can be mounted through a narrow door on the eastern side. Its front arch, marked by an upright stone built into the wall inside, aims at the Qanda (egg-shaped summit) of Doornkop, where the dying sun of the winter solstice sets at about 4.50 p.m. on June 21. On the outer side of the arch begins a narrow passage which pierces the outer enclosure on the winter solstice sunset line thereby indicating the way of the dying sun's demise. Clearly this chariot is celestial rather than terrestrial.

### THE TIME IS UP WHEN THE SUN IS GONE

The chariot, the celestial car of the sun god (Suryan), is a representation of time. Cyclical year-end festivities were celebrated annually in this temple. Worshippers gathered here to give thanks for the bounty received in the past year and prayed for the return of the dying sun without which there would have been no new planting season or harvest. Offerings of mineral tints, fruit, vegetables, grains, nuts etc. were ground to a paste on rubbing spots on outcrop and on loose stones, which can be seen on both sides of the Sun's path passage in the western part of the temple's enclosure.

These spots attest to the faith of the ancient worshippers. Their trust that their prayers would be answered and the sun would return is indicated by a seat in the left wheel compartment of the chariot. A priest (called *suri*), sitting on this seat and looking over the altar (charioteer's rest post) that separates him from the main body of the chariot, faced the high cliffs in the north-east where the new sun would rise on the morning of June 22. His line of vision runs over a well built "nose" or projection in the right side wall of the chariot. Here the lines of several cosmic alignments intersect.

### THE CELESTIAL WHEEL

The chariot's celestial nature is further indicated by its two lunar wheels, located on parallel axes at right angles at the shaft. The North Wheel can be seen under the cliffs across the stream. Its axle runs over the "nose" towards the large flat seat of the officiating *suri* in the southern cell just outside the chariot, and continues to the western edge of the South Wheel. The South Wheel is hidden beyond a low ridge, but its axle intersects the shaft of the chariot precisely at the eastern entrance to the chariot's enclosure and continues to the eastern edge of the North Wheel. The arrangement of the wheel(s) reflects certain lunar connections which are too complex to be explained here.

### THE WAY NORTH

A third important line that passes over the "nose" is the axis of a 10.25km-long Pilgrims' way North. It leads from the Penance Triangle in south (a short distance south of Rooikrans Camp) to the Sun and Moon temple on the mountain in the north. It goes by way of the chariot – breaking to allow for worship and sacrifice, and by the sacred pool. Several small shrines, each reflecting different aspect of pilgrims' devotion, line the Way North towards the heaven of final liberation, believed to be located in the North.

The Penance Triangle (*Tapas Mukonam*) contains a hermit's cell, hidden under the boulders from which a narrow crevice path leads to a flat rock table where the inmate performed penance (*tapas*, heat). Sitting in the middle of the SE side of the triangle, the ascetic (*tapasvi*) automatically faced the flame-shaped boulder placed in the NW corner, thus exposing himself to the purgatorial influence of the North West and the Agni (fire) influence of the South East.

Exiting through the best walled North Gate, the Way North led the pilgrim to a precinct at the site of Rooikrans Camp. Thence to a complex at the large vertical slab a meditation seat under a rock that looks like the mouth of a serpent. Next, the Moon's (Chandra's) blessing were invoked on a well-built, NE orientated megalithic terrace. A series of terraces leads to the dramatic, crevice waterfall, another meditation seat and a purgatory crevice.

The wide path of the Way North between the Dying Sun Chariot and the stream suggests that a purifying bath in the sacred pool was an important part of the ritual. Many other stations along the Way North need to be studied and explained. Eventually, the Way North climbs up the high escarpment and, passing through the Sun and Moon Temple, leads by means of a stone passage and a few steps to the natural amphitheater, where an offering heap of stones marks the end of the journey.

### THE HERITAGE

How many people performed the ritual pilgrimage along the Way North and how often will never be known, but the monument as a whole shines brightly on the veil of southern Africa, proclaiming the undeniable message that historically, culturally and religiously speaking Africa is in fact INDO-AFRICA. Here the cultures of Africa and India mixed and produced numerous monuments of this nature. It is our duty to study and preserve these relics of the ancient times.

**We therefore appeal** all visitors to this extraordinary temple to treat it with respect, to walk on marked paths, not to pick up or move any stones, desist from climbing, walking and sitting on stone structures we owe it to the ancient builders of these extraordinary relics. Vanakkam. Salang. Hamba kahle. Cape Town, November 1994

INDO-AFRICA: 26 Sawkins Road, Mowbray 7700, South Africa  
Tel: 021-689 4463 (J.C. van Niekerk, field assistant, Barberbos)

Keuning Drukpers. Tel: 017-843203 R6206