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

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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

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# 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

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<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

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<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.

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<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.

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<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>

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<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.

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<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

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<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>

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<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

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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>

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<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 -

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<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

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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>

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<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

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<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

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<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.

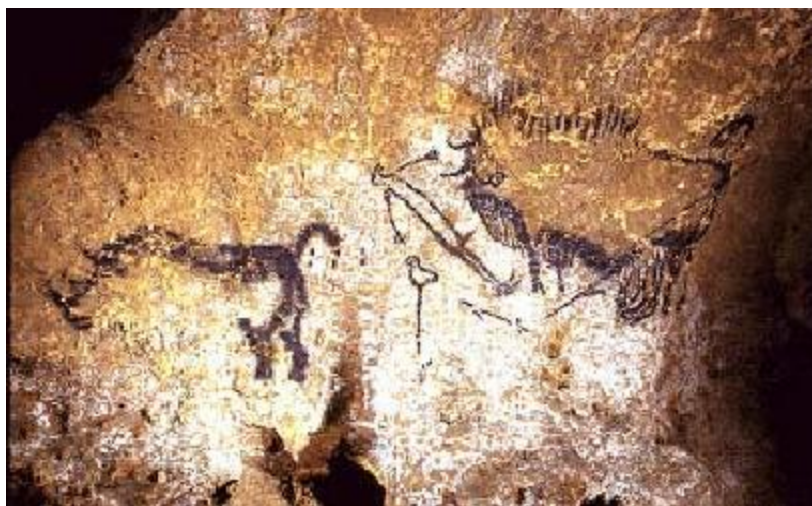
Ruggles, C. 2005. Ancient Astronomy. Santa Barbara:ABC-CLIO

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.



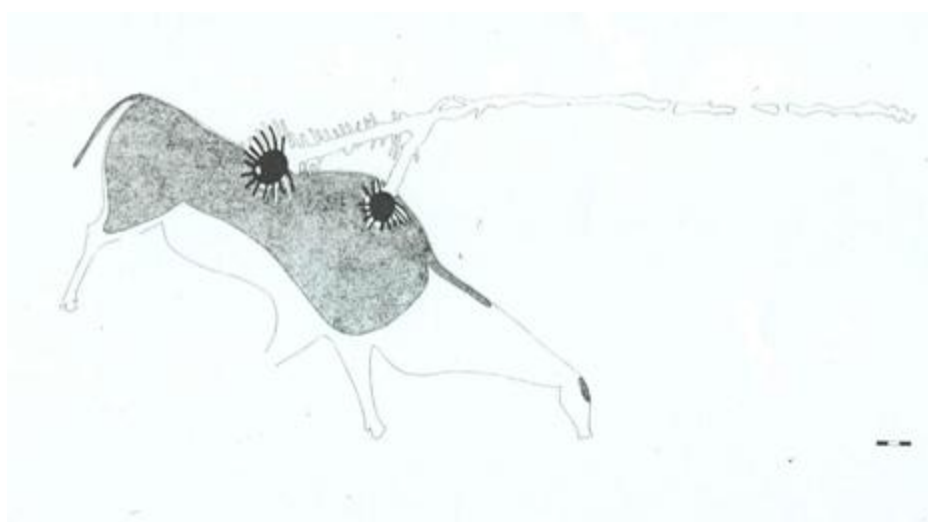


**Figure 3** Detail extracted from Dendera Zodiac depicting the same constellations as at Lascaux, with similar figures. 6000 BP zodiac restored by the Ptolemaic Dynasty in 1st century BCE of Temple of Dendera near Karnak. Trevisan, Camillo. 1997. La rappresentazione delle costellazioni nello zodiaco 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).

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<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>

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<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.sao.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

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<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

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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)

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<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)

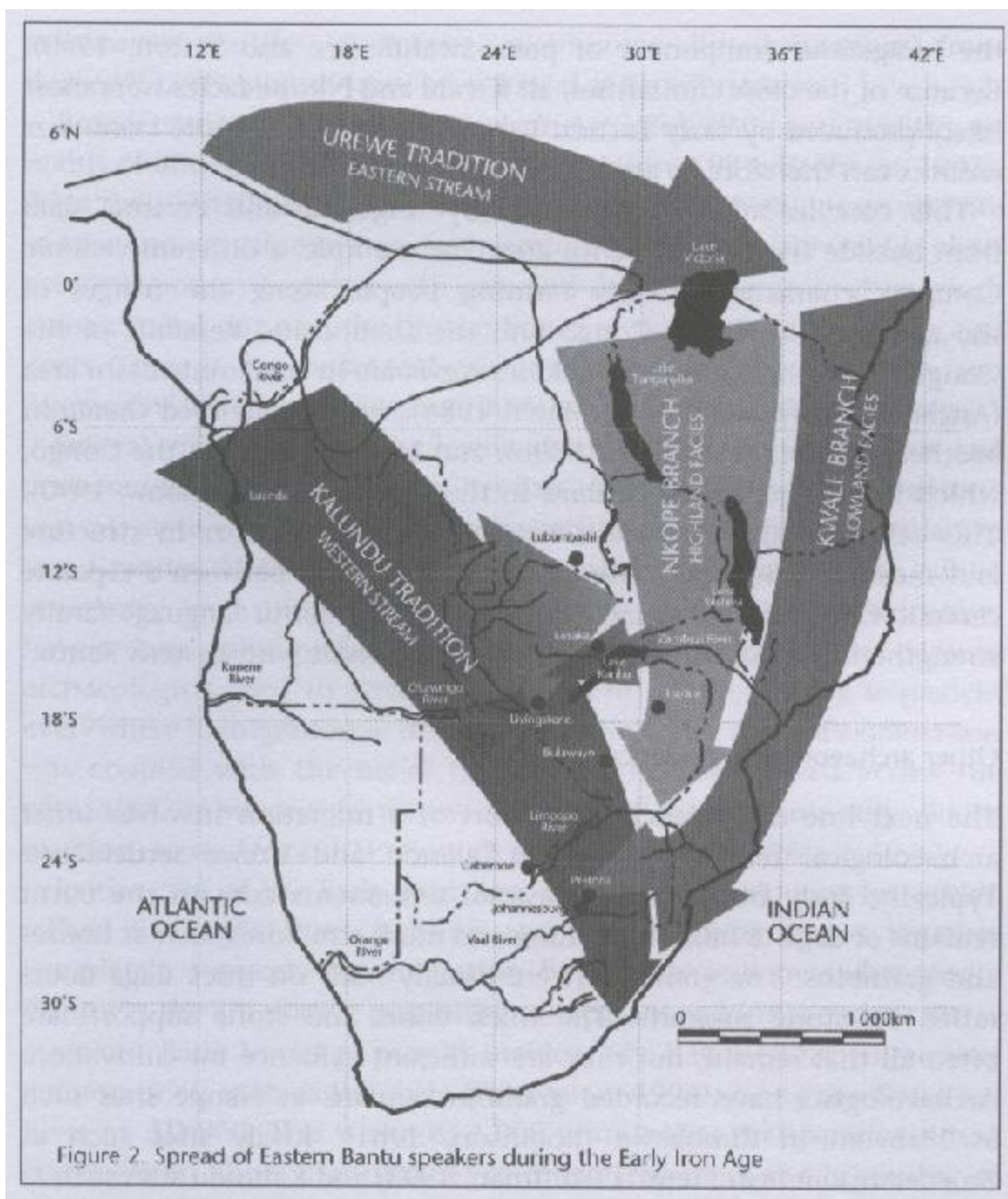




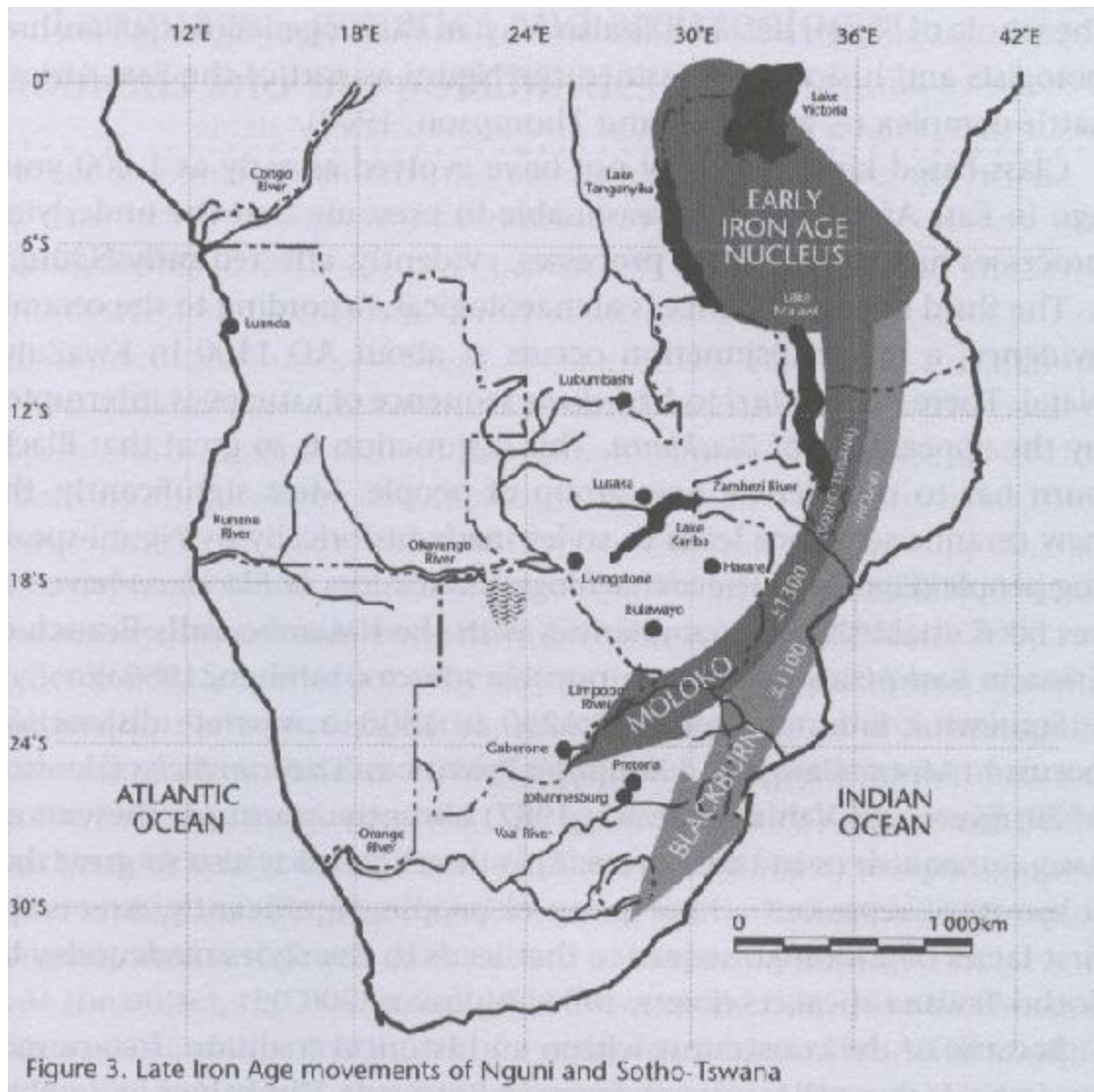
**Figure 10** Ruin fields near Waterval-Boven area – Johan Heine (Makomati Founda tion)



**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>

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<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'

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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>

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<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

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<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.

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<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.

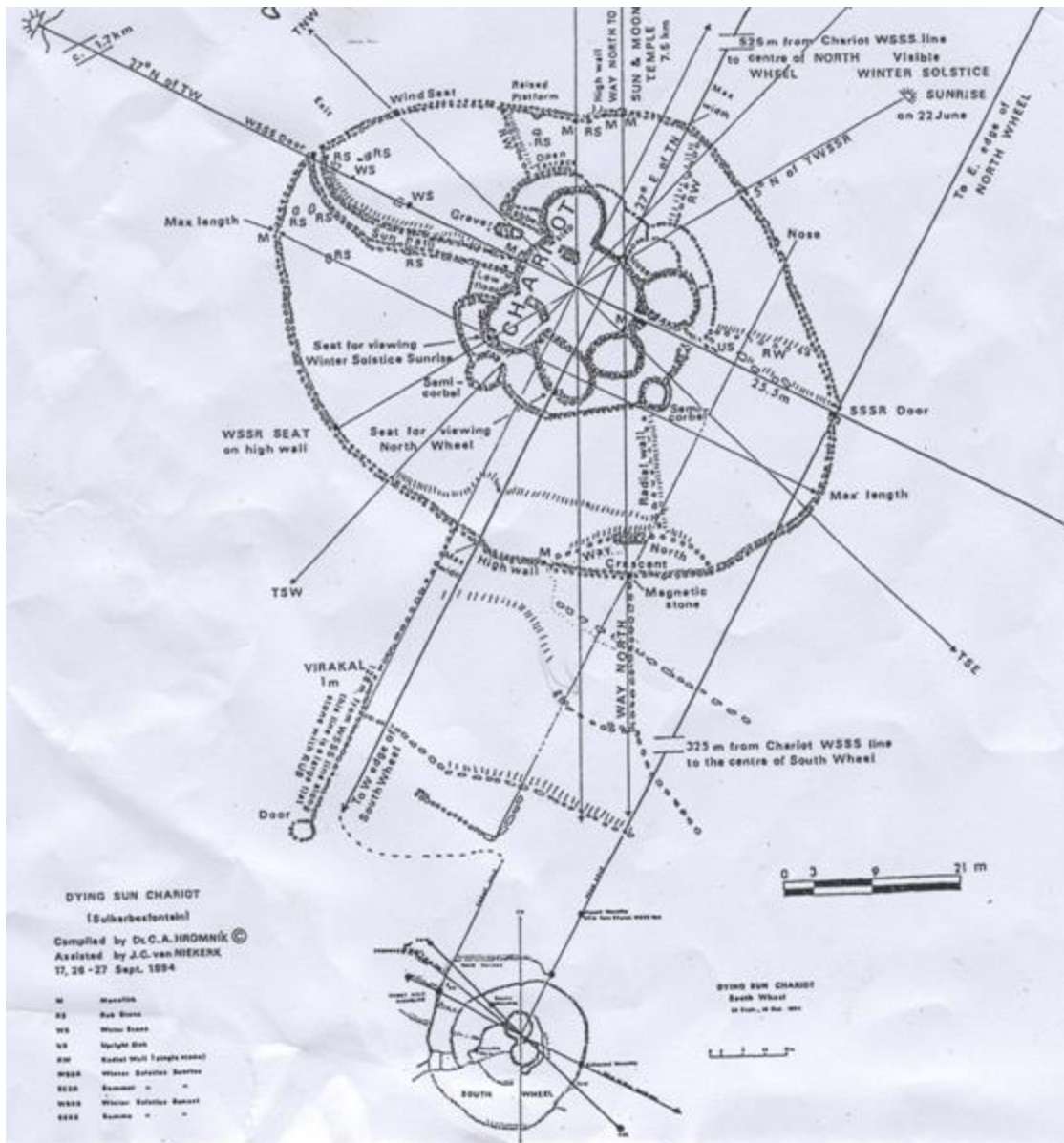
Past homesteads and villages in the various settlements were preserved from being destroyed by the later settlers and eventually through their efforts, a foundation formed to coordinate research of the various concentrations of ruins that mystified most of the farmers, who mainly preferred a non-African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

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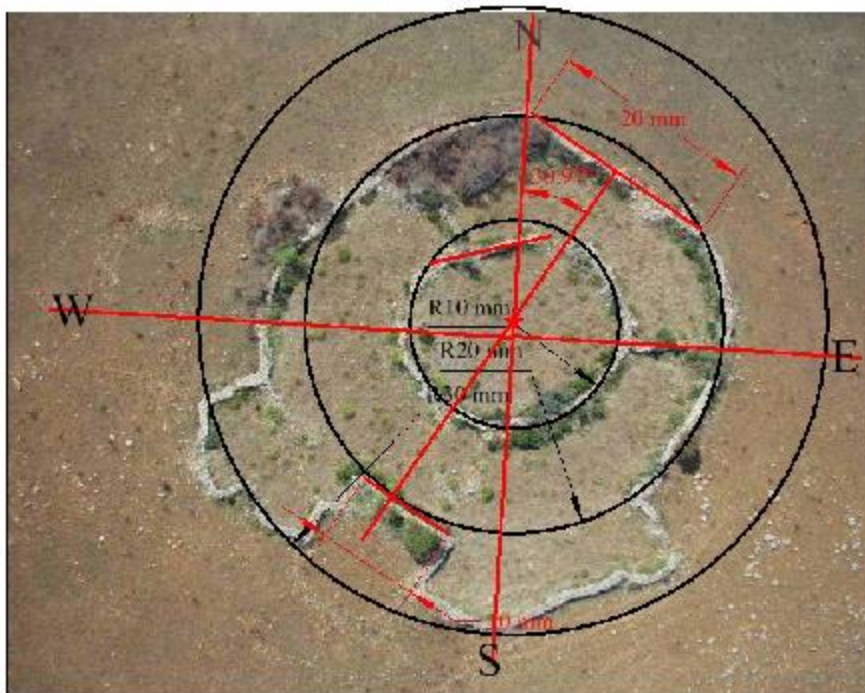
<sup>50</sup> Hromnik, C.A. 1981. Indo-Africa. Juta & Company, Cape Town.



**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: Suikerbosfontein, Komatiland. Cape Town.



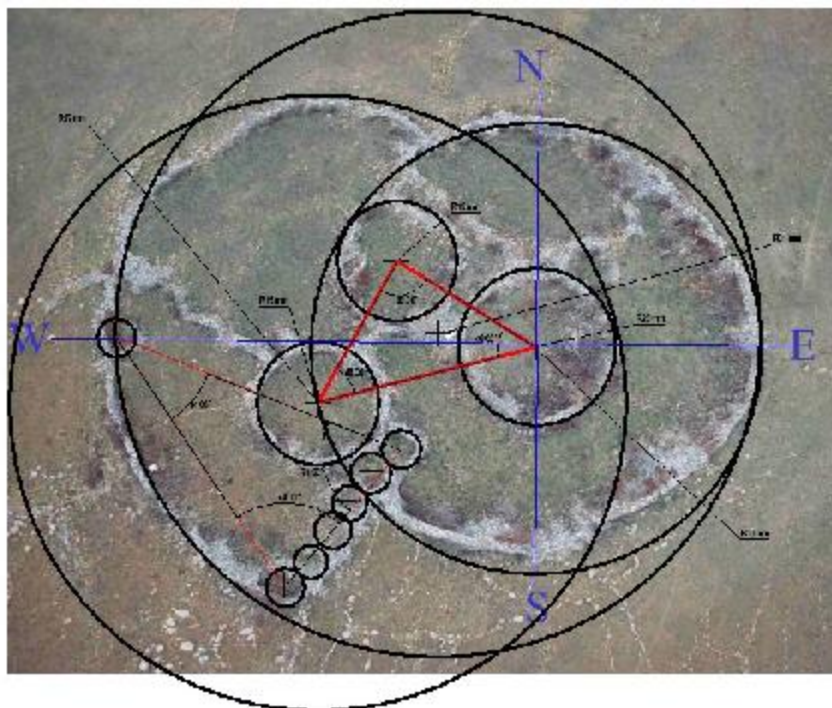
**Figure 17** Stone Circle "A" in the Ruin fields near Waternal-Boven area. Photograph by Johan Heine (Makomati Foundation).



**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.

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<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>

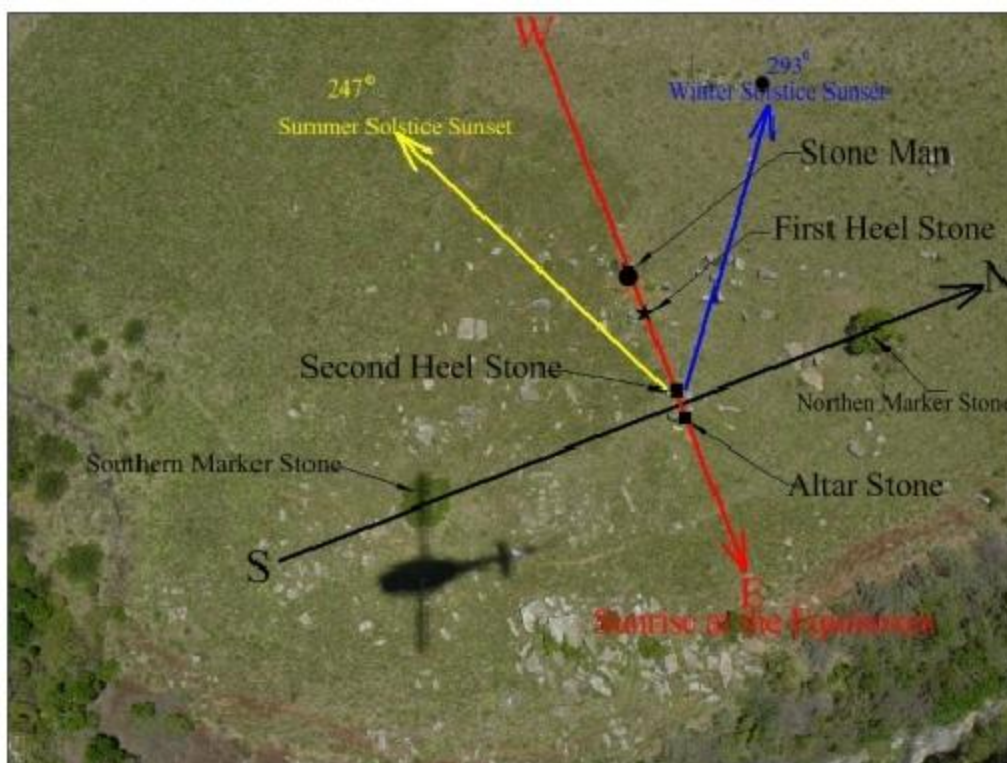
A presumption was made that concluded that the so-called discrepancy error in the east-west line of several degrees resulted from the precession of the earth's rotation.

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.

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<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.