

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 sciences⁵⁵. 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 coalesce⁵⁶. 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 time⁵⁷.

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

⁵⁵ 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.

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

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

Einstein, A. June 30th 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 phenomena⁵⁸.

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.⁵⁹

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'.⁶⁰

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?⁶¹

⁵⁸ 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.

⁵⁹ 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.

⁶⁰ 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.

⁶¹ 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.⁶²

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 sacrifice⁶³.

⁶² 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.

⁶³ 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."⁶⁴

The line of Queens of the Lovedu people in the Limpopo Province of South Africa has many references to ritual regicide and sacrificial aspects.⁶⁵ There is also a deep connection of ritual killings with the drum of Mwari – Ngoma Lungundu that exists amongst the Vhakwebho Group.⁶⁶ 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

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

⁶⁵ 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.

⁶⁶ 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."⁶⁷

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.

⁶⁷ 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.⁶⁸

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 1st 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."⁶⁹

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)⁷⁰.

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

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

⁷⁰ 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.⁷¹

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 person⁷².

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.

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

Frobenius, Leo. 1931. Erythrea. München

⁷² Personal communication 25th 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 bases⁷³.

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.

⁷³ 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, 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”.

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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

⁷⁴ 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.”⁷⁵

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.

⁷⁵ 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-Williams⁷⁶ and Tom Huffman⁷⁷ where the research led to

⁷⁶ 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

⁷⁷ 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."⁷⁸

⁷⁸ 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.”⁷⁹

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 Zimbabwe⁸⁰ 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.

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

⁸⁰ 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 is 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'.⁸¹

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 tradition⁸² 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.

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

⁸² 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 period⁸³. 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

⁸³ 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.

⁸⁴and 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.

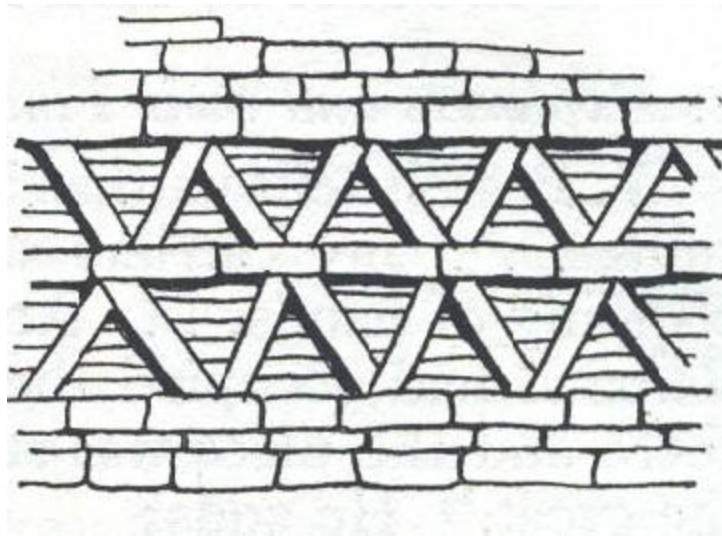


Figure 25 Chevron Pattern on the Main Wall at the Great Enclosure at Great Zimbabwe in Caton-Thompson, G. 1931. *The Zimbabwe Culture: Ruins and Reactions*. Oxford: Clarendon Press. Page 232.

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.⁸⁵

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'

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

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

-Venus⁸⁶ 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.⁸⁷



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.⁸⁸

⁸⁶ 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.

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

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

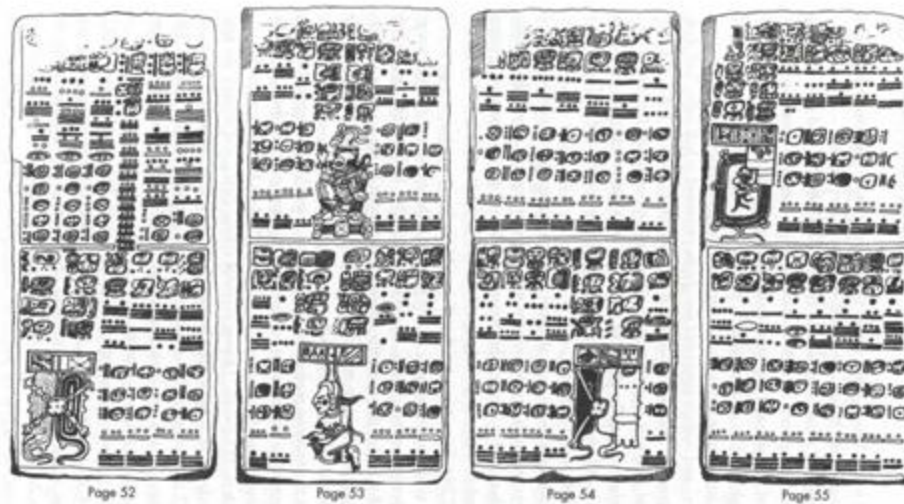


Figure 4.7 A section [pages 52 to 55] of the Eclipse Table in the Dresden Codex. Numbers across the bottom of each half page are 5 and 6 lunar synodic months and the pictures represent (usually) ominous eclipse events.

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,⁸⁹ 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.⁹⁰ 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

⁸⁹ Huffman, T.N. 1996. *Snakes and Crocodiles*. Wits University Press

⁹⁰ 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,⁹¹ that will be considered in more detail in a later following treatise.⁹²

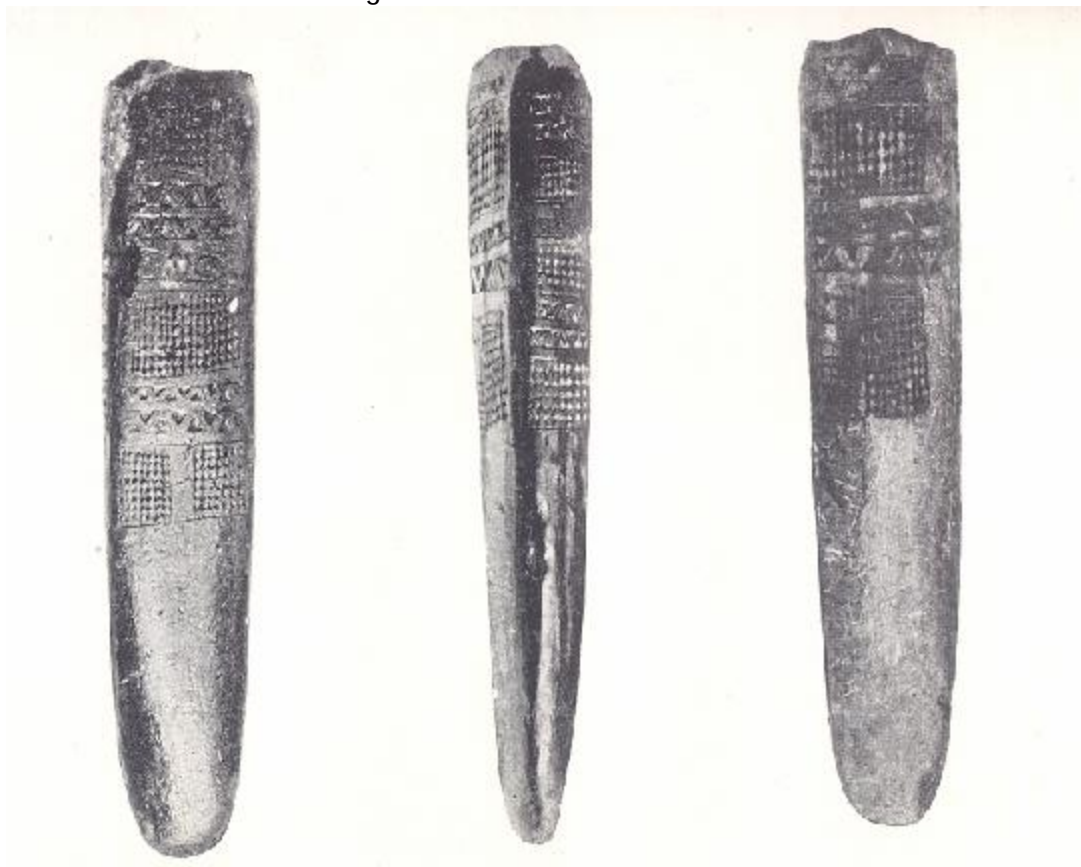


Figure 28 The Monolith Stone originally found at Dhlo-dhlo now in the Zimbabwe National Museum in Hall, R.N. & Neal, W.G. 1902. *The Ancient Ruins of Rhodesia*. Methuen. Page 236.

⁹¹ 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.

⁹² 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 (α and β Crucis) called nsadzi (female), with the two pointers to the Southern Cross (α and β 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**".⁹³

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 (κ Orionis), Alnilam (ϵ Orionis) and Bellatrix (γ 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."⁹⁴ 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

⁹³ 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".

⁹⁴ 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.⁹⁵ 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'.⁹⁶

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."⁹⁷ In addition, "In his description of the Hungwe rain

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

⁹⁶ 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

⁹⁷ 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 mention 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.⁹⁸

The rainmaking ceremonies performed by rainmakers at the breaking of the drought link the descendants 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.

⁹⁸ 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.⁹⁹

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-Hamdani¹⁰⁰, is the root word used in the Yemenite concept of 'agricultural marker stars' - '**ma'ālim al-zirā'ah**'¹⁰¹, 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**)¹⁰². 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"¹⁰³.

⁹⁹ 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.

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

¹⁰¹ 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."

¹⁰² 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.

¹⁰³ 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)¹⁰⁴ 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 1331¹⁰⁵.

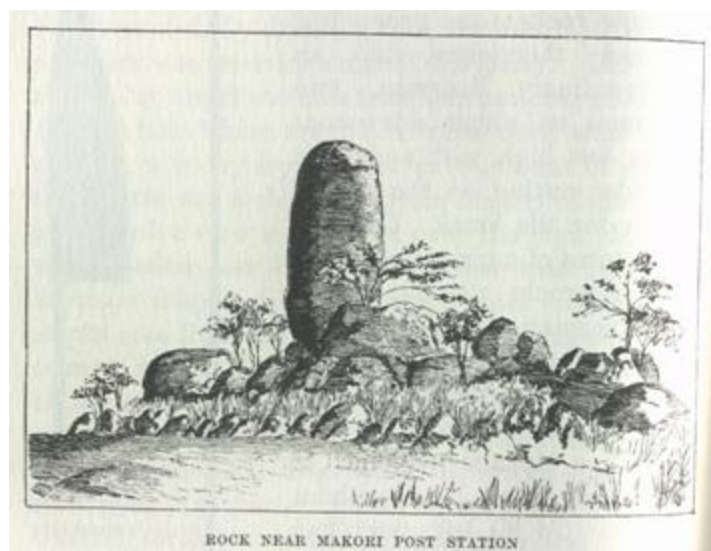


Figure 31 An 'Ndzalama' Rock found at Zimbabwe by JT Bent. In Bent, J.T. 1969. (Reprinted from 1896) *The Ruined Cities of Mashonaland*. Books of Rhodesia. Page 254.

¹⁰⁴ 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).

¹⁰⁵ 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.¹⁰⁶ 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**'¹⁰⁷ 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 Lan¹⁰⁸ 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

¹⁰⁶ 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'.

¹⁰⁷ 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.

¹⁰⁸ 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 8th generation descendants that came from Great Zimbabwe when it disbanded in the 14th 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).¹⁰⁹

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

I located an area covering roughly 2km² 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

¹⁰⁹ Appendix 11 - Tshiendeulu the Grave of Dambanyika

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

¹¹¹ 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.”¹¹²

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.¹¹³ 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 256¹¹⁴

¹¹² Huffman, T.N. 1996. Snakes and Crocodiles. Wits University Press. Page 6.

¹¹³ Nehanda means Venus.

¹¹⁴ 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 extract¹¹⁵ 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 appears¹¹⁶, 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.

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

¹¹⁶ 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.¹¹⁷

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.

¹¹⁷ 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. Colson¹¹⁸ 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

¹¹⁸ 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.”¹¹⁹

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.

¹²⁰

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.¹²¹

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

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

¹²¹ 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.¹²²

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.

¹²² 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 Mapungubwe¹²³.

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.

¹²³ 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. Parpendorf, 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."

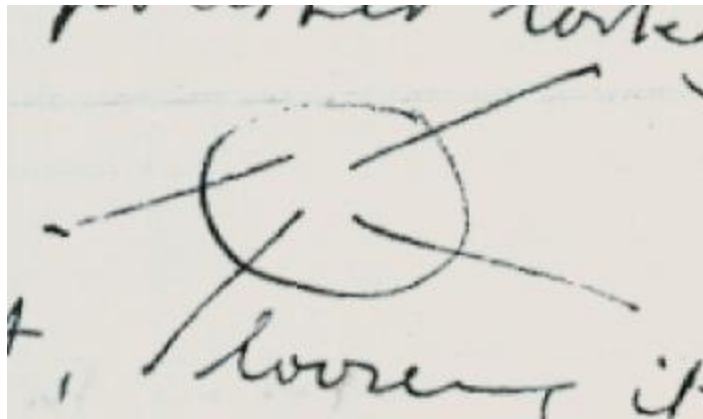


Figure 33 Sketch indicating how monoliths are arranged over the grave of the 'King of Mapungubwe'. University of Pretoria-Mapungubwe Archives pages titled "UP/AGL/D/68" together with "UP/AGL/D/51 UP/AGL/D/52 and UP/AGL/D/53". Affidavit by Richard Rorke which first mention stone structures in Adams & 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 University¹²⁴.

¹²⁴ 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.

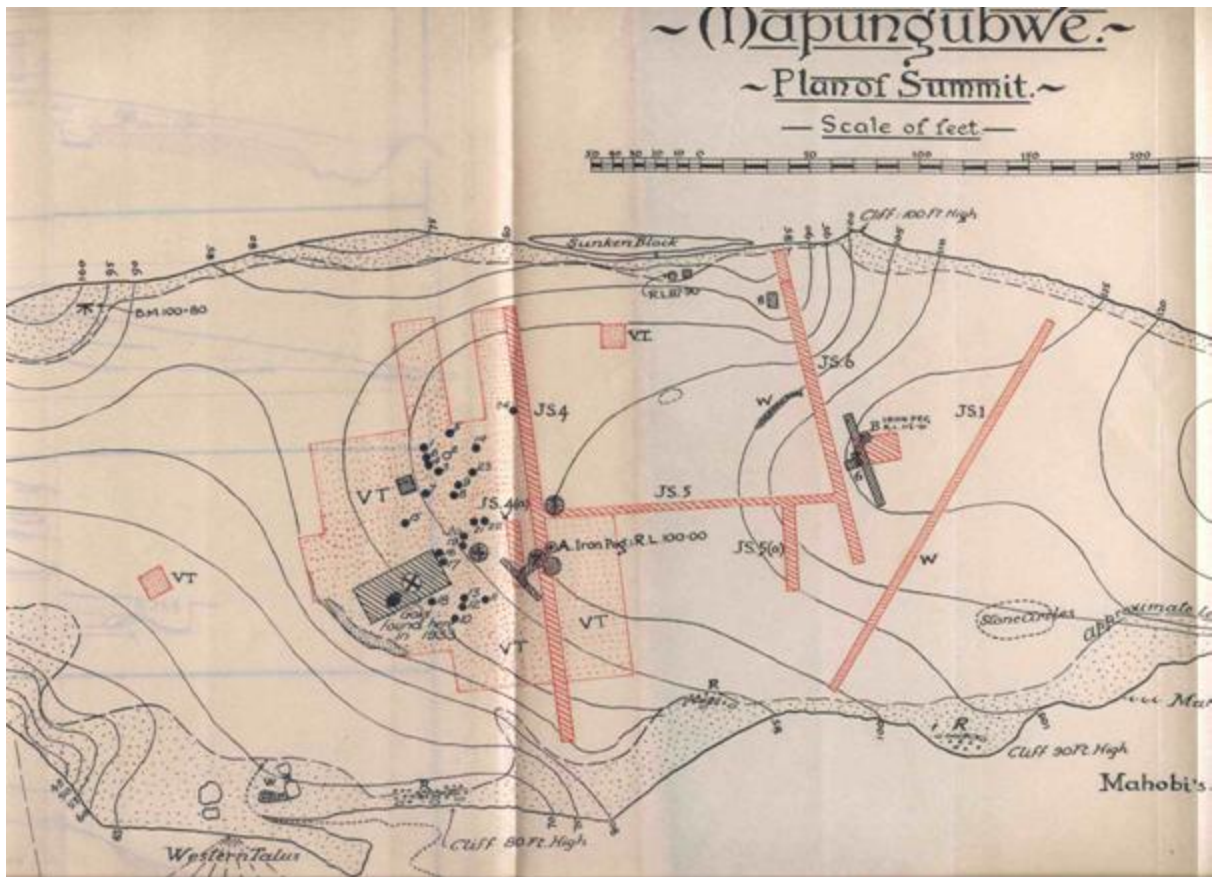


Figure 35 Plan of Mapungubwe Hill showing earliest excavations. Fouche, Leo. 1937. Mapungubwe: Ancient Bantu Civilization on the Limpopo. Reports on Excavations at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London 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 damage⁴ [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."¹²⁵

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."¹²⁶

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."¹²⁷

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)."¹²⁸

¹²⁵ 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.

¹²⁶ 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.

¹²⁷ 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.

¹²⁸ 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.

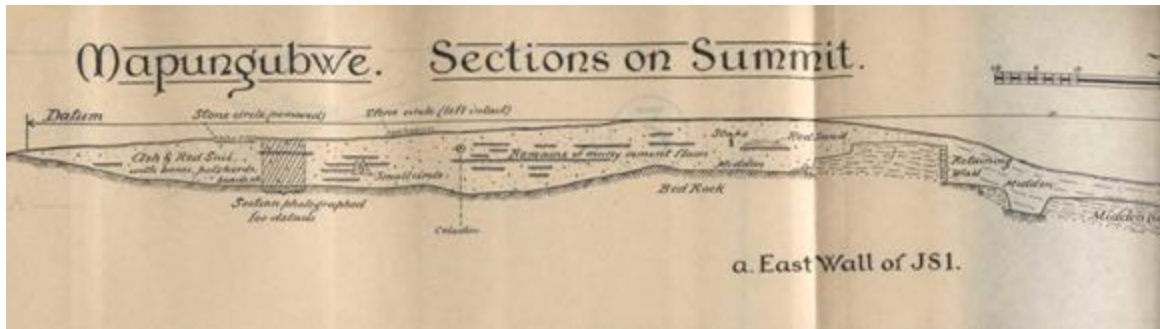


Figure 36 Section of Profile of trench showing stone circles in Fouche, Leo. 1937. *Mapungubwe: Ancient Bantu Civilization on the Limpopo*. Reports on Excavations at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo Fouche. London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

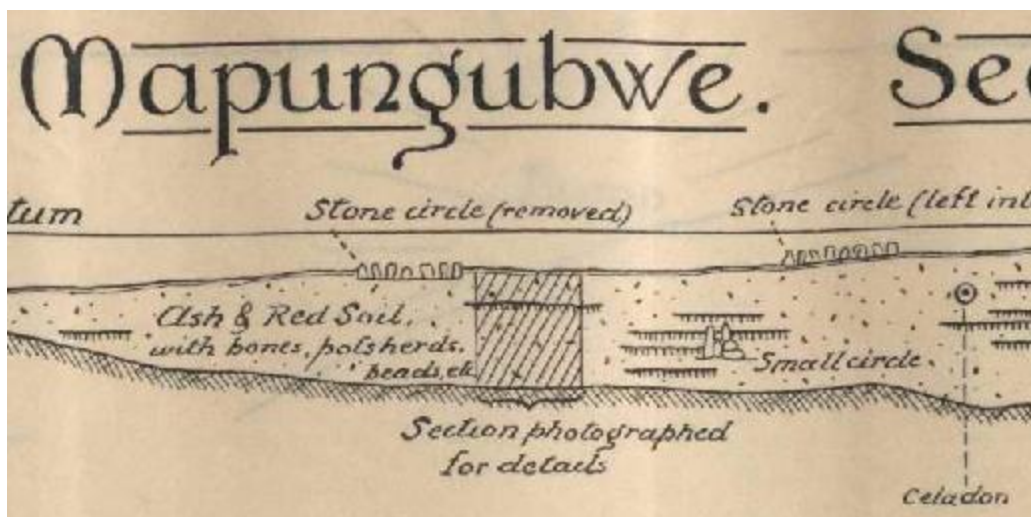


Figure 37 Detail of Section of Profile of trench showing stone circles in Fouche, Leo. 1937. *Mapungubwe: Ancient Bantu Civilization on the Limpopo*. Reports on Excavations at Mapungubwe from February 1933 to June 1935, edited on behalf of the Archaeological Committee of University of Pretoria by Leo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

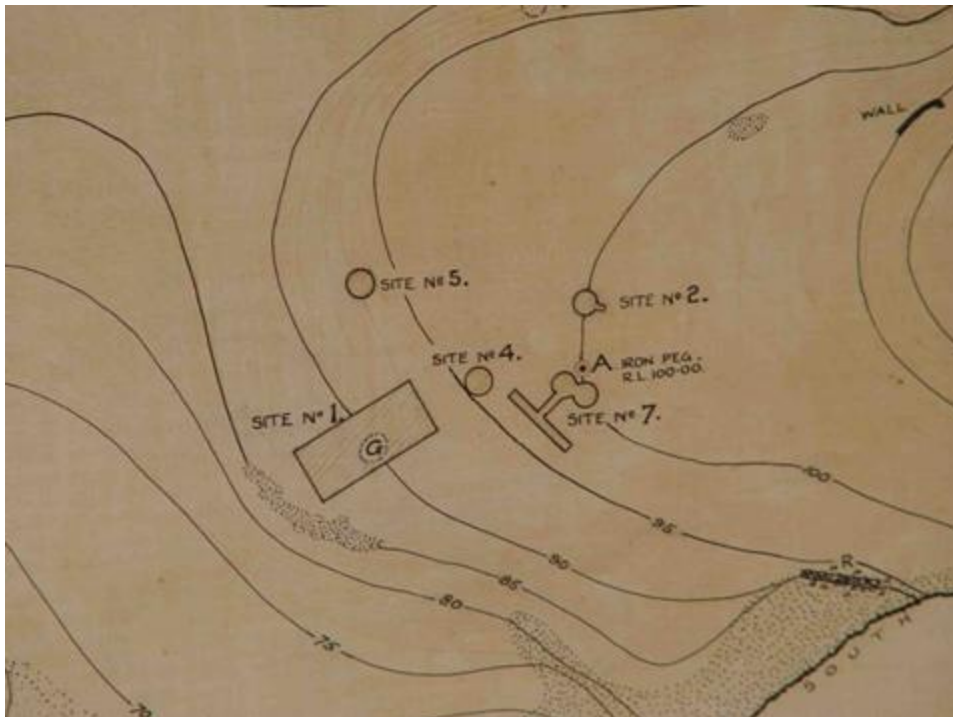


Figure 43 Plan of first excavations found in the records of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University of Pretoria. See Figure 48 page 109.

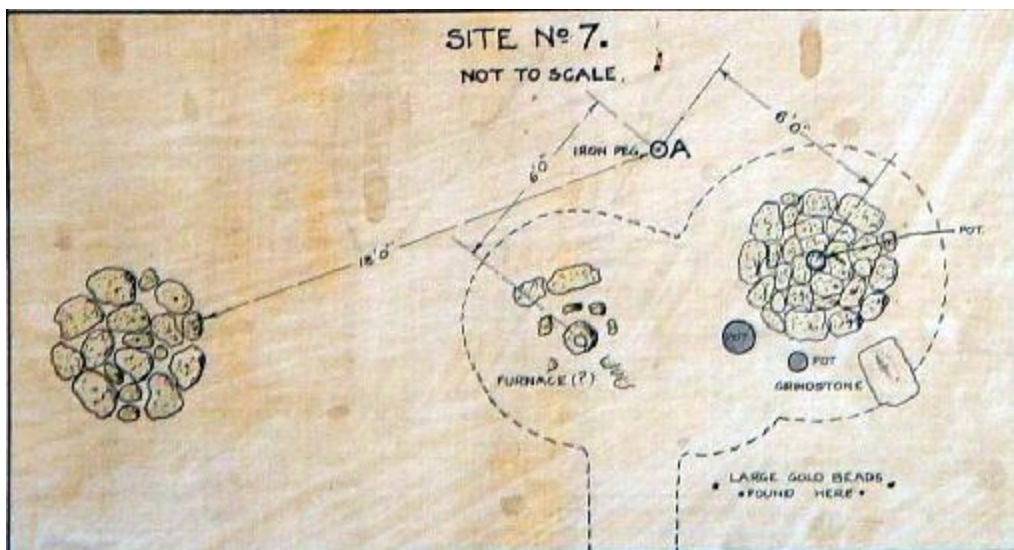


Figure 44 Detail of Site 7 in Plan of excavations titled - Mapungubwe Contoured Plan of Summit by Prof C van Riet Lowe, with details of excavations of sites 1,2,4,5,6 and 7. First record of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives 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."¹²⁹

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

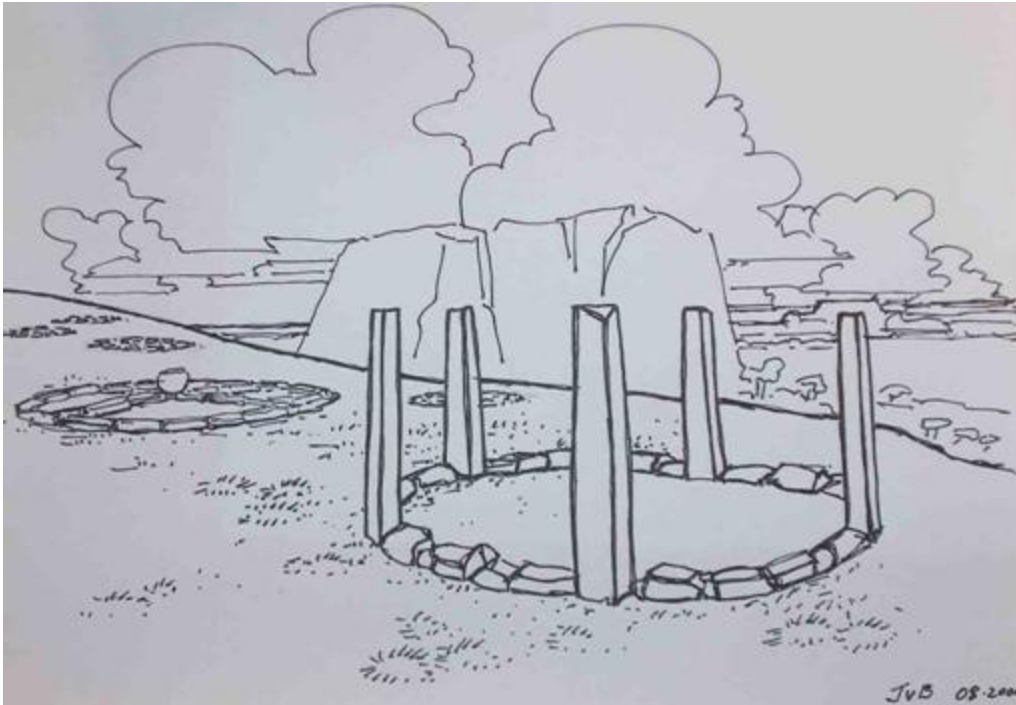


Figure 45 'Stonehenge' of Mapungubwe. Reconstruction of arrangement of 'polished-looking' monoliths over the 'Chief's Grave' - that appear to have been fashioned from crystalline dolerite (columnar-jointed basalt) found at a nearby igneous dyke intrusion - by Jan Willem van Bergen¹³⁰ and Richard Wade August 2004.

¹³⁰ 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).

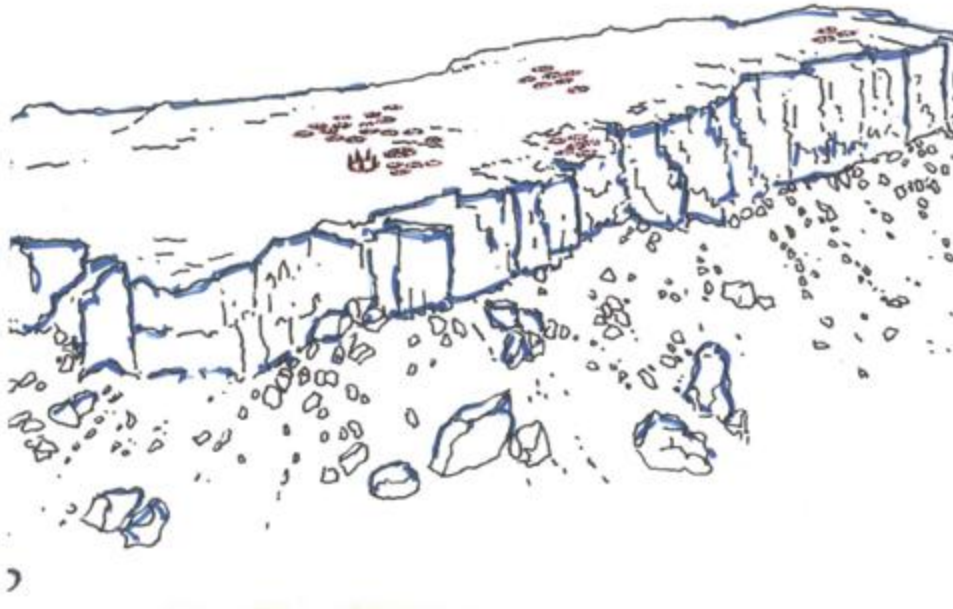


Figure 46 Schematic Distribution indicating 'Stonehenge' and stone circles of Mapungubwe – by Jan Willem van Bergen and Richard Wade August 2004.

In subsequent laboratory work and archive research (Sept 16th 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.”¹³¹

¹³¹ 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 M₆ 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 Pretoria¹³².

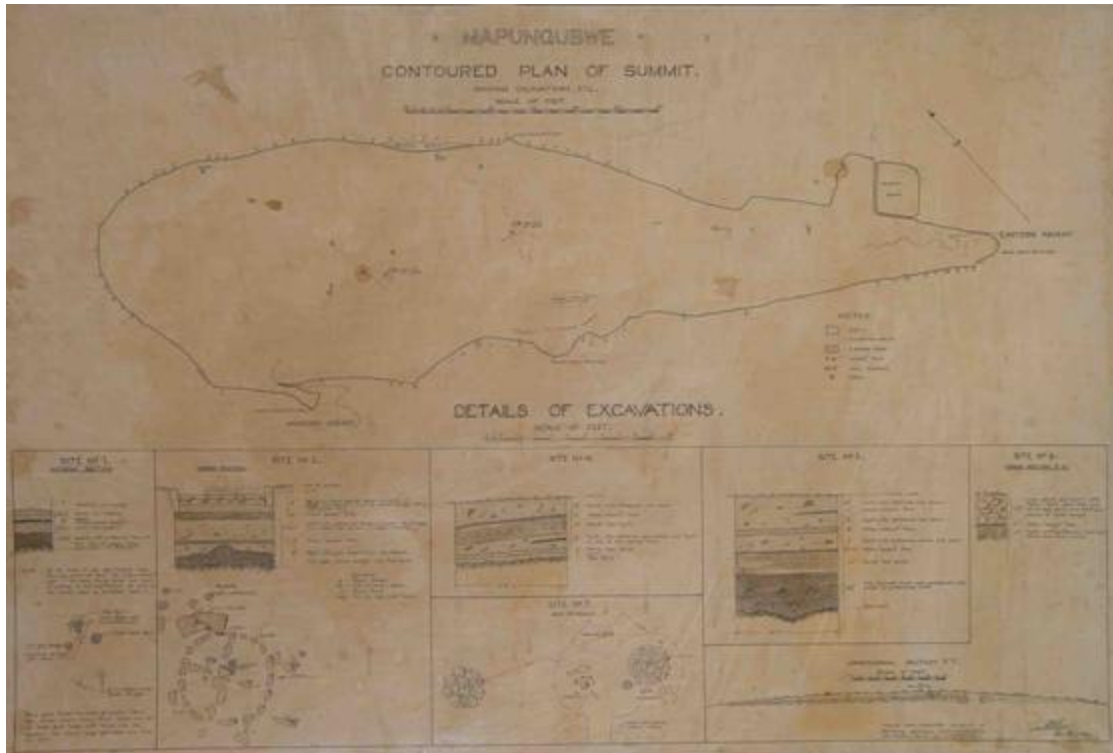


Figure 47 Plan of excavations titled – Mapungubwe Contoured Plan of Summit by Prof C van Riet Lowe, with details of excavations of sites 1,2,4,5,6 and 7. First record of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives at the University 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 M₆ then given the Department number A627 with photograph (No.6).

¹³² 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 M₆ are further evidence to this type of ritualistic human sacrifice or cremation similar to burial methods found at Tshiendeulu.

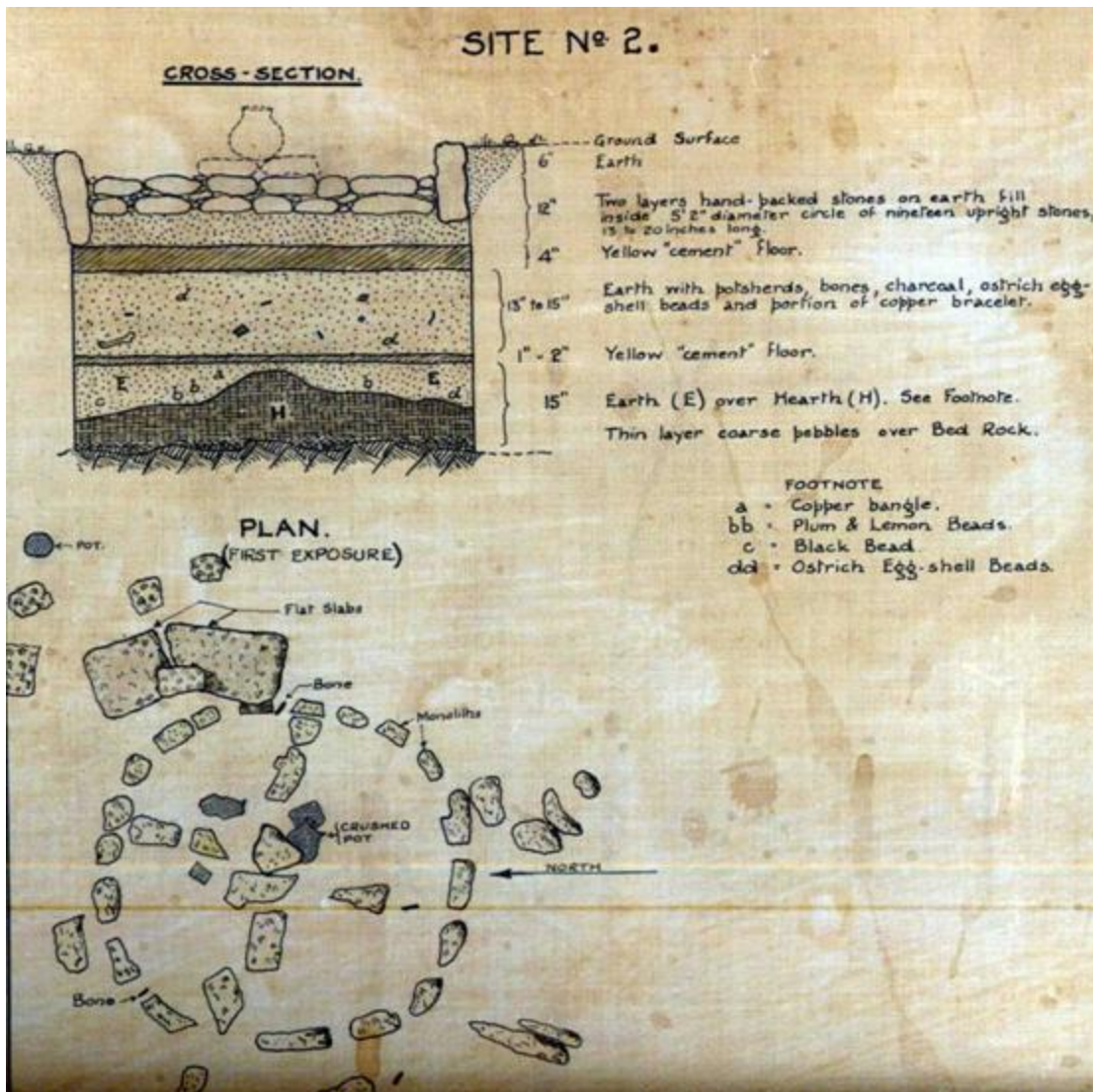


Figure 48 Detail of Site 2 in Plan of excavations titled - Mapungubwe Contoured Plan of Summit by Prof C van Riet Lowe, with details of excavations of sites 1,2,4,5,6 and 7. First record of excavations signed by the archaeologist Van Riet Lowe May, December 1933, held at the office in Mapungubwe Archives 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".¹³³

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.

¹³³ 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 Egypt¹³⁴

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

¹³⁴ 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 nomological 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'¹³⁵ or 'people of Zeng' as described by the earliest ethnography¹³⁶ and that can be reconstructed by studying the archaeoastronomical aspects of rock art, artifacts and structures¹³⁷ 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)¹³⁸.

Dr. Jarita Holbrook¹³⁹ of the Bureau of Applied Research in Anthropology at the University of Arizona together with the Edward Bouchet Abdus Salaam Institute,

¹³⁵ 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.

¹³⁶ 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

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

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

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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 Pretoria¹⁴⁰.

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.

¹⁴⁰ Keeton, Claire. Sunday 13th 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 +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.