

File Name: 1021.pdf

UNESCO Region: AFRICA

SITE NAME: Tsodilo

DATE OF INSCRIPTION: 16th December 2001

STATE PARTY: BOTSWANA

CRITERIA: C (i)(iii)(vi)

DECISION OF THE WORLD HERITAGE COMMITTEE:

Excerpt from the Report of the 25th Session of the World Heritage Committee

The Committee inscribed Tsodilo on the World Heritage List under criteria (i), (iii), and (vi):

Criterion (i): For many thousands of years the rocky outcrops of Tsodilo in the harsh landscape of the Kalahari Desert have been visited and settled by humans, who have left rich traces of their presence in the form of outstanding rock art.

Criterion (iii): Tsodilo is a site that has witnessed visits and settlement by successive human communities for many millennia.

Criterion (vi): The Tsodilo outcrops have immense symbolic and religious significance for the human communities who continue to survive in this hostile environment.

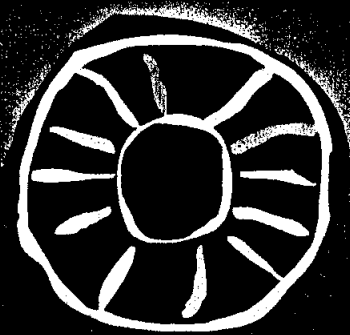
The Delegate of Thailand, while supporting the inscription of the site, questioned the application of criterion (i), asking whether the rock art itself or the entire property was a "masterpiece of human creative genius". The representative of ICOMOS explained that criterion (i) was applicable to the rock art. The Chairperson congratulated Botswana on the inscription of its first site on the World Heritage List. The Observer of Botswana emphasized that this is a milestone, illustrating the commitment of her country to fulfil the obligations of the Convention and to adhere to the Global Strategy.

BRIEF DESCRIPTIONS

With one of the highest concentrations of rock art in the world, Tsodilo has been called the "Louvre of the Desert". Over 4,500 paintings are preserved in an area of only 10 sq. km of the Kalahari Desert. The archaeological record of the area gives a chronological account of human activities and environmental changes over at least 100,000 years. Local communities in this hostile environment respect Tsodilo as a place of worship frequented by ancestral spirits.

1.b State, Province or Region: Ngamiland District, NW Botswana

1.d Exact location: 18° 47' S, 21° 44' E



TSODILO

MOUNTAIN OF THE GODS

World Heritage Nomination Dossier

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Without the research, writings, correspondences and sometimes lengthy discussions with numerous specialists, this nomination dossier could not have been written. We would like to thank the following people and organizations who have been instrumental in compiling the work presented here:

Botswana Society

Department of Architecture and Building Services

Department of Electrical and Mechanical Services

Department of Lands

Department of Metrological Services

Department of Roads

Department of Surveys and Mapping

Department of Tourism

Department of Wildlife and National Parks

Ministry of Agriculture

Ministry of Education

Ministry of Labour and Home Affairs

Ministry of Local Government

Monthe Marumo & Co. Attorneys

National Conservation Strategy

North West District Council

The Office of the President

Tawana Land Board

University of Botswana,
Archaeology Unit

University of Botswana,
Geology Department

We are particularly grateful to the following people:

Alec Campbell, for the many years work he has undertaken at Tsodilo and valuable contributions to this dossier.

We owe a considerable debt to Dawson Munjeri for his knowledge of the nomination procedure, for his dedication to the preservation and expression of African heritage and his unbounded energy in imparting all of this to us.

Tickey Pule, for her leadership as Director of the Botswana National Museum and her support of this project.

Prof. Larry Robbins, for his writings and photographs on excavations at White Paintings Shelter.

Dr. Nick Walker, for his expertise on southern African and Tsodilo rock art.

Prof. Marek Wendorff, for his expertise on Tsodilo geology.

Prof. Ed Wilmsen and Prof. Jim Denbow, for contributing as yet unpublished work on Divuyu and Nqoma and for comments on drafts of the dossier.

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Additional Photography:
Prof. Ed Wilmsen:
pgs. 7, 23, 47 (Nqoma), 49.

Prof. Larry Robbins:
pgs. 42, 43, 45, 46, 47 (White Paintings Shelter).

Department of National Museums, Monuments and Art Gallery, 31 May 2000.

1. Identification of the Property

- a. Country. p.2
- b. State, province or region. p.2
- c. Name of property. p.2
- d. Exact location on map. p.2
- e. Maps and/or plans showing boundary of area proposed for inscription and of any buffer zone. p.2
- f. Area of property proposed for inscription and proposed buffer zone. p.2

Maps- Fig.1: *Tsodilo: Core and Buffer Zones*

Fig.2: *Tsodilo: Land Use*

Fig.3: *Tsodilo: Topography*

Fig.4: *Tsodilo: Aerial Photograph*

Fig.5: *Tsodilo: Satellite Photograph*

Fig.6: *Tsodilo: Schematic Geology*



a. Country.

Botswana.

b. Region.

The Ngamiland District,
northwest Botswana.

c. Name of Property.

Tsodilo.

d. Geographical location.

The four corners of the core zone
are located at the following
positions.

i. northeast corner — S18° 40' 11"
latitude and E21° 43' 07" longitude

ii. northwest corner — S18° 41' 21"
latitude and E21° 40' 45" longitude

iii. southeast corner — S18° 46' 25"
latitude and E21° 46' 44" longitude

iv. southwest corner — S18° 47' 40"
latitude and E21° 44' 25" longitude

The four corners of the buffer zone
are located at the following positions.

i. northeast corner — S18° 33' 10"
latitude and E21° 44' 46" longitude

ii. northwest corner — S18° 39' 55"
latitude and E21° 32' 24" longitude

iii. southeast corner — S18° 51' 06"
latitude and E21° 54' 35" longitude

iv. southwest corner — S18° 57' 49"
latitude and E21° 42' 21" longitude

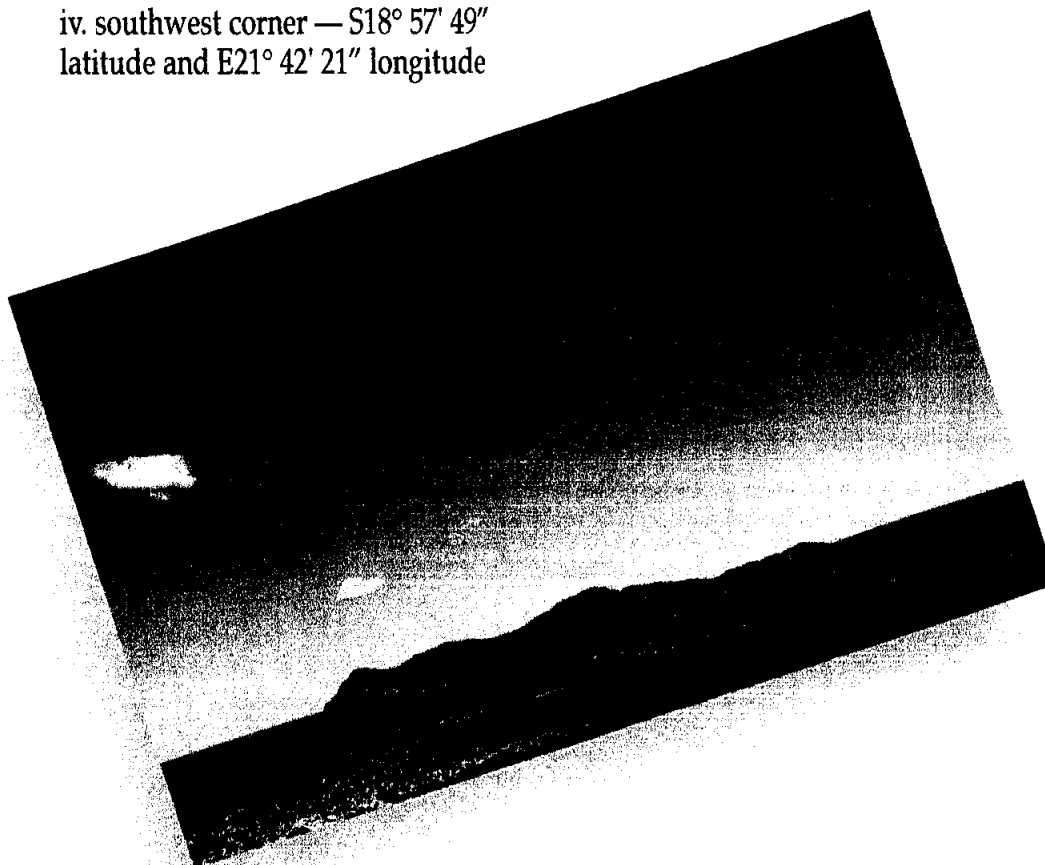
**e. Maps and/or plans showing
boundary of area proposed for
inscription and of any buffer zone.**

See Figures 1-5, *Identification of the
Property*. In addition, all maps can be
found in the appendices.

**f. Area of site proposed for inscrip-
tion (hectares) And proposed buffer
zone (hectares) if any.**

i. Area of site or core zone: A rectan-
gular area 12 kilometres by 4 kilome-
tres or 4 800 hectares. This area
consists of the four inselbergs (hills),
referred to as the *Female*, the *Male*, the
Child and the *Grandchild*.

ii. Area of buffer zone: A rectangular
area 22 kilometres by 32 kilometres or
70 400 hectares inclusive of the core
zone. The buffer zone comprises land
designated as a conservation area.
The buffer is designed to preserve the
wilderness experience of visiting
Tsodilo and to prevent the encroach-
ment of commercial development
that might diminish the natural
setting of the site. Management of
the buffer zone will not interfere with
the orderly and desirable develop-
ment of local communities presently
living inside the buffer zone. Allow-
ances have been made for an increase
in the population of the two resident
communities currently standing at
200.



Left: A view of *Female* from the summit of *Child*.

Tsodilo: Core & Buffer Zones

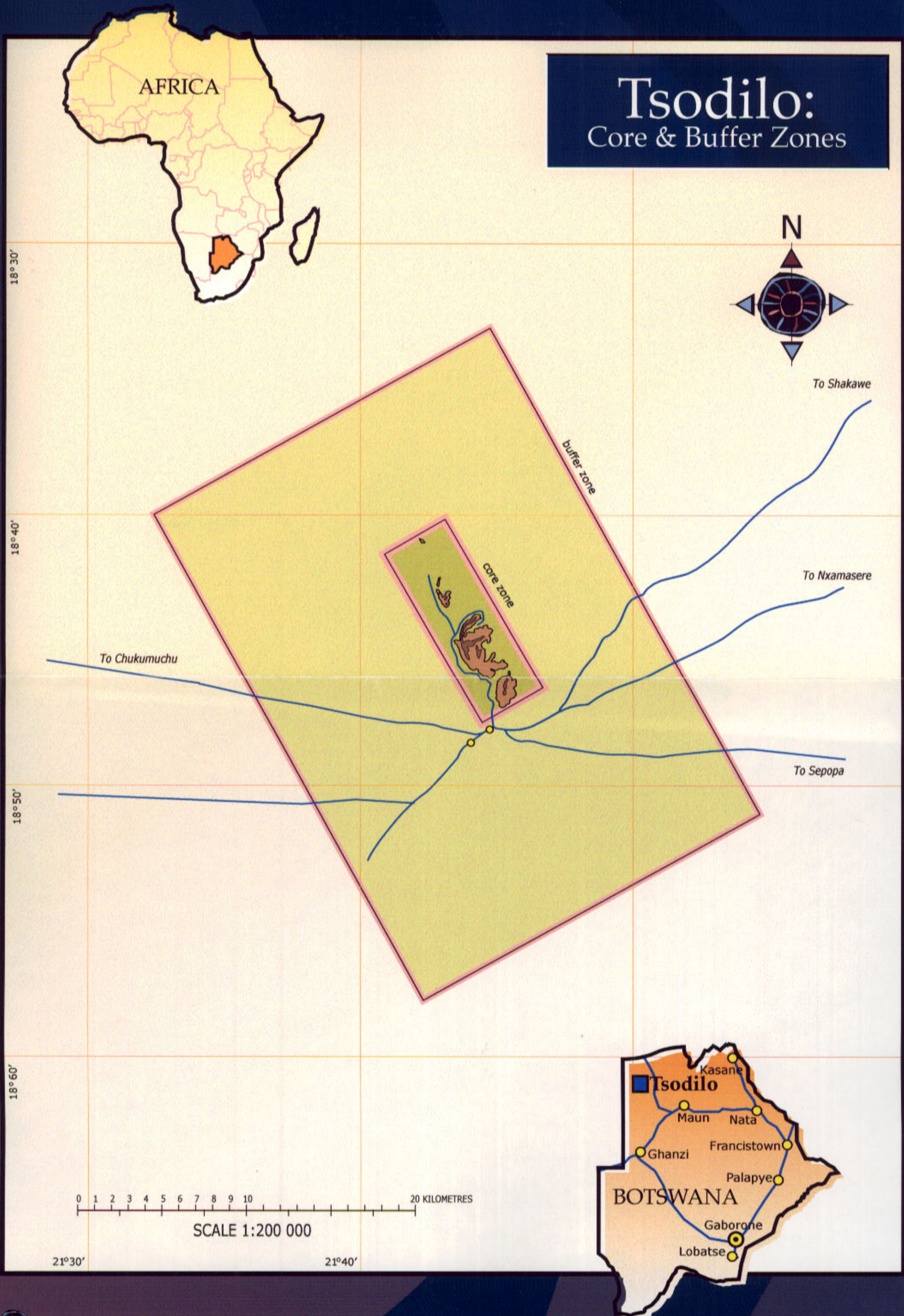


Figure 1. Tsodilo: Core & Buffer Zones

Tsodilo: Land Use

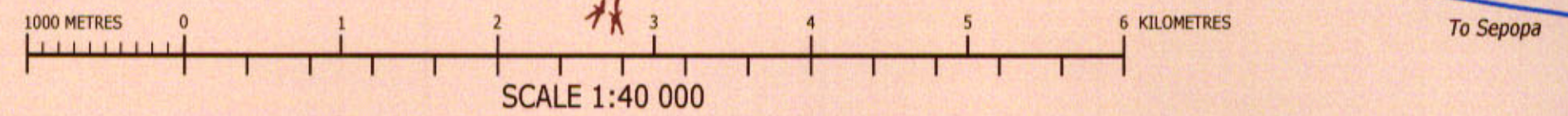
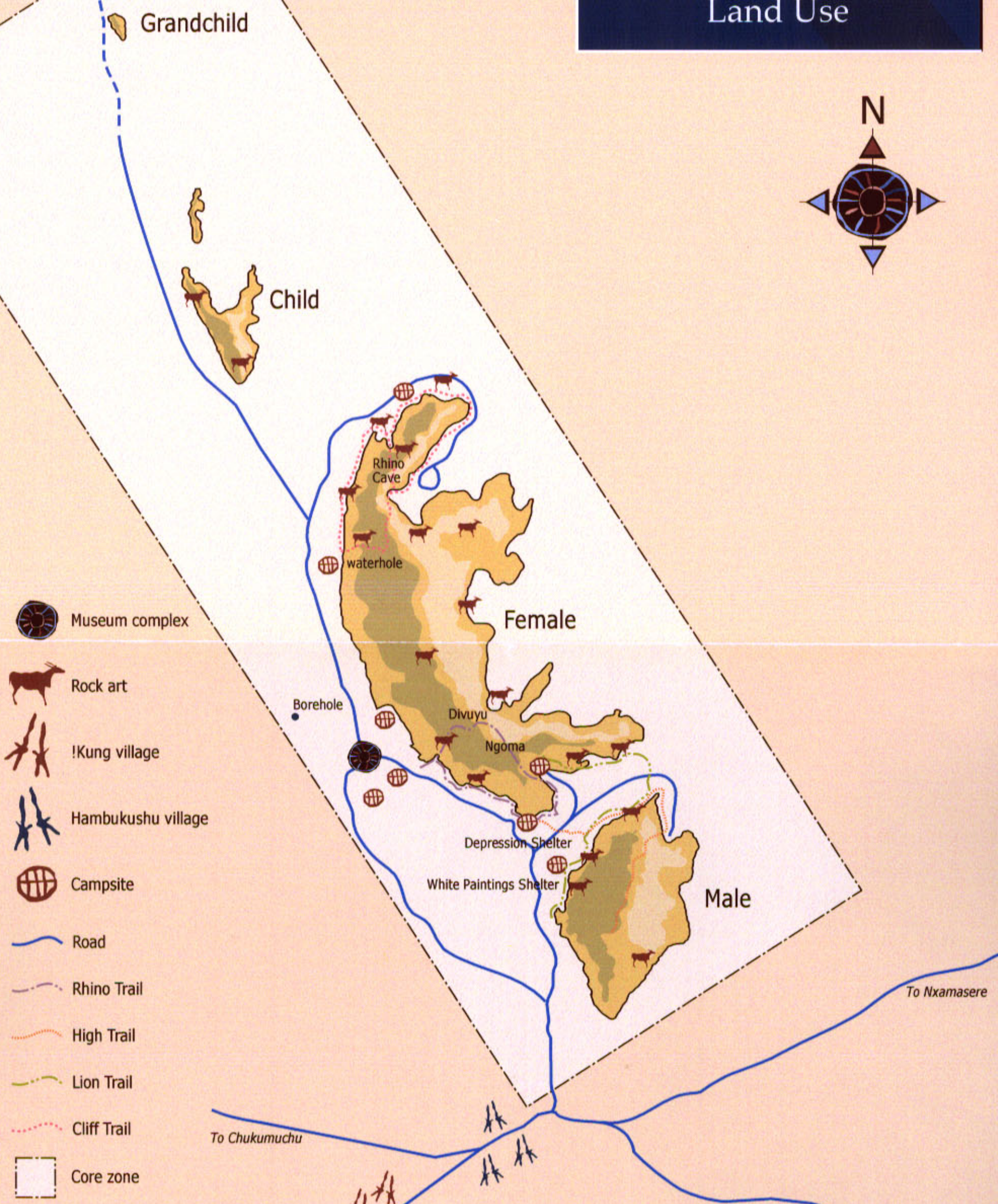
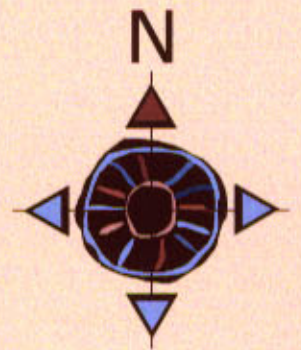


Figure 2. Tsodilo: Land Use

Tsodilo: Topography

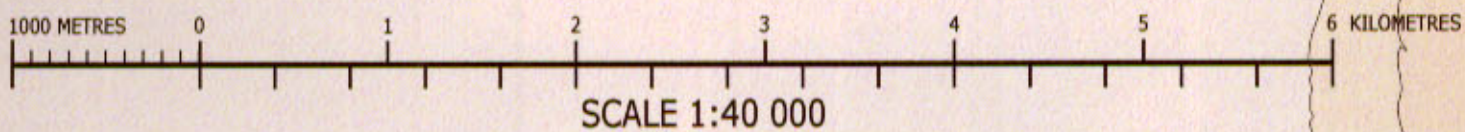
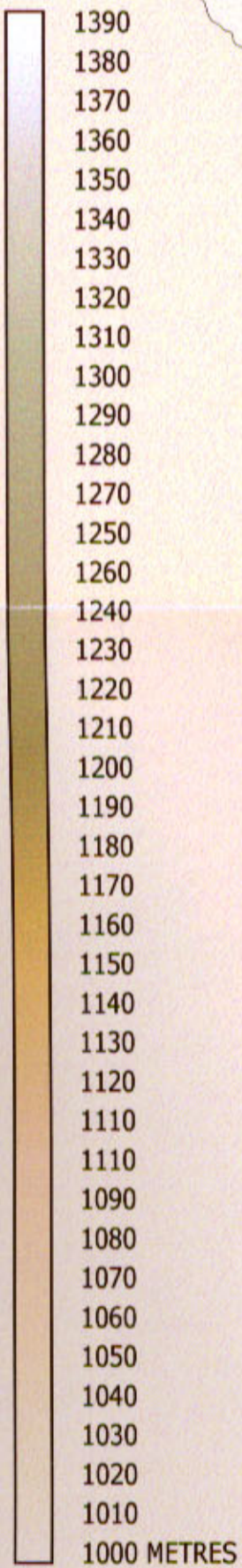
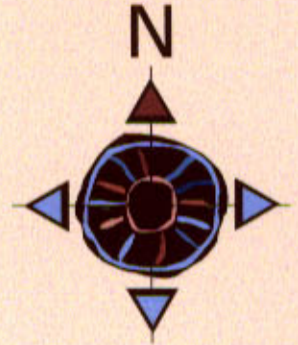


Figure 3. Tsodilo: Topography

Tsodilo: Schematic Geology

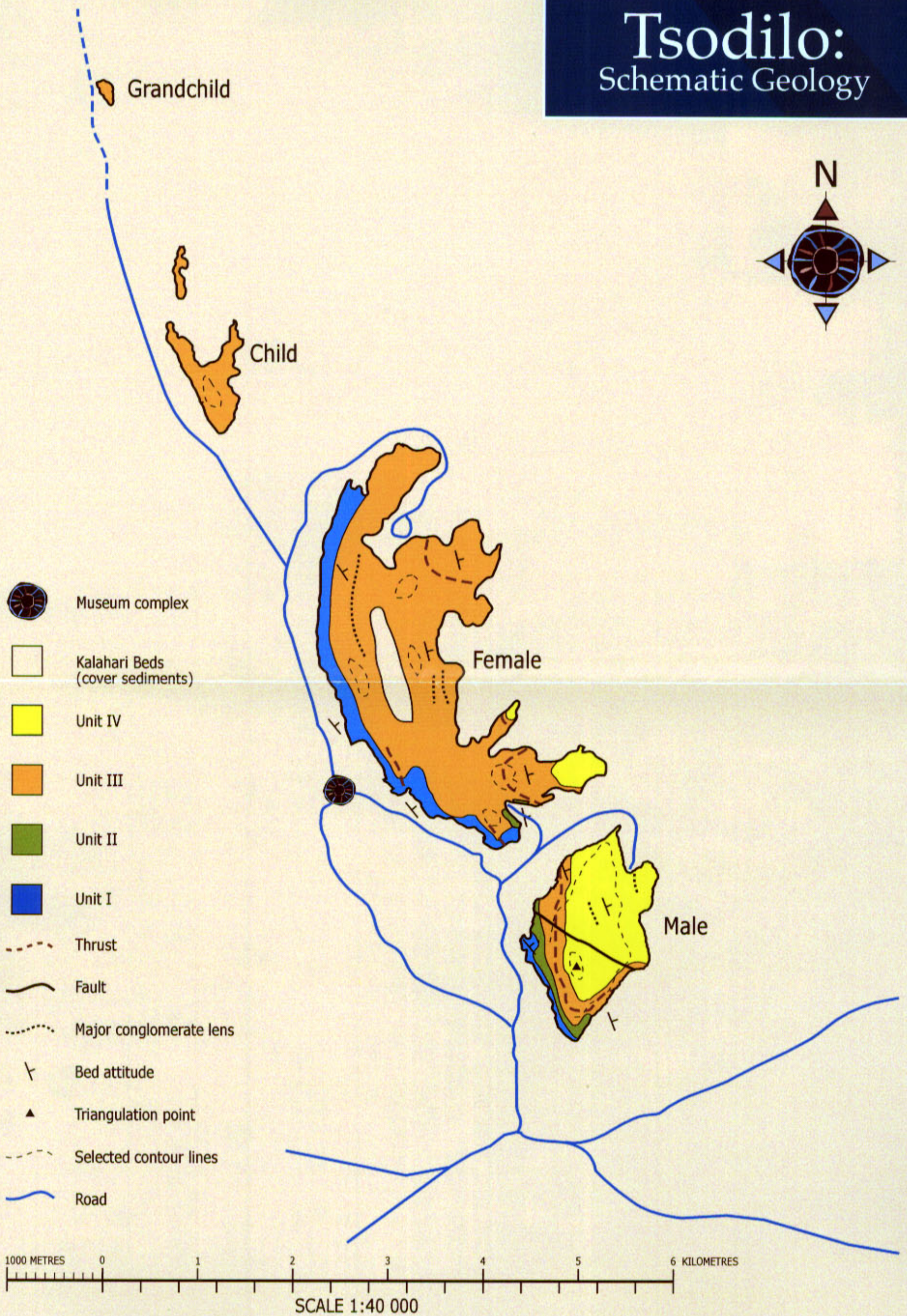


Figure 6. Tsodilo: Schematic Geology

2. Criteria for Inscription

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- b. Comparative analysis including state of conservation of similar properties. p.12
- c. Authenticity/integrity. p.18
- d. Criteria under which inscription is proposed (and justification for inscription under these criteria). p.26



a. Statement of Significance

Cultural Property

Tsodilo is a cultural site of outstanding universal value because preserved within its archaeological record is a chronological account of human activities and environmental changes that span a period of at least 100 000 years. Encapsulated in the many archaeological sites at Tsodilo is a superbly preserved record of the Middle Stone Age (MSA), the Late Stone Age (LSA), the Iron Age, and traditional societies, thus demonstrating a considerable antiquity and continuity of great diversity. The sites are found in the many caves, rock shelters, seasonal camps, and settlements at Tsodilo. In addition, there is much information pertaining to the paleo-environment within the site's sediments. This diverse and lengthy chronicle of African cultural heritage and climatic changes provides

insights into past human ways of life and how people have interacted with their environment both through time and space. The over 4 500 rock art paintings and numerous carvings provide a vivid insight into how earlier people perceived their surroundings and artistically expressed their way of life.

In 1995 Professor Pierre de Maret undertook an evaluation of Tsodilo for UNESCO/Botswana National Museum. In his report, *Evaluation of the Tsodilo Hills Management Plan and its Implementation* (1995:2), he states

'Tsodilo is a major landmark in the Kalahari Desert. It is not only a wonder of nature but also a rock art area of major international significance.'

The art of Tsodilo is truly a Botswana and wider African treasure to be protected and shared with the world.

i) *Artistic achievement*

The rock paintings at Tsodilo represent the largest concentration of such work in Botswana. With a density of about 40 sites per square kilometre, Tsodilo has one of the highest concentrations of rock art in the world, thus emphasizing their importance. They are regionally significant because many of them have been executed in fairly small, isolated panels, as opposed to several large friezes found in living sites elsewhere in the region. There are also significant differences in terms of execution between these paintings and those found in Namibia, Zimbabwe and South Africa. These are more naturalistic in style whereas the Tsodilo paintings are more schematic, and in reality, sketches capturing the essential character of the creatures are depicted. In particular, there is a higher proportion of geometric designs than either human figures or depictions of animals, whereas in rock paintings

elsewhere in the region human figures tend to be more important numerically, have a lot of careful detail and are often associated with animals in a seemingly interactive or scenic way. Campbell and colleagues (1994) have drawn attention to similarities with rock engravings

in the interior of southern Africa, but it is the variety of geometric symbols, the distinctive treatment of the human figures and the exaggerated body proportions of many of the animals which

sets Tsodilo paintings apart from that of the rest of Africa.

Despite this simplicity in execution, many of the pictographs are artistically powerful and for this Tsodilo has been referred to as the 'Louvre of the Desert' (Balson 1953). Whatever the original intentions of the artists, the art has inspired modern interpretations and many of the paintings have been used for stamp designs, logotypes, craft items, etc..



The emphasis on large herbivores in the animal depictions echoes the metaphorical idiom of the San, as these species dominate in their traditions and beliefs. Although the symbolism behind the art remains obscure, there are enough clues from ethnography and the structure of the art to indicate their religious nature.

ii) *Archaeological Significance*
(Stone Age)

Evidence of early settlements, culture, subsistence, technology and exchange patterns

The Stone Age of Botswana is relatively understudied and as a consequence poorly understood. This is primarily because of the nature of the landscape. Much of the country is covered by desert sands that offered little incentive for people to repeatedly revisit the same locations. Therefore, archaeological deposits were not built up. As well, the cultural material that was deposited was rapidly covered by the shifting sands, now making sites very difficult to find.

Tsodilo with its numerous rock

shelters is thus exceptional in Botswana and the Kalahari in providing easier access to cultural material deposits. African prehistory owes much to places such as Tsodilo. These provide an important window into a recreation of past settlement, culture, subsistence and technology as well as environmental conditions.

Archaeological research has uncovered an abundance of cultural material within the buried levels of several rock shelters and caves at Tsodilo. The caves and rock overhangs, which provided the only permanent natural shelters in a vast area of the north-western Kalahari sandveld, are therefore an invaluable record of antiquity and human activities. White Paintings Shelter excavations in fact go down a remarkable seven metres and reveal that Tsodilo has been occupied for at least 100 000 years.

So far, no deposits belonging to the Early Stone Age (ESA) have been discovered at Tsodilo, suggesting that the first occupants may well have been MSA peoples. While skeletal remains of MSA peoples have not yet been found in Botswana, evidence from related South African sites

indicates that MSA peoples were among the earliest anatomically modern humans, *Homo sapiens* known.

In most cases, the excavated rock shelters and caves of Tsodilo provide evidence of repeated use over an extensive period of time. The artefact densities appear to reflect small mobile groups of people who camped at Tsodilo for brief periods, perhaps on seasonal visits when the mongongo tree, *Ricinodendron rautanenii*, fruits ripen or other resources were plentiful. The use of mongongo nuts as staple food at Tsodilo can be demonstrated far back into the Holocene.

The raw material used for tool-making in both the LSA and MSA includes locally available quartz as well as stone that came from more distant sources. The use of exotic raw materials suggests that exchange or contact with other areas has been important at Tsodilo for tens of

Left top to bottom: The Cliff Trail, north west face of Female; Red eland at van der Post's Panel.
Right from top: Cupules at Depression Shelter; Red Giraffe at van der Post's Panel; Tsodilo from the air.

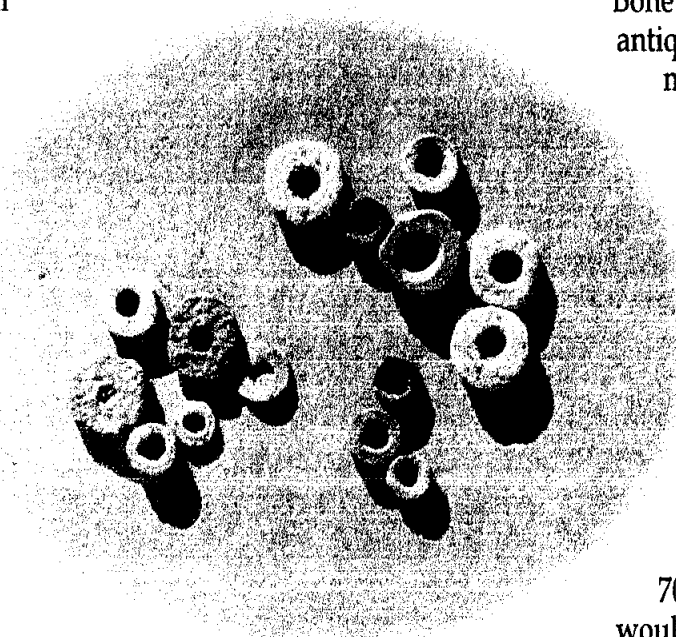


thousands of years. Frequent use of non local raw materials (i.e., high cost) is especially noticeable for LSA segments and MSA points. These are the inferred weapons that might be symbolic statements about social relationships. Tsodilo thus provides evidence of a field of study that offers immense possibilities for a regional understanding of early trade.

In southern African archaeology, Tsodilo is a unique site where an extensive record of fresh water fish exploitation is revealed. It is the only place so far in the region where thousands of fish bones have been excavated in an arid landscape, in this case reflecting a time when the now dry rivers once flowed.

Some of the fish could possibly have been taken from the ancient lake at Tsodilo that existed west of *Male* and *Female* at various times during the Holocene and late Pleistocene, although the appreciable changes in depth in this shallow water would probably have effected the temperature and salinity of the

water significantly. More probably, the fish came from a waterway, a few kilometres to the north, now only seasonally filling with pools in the rainy season, but that once had permanent or at least seasonally flowing water in these times.



Carbon dates from the Tsodilo lake deposits have revealed that there was standing water for long periods in the terminal Pleistocene and then in the mid Holocene. This is evidence of

appreciable climatic change in the past.

Barbed bone points found at White Paintings Shelter were most likely used to tip fish spears. Such artefacts had previously only been found far away in north, west and east Africa. Bone tools also have a surprising antiquity at Tsodilo and may well be more than 40 000 years old.

In the archaeological record of Tsodilo the development of the MSA is marked by a major change to the use of larger blades, some of which were backed. The discovery of an early blade industry at Tsodilo is very significant. Similar industries in South Africa have been dated to around 70 000 B.P.. Such tools, which would have been mounted in sets with resins on hafts, are often seen by archaeologists as being indicative of relatively complex or modern human behaviour.

The density of fish bone and stone artefacts decreases in LSA deposits. But in these deposits there are equally

universally significant deposits of ostrich eggshells. No fewer than 201 pieces of eggshells were recovered within the 270 - 280 cm level and samples have been directly dated, by the AMS radio carbon technique, to between 26 000 - 33 000 B.P.. From this it is evident that as long ago as 33 000 B.P., *Homo sapiens* were collecting ostrich eggs for food and making beads and other items from the shells. The method of making such beads continues to be the same today in the Kalahari and in the area of Tsodilo. This constitutes one of the longest records of these traditional techniques and usages.

iv) Archaeological Significance (Iron Age)

Settlement Patterns, Sociocultural factors

The Iron Age at Tsodilo is important universally because it provides unique evidence of past socio-political structures. The diversity of Iron Age materials found at the first millenium sites of Divuyyu and Nqoma is testimony to significant stages in Tsodilo's archaeological record of human prehistory. These two sites have large

refuse middens and indications of substantial structures in the form of house foundations, thereby highlighting settled domestic herding and a settled lifestyle as early as the 7th and 8th centuries AD.

The Iron Age at Tsodilo is characterised by a settlement layout that shows more symmetry between agnatic and matrilineal social relations in northern Botswana than is characteristic of the region today. This shows that social relations were not as strongly overlain by patrilineal hegemony as appears to have been the case at 'cattle complex' settlements elsewhere in southern Africa. This is clearly evidenced by lack of central cattle kraals and the fact that the dead, both men and women, were buried together in middens located outside the village proper. The central cattle pattern of sites further east ordains that patriarchs be buried in the cattle enclosure whereas others be buried in or near the domestic domain.

This is more similar to the spatial patterning of villages in the "matrilineal belt" of central Africa where cemeteries containing both men and

women are usually located on the outskirts of villages, in the 'mediating' ground between village and forest, i.e., culture and nature. One of the explanations given is that the ancestors at Tsodilo may have been more balanced in their ability to speak in both matrilineal and agnatic idioms. As a result, their burials were not spatially segregated along gender lines, and were placed at the edge of the village where they could mediate between the community and nature, rather than to reinforce, through spatial centrality, the ascendancy of patrilineal ties.

By the 7th century AD, the pace of change in technology, subsistence and settlement organization had increased as iron and copper metallurgy were introduced. Cultivated crops such as sorghum and millet were added to the diet. Sheep and goats augmented the small numbers of domestic cattle kept by some earlier foraging communities. The residential stability that went along with increased reliance upon domesticated animals and plants led to the construction of more substantial villages. A variety of pottery vessels were used for cooking, storing and

serving food. Persons were often elaborately decorated with copper and iron beads and bangles, glass beads and other jewellery that supplemented more traditional ostrich eggshell beads, ivory bracelets and other items of status and adornment.

Given this scenario, Tsodilo is an important Iron Age site that can provide a factual and conceptual understanding of variation in the evolution of human societies through time and space.

Metal Work and Ornamentation

The excavations at Divuyu, uncovered numerous pieces of metalwork. Copper and iron beads, bracelets, and other ornaments were particularly common. This quantity of metalwork makes Divuyu the richest site yet discovered in southern Africa for this early period. A finding made even more striking when one considers that all the metal was imported from great distances.

Left: Ostrich eggshell beads, and mollusc shell beads from Tsodilo's ancient lake.

Right from top: Excavations at the village of Nqoma, Female.



Ornamentation included ostrich eggshell beads that could have been obtained locally. A variety of elaborate ivory, iron, and copper ornaments along with iron tools were also made at a second Iron Age site, Nqoma, dating to the end of the first millennium AD. Indeed Nqoma has the richest variety of metal jewellery of any known contemporary site in southern Africa. No furnace has been found at Tsodilo but imported metal was worked locally. The copper source was probably as far away as southern Zaire or northeast South Africa, although the iron may have come from about 40 kilometres away.

The large amount of metal jewellery recovered indicates the symbolic attention paid to personal adornment at Tsodilo. Although one cannot be certain whether jewellery was used to index differences in social ranking or

status, there is a difference between these agro-pastoralists and the contemporary local forager campsites in terms of their proportions of iron and copper to ostrich eggshell or stone

beads. This probably indicates that possession of high cost metal goods and luxury items was vested with social meaning.

These numbers of metal jewellery also indicate that the farmers chose to use trade items to distinguish themselves from those in lower social positions. Jewellery may also have had an ideological valence that both structured and reinforced hegemonic differences between these communi-

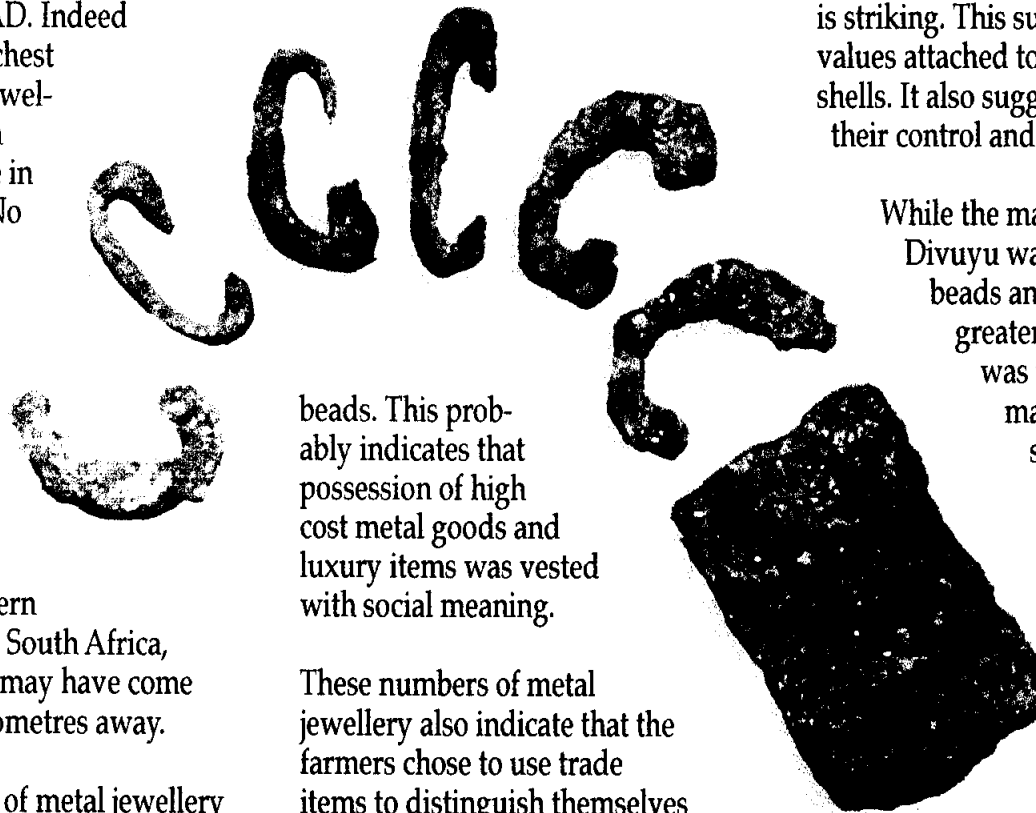
ties. Social stratification is clearly evidenced at Tsodilo. The contrast between Ngamiland Iron Age sites and important contemporary sites in eastern Botswana, where imported glass and shell beadwork were not as abundant in terms of ornamentation, is striking. This suggests different values attached to metal, stone and shells. It also suggests differences in their control and access.

While the majority of metal at Divuyyu was fashioned into beads and bracelets, a greater proportion of iron was used at Divuyyu to make utilitarian tools such as tanged arrowheads, chisels and points than was the case at Nqoma. The dependence of Divuyyu peoples on metal tools and implements is further suggested by the fact that only ten pieces of chert, two backed blades and eight flakes, were recovered from the excavation.

Because no chert cores or primary flakes were found and only a small number of secondary flakes were discovered, it is likely that all the chert artefacts were made elsewhere.

Mining

Archaeological research has also shown that Tsodilo was extensively mined for specularite between AD 800 - 1 000, the same time that the Nqoma site was occupied by farmers and traders. More than 20 mines have been located at Tsodilo. The mines resemble caves but have been hollowed out of the rock by the use of fire. The miners were generally following black bands rich in iron ore called specularite and black haematite (sebito). Sebito was used as body paint and was an important trade item, moving hundreds of kilometres in the 19th century. The output from these mines was enormous and the resources must have been traded far afield, no doubt contributing to the large numbers of jewellery and cattle owned by the Nqoma people. Further research related to the mines will

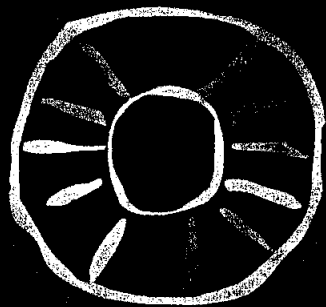


Left: Links from a iron bracelet, Nqoma.

“We were told that the first people at Tsodilo were the !Kung. We found them here and settled amongst them peacefully. Whenever we visit Tsodilo our main focus is always the *Female* hill. There is a well where we collect water and conduct our prayers. This well never dries up.”

Idumoyo Hikwana

(T.D.C.) Chairperson for Chukumuchu.



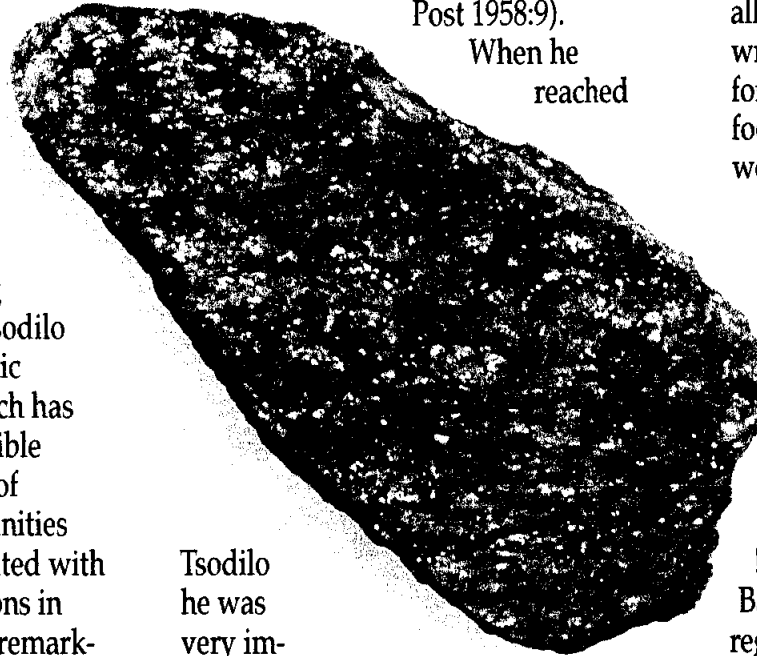
undoubtedly furnish many insights into early methods of mining and long distant trading in the region.

iv) *Living Traditions - spiritual*

Tsodilo's sacred importance spreads far. The two local communities, Hambukushu and !Kung, have strong traditional beliefs that involve respect for Tsodilo as a place of worship and ancestral spirits. This strong religious connection with Tsodilo may be due to their economic dependence on Tsodilo which has for a long time provided edible plants, water and a variety of game animals. Both communities have creation myths associated with Tsodilo. There are depressions in some of the rocks that look remarkably like hoof prints. Hambukushu legend has it that these were made by the first cattle to descend from the sky when "the rocks of the earth were still soft." According to a similar !Kung tradition, the marks were made by eland. Depictions of both animals can be found in the rock art at Tsodilo.

In 1955, the writer Laurens van der Post set out on what he describes as 'a journey in a great wasteland and a search for some pure remnant of the unique and almost vanished First People of my native land, the Bushmen of Africa' (van der Post 1958:9).

When he reached



Tsodilo he was very impressed by the great spiritual reverence shown to Tsodilo by his companion and guide, Samutchoso, who told him that every cave and rock shelter was home to a different animal spirit. He also told van der Post that if a person went to Tsodilo without proper reverence for the spirits that

person might never leave the place alive. In *The Lost World of the Kalahari*, van der Post writes

"The spirits of the hills are not what they were, Master... ten years ago they would have killed you all...". "Suppose," I asked him, "I wrote a letter to the spirits to beg forgiveness and we buried it at the foot of the painting of the eland... would that help, d'you think?" ...

He did not think long... "Master, it's a very good plan!" (van der Post 1958).

There is a painting of an eland surrounded by dots along Rhino Trail (Panel #3) at Tsodilo. This painting is highly respected by the local !Kung (also known as San, Basarwa, Ju'hansi, Zhu) who regard the eland as a rain spirit calling it *Khwa-ka-Xoro* (rain animal). A shaman, accompanied by elderly !Kung, visits the painting to pray for rain or a successful hunt. The Shaman performs a ritual trance dance through which he absorbs power to make it rain or to help make a hunt successful. After prayers, it often rains and hunts are successful.

The !Kung also point out a creation place on *Female* and a set of paintings on *Child* that 'still work'.

The Hambukushu have great respect for Tsodilo. They believe that if someone is sent to Tsodilo to work that person must accept the assignment willingly for if they are unwilling, or non cooperative, chances are that they may disappear. Also, persons going there must always observe and respect the sacredness and holiness of Tsodilo.

Another site of spiritual significance is the water hole on *Female* where two large pythons live. Some church groups, particularly the Zion Christian Church, believe that the water found there can cleanse away bad spirits or solve witchcraft problems.

Even today local churches and traditional doctors travel to Tsodilo for prayers or meditation. Records at Tsodilo indicate that the majority of Batswana who go to Tsodilo do so for religious purposes. Tsodilo is therefore testimony to long established traditions and an importance attached to spiritual values in the lives of the people in and around Tsodilo.

Natural Property

i) Geological Significance of Tsodilo

Tsodilo is one of the few localities where very old rocks uplifted by tectonic forces resisted many million of years of weathering and erosion. They now form a 'window' providing a rare opportunity to observe one of the ancient rock formations that make up the Earth's crust that is normally impossible to see within the whole broad region of the sand covered Kalahari.

A quote from Professor Marek Wendorff, Leader of IGCP project 419 (UNESCO/IUGS) and a member of the geology faculty at the University of Botswana may best sum up the interactive history of Tsodilo and its geological significance. He states:

'Tsodilo has multifaceted values that combine uniquely, and in a fascinating way, several aspects of Earth's history with the cultural history of humankind. The area shows a most interesting interplay between a broad variety of geological processes spanning more than a billion years of the Earth's

history. At the same time Tsodilo demonstrates how the minerals, products of slow natural processes, reflected on the cultural activity of our ancestors who fashioned the foundations of our history. Thus, the history of nature acting over many millions of years is intertwined with the history of people active at Tsodilo for thousands of years. Both are now being unravelled by modern science. These three elements can be perceived as a symbolic bridge between the past and present.'

ii) Significance of Nature/Culture Relationships

The symbiotic relationship between nature and culture is, in itself, universally significant. The physical attraction and offer of shelter that must have originally drawn people to Tsodilo was and still is augmented by animals, fruit bearing trees and shrubs, edible plants and tubers that are found there. The plants and the diversity of wild life found at Tsodilo, offered food, water, protection and sanctuary to the earliest visitors and caused them to settle or return during annual foraging expeditions; a

process which, according to archaeological evidence, has been going on for at least 100 000 years.

The range and use of plants and animals at Tsodilo adds socio-economic, cultural and medicinal dimensions that make Tsodilo very significant in understanding the intricate relationships between culture and nature among 'ecosystems' people. Tsodilo is testimony to the veracity of the dictum that in African societies, human existence is dependant on the assimilation of nature. This assimilation enables the transmission and absorption of nature as well as the transmission and absorption of the rules of natural heritage and the knowledge that comes from them (through rites, symbols and customs) in daily life and in spiritual life (special, metaphysical).

The animals portrayed in the rock art of White Paintings Shelter also have a singular message. Graphic depiction of real life, by painting or engraving is cultural. Since Paleolithic times, art

Left: Specularite sample.
Right from top: The !Kung Chief Xhao; Grooves, Rhino Cave; Red painting of Eland with raindrops, Rhino trail.



(drawing and sculptures) has depicted, mostly with animal figures, the importance of biodiversity in the lives of the Africans. Paintings and engravings are therefore an introduction of nature into the processes of communication and into art, as well as into the metaphysical, depending on the ability of the observer to interpret them. The depiction of natural heritage is an important step in the depiction of the environment and in its mastery (Michel le Berre and Lambert Messian 1995).

iii) Significance of Research Potential

Tsodilo also makes a significant contribution towards ethno-botanical studies that can sustain both nature and the people dependent on it.

The rock art and its portrayal of animals adds another dimension. It is a fund of documentary evidence of primordial importance as a source of information on primal resources.

Like in Kakadu National Park, Australia, a World Heritage Site, the rock art component which combines both naturalistic paintings and abstract forms of highly schematised motifs and symbols, offers immense opportunities for the



art historian and the modern artist.

For the ethnologist, Tsodilo is an important data bank for the study of indigenous peoples who continue to inhabit the site.

b. Comparative analysis

i) Natural Heritage

Geomorphology

Tsodilo's geomorphological, particularly geological, context is a prominent continental style element of the earth's crust called the pan-African system of belts. The four inselbergs are but remains of this phenomenon. Tsodilo is one of the few localities where very old rocks uplifted by tectonic forces resisted many millions of years of weathering and erosion. Therefore they now form a 'window' providing a rare opportunity to observe one of the ancient rock formations that make up the earth's crust. This is normally impossible to see in the broad region of the sand covered Kalahari.

In this context, Tsodilo compares favourably with the Uluru/ Kata Tjuta cultural landscape of Australia. The latter park formerly called Ayers Rock-Mount Olga is well known for its spectacular rock formations that, from a geological perspective, repre-

sent exceptional examples of tectonic and geomorphic processes. Uluru is equally an immense monolith. As with Uluru, Tsodilo also has exceptional rock formations and an unsurpassed grandeur and beautiful set against the contrast of a dramatic sand plain environment. A pictorial look of Tsodilo is almost indistinguishable from that of Uluru, aesthetically.

Flora and Fauna

Tsodilo's largely intact flora and fauna that supported cultural development at Tsodilo, though not universally significant *per se*, does create an environment that is at least unique in Botswana, if not the Kalahari.

ii) Cultural Heritage

Rock Art

The natural heritage of Tsodilo is reinforced or reinforces the diverse cultural heritage spanning a period of 100 000 years. This cultural heritage is manifested in many forms but best analysed in period phases. These have features that may be similar to others in Botswana, in southern Africa, in

Africa or in the world but whose combinations may only be peculiar to Tsodilo. In other respects, Tsodilo has a unique combination of features. But for its size, Tsodilo would compare favourably with Kakadu National Park. In terms of the concentration of rock art, Tsodilo's ten square kilometres contain about 4 500 paintings in more than 400 sites compared to Kakadu's 15 000 rock art sites that spread over a park of 19 804 square kilometres.

In southern Africa, similar comparisons could be made with the rock art of Matobo in Zimbabwe (now on the World Heritage tentative list) with an estimated 3 000 painted sites located in an area of approximately 2 000 square kilometres making for an average of 6 to 8 paintings per site (there are an estimated 30 000 paintings). Another zone, the Drakensburg in South Africa (also on the World Heritage tentative list) has an estimated 600 sites with 35 000 individual images, which are also spread over a vast area. There are an estimated 6 000 sites in Lesotho in an area of 30 000 square kilometres.

Measured in terms of quantity there-

fore, the density of rock art at Tsodilo is probably the highest in the world.

There are also certain features that distinguish the art from that of other regions. In terms of its setting, particularly of the red paintings, the art is usually found on minimally protected overhangs and ledges, often with spectacular views over the southwest sandveld. When compared to the rock art of Matobo and Drakensburg which mainly occurs in protected places, the Tsodilo art is not hidden in placement. It thus conforms more to the petroglyph pattern, albeit on vertical faces.

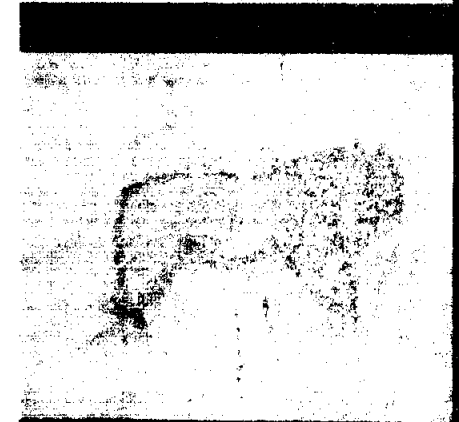
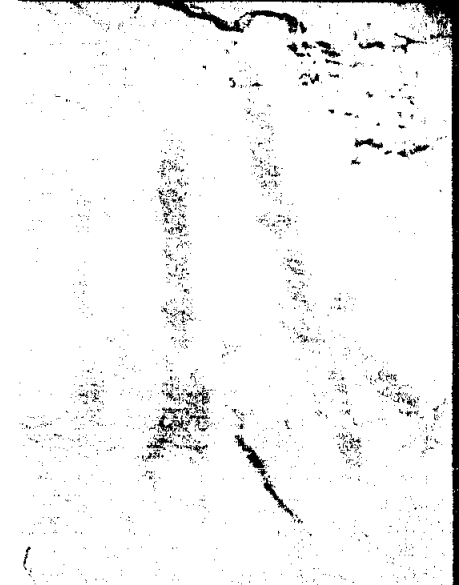
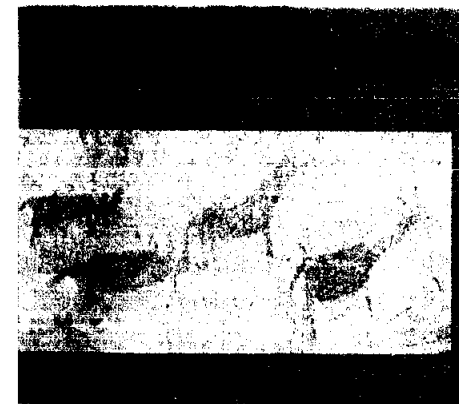
Its social context is thus equally difficult to place. There is less correlation with living sites such as the Matobo where much of the art seems to have been painted at base camp sites or work stations.

Pictures are either of animals, humans or abstract geometric designs. Stylistically, the paintings are distinct, being more schematic than the naturalistic paintings in most other parts of southern Africa, making identification of figures often difficult even when relatively well preserved.

Humans are thus often simple vertical strokes, sometimes with the second leg differentiated or occasionally the arms placed horizontally, with either the penis or two breasts indicated. Consequently, many human figures were not initially recognised as people. Animals often have only a single fore and a single hind leg. There is no facial detail and appendages such as clothing are seldom included.

Some of the images created are nevertheless artistically very powerful. Stylistically the Tsodilo art is closer to some of the thick-line Iron Age or agro-pastoralist art found elsewhere in southern Africa than the more detailed, fine-line naturalistic shamanistic hunter-gatherer art. The farmer-art however is usually in white paint and often includes weapons, a wider range of domestic animals and small animal species like lizards and genets which can be linked with initiation and secret

*Left top to bottom: Tsodilo's impressive peaks
Right from top: Animals on Rhino Trail; Humans with penises and lion on Lion Trail, Male.
Overleaf: The visual similarity to Australia's Uluru is obvious.*



societies. Many of the farmer paintings are a lot simpler in design and often depict these perspectives.

Rock art studies at Tsodilo have shown the artists preferences for big game such as giraffe, rhino, zebra, elephant, gemsbok and eland. Cattle are also common. Similar large game emphases can be found in the paintings of Namibia, South Africa and Zimbabwe, but the big quantitative difference is in the rarity of human figures and the numerical importance of cattle and geometric or seemingly inanimate designs at Tsodilo.

Certain animal species, especially zebra, cattle, eland and kudu are usually painted in outline, often partly or completely filled in with non-realistic line patterns. Others, particularly elephant, giraffe, gemsbok and possibly hyaena and rhino are mainly in silhouette. The favouring of particular techniques for certain species indicates the deeper symbolic meaning of style rather than development in the art as was originally thought, but the ideas being expressed here are not clear.

Geometric designs are common and are frequently lines and grids enclosed in circles or ovals and in rectangles. The ovals have been called tortoises by some, but they represent more abstract concepts as they lack heads, legs, etc., and some are elongated or asymmetrical. It is also hard to see why tortoises should be singled out for distinction given the insignificance of small creatures as subject matter. It is furthermore likely that some so called scorpions, crabs, hares and some of the claimed birds are in fact geometric motifs or solid ovals with protruding dashes with coincidental zoomorphic form. The ovals have also been called traps, because they are often placed next to animals, but there is no ethnographic support for this. Another interpreta-



tion is that they are entoptics (geometric patterns seen during trance), but, although probably based on imagination, are not exactly the same.

Most rectangles comprise three vertical lines joined by near horizontal, parallel lines, rather like two adjacent ladders or slatted shutters, and these are distinctive of Tsodilo. They might represent the human form, with the protruding vertical lines representing hands, feet and head, and the hatched lines representing the ribs. Some in fact seem to have penises. Others are possibly filled in silhouettes and have been termed 'skins' (they look like hides pegged out to dry), but again could be variants of the frontal human form. Another motif consists of sets of dots or dashes.

The point to underline is that, apart from petroglyphs and the Tsodilo paintings, pure symbols such as geometric shapes are rare in southern African Stone Age rock art. These paintings probably symbolize abstract concepts such as potency and indeed the few geometric designs in the Zimbabwe art are thought to represent potency or supernatural force.

Some researchers have drawn attention to similarities with the petroglyphs in the arid interior of southern Africa, especially Namibia, where geometric designs are also common (the nearest such art is about 400 kilometres to the west and southwest of Tsodilo). Perhaps these paintings, seemingly dabbed on in a 'pecked style', indicate some cultural continuity with the engravers, but the art nevertheless remains a distinct and unique entity.

Tsodilo's paintings also demonstrate some common features with the paintings of eastern Zambia, a thousand kilometres away. The animals are also schematic, but more like drawings, and geometric designs are also important.

Although initial investigations suggested that little oral research could be done with art as the local people had only arrived relatively recently (about 150 years ago), it may yet be possible to pursue such study, as some of the resident !Kung admit that their ancestors made a few of the paintings, while the descendants of the previous occupants, the N/hae, still live along the Okavango. The traditions and beliefs of the latter need to be urgently studied as the population with possible knowledge of the art is growing older. The paintings could however predate the N/hae.

The nearest known art to Tsodilo is 250 kilometres away at Savuti, east of the Okavango River. The art at Savuti is in a similar style to that at Tsodilo. Only a few painted sites occur at this site, with giraffe and line motifs apparently important, but they suggest continuity with Tsodilo. Indeed, archaeological research at Tsodilo indicates that the N/hae, the previous 'owners' of Tsodilo were closely linked with the Okavango water-world, and in the past the nearby fossil rivers flowed into the Okavango and linked with the Savuti

River, also occupied by people with a similar language. The artists may thus have been in close contact, sharing ideas and using Tsodilo perhaps seasonally for ritual purposes that included art.

White Paintings

This distinctive series of white paintings is made from the locally abundant chalk-like calcrete. These paintings have only been found at a dozen sites, in some instances superimposed on the reds but never the other way around. Animals in white are rarer and generally cruder, and include more domestic species, especially cattle but also probable horses, goats and dogs, as well as possible snakes, including an animal-headed one. White human figures are common and many are frontal with hands on hips. White geometric designs are very common and are mainly highly elaborate circle motifs. There are no rectangular motifs. Some pictures can be interpreted as riders on horses. The earliest known horsemen (Griqua ivory hunters) passed through the region in the 1850s, possibly giving us an age for the last paintings. The white paint-

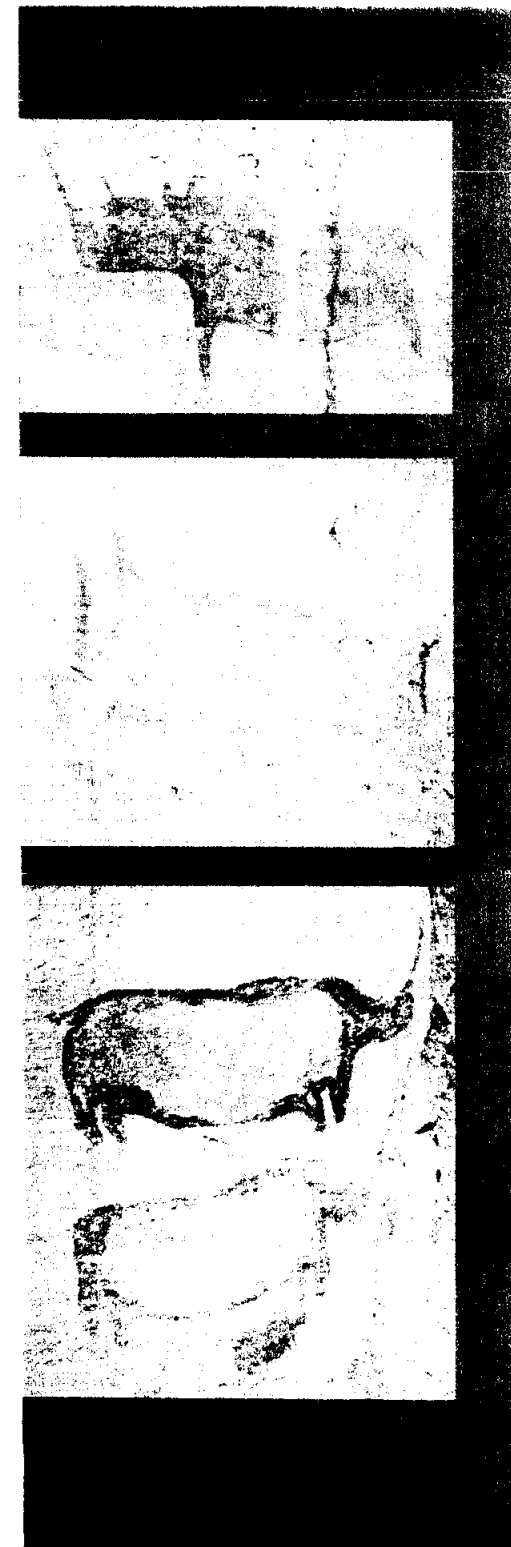
ings are even closer to the farmer-art elsewhere in southern Africa than the ochre ones in the treatment of humans and the simpler animal designs, but they show continuity with the ochre paintings. They also are similar to relatively recent San drawings, and indeed the !Kung admit that their ancestors made some, although God guided their hands.

Carvings

These enigmatic cup and canoe shaped hollows are found throughout the continent, but they are particularly numerous at Tsodilo, where they occur at over twenty sites, often in excess of a thousand separate markings. Their meaning is obscure, but one group has been described as a trail of cattle or eland footprints and, spread over a few hundred metres, it is one of the largest rock pictures in the world. Many occur at the entrances of caves or near waterholes and they seem to be ritualistic in nature, with some probably invoc-

Left: Geometric patterns at Rhino Cave and White Paintings Shelter.

Right from top: Various red paintings along Lion Trail and Rhino Trail, Female.



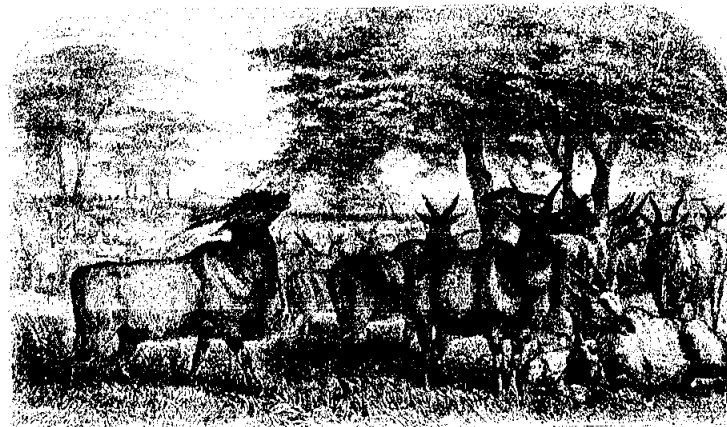
ing concepts of fertility or rain-making. Elsewhere, similar designs are claimed to be the oldest rock art in the world, but some in east Africa are claimed to belong to the Early Iron Age (EIA) or Neolithic based on their proximity to such settlements. Others, however, occur in parts never reached by farming communities nor do they have Stone Age material nearby. Ongoing research suggests a Stone Age antiquity. For example, a possible slab with incipient cupules and dating to 2 000 B.P. was found at Depression Shelter. It might however be a nutting anvil.

Continuity

In terms of continuity of tradition, and possibly to a less extent comparable to the Kakadu National Park, Tsodilo represents an outstanding African example of where the landscape is embedded in the continuing and developing tradition of indigenous communities.

Its depth of archaeological heritage

(100 000 years), as well as the quantities of deposits of different periods, different phases of the Stone Age, the Iron Age, and the present, remain, at least in the southern African region, very significant when read against a background of the size of the area and its likely impact on adjacent and distant territories as evidenced by the



early trade patterns. With at least nine possible cultural stages or expressions, this is a remarkably rich and important sequence, unexpectedly so for its arid setting. Only the Matobo can match such collective diversity in the region. Some single sites often have particularly important expressions, but these are usual-

ly for a relatively short period, as for example at Great Zimbabwe. Although still poorly understood, Nqoma's power and influence may have spread afar, matching the contemporary Mapungubwe in northern South Africa. As is indicated under the criteria section, the qualities of deposits certainly match those from Kakadu National Park.

It is also relevant to mention the contribution of scientific study of other San groups to an understanding of human adaptation. Researchers such as Richard Lee, John Yellen and Polly Wiessner worked among relatives of the Tsodilo !Kung and these studies have provided insights into

foraging communities and human ecology, subsistence, social networks, shamanism and territoriality, creating models which have been applied around the world. Nor should we lose sight of the fact that the work at Tsodilo contributed to the revision of ideas on farmer/forager interaction and the antiquity of pristine hunter-

gatherer society in the Kalahari, better known as the Kalahari Debate.

Spiritual Heritage

The nomenclature for the Tsodilo inselberg, *Male, Female, Child, and Grandchild*, links the geological to the ties of kinship thus binding the people to their environment. Traditions attribute creation to the supernatural forces at Tsodilo. In the same way, the outstanding universal value of Uluru Park is based on the huge monoliths of Uluru and Kata Tjuta which the Ananga acknowledge as the basis of ancestral beings, also creating a spiritual relationship with the land. Like Uluru, Tsodilo's rock art is equally of spiritual significance.

c. Authenticity and integrity

Tsodilo provides a classic case where the issue is one of integrity *and* authenticity rather than integrity *or* authenticity.

i) Geomorphology

Taking their age into account, the rocks of Tsodilo are part of the Dama-

ra Supergroup making the rocks some 1 500 million years old (Mesoproterozoic period). They occur within the structural Shakawe zone of northwest Botswana and form a lower interval of a transgressive stratigraphic succession that evolves from shelf quartzites in Tsodilo to carbonate rocks in Shakawe further to the north. For these reasons Tsodilo rocks are considered as belonging to an eastward extension of the Northern Platform rocks of Namibia, which comprises shelf siliciclastics and carbonate rocks known as the Otavi Group overlying an older basement. Detailed regional correlation still remains to be done and a comparative study with this aim in mind is planned for the near future.

As previously mentioned, Tsodilo is one of the few localities where very old rocks uplifted by tectonic forces resisted many millions of years of weathering and erosion. They form a window providing a rare opportunity to observe one of the ancient rock formations that make up the Earth's crust that is normally impossible to see within the broad region of the sand covered Kalahari. This geomorphological setting is of both aesthetic

value as well as containing all or most of the key interrelated and interdependent elements in their natural relationships (the inselbergs against a backdrop of rolling sandveld).

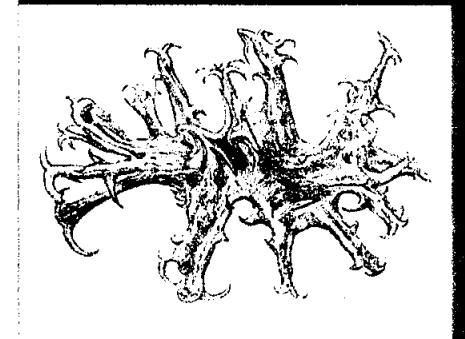
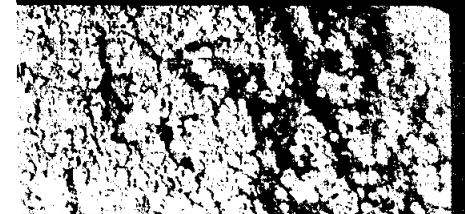
ii) *Flora and Fauna: issues of integrity cum authenticity*

Complementing this geomorphological setting is the diverse fauna and flora that have remained largely intact because of the remoteness of the site. This natural heritage meshed with the cultural heritage makes Tsodilo an interesting case study. The covering vegetation, though not unique to Tsodilo, did support the cultural development of Tsodilo. For example, mongongo nuts are still a staple food for hunter-gatherers, just as they have been, according to archaeological evidence, for more than 7 000 years. Also found at Tsodilo are the impressive baobab trees, *Adansonia digitata*, that are different from the typical baobabs that occur in other parts of the country. They do not have the thick trunks and the stout morphology of the typical baobabs, but are rather slender and tall. They have for centuries

been a source of water in tree hollows that occasionally form in them, while the pods are edible and the bark is a valuable textile. It can be noted here that the First Global Strategy meeting held in Harare in October 1995 strongly recommended that the baobab be considered for world heritage listing because of its socio-economic and cultural significance. The baobab ranks as "one of the most bizarre spectacles of the botanical world" (Rashford 1987) and according to Rashford, the tree is "a symbol of the continent and the people of Africa." At Tsodilo this is amply demonstrated since the indigenous peoples continue to use the tree and its products in different ways (manure, soap, medicine, spiritual abode of ancestors, ornaments, food, storage, etc.).

Other plants also continue to be used in different ways, e.g., the tuber sengaparile, *Arpagophytum precumbens*, 'Kalahari Devil's Claw' used as a medicine for high blood pressure

Left: 1857 etching by John Arrowsmith of the missionary Livingstone's sitting of eland in Ngamiland, Botswana.
Right from top: Tsodilo's baobabs; iridescent lichen; early etching showing Kalahari Devil's Claw.



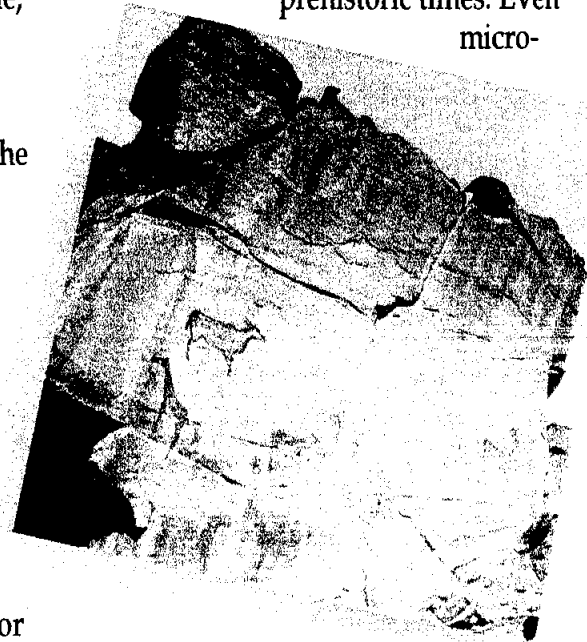
and other health problems, the mogonono tree, *Terminalia sericea*, used to prevent miscarriages in cattle and also used for leather tanning, the moroka tree bark, *Commiphora mossambicensis*, used as poultice for wounds on livestock and people, etc..

Similarly, the diverse fauna of Tsodilo, though not unique to the site except in the case of one reptile, the Tsodilo rock gecko, *Pachydaelus tsodiloensis*, is part of an environment that is as wholesome as it is culturally integrated into the Tsodilo heritage.

Kudu, impala, steenbok, tortoise, porcupine, various birds, pythons and monitor lizard are still sources of food for local villagers just as they were from time immemorial, as proven by archeological excavations.

The permanent waterhole halfway up *Female* is the home to two African rock pythons, *Python sebae*, messengers of the spiritual realm. Ten families of mammals, including the endangered wild dog, *Lycaon pictus*,

with a southern African population of less than 3 000 (Stuart 1996:34) and a Botswana population of between 600 and 700 (Holt-Biddle 1997), have made Tsodilo their home. Rock paintings testify to their existence in prehistoric times. Even micro-



faunal species are testimony to the interrelationship of the natural and cultural heritage, e.g., the beetle, *Diamphidia simplex*, found at Tsodilo, was and continues to be used by the !Kung as poison on their hunting arrows.

The essence of Tsodilo is therefore, a

message of continuity for more than 100 000 years. What was continues to be. This message of authenticity is dependent on the integrity of the site, so carefully nurtured in the past as in the present.

iii) Authenticity of the archaeological record

Stone Age

While a lot of important findings have been made at Tsodilo, the excavations have been well conducted and back-filling well executed leaving the site in a pristine state. It is still possible to revisit the excavated sites and obtain a new body of information. Thus, as much as possible, the archaeological record is intact leaving interesting possibilities for the future.

The Stone Age reconstruction is based on excavations at three big sites and five small sites. The former have produced a series of stratified assemblages which have been dated by radiocarbon (charcoal and ostrich eggshell) and thermoluminescence methods. This has produced a sequence spanning about 100 000 years and many of the expressions can be

related to industries elsewhere in the subcontinent. Even the unexpected finding of bone harpoons can be logically explained in terms of climatic or environmental changes and linked with similar tools of the same broad period further north via the waterways of central Africa. Nor is the early evidence for shell bead manufacture unexpected, given other developments in stone technology, such as grinding axeheads elsewhere in Africa, and other early evidence of modern human ingenuity.

Food refuse is best preserved at White Paintings Shelter and includes thousands of animal bone fragments and in more recent periods, numerous mongongo nutshell fragments. The latter merely extends the previous expectation of the current importance of this food source back into the past.

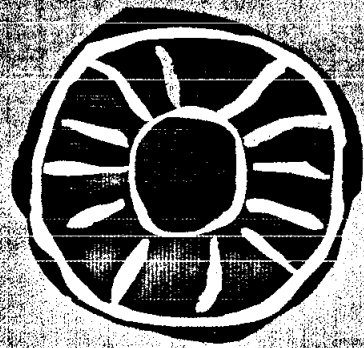
The Stone Age people of Tsodilo lived entirely on hunting, fishing and foraging for wild food. The wild animals and fish remains thus match the various projectiles, both stone and bone, found associated with them.

Left: The impressive van der Post's Panel

“All the time I was at the Slippery Hills I had the feeling that I was in a great and ancient temple.

Indeed, from the moment I first saw them rising suddenly out of the flat plain... I had the same upsurge of emotion that made the psalmist cry out loud: I will lift up mine eyes unto the hills, from whence cometh my help. ”

Laurens van der Post



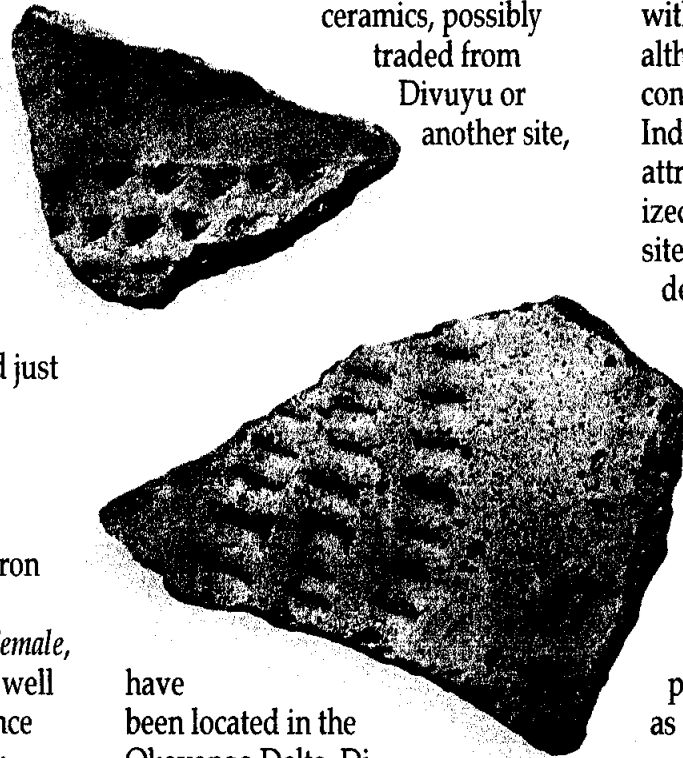
The record from White Paintings Shelter reveals that a wide variety of wild game existed at Tsodilo during the Stone Age, including extinct species. Many of the species of wild animals depicted in the rock art of Tsodilo are also represented in the LSA faunal record at White Paintings Shelter.

The presence of wetland animals also attests to wetter environmental conditions at various times. This is confirmed by the now dry or fossil lake bed just to the west of *Male* and *Female*.

Iron Age

Archaeological evidence of the Iron Age at Tsodilo is represented by excavations at two sites on the *Female*, namely, Divuyu and Nqoma, as well as survey and supportive evidence from the upper levels of the rock shelter excavations. As with the Stone Age material, accredited dating laboratories tested the age of charcoal samples and various experts analysed material, including faunal samples and metal work recovered from the sites.

Divuyu is one of the earliest farmer sites in Botswana, dating from the 7th century AD. The ceramics indicate that it probably was settled by farmers moving southeastwards from the lower Congo valley. Similar ceramics, possibly traded from Divuyu or another site,



have been located in the Okavango Delta. Divuyu was one of a few small villages at Tsodilo at the time.

Nqoma was clearly an important centre as vouched by the large amount of imported iron jewellery

and trade goods that linked it with the north and east. This large village site has demonstrated that at the time, cattle were economically important. The treatment of the dead and other spatial details provide a link with modern matrilineal societies, although the site does not show continuity up to the recent past. Indeed it seems that its decline can be attributed to the growth of centralized states in the east. More recent sites provide a logical scenario of decline, with small scale essentially foraging societies and farmers possibly periodically seeking refuge in, or seeking spiritual solace from Tsodilo.

The archaeological record has also revealed that Tsodilo was extensively mined for specularite between AD 800 - 1 000. This is probably the main source of wealth as expressed in the jewellery.

From the Tsodilo archaeological record, it is evident that the history of the area and its environs can be recapitulated.

Rock Art

Authenticity of Materials, Techniques, Setting and Workmanship

Several studies have been conducted on the Tsodilo art. Today, many of the rock art paintings that Passarge, the German explorer, sketched in 1907 can be clearly identified and they show no deterioration after a century. Photographs, copies and notes have been made since Balsan's (1953) and van der Post's (1958) visits. More objective studies began in the 60s, the most noteworthy being by Rudner and Rudner (1969 1970). In the 1980s the Botswana National Museum began a systematic computerized survey (Campbell et al. 1984) and there have been other studies since then (e.g., Campbell et al. 1994). New sites continue to be located at Tsodilo.

There are three main types of art: the red ochre paintings, the white paintings and the engravings.

The Ochre Paintings

The red ochre is derived from haematite that occurs naturally in the rocks of Tsodilo. Studies may yet establish

other sources of the ochre, but on the west side of *Female*, it is clear that haematite rich schist was heated in fires in the open, possibly to help break up the stone to get to the ochre. Heating may also have been used to reduce the oxidized iron ore to a brighter red colour.

Research is still going on to establish the type of fixatives used, if any (ochre can bond naturally to the rock surface if sufficiently fine), but it is safe to assume that, consistent with other art regions of southern Africa, blood, plant saps and heated fat could have been used. The paint was probably applied largely by finger and possibly frayed stick ends.

In terms of design, the red ochre paintings are either animals, humans or abstract geometric designs. The wild animals depicted would have been common in the area a century ago and most are still periodically seen here. Cattle were introduced after the 6th century AD and it is inferred that most such paintings were probably executed between 800 and 1 200 AD. It is unlikely that cattle were important thereafter until recently, as the country is not particularly good

cattle land, but they would have been in the general area. It is also useful to note that most geometric petroglyphs are believed to have been made in South Africa roughly a millennium ago.

White paintings

This distinctive series is made from locally abundant chalk-like calcrete. The paintings have been found at a dozen sites and in some instances superimposed on the reds but never the other way round. Paintings that resemble riders on oxen or horses suggest that they may have been painted in the 19th century. Certainly domestic animals portrayed in the white paintings indicate a relatively young date for the paintings.

Carvings

Another form of art found at Tsodilo is carvings of cup-like depressions (cupules) and canoe-shaped or ellipsoid groves. They are usually well patinated and, apart from incorporation into their mythology, the locals deny any knowledge of them, suggesting at least a fair antiquity. Their function is unknown but current

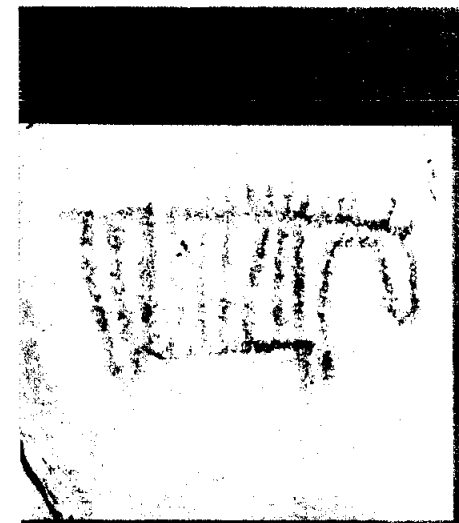
research indicates a ritual purpose. It needs be underscored that the state of preservation of all forms and types of rock art is pristine, given the relatively stable surface of the rock and limited amount of vandalism to date.

Spiritual Heritage

From time immemorial Tsodilo has been a religious site and continues to be so. The rock art does reveal, in its dot/dash motifs that are frequently painted next to or encircling figures, that the art may have incorporated ideas about rainmaking, as the vertical dashes recall rain drops. Some scenic compositions which comprise paintings of fat animals, including cattle with dashes descending from their bellies, have been interpreted as mythological creatures or ritual rain bulls. The human figures, full breasts and often erect penises further suggest concepts involving potency or fertility.

Left: Pottery sherds from Nqoma

Right: The colourful minerals of Tsodilo perhaps inspired the use of calcrete and haematite in the rock paintings.
Overleaf: Van der Post's Panel and red ochre paintings.

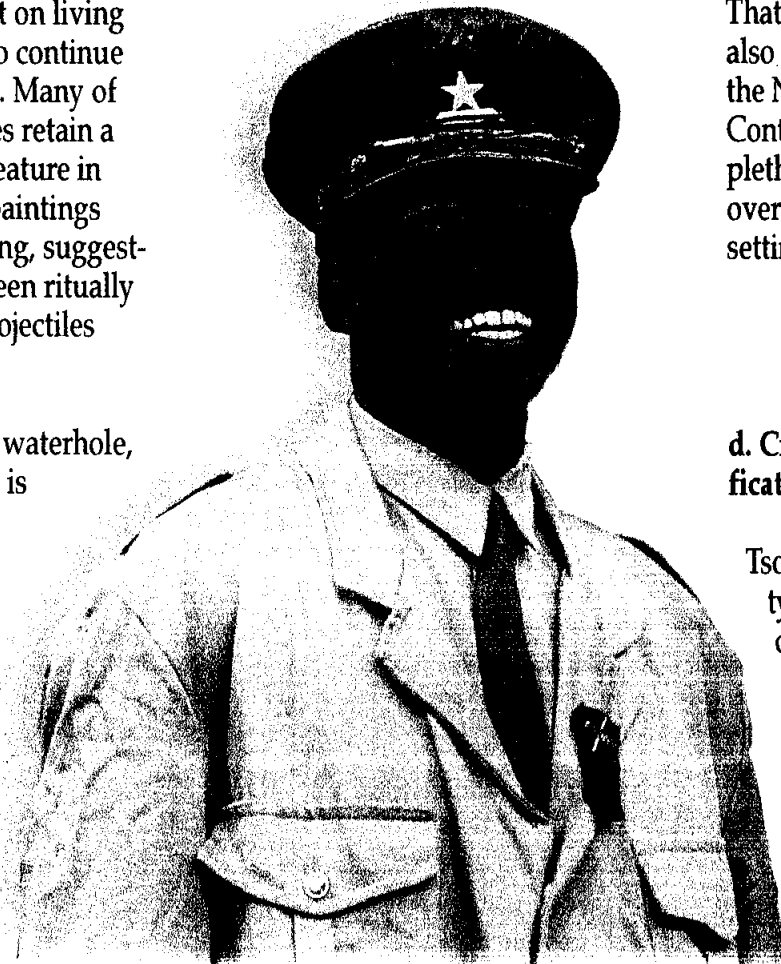


Despite the problems of dating and associating the art, there is a strong case, based on experiences elsewhere, that the art had a ritual and magical role. Its symbolic content cannot be denied.

To this day Tsodilo is revered and the local inhabitants insist on living within the area in order to continue their veneration practises. Many of the painted and other sites retain a spiritual significance or feature in mythology. Some of the paintings also show signs of chipping, suggesting that they may have been ritually beaten or perhaps had projectiles thrown or shot at them.

One site for example, the waterhole, the abode of the pythons, is taken to be the *sanctum sanctorum* of Tsodilo. People travelling from as far as Tswapong Hills, 600 kilometres away, converge on this site for spiritual solace granted by the snakes that are said to remove evil spirits. The waterhole has

remained authentic as a physical feature (the tangible element) from time immemorial while the spiritual (intangible) heritage has undergone a series of transformations. The message, however, still remains the same. To the !Kung and Hambukushu, the



spirits of centuries back remain the same. To the 'born-again' Christians and members of different Pentecostal churches, the waterhole drives away the devil as defined in biblical terms. Tsodilo has different meanings to different people but remains the same meaning to all: a spiritual haven. That is the authentic message. This also illustrates vividly the validity of the Nara Document on Authenticity. Continuity of the message in a plethora of forms and functions may override issues of material, design, setting or workmanship.

d. Criteria for inscription and justification

Tsodilo offers a singular opportunity to comprehend the traditions, cultures and technologies of the people of the Kalahari region from time immemorial to the present. Tsodilo also demonstrates that there are no stereotypical 'Bushmen', San or hunter-gatherer peoples.

Cultural Criteria

Criterion (i)

Tsodilo provides substantive evidence of early human endeavours at expression through art. The rock art divided into three main groupings shows creative genius reflected through the choice of setting. The bulk of the art is on ledges, often with spectacular views over the southwest sandveld, making a cinematic appeal to a wide audience. This contrasts sharply with other rock art sites in the world that tend to be under overhangs or somehow concealed. This suggests that the rock art of Tsodilo was meant to be enjoyed as an art gallery. This point is reinforced by the absence of shaman influence on the art. While 'in almost all universal rock art sites the aesthetics were not the main point and hence the rock art is seldom gratuitous or anecdotal but was meant to create a durable image that of influencing the course of events' (ICOMOS 1994), the rock art of Tsodilo was, to a large extent, aesthetically conceived and executed. These considerations are also evident in the choice of colours as well as the subject matter of the

paintings. Naturalistic and schematic paintings of animals are in red, geometric animals are in white and domestic animals and people are in powdery white.

In terms of the quantity of sites, Tsodilo's 4 500 paintings confined to a 10 square kilometre area, represent one of the highest concentrations in the world. In addition, the paintings have regional significance in that most of them were executed in isolation from one another, or in fairly small panels, as opposed to the large, composite friezes commonly employed elsewhere in the region.

There are also significant differences, in terms of their execution and composition, between these paintings and those in Namibia, Zimbabwe and South Africa. In particular, there is a higher proportion of geometric designs than either human figures or depictions of animals. This contrasts sharply with the South African rock paintings where human figures tend to be the dominant motif or in Zimbabwe where animal figures are the most dominant in numerical terms.

Criterion (iii)

Tsodilo is an exceptional testimony to a cultural track viz.: "The Tsodilo tradition" steeped in 100 000 years of heritage.

MSA deposits estimated at 100 000 B.P. provide the earliest evidence of human occupation (dating by thermoluminescence (TL). The MSA is best marked by stone points that are retouched on one side or on both to create parallel-sided blades hafted to make spears. The raw material used for tool making includes locally available quartz as well as a variety of chert and silcrete which came from external sources. The use of exotic raw materials suggests that exchange or contact with other areas has been important to Tsodilo for thousands of years. The MSA dates, based on excavations at White Paintings Shelter (1989 – 1993), indicate that the MSA period at Tsodilo is between 50 000 B.P. to more than 100 000 B.P.

The LSA phase at Tsodilo has a large stratigraphy that is clearly definable into different distinct periods. The White Paintings Shelter site yielded exceptional archaeological data. The

upper levels of the LSA stratigraphy indicate a gradual fusion of the LSA and the EIA (c AD 700 – 1 000). Characteristics of this stratum (30 – 80 cm) are microlithic tools such as segments and small scrapers that were most likely hafted to wooden/bone handles or shafts. Occasional finds of comb-stamped and incised pottery, as well as iron beads, suggest trade and interaction with nearby village peoples such as at Nqoma or Divuyu. Small crystals of haematite suggest the period to be AD 800 – 1 000, when specularite mining was active at Tsodilo. This coexistence of hunter-gatherers with sedentary communities brings into question the displacement or invasion theories, thus strengthening the evolutionary nature of Tsodilo and other related sites.

Below the LSA/EIA strata are levels dated to the mid Holocene (c 3 700 – 7 000 years B.P.). A unique feature of this level (80 – 130 cm) is that it is marked by the majority of barbed bone points and thousands of fish bones. The 110 – 120 cm level for



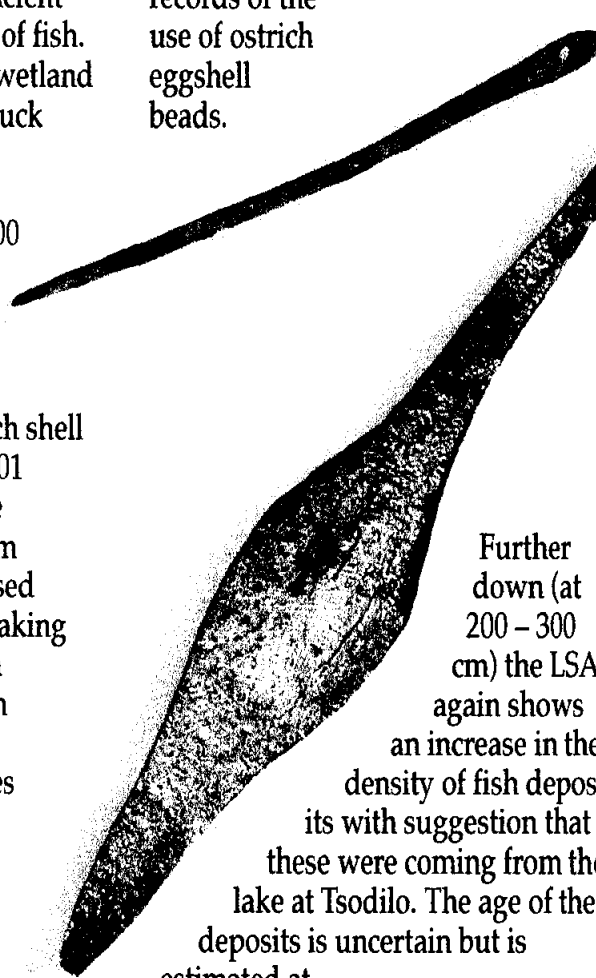
Left: A Pentecostal churchgoer at Tsodilo.
Right: Excavations at Nqoma on Female.



example contained 2 993 fish bones. The large quantity of fish bones and broken bone points, most likely used to spear fish, imply that the ancient lake at Tsodilo was the source of fish. In addition to fish there were wetland animals such as lechwe, reedbeek and vlei rat.

In the next stratum (at 130 – 200 cm) fish bones and stone artefacts decrease in density. However, there is yet another notable feature on the prevalence of unworked ostrich shell in the deposits. For example 201 pieces of ostrich eggshell were recovered from the 270– 280 cm level. The ostrich eggs were used for food and their shells for making beads. The deposits have been dated by the AMS radiocarbon technique to between 26 000 – 33 000 B.P.. This makes them the oldest directly dated ostrich eggshell artefacts in southern Africa. The bead that was broken in the manufacture is especially interesting because similar beads continue to be made and used in the Kalahari where they are important ornaments and are often traded

to reinforce social and economic relationships. Thus, Tsodilo has one of the longest well documented records of the use of ostrich eggshell beads.



Further down (at 200 – 300 cm) the LSA again shows an increase in the density of fish deposits with suggestion that these were coming from the lake at Tsodilo. The age of the deposits is uncertain but is estimated at 33 000 – 38 000 B.P..

It is pertinent to underscore the critical importance of the fish finds in

particular making comparisons to Kakadu National Park. The finds at White Paintings Shelter are particularly exceptional considering the location of the site in the Kalahari where the Okavango River, some 40 kilometres to the east, has the nearest permanent flowing river that has fish today.

As in the case of the Kakadu National Park, Tsodilo demonstrates dramatic environmental changes associated with the shift from the Pleistocene epoch to the Holocene epoch. (Kakadu and Tsodilo shifts took place contemporaneously). Thus, as in the case of Kakadu, Tsodilo documents the changes in economy that followed the introduction of new resources. In the case of Kakadu, the new resource was a consequence of the rise in sea level and the beginning of the estuarine and freshwater phases. In the case of Tsodilo, it was a result of estuarine and freshwater phases. Environmental changes are recorded in the paleo-environmental record of the sediments of White Paintings Shelter (Ivester 1995), the extinct lake adjacent to *Male* and *Female* and other sites. Such sites are time capsules of environmental

changes that have affected human exploitation and settlements in the sub-Saharan region for approximately 100 000 years.

The exceptional attributes of the MSA and LSA periods at Tsodilo are matched by the unique qualities of the Iron Age at the same site. After an initial LSA / EIA transitional period, the period of the 6th to 7th centuries AD witnessed rapid changes in technology, economy and settlement structures.

Divuyyu and Nqoma settlements in Tsodilo were among the earliest villages (settlements). Typical Tsodilo pottery also evolved characteristics such as decorative motifs including comb-stamped and incised hatched bands.

The metallurgical finds are equally striking. One hundred and ninety four pieces of metalwork were uncovered in one excavation, ranging from pieces of iron slag to tanged arrow points and chisels. Copper and iron beads and bracelets were most common. This quality of metalwork makes Divuyyu the richest site yet discovered in southern Africa for this

early period, a finding even more striking given that all the metal was imported. At present there are no known copper or iron ore outcrops suitable for smelting at Tsodilo and no remains of smelting furnaces have been found there. Most of the metal clips, staples, and helix fragments were hammered around grass or hair cores and meant to be worn as bracelets or anklets. Some of the remaining beads, chains and other objects may have been worn separately as jewellery items or fastened to hair and clothing. The number of metal objects recovered demonstrates the attention paid to personal adornment by Divuyu people. Ornamentation, as in the Stone Age period and the subsequent modern period, also included beads of ostrich eggshells.

While there is no certainty on whether jewellery was used to index differences in social ranking or status, there is a difference between Divuyu and neighbouring sites in terms of their proportions of iron and copper to ostrich eggshell or stone beads. This could indicate that possession of metal goods and luxury items was vested with social meaning.

The Nqoma site on the low plateau of *Female* spans the period AD 800 – 1 200. Like Divuyu it had its own pottery tradition most likely influenced by the Kumadzulu – Dambwa style of the Chobe/Victoria Falls region. Nearly all Nqoma pots have charcoal temper, with bowls usually having a very finely ground charcoal temper to produce a more uniform paste and thinner walls. Jars were more frequently tempered with coarser and chunkier pieces of charcoal. These vessels also have thicker walls. When combined with low firing temperatures, this means that most jars crumble easily and in some cases, particularly when soils are damp, are even difficult to recognize as artefacts during excavation or to distinguish from the soils that contain them. Ochre finished carinated bowls, on the other hand, usually have much finer charcoal tempered pastes, thinner walls, and white oxidized surfaces indicating hotter, more oxidizing, firing conditions. Overall diameters for Nqoma vessels, like those from Divuyu, are small with bowls averaging about 21 cm in and jars, 26 cm.

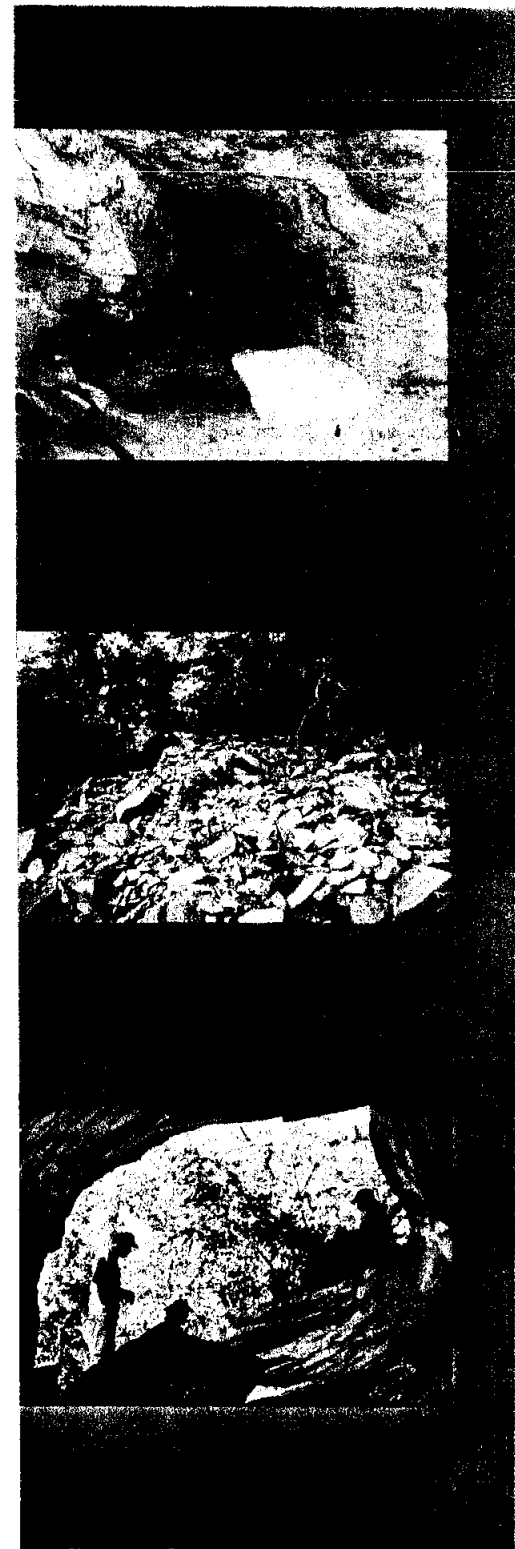
The similarity between the diameters

of bowls and jars is related to the collared, bag-shape of the latter. There is little difference between the diameter of the jar opening at its lip and the maximum diameter at the shoulder that lies just below the collared lip. Like Divuyu, this suggests that meals were prepared and served to small groups of people, perhaps no larger than a small nuclear family. While the groups that cooked and consumed food together were thus small, we have no knowledge of whether meals were taken separately by gender or age, as is often the case in many societies today, or whether they were instead occasions for communal household gatherings.

The metallurgy of Nqoma was equally distinctive and so was the variety of elaborate ivory, iron and copper ornaments along with iron tools made on the site.

Indeed, Nqoma has the richest variety of metal jewellery of any

Left: A needle and spearhead excavated from Nqoma.
Right from top: Looking into a specularite mine, Lion Trail, tailings from a similar mine, Cliff Trail, *Female*; Researchers at a specularite mine on Lion Trail.

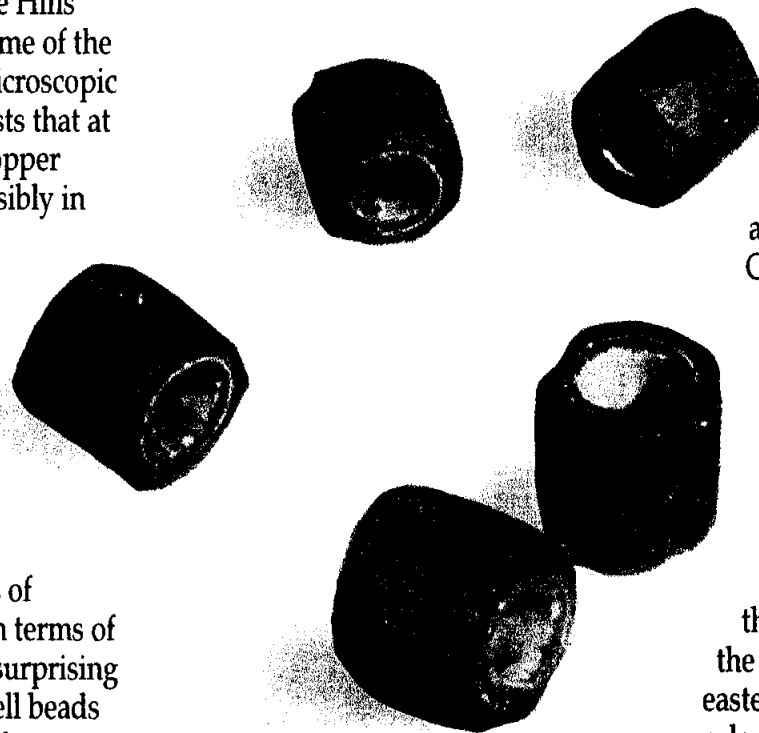


known contemporary site in southern Africa. Although a fragment of a smelting tuyere was recovered from the Society area, no furnace has been found at Tsodilo. There are rich deposits of iron ore at Shakawe and of copper ore in the Khwebe Hills which may be sources of some of the Nqoma metal. However, microscopic analysis of the metal suggests that at least one high phosphate copper source must be distant, possibly in Shaba, the Democratic Republic of Congo or Palaborwa in the Northern Province of South Africa again suggesting long distance trading links.

For such a rich site in terms of ironworking, particularly in terms of beads and ornaments, it is surprising that only 659 ostrich eggshell beads were recovered from all of the excavations. These numbers indicate that Nqoma people chose to decorate their bodies and their clothing far more often with metal than with the readily available ostrich eggshell, perhaps as another way to distinguish themselves from those occupying nearby

rock shelters and others in lower social positions.

Social stratification is clearly evident at Tsodilo. The contrast between Ngamiland Iron Age sites and Bo-



sutswe north of Serowe in terms of materials used for body decoration is striking. Furthermore, it suggests that not only were some Ngamiland communities such as Nqoma wealthy in terms of using metal, in spite of the

fact that no furnaces, suitable ores, or smelting debris are found near them, but that possession and display of metal ornaments and jewellery may also have possessed an ideological valence that both structured and reinforced hegemonic differences between these communities.

Other items of body decoration include cane glass beads and cowrie shells from Indian Ocean trade. These not only provide firm additional evidence that Nqoma had active trade links to the relatively nearby Okavango-Zambezi region, but that it was also an important local centre in inter-continental trade networks extending from the east coast by the 9th century. Both here and in the 8th to 10th century sites in eastern Botswana, the favoured colour for beads was deep blue, a colour that, along with red, is often associated with the fluid or mirrored division between the land of the living and the land of the dead in Bantu cosmology.

The blacksmith's area at Nqoma

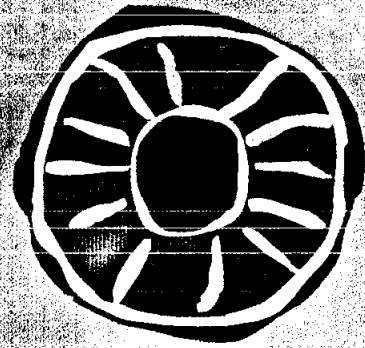
includes the burned remains of a pole and clay house that contained a two litre mass of carbonised sorghum and millet seeds, two complete smithing tuyeres, copper and iron jewellery, cane glass beads, cowrie shells and more than 30 backed blades and several hundred chert flakes. The chert inventory is particularly important because it may link stone using, probably Khoisan speaking, peoples to metalworking which was introduced to the region by Bantu speakers. Of the 135 formal tools recovered from the excavations at Nqoma, the vast majority (110) are sharp-edged backed segments used for cutting or piercing. They may have been used either to hunt some of the game brought to the site or to process the meat there. The focus on cutting and piercing functions of stone tools contrasts with what has been found in nearby rock shelters occupied at the same time. At these locations, the proportion of scrapers in the lithic assemblage is so large that it suggests that people may have been processing hides not simply for personal use, but for exchange with Nqoma or

Left: Glass trade beads from Nqoma

“We had gone up the *Male* hill with Samuchau over ten times. We passed exactly in front of the same paintings and Samuchau never showed us those rock paintings for a period of 20 years. Tsodilo is not a place where you reveal its sacredness to any strangers. By showing us those sites he was saying ‘You are now one of us’...”

Tjako Mpulubusi

Tjako Mpulubusi is a former Director of the National Museum. His background is in anthropology and he has undertaken many oral histories throughout Botswana. He is currently Principal Tourism Officer.

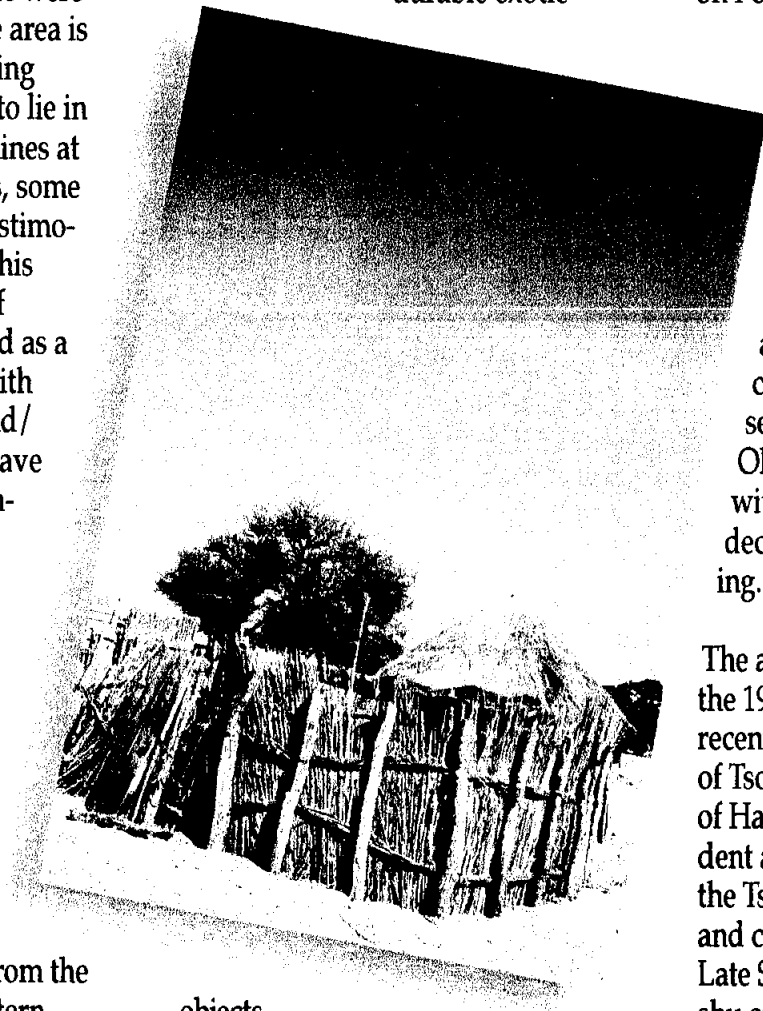


other Iron Age settlements.

So what was the source of this wealth? Quite possibly, cattle were traded from Tsodilo, but the area is not particularly good ranching country. The answer seems to lie in the numerous specularite mines at Tsodilo. More than 20 shafts, some of them quite deep, bears testimony to large scale mining of this cosmetic stone at the time of Nqoma. Specularite is prized as a glitter stone and is mixed with fat and used on the body and/or hair. Specularite would have been traded for various commodities, including metal jewellery.

These very rich elements of Tsodilo Iron Age culture continued well into the 13th century when Nqoma declined, possibly because of drought or war. The possibility of the latter cause is based on the fact that there was a challenge from the dominant centres of the eastern hardveld around Toutswe mogala who extended their economic interests to the western sandveld in order

to control the flow of trade to and from the east coast. Archaeological evidence indicates that no further durable exotic



objects seem to have entered the Tsodilo region until the effects of the European trade on the Atlantic coast

began to be felt in the 18th century. Tsodilo people then 'resurrected' to become part of this new trade based on Portuguese, Kongo-Angola trade.

Consistent with their versatility, a characteristic already reflected in LSA and MSA Tsodilo communities, the people of Tsodilo adapted to the new scenario. Their pottery changed to be characterised by a very high proportion of calcareous and bone-tempered sherds, several of which resemble the Okavango/Hambukushu types with vertical, thickened rims decorated with incised crosshatching.

The arrival of the Hambukushu in the 19th century introduces the most recent phase of the cultural traditions of Tsodilo. Today, a small community of Hambukushu and !Kung is resident at Tsodilo. They too are part of the Tsodilo tradition of continuity and change. The Middle Stone Age, Late Stone Age, Iron Age, Hambukushu and !Kung are phases in a linear progression whose common denominator is Tsodilo. Tsodilo, the locus and symbol of stability, has the ability

to change new phenomena and elements, and be changed by them. Therein lies the universal significance of Tsodilo which, though small in geographical extent, has within it the imprints 100 000 years of tradition.

Criterion (v)

The Iron Age settlements, in particular Nqoma, defies settlement patterns of eastern Botswana and indeed most of the southern Africa cattle-based or related cultures. Eastern Botswana has generally been taken to provide models of such 'cattle complex' settlements, e.g., Toutswe mogala. Spatial organisation of such settlements comprises a central area, taken up by a large cattle kraal in which men are buried in on their sides in a flexed position. This almost universal burial position may, in part, be related to the widespread Bantu concept of the earth as a womb through which ancestors are reborn into the land of the dead. The central area was surrounded by open, public spaces into which the courtyards of homesteads opened.

The open space enclosing the cattle kraal is where women and children

were usually buried. Public granaries were put in the area inside or adjacent to the central area.

It could be argued that the 'cattle complex' layout represents a related but structurally transformed social order in which men, through the aid of cattle bride wealth, have been able to appropriate:

... the inmate transformative (and reproductive) capacity of women ... The ancestors were the domesticated dead of the settlement, a projection into the spiritual realm of the hegemonic model of social relations among the living ... the ancestors formed part of the sphere in which men through the medium of cattle, reproduced the social order ... (so that) while veneration occurred at the gravesites of both men and women, the Tswana cult provided no acknowledgment of matrilineal ties; the female dead also spoke in agnatic idiom. Thus the domestic symmetry between agnatic and matrilineality was again overlaid, this time at the spiritual level, by the pre-eminence of the former (Comaroff 1986: 82-6).

The central cattle kraal with its

central deposition of male ancestors is thus a spatial expression of hegemonic processes through which rights of social affiliation, inheritance, and descent were negotiated and brought under increasing patrilineal control. Cattle wealth was an important factor in this process.

Yet Divuyu and Nqoma do not appear to share this spatial structure found elsewhere in southern Africa despite the large number of cattle and small stock known to have been kept in Tsodilo. There are no central kraals and the dead, both men and women, were buried together in middens located outside the village proper. This is more similar to the spatial patterning of villages in the 'matrilineal belt' of central Africa where cemeteries containing both men and women are usually located on the outskirts of villages, in the 'mediating' ground between village and forest, culture and nature. Such contrasts in settlement layout may indicate that there was more symmetry between agnatic and matrilineal social relations in northern Botswana at this time, or at least that these relations were not as strongly overlain by patrilineal hegemony, as

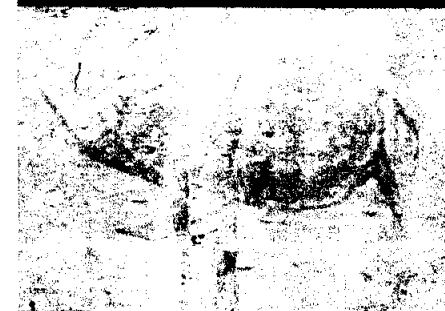
appears to have been the case at Toutswemogala and other 'cattle complex' sites in southern Africa. Extending Comaroff's interpretation, the ancestors at Tsodilo may have been more balanced in their ability to speak in both matrilineal and agnatic idioms. As a result, their burials were not as spatially segregated along gender lines and were placed at the edge of the village where they could mediate between the community and nature, rather than to reinforce through spatial centrality the ascendancy of patrilineal ties.

All said, in terms of settlement patterns, Tsodilo defies stereotypes of aboriginal or Bantu peoples. This tradition of being different to the rest, illustrated by this spatial organisation, typifies Tsodilo as unique.

Criterion (vi)

Traditions speak of Tsodilo as being the home of all living creatures. Relating this to van der Post, his

Left: A typical thatched rondavel with *letaka* (reed) fencing, Hambukushu village.
Right: Red paintings, Female.



guide Samutchoso stressed the point that Tsodilo was home to the spirits of each animal, bird, insect and plant that has been created (van der Post 1958:159).

The rock art of Tsodilo clearly testifies to the long tradition of the site as spiritual. To this day the !Kung visit one of the paintings, the Rhino Trail, panel 3, to ask for rain from their spirits. The rock art does reveal, in its dot/dash motifs that are frequently painted next to or encircling figures, that the art may have incorporated ideas about rainmaking, as the vertical dashes recall rain drops. Some scenic compositions which comprise paintings of fat animals, including cattle with dashes descending from their bellies, have been interpreted as mythological creatures or ritual rain bulls. The human figures, full breasts and often erect penises further suggest concepts involving potency or fertility.

The waterhole, which is the abode of the pythons draws thousands of believers who look to it to chase away evil spirits. Many other places and caves have similar accounts of Tsodilo, the sacred shrine.



Right: A local ceation myth says that this was the place of the first sexual act, the indentations of the bodies left whilst the rocks were still soft. On the Cliff Trail, Female.

3. Description

- a. Description of property. p.36
- b. History and development. p.46
- c. Form and date of most recent records of property. p.63
- d. Present state of conservation. p.64
- e. Policies and programmes related to the presentation of the property. p.65



a. Description of property

Natural Heritage

The Property in general

Tsodilo is situated in the northwest corner of Botswana near the Namibian border. For some time these impressive natural quartzite structures have been referred to as 'hills', a misnomer that does little justice to their imposing presence (Parrent 2000). Tsodilo's massive formations of rock rise majestically from ancient sand dunes to the east and a dry fossil lake bed to the west, resulting in them being called 'inselbergs'. Inselberg is defined as a prominent isolated residual knob, hill or small mountain of circumdenudation, . . . rising abruptly from and surrounded by an extensive lowland erosion surface in a hot, dry region (Bates & Jackson 1987). The surrounding dunes are covered with trees and open savannah vegetation that adds to the aura, mystery and spirituality of Tsodilo. The setting and the multicoloured rock formations combined with the great number of rock paintings found

there adds a spiritual dimension. Three of the inselbergs at Tsodilo form a cluster covering a rectangular area of approximately 3 kilometres by 10 kilometres. The fourth and smallest inselberg lies to the northwest of the cluster. Because of their variations in height and shape, and their rela-



tionship with one another, they have come to be known as *Male*, *Female*, *Child* and *Grandchild*. *Male* is conical in shape and rises about 400 metres above the surrounding sand dunes (Brook et al. 1992). **It is the highest peak in Botswana** with an elevation of 1 395 metres above sea level (Brooks et al. 1992). *Female* has several peaks, the highest about 300 metres above the plains, but has an overall area of almost three times that of *Male*. *Child*, 40 metres high, lies 1.7

kilometres away from *Female* and is much smaller than *Male* and *Female* in area, the sand dunes to the west rise up on the rocks partially covering the lower strata. The fourth, *Grandchild*, is located 2.1 kilometres northwest of *Child*. It is very small in comparison to the others.

The Aha Hills, more than 100 kilometres away, are the nearest other feature that breaks the relative flat topography of the region. Because of this topographical isolation, the inselbergs of Tsodilo form a spectacular landscape that can be seen as far away as the Okavango River, about 40 kilometres to the northeast. Tsodilo has indeed attracted human interest since they were first seen rising out of the open savannah.

Climate

A report from the Botswana Department of Meteorological Services for the years 1992 to 1998 shows that December to March are the wettest months for the Tsodilo area with January having the most rain. The eight year mean rainfall in millimetres by month are: Jan. 134.9; Feb. 97.0; Mar. 61.1; Apr. 9.5; May 1.0; Jun. .0; Jul. .0; Sep. 1.3; Oct. 7.5; Nov. 41.6; Dec. 102.2. The average monthly temperature and relative humidity for a seven years period (1992 to 1998). The seven year mean maximum and mean minimum temperatures in degrees centigrade by month are: Jan. 31.4 - 19.7; Feb. 31.6 - 19.3; Mar. 32.3 - 18.4; Apr. 31.6 - 14.6; May 29.1 - 12.1; Jun. 26.4 - 5.5; Jul. 26.0 - 5.8; Aug. 29.7 - 8.2; Sept. 33.8 - 13.3; Oct. 35.7 - 18.1; Nov. 34.3 - 18.7; Dec. 33.5 - 19.8. The seven year mean maximum (measured at 0800) and minimum (measured at 1400) relative humidity readings in percentage by month are: Jan. 79.3 - 51.3; Feb. 81.5 - 49.1; Mar. 72.5 - 42.2; Apr. 60.6 - 31.5; May 66.9 - 27.0; Jun. 67.6 - 24.9; Jul. 65.9 - 24.9; Sept. 44.2 - 16.6; Oct. 44.7 - 21.3; Nov. 58.0 - 30.9; Dec. 68.7 - 38.3.

Physical landscape

Geology

From a regional geological perspective, Tsodilo is located within a prominent, continental-scale geological element of the Earth's crust called the Pan African system of belts. The rocks of these belts are c 800 - 500 million years old, and represent the geological periods of Neoproterozoic to Lower Palaeozoic. They originally formed a system of mountain chains, similar to today's ranges of the Alps, Apennines and Carpathians. Many millions of years of weathering and erosion have destroyed the elevated parts of these ancient belts, but their parts located deeper in the Earth's crust survived. They now occur as elongated segments of the crust that can be seen on the regional geological maps. One of the segments of this Neoproterozoic/Lower Palaeozoic system, the Damara belt in Namibia to the southwest, crosses northwestern Botswana and extends further northeast towards Zambia and Congo, where it is called the Katanagan belt. The Tsodilo rocks have recently been reassessed by Key (1998) who calls them the Tsodilo

Hills Group and proposes a possible Palaeoproterozoic age (of more than 1 500 million years). According to the most recent suggestion, their age should be Mesoproterozoic, i.e., 1 000 - 1 500 million years (Kampunzu et al., submitted). More detailed work is needed to constrain the age of the Tsodilo rocks. For the time being they seem to be older than the Damara succession, and therefore should be considered as an older terrain within the Damara belt geological province. Their present structural position could be attributed to tectonic uplift associated with folding and thrusting of the Damara belt successions (Fig. 5: Tsodilo - Schematic Geology)

Normally, the youngest geological unit present in Botswana, the Kalahari beds, covers and conceals the ancient rock formations present in the region. The Kalahari beds consist of a variety of poorly consolidated continental sediments ranging in thickness from a few metres to about 400 metres. Their age is poorly constrained; they are probably younger than Middle Cretaceous (c 94 million years), but their complex character has not yet enabled researchers to establish a detailed chronology. The following

events were suggested (see summary in Carney et al. 1994):

Tertiary (< 70 million years): wet climate, early stage of cave formation.

Pliocene (< 11 million years): semi-arid climate, massive calcrete formation.

Before 50 000 years B.P.: wet climate, extensive river system and high lake levels.

18 000 years B.P.: Greater Makgadigadi Lake level up to 946 contour.

11 000 years B.P.: arid to semi-arid climate, formation of calcretes.

5 000 years to present: wet and dry climate fluctuations; further development of caves, formation of calcretes and sand dunes.

As already mentioned, Tsodilo is one of a few localities where very old rocks uplifted by tectonic forces

Left: Southeast aerial view of the Tsodilo inselbergs.
Right from top: Tsodilo's varied rock formations, along Rhino Trail, Female.



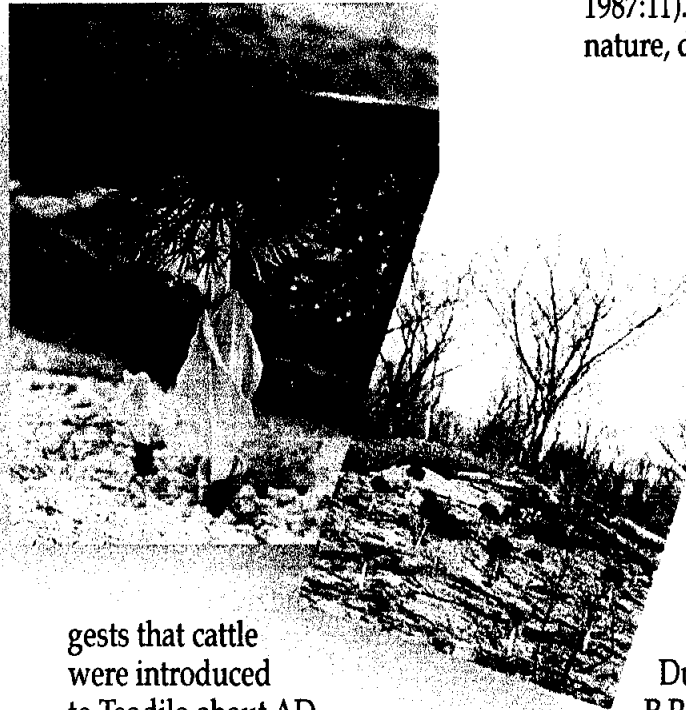
resisted many million of years of weathering and erosion. Therefore, they now form a 'window' providing a rare opportunity to observe one of the ancient rock formations that make up the Earth's crust that is normally impossible to see within the whole broad region of the sand covered Kalahari.

The Fauna and Flora of Tsodilo

Traditions speak of Tsodilo as being at one time the home of all living creatures. According to Samutchoso, van der Post's companion and guide when he made his trip to Tsodilo, it is the home of the spirits of each animal, bird, insect and plant that has ever been created.

Tsodilo offers a unique habitat in the Kalahari and because of the isolation, some populations, i.e., reptiles, mammals and some plants, found at Tsodilo are more likely to have a gene pool that is different from the rest of the area. There are also invertebrates that inhabit the area, which include spiders (and other arachnids) and insects. Plant life is also highly diverse (Bogosi 2000).

To date, archaeological research suggests that MSA people inhabited Tsodilo some 100 000 B.P. (Robbins 1994) and LSA people were in the area about 35 000 B.P. (Robbins 1999). Archaeological evidence also sug-



gests that cattle were introduced to Tsodilo about AD 600 with the arrival of Early Iron Age people who lived in village sites, first Divuyyu and then Nqoma. These sites provide good evidence of interaction between LSA foragers and Early Iron Age agro-pastoralists. Herding of sheep, goats and cattle,

the manufacture of distinctive pottery, smelting of iron and involvement in long distance trade are characteristics of Early Iron Age people of Tsodilo (Robbins 1994) and implies the absence of the tsetse fly in the area during this time (Turner 1987:11). Domestic herding is, by nature, detrimental to local wild life populations and would have caused a decline in the numbers and types of wild animals at Tsodilo. Local and regional climatic fluctuations, particularly rainfall, alternately encouraged or restrained pastoral economics, perhaps leading at times to abandonment of the area (Wilmsen 1989:32).

During this time, at least 100 000 B.P., the inhabitants of Tsodilo had strong interaction and dependence on the wildlife found there. This is well documented by the rock paintings found at Tsodilo. Throughout the human history of Tsodilo there have been animals but their numbers have varied over time.

During extended wet periods their numbers increased but were reduced during drier times. Hunter-gatherers had little impact on animal populations because they only hunted animals for food and other necessities. These hunters used traditional weapons such as spears, snares, bows and arrows and pit traps. Only in modern times have the numbers of animals been reduced by the actions of people through trophy hunting, commercial endeavours like the ivory trade, etc. The killing of predatory animals like the lion, cheetah and hyaena has also led to a decline in wildlife numbers (Ledimo 2000).

Fauna

Reptiles

Reptiles are well represented at Tsodilo and include monitor lizards, tortoises, frogs, toads, snakes, such as the black mambas, spitting and yellow cobras, puff adders and boomslangs. There are more than 20 species (8 families) (Auerbach 1987) and these include the endemic Tsodilo rock gecko, *Pachydactylus tsodiloensis*, (Haacke 1966). This gecko is not

known to occur anywhere else and only one species of its closest relatives *P. bibroni* share the Tsodilo habitat. Unlike the Tsodilo rock gecko, *P. bibroni* is more widespread throughout southern Africa. The inselbergs might therefore be a place where *P. tsodiloensis* evolved or is the only place that provided adequate refuge for this small lizard when forces of extinction wiped it out from the rest of southern Africa.

For more than ten years, the permanent waterhole halfway up *Female* has been a home for at least two African rock pythons, *Python sebae*. These snakes ambush birds that come to drink at the pool especially during the dry season when surface water is scarce. Other reptiles recorded include skinks (of which the variable skink is the most frequently encountered). There are at least three species in the rock outcrops, including members of the genus *Gerrhosaurus* that can grow to over 40 cm long.

Mammals

Tsodilo is home to more than 10 families of mammals, most of which

are relatively widespread throughout the Ngamiland district. There is however, a species of bat, *Rhinolophus denti*, which has only been recorded in two other localities apart from Tsodilo (Smithers 1971). Fruit eating bats pollinate plants including the baobab. From the rock paintings it can be assumed that mammals played a vital role in the lives of the Tsodilo. Since most mammals have a wide habitat range and free water to survive, the mammal diversity is low during the dry season. Species like the African elephant, *Loxodonta africana*, are occasional visitors. Leopards also inhabit the rocky areas where they lie in the caves during the day. They are rarely seen and their presence is established mostly by spoor (Smithers 1971). Leopards prey on other vertebrates and these include game birds, rodents (porcupines, spring hares), monkeys and antelopes (duiker, steenbok, kudu, etc.), all of which have been recorded in the area. Other predators include the endangered African wild dog, *Lycaon pictus*. It is reported that there are less than 3000 left in southern Africa (Stuart 1996:34) and Botswana's estimate is between 600 and 700 (Holt-Biddle 1997).

Some animals can still be found around Tsodilo and their numbers and types depend partly on whether it is the wet or dry season. These include wildebeest, gemsbok, zebra, elephant, warthog, spring hare, pangolin, leopard, wild dog and tree squirrels. Wild dogs and leopards often kill and eat livestock and elephants are known to raid planted fields. In order to protect their animals and crops, some community members kill these species. In December 1999, wild dogs were seen in the Tsodilo area and cattle subsequently have disappeared. This sighting, and the disappearance of cattle, has led the community to suspect that wild dogs were to blame for their cattle's disappearance.

Insects

Insects form an important part of the Tsodilo ecosystem as they are part of the diet of most birds and reptiles. They are also important in the pollina-

Left: *Scadoxus* sp. adds colour to pre-wet season Tsodilo.
 Right from top: A juvenile African bullfrog that can attain lengths of 25 cm. The female kudu, a common visitor to Tsodilo; The golden orb spider.
 Overleaf: The imposing *Female* cliffs.



tion of plants since some cannot self-pollinate and are totally dependent on insects for pollination. Wasps, bees, beetles and moths are abundant in Tsodilo and pollinate a variety of plant species. Sphingid moths such as *Agrius convolvulus* are known to exploit different plants for nectar, and this makes the species very efficient pollinators.



Birds

Numerous bird species can still be found at Tsodilo. These include eagles, hawks, falcons, owls, guinea fowls, doves, quails, parrots, francolin, bustards and ostriches. Ostriches are particularly important to the Tsodilo community who use the feathers and eggs for decorative purposes. They make shell beads to decorate leather shirts and necklaces to sell to tourists.

Listed below are the common names of LSA animal remains found during excavations at White Paintings Shelter. (Mammals identified by R. Klein and R. Milo, reptiles identified by N. Stevens, birds identified by G. Avery, fish identified by K. Steward.)

- Lesser red musk shrew
- Hare
- Springhare
- Molerat
- Pouched mouse
- Hairy-footed gerbil
- Bushveld gerbil
- Angoni vlei rat
- Porcupine
- Rock hyrax
- Vervet monkey

- Bat-eared fox
- Honey badger
- Genet
- Mongoose
- Hyaena
- African wild cat
- Caracal
- Leopard
- Aardvark
- Plains zebra
- Giant cape zebra (extinct)
- White rhinoceros
- Elephant
- Warthog
- Giraffe
- Bush pig
- Eland
- Greater kudu
- Bushbuck
- Roan antelope
- Lechwe
- Reedbuck
- Hartebeest
- Tsessebe
- Blue wildebeest
- Impala

- Grey duiker
- Klipspringer
- Steenbok
- Sheep (domesticated)
- Buffalo
- Tortoise
- Monitor lizard
- Python
- White-breasted cormorant
- Ducks/geese
- Francolin
- Guinea fowl
- Catfish
- Bream

Flora

Most of the plants found at Tsodilo are endemic to the larger region of Ngamiland with the exception of mokose, *Bauhinia petersania*, and mokwa, *Pterocarpus angolensis*. Most trees, especially the acacias and baobabs shed their leaves during winter and new ones start to grow when spring begins. Large acacia trees are found mainly at the foot of the inselbergs on the fossil lake bed but are scarce on the sand dunes. The baobabs are relatively widespread on and around the inselbergs but the

Tsodilo baobabs tend to differ from baobabs that occur in other parts of the country in that the former do not have the thick trunks and stout morphology of the typical baobabs but are rather slender and tall. Other trees include figs, which grow on rock crevices with roots hanging down the cliff faces. There are also different species of climbers, which wind tightly around the supporting trees. A few plants flower before the rains and these include the baobab and the tuber *Scadoxus sp.* The latter's red inflorescence emerges from the ground long before the leaves appear and this gives the landscape an unusual red spring appearance.

Some of Tsodilo's more important and interesting plants are listed below:

Medicinal plants for humans:

- Moithimodiso, *Cotyledon orbiculata*, is used medicinally to induce sneezing and cure headaches by inhaling smoke from the burning branches. Commonly known as mothomagan-yane by other Batswana groups.

- Sengaparile, *Arpagophytum prcum-*

bens. Tubers of sengaparile are used as medicine for high blood pressure and other health problems. Local medical practitioners have given the tubers a new commercial name and market the product as 'Kalahari devil's claw.'

- Moologa, *Croton gratissimus*. There is an abundance of this species at Tsodilo. Many local persons collect the leaves and roots from the trees but, because traditional healers are reluctant to tell all of their secrets, it is unknown what they are used for (Tatlhego 2000).

Medicinal plants for livestock.

- Sekaname, *Urgenia sanguinea*. The bulbs are collected in spring when new leaves appear. They are then boiled and the liquid is given to stock as a prophylaxis against poisoning by grazed early spring leaves. New leaves which are often the first green growth of the season are poisonous to stock and many cattle, especially the new breeds introduced after the recent cattle lung disease that devastated cattle herds in Botswana, die each year from eating the spring leaves of this plant.

- Mogonono, *Terminelia sericea*. The bark of the root is collected, crushed and soaked in water and the solvent is given to expectant cows to prevent miscarriages. Sometimes the same solvent is used for tanning hides or skins that are then cut and sewed into clothes, especially traditional attire.

- Moroka, *Commiphora mossambicensis*. It is found in abundance at Tsodilo in a variety of sizes. The bark of the tree is cut and burnt and the ashes are used as a poultice for cuts on people and livestock. The poultice stops bleeding, dries the wound and prevents flies from attacking the wound.

Another very interesting aspect of the Moroka is that a small beetle, *Diamphidia simplex*, lives on it. The grub from the pupae of the beetle is used by the !Kung hunters to make a poison that they smear on to the tips of their arrows. According to Campbell (1968:95) 'The poison is both a blood and nerve toxin. When fresh it

Left : Tsodilo rock gecko and blind blue snake.
Right from top: The larvae of the *Diamphidia simplex* beetle being applied to an arrow tip; Mokgomphata berries; Wild tsama melons.



is very potent but after four to six months it loses its potency'. With fresh poison an animal may be incapacitated in a day or two. However, older poisons may require three or four days to work.

Edible Plants

• **Mongongo, *Ricinodendron rautaneii*.** This tree produces nuts of a very high nutritional value and is a staple food of the !Kung and Hambukushu living around the Tsodilo area. The mongongo nut has been compared nutritionally to peanuts and soybeans (Yellen and Lee 1976). Archaeological excavations have uncovered the remains of mongongo nuts dating to about 7 100 B.P..

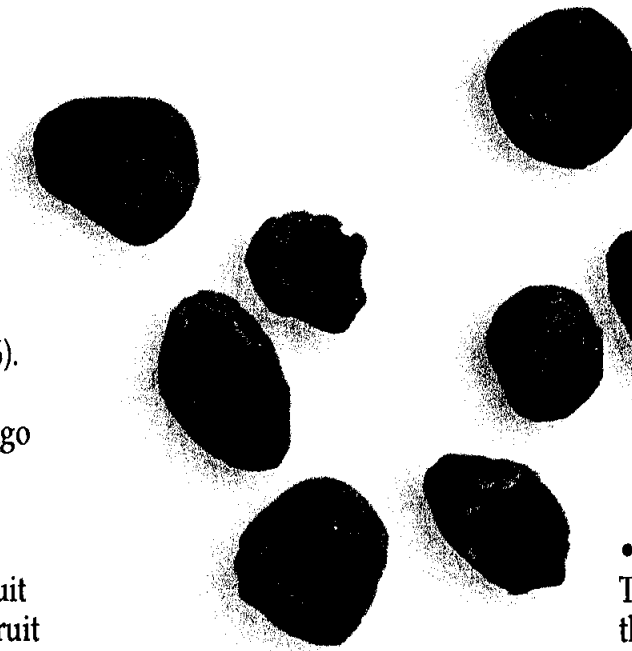
• **Mmupudu, *Mimusops zeyheri*.** It produces edible green coloured fruit that turns brown when ripe. The fruit is sweet and soft with an annual ripening period that ranges from April to May.

• **Modidima, *Nymphaea caerulea*.** Lily flower stems are collected and cooked with fish or meat.

• **Mogorogoro, *Strychnos coccoloides*.**

Sometimes called 'monkey orange.' Produces orange like fruits with a hard shell covering brown sweet fruit and seeds.

• **Mogwana, *Grewia bicolor*.** Produces nutritious berries that turn from green to light brown when ripe.



• **Leketa.** It is used like spinach. Commonly called rothwe by other ethnic groups of Botswana.

• **Mokgalo, *Ziziphus mucronata*.** Also known as the buffalo thorn tree. The tree produces edible sour red berries.

Whilst eaten by people, they are sought after by birds, especially grey louries, *Corythaixoides concolor*.

• **Monakaladi, *Cyperus margaretasceu*.** Edible tubers of the plant have to be dug out of the soil. It is also a major food for fowl.

• **Nakgwa, *Hydnora*.** This plant produces a large edible sour brown tuber. Nakgwa smells like sour milk. It does not produce branches or leaves and can only be detected by smell. It is a favourite food for impalas who often expose the tubers that are then found by people.

• **Phoka, *Urochloa mossambicensis*.** This grass produces edible seeds that are very similar to millet. They are very fine and require a lot of work to collect.

• **Mokutsomo, *Diospyros mespiliformis*.** This tree produces edible fruits that are about the size of a small marble and turn from green to brown when ripe. Each fruit contains

several bright red seeds. The fruits are sucked and the seeds are spat out since they are too hard to chew.

• **Mokolane, *Hypaene petersiana*.** When small this tree is called 'mokolane,' meaning a young plant of the *Hypaene petersiana* tree. When the plant has matured it bears an edible fruit called mokolwane which has a seed in the middle.

• **Moretologa, *Ximenia*.** This is a large shrub which produces a fruit that turns red or orange when ripe. The male trees do not produce fruit and are called serotologa. There are several varieties, some producing small orange fruits, others larger fruits that have a redder colour. Those that bear small orange fruits are said to be 'moretologa wa podi' while those that produce the larger red fruits are said to be 'moretologa wa kgomo.' The difference being that red fruits are often eaten by cattle whilst the smaller orange fruits are eaten by goats.

• **Moloto, *Acacia erubescens*.** It produces a very sweet nutritious gum that provides part of the 'bush' diet for herders and hunters

- Mophane, *Colophospermum*. It is believed to attract thunder and lightning. While the tree itself does not produce an edible component it is directly associated with an edible and very nutritious caterpillar, *Gonimbrasia belina*, known locally as the *phane*. This caterpillar prefers the new leaves of mophane and millions are harvested each summer. The *phane* was known to be staple food for the Bakalanga people but today it is a very popular food for most Batswana. It is now being canned for export and future consumption. Only one tree is known within the core area of Tsodilo and it does not appear to have caterpillars.

Other Plants

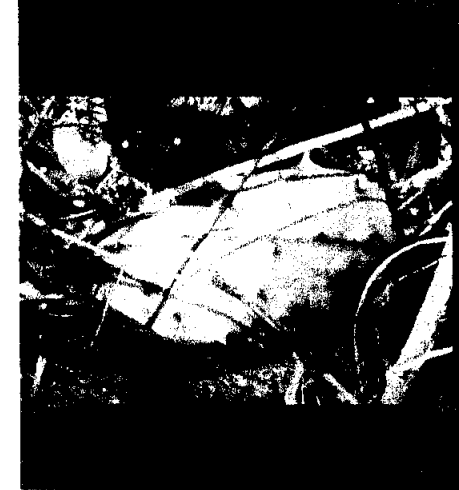
- Moarasope, *Withania somnifera*, shrub.
- Sebatatswane, *Tragia okanyua*. Stinging nettle.
- Lebuta, *Rhigozum brevispinosum*, small tree.
- Sebotha, grass on hills.

- Modikangwetsi, *Cenchrus ciliaris*, grass.
- Modubana, *Combretum molle*, small to large tree.
- Modupaphiri, *Rhus tenuinervis*, shrub or small tree.
- Mfafu/Mhahu, *Acacia fleckii*, shrub to large tree.
- Mogau, *Dichapetalum cymosum*. A very poisonous shrublet with woody underground stems with attractive fruits. The name mogau is also commonly used for other poisonous plants, crops, roots, bulbs, tubers and fruits.
- Mogokatau, *Acacia ataxacantha*, thorny tree.
- Bogoma, *Setaria verticillata*, burr, bristle grass. Any grass or shrub that has burrs or fruits that are sticky.
- Mogothono, *Acacia eriloba*, shrub or tree. It is believed to attract lightning.
- Mokabi, *Combretum herreroense*, tree.
- Mokate, *Citrullus lanatus*. A small

dry green hard melon that is unpleasant and bitter to taste. It is only used as cattle feed. It is probably a hybrid of lekatane and legapu, a sweet watermelon.

- Mokgwelekgwele, *Acacia luederitzii*, shrub or tree.
- Mokoba, *Acacia negrescens*, knob thorn tree.
- Mokwa, *Pterocarpus angolensis*. It grows to become a large tree and produces very fine timber.
- Molalakgaka, *Albizia harveyi*, tree.
- Mongana, *Acacia melifera*. It provides farmers with very strong bushes for building cattle kraals.
- Moomo, *Ricinus communis*. The fruits are eaten by wild pigeons. Evergreen, easily propagated.
- Mopororo, *Lonchocarpus capassa*, tree.

Left: Nuts of the mongongo tree.
 Right from top: The fruit of the tholwatholwane tree is used for a local child's game; The prickly cucumber, used for healing broken bones; Knob thorn acacia.



•Morala, *Gardenia volkensis*. Its wood is used for making spoons and other decorated carved implements.

•Moroka, *Commiphora mossambicensis*. Found in abundance at Tsodilo, all sizes, big and small. The name of the tree varies with different ethnic groups of Batswana.

b. History and development.

Archaeological research, records, oral traditions and other evidence have all separately and collectively provided data to enable the history of Tsodilo to be pieced together.

Stone Age

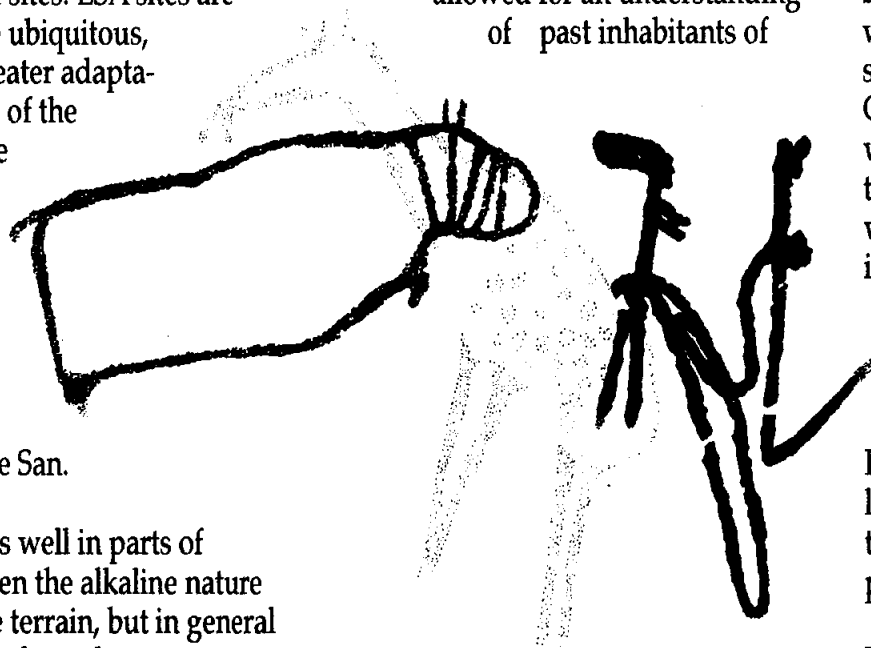
As complete a broad sequence as elsewhere of human endeavour in the subcontinent may yet be traced in Botswana, although the general impression is that much of the land during drier periods of the Pleistocene may have been sparsely inhabited. Still, ESA sites, perhaps dating back a couple of million years, and the subsequent MSA sites are

widespread, albeit confined to along waterways and pan edges, including many which are currently dry, indicating previously wetter periods and rainfall catchments now lost due to river capture. In southern Africa, the MSA begins around 135 000 B.P. and appears to end after about 35 000 B.P. at a number of sites. LSA sites are however more ubiquitous, attesting to greater adaptation at the end of the Stone Age. The latter tend to be more common in the late Holocene and these can be identified as ancestral to the San.

Bone preserves well in parts of Botswana, given the alkaline nature of much of the terrain, but in general little is known about the economy and other cultural behaviour of the people. Put in this context, then, Tsodilo has provided an important window into the recreation of past inhabitants' lifestyles.

With the exception of occasional finds

of stone artefacts, traces of the Stone Age inhabitants of Tsodilo are generally not seen on the present land surface. However, archaeological research has uncovered an abundance of cultural material within the buried levels of several rock shelters and caves. These discoveries have allowed for an understanding of past inhabitants of



the area as well as about changing environmental conditions in this part of the Kalahari. The caves and overhangs of Tsodilo must have provided the only permanent natural shelters in a vast area of the north-western Kalahari sandveld and it is

not surprising that some of them contain long term records of human activities.

The Stone Age of Tsodilo is best known from excavations conducted by teams, largely under the direction of Larry Robbins at Rhino Cave and Depression Rock Shelter on *Female* as well as the White Paintings Shelter, situated at the base of *Male*. Rhino Cave is named after a prominent white painting of a possible rhinoceros that is bifurcated by a red giraffe, while Depression Rock Shelter takes its name from the numerous small depressions or cupules ground into the shelter walls. Rock carvings in the form of cupules and grooves are also found at Rhino Cave. White Paintings Shelter is named after the large number of white paintings on the wall, highlighted by a bull elephant.

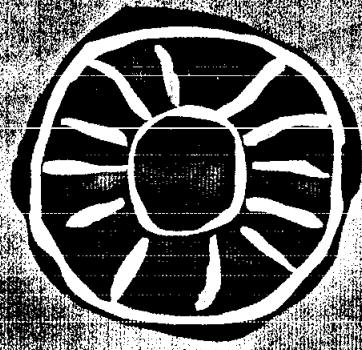
Both Rhino Cave and White Paintings Shelter (as discussed above in the Justification for Inscription section) are stratified sites where LSA remains overlie MSA deposits. Depression

Left: Drawing of white rhinoceros bifurcated by red giraffe.

“The Hambukushu have a lot of respect for Tsodilo. If you send someone to Tsodilo and he or she undertakes the assignment unwillingly, chances are that they may not come back. To come back safely from Tsodilo you are expected to readily accept the assigned tasks and to observe and respect the sacredness and holiness of Tsodilo.”

Mboma Diziro

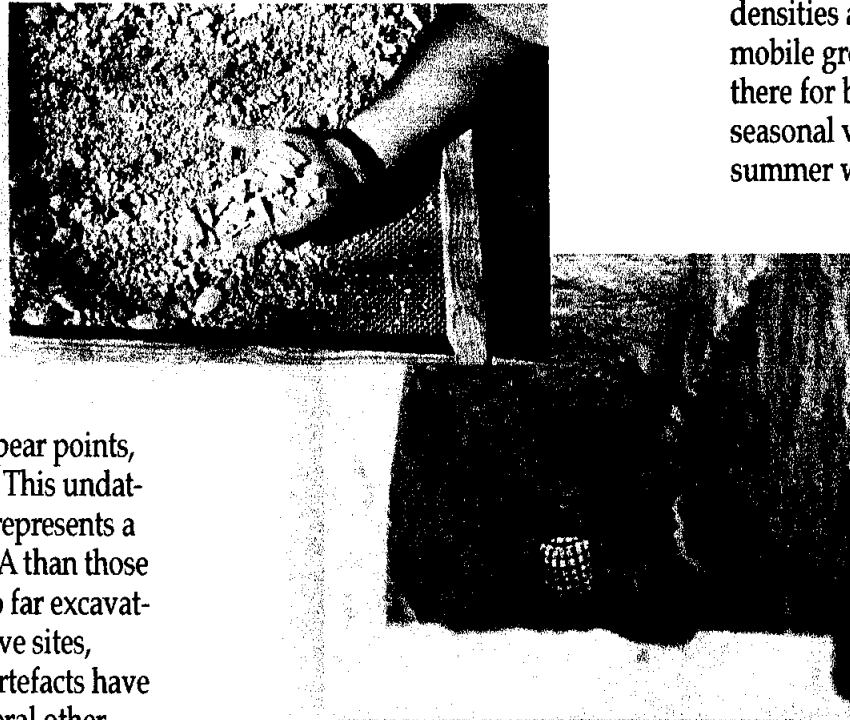
Mboma Diziro was born in 1942 and is from Shakawe, 40km east of Tsodilo. Where he is a representative of the Chief.



Rock Shelter contains a long sequence of LSA deposits ranging from as recently as a few hundred years ago to undated Pleistocene levels, with most archaeological debris dating to about 1 900 B.P. and again to some time before 20 000 B.P.. There are possible traces of MSA occupation at the base of Depression Rock Shelter. Rhino Cave also has discontinuous occupation, with a shallow LSA deposit overlying a MSA industry with relatively small and distinctive spear points, several being side struck. This undated assemblage probably represents a different phase of the MSA than those found at the other sites so far excavated. In addition to the above sites, smaller samples of LSA artefacts have been excavated from several other shelters, some dating to the last 500 years or so.

Current evidence from the base of the White Paintings Shelter has revealed that the Tsodilo area has been occupied for at least 100 000 years (Robbins 1994). Thus far, no deposits

belonging to the ESA have been discovered at Tsodilo, suggesting that the first occupants may well have been MSA peoples. Who were these people? While skeletal remains of



MSA peoples have not yet been found in Botswana, evidence from a number of South African sites indicates that MSA peoples were among the earliest anatomically modern humans, *Homo sapiens*, known. The LSA people that followed them in

time were also modern humans.

For the most part, the excavated rock shelters and caves of Tsodilo provide evidence of repeated use over an extensive period of time. The artefact densities appear to reflect small mobile groups of people who camped there for brief periods, perhaps on seasonal visits to Tsodilo in late summer when the mongongo fruits

ripen. Primarily, the peoples who used the shelters left behind scatters of flaking debris, or debitage, and smaller numbers of finished stone tools as well as food and organic waste. Typical LSA tools found at Tsodilo are backed segments that would have served as arrow barbs double backed drills and small scrapers that were

mainly hafted onto wooden handles for scraping animal skins. MSA tools are best recognized from stone points that may be retouched on one or both sides and were probably mounted as spearheads as well as a range of scraping tools. The raw materials

used for toolmaking in both the LSA and MSA includes locally available quartz found in veins in the rocks or on the ground surface as well as a variety of chert and silcrete that came from more distant sources. The use of exotic raw materials suggests that exchange or contact with other areas has been important at Tsodilo for thousands of years. Frequent use of non-local raw materials is especially noticeable for LSA segments and MSA points.

Food refuse, best preserved at White Paintings Shelter, includes thousands of animal bone fragments, most of which are unidentified, and in more recent periods, numerous mongongo nutshell fragments. Mongongo trees still grow at Tsodilo and the nuts are an important food resource. Other important LSA finds include small ostrich eggshell beads and well made bone arrow points and awls. The discovery of unfinished ostrich eggshell beads, broken in manufacture, demonstrate that beads were locally produced. Remnants of hearths containing ash and scattered pieces of charcoal are also found in the shelters at more recent LSA levels. While direct evidence of fire was not

preserved in MSA levels at the Tsodilo sites, finds of MSA hearths in Swartkrans, South Africa have revealed that peoples used fire during this time.

Until as recently as about AD 600, the LSA people of Tsodilo lived entirely by hunting, fishing and foraging for wild foods. The record from White Paintings Shelter reveals that a wide variety of wild animals existed at Tsodilo during the LSA. Forty different kinds of mammals were identified (primarily by Drs. R. Klein and R. Milo) from the LSA levels of White Paintings Shelter. Most of the LSA species on the list were probably found at Tsodilo until at least the early 1900s. However, some animals such as klipspringer, rock hyrax (dassie) and lechwe have not been evident during the historic period. Many of the species of wild animals depicted in the rock paintings of Tsodilo are also represented in the LSA faunal record at White Paintings Shelter.

The presence of wetland animals at White Paintings Shelter, such as reedbuck, lechwe and vlei-rat, as well as fish, fresh water molluscs, ducks,

geese and white breasted cormorants attest to wetter environmental conditions at various times in the past at Tsodilo. In addition, two extinct species of animals, giant cape zebra, and large hartebeest were found in MSA deposits.

Findings at White Paintings Shelter

MSA fauna was poorly preserved, but remains of catfish, tortoise, warthog, reedbuck, hartebeest, tsessebe and unidentified bovids were found at White Paintings Shelter. Judging from finds at MSA sites elsewhere in southern Africa, it is likely that a wide range of extinct and extant animals existed at and around Tsodilo during the MSA.

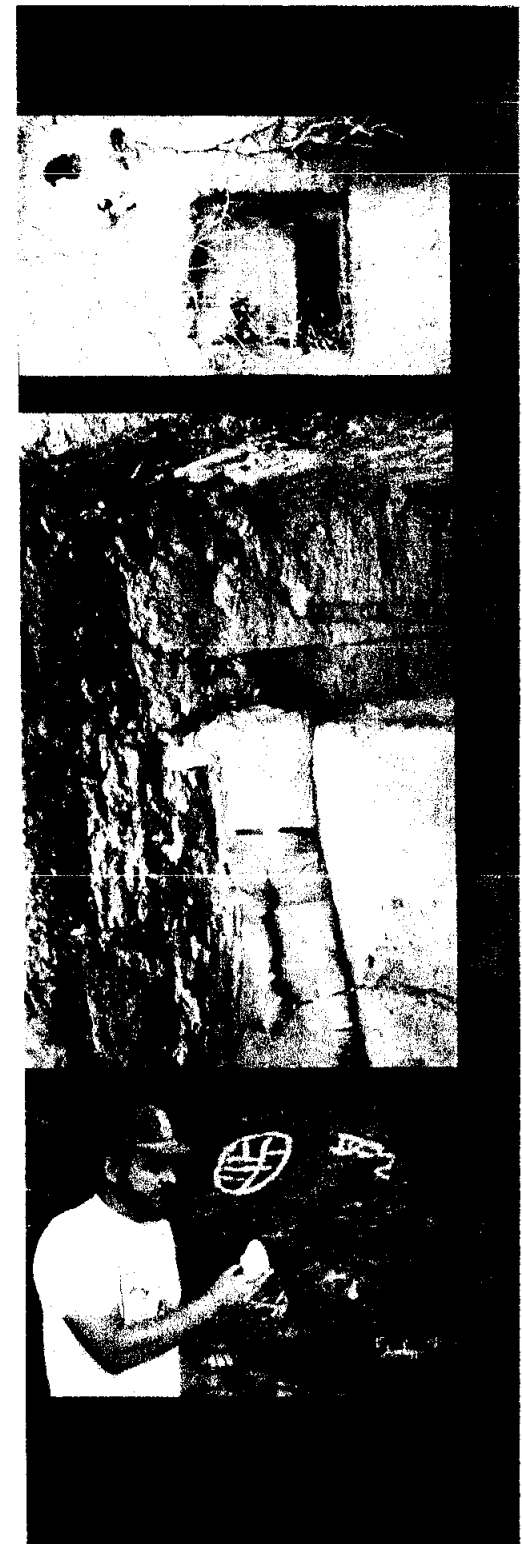
White Paintings Shelter is a very important site because of the recovery of an extensive record of fresh water fish exploitation as well as the discovery of barbed bone spear or harpoon points that had not previously been found in southern Africa.

The thousands of fish bones recovered as well as the barbed points were surprising finds, considering the location of the site in the Kalahari

where today the Okavango River, 40 kilometres away, has the nearest permanently flowing water that contains fish.

The barbed bone points found at White Paintings Shelter were most likely used to tip fish spears. Such artefacts had previously only been found far to the north in west and east Africa and along the Nile and in the Sahara especially during the early Holocene when comparatively wetter conditions prevailed. It is uncertain whether such bone points spread from southern Africa to the north, or vice-versa, or if they were independently developed in several areas of Africa. While fish bones were recovered in every 10 cm level from just below the surface to a depth of 450/460 cm (which is in the upper part of the MSA), there were two peak periods of fishing which were designated the 'Upper Fish' (90 - 130 cm) and 'Lower Fish' (200 - 300 cm) deposits. The former contains most of the barbed points and dates to the

Left and Right from top: Excavations at White Paintings Shelter uncovered cultural material dating to approximately 100 000 B.P. at a depth of seven metres.

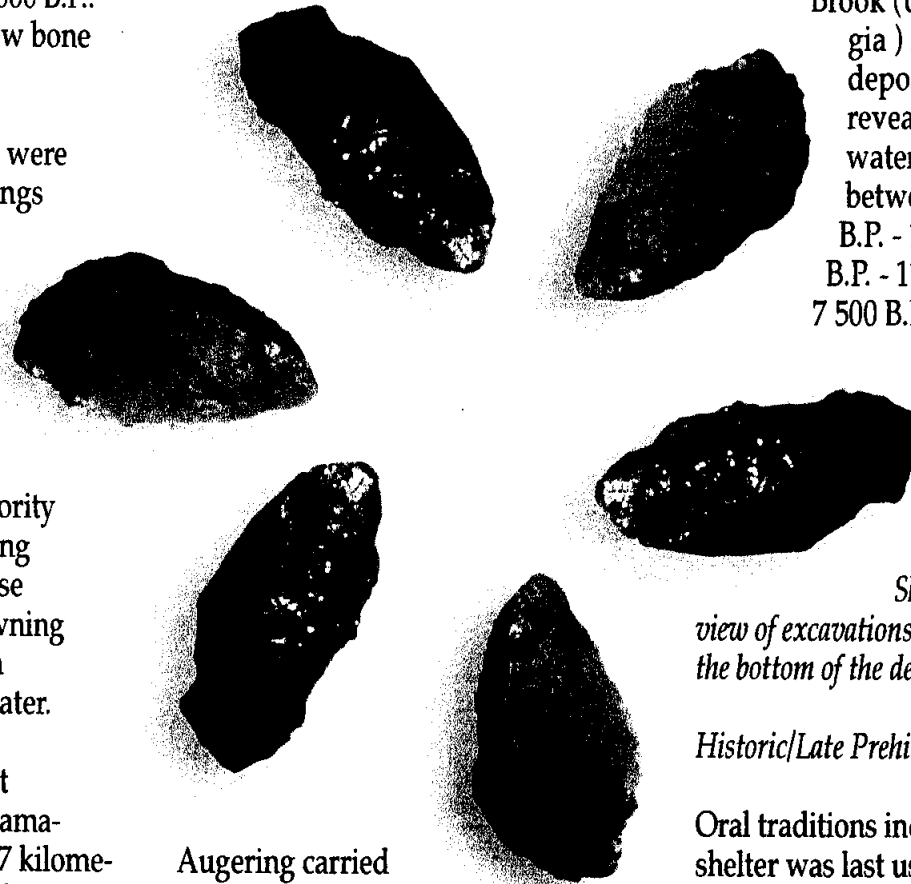


mid Holocene. The Lower Fish deposits date to the late Pleistocene (known as the Ice Age in relation to glacial expansion, primarily in Europe and North America) and may date to between 33 000 - 38 000 B.P.. They contained relatively few bone points.

In general, two types of fish were exploited from White Paintings Shelter, namely catfish or barbel, *Clariidae*, and bream, *Cichlidae*. According to Dr K. Steward (Canadian Museum of Nature), most of the fish ranged between 20 - 85 cm in length and the majority of the catfish were of breeding age. It is very likely that these fish were taken during spawning runs when they appeared in large numbers in shallow water.

The fish were therefore most probably taken from the Nxamasere/ Xeidum River, about 17 kilometres from Tsodilo, or from the ancient lake at Tsodilo which existed at various times during the Holocene and late Pleistocene. This lake was situated just to the west of the *Male*

and *Female* and is estimated to have covered an area of about 8 x 5 kilometres when full. The lake was probably never more than a few metres deep.



Augering carried out between the White Paintings Shelter and the lake deposits has revealed that when the lake was full it was situated less than 300 metres from the shelter. Deposits

in the rock shelter, most notably in the Lower Fish levels have also yielded mollusc shell fragments that presumably came from the nearby lake. Carbon dates obtained by G.

Brook (University of Georgia) from the lake deposits have thus far revealed that standing water was in the area between about 22 500 B.P. - 19 200 B.P., 17 500 B.P. - 11 700 B.P. and about 7 500 B.P.

White Paintings Shelter : a brief overview of excavations from the surface to the bottom of the deposits.

Historic/Late Prehistoric: 0 - 30 cm

Oral traditions indicate that the shelter was last used as a temporary camp by the local !Kung, during the rainy season, probably sometime between 1930 - 1940. Traditions report that families slept under the overhang next to their campfires and

that people ate mostly small animals and wild plant foods. The upper 30 cm of the site produced evidence of historic/late prehistoric occupation such as a nylon button, maize, cowpeas, glass trade beads and ostrich eggshell beads. One highly weathered piece of cut elephant tusk was also recovered from a depth of 20 - 30 cm. There were also occasional finds of stone artefacts, small bone arrow points or link shafts, a few pot sherds and animal bones. The identified animals included giraffe, hartebeest, tsessebe, reedbuck, duiker, steenbok, springhare, porcupine, monitor lizard, tortoise, leopard and bat-eared fox. No domesticated animal bones were found. The discovery of small amounts of fish bone suggests that the Nxamasere River was probably flowing at least on a seasonal basis at this time. Charred mongongo nutshell fragments were abundant in these levels. Mongongo nuts were also exploited at other sites at Tsodilo such as Depression Rock Shelter where the oldest nutshell fragments were found in a level dated to about 7 500 B.P..

LSA deposits contemporary with the Early Iron Age: 30 - 80 cm

These deposits yielded microlithic LSA tools such as segments and small scrapers. Occasional finds of comb-stamped and incised pottery, as well as iron beads, suggest trade and interaction with nearby villagers such as at Nqoma or Divuyu. Small crystals of specularite found in the deposits probably were derived from the Upper Male Mine where similar crystals occur. More than likely, these deposits date to the period when specularite mining was active at Tsodilo (c AD 800 - 1 000). A sheep jaw, recovered from 40 - 50 cm, was the only domesticated animal bone found in the shelter, although some of the other unidentifiable bone fragments could be from livestock. This jaw was directly dated by the AMS radiocarbon method to between approximately AD 710 - 880. Some of the same wild animals noted in the overlying levels were exploited, but several other species were recovered, including warthog, zebra, aardvark and hyaena. Use of the shelter during this period appears to have been quite extensive as evidenced by finds of pottery, microlithic tools and

animal bone fragments in the outlying test pits and auger holes.

Upper Fish Deposits - LSA deposits: 80 - 130 cm

These levels date to the mid Holocene (c 3 700 B.P. - 7 000 B.P.) and are marked by the majority of the barbed bone points or harpoons and thousands of fish bones. The 110 - 120 cm level (squares 10 - 23), for example, contained 2 993 fish bones. Typical LSA microlithic tools were recovered as were a number of grindstones. Pottery was no longer evident. In addition to fish, there are wetland animals such as lechwe, reedbuck and vlei-rat. There was also rhinoceros, bushpig, kudu, zebra, impala and bushbuck, tortoise and springhare. During this period, the site appears to have been quite extensive, judging from the widespread distribution of fish bones that extends far beyond the shelter itself.

Low Density - LSA Deposits: 130 - 200 cm

The density of stone artefacts and fish bones decreases and the occupation of the shelter seems to have been

more sporadic when these deposits accumulated. However, there was a very noticeable increase in pieces of unworked ostrich eggshell in these deposits. For example, 201 pieces of ostrich eggshell were recovered from the 170 - 180 cm level. People were probably collecting ostrich eggs for food but they also used some of the shell for making beads or possibly water canteens. Ostrich eggshell samples from these deposits have been directly dated by the AMS radiocarbon technique to between approximately 26 000 B.P. - 33 000 B.P.. A piece of an ostrich eggshell bead, broken in manufacture, was dated to between 26 000 B.P. - 27 000 B.P., while part of an ostrich eggshell disc was dated to approximately 32 000 B.P.. The bead is especially interesting because similar beads continue to be made and used in the Kalahari where they are important ornaments and are often traded to reinforce social and economic relationships between people. Thus, it would appear that Tsodilo has one of

Left: Microlith stone tools from White Painting Shelter.
Right top to bottom: Barbed bone points from White Painting Shelter.
Overleaf: Cupules at Depression Shelter, Female.

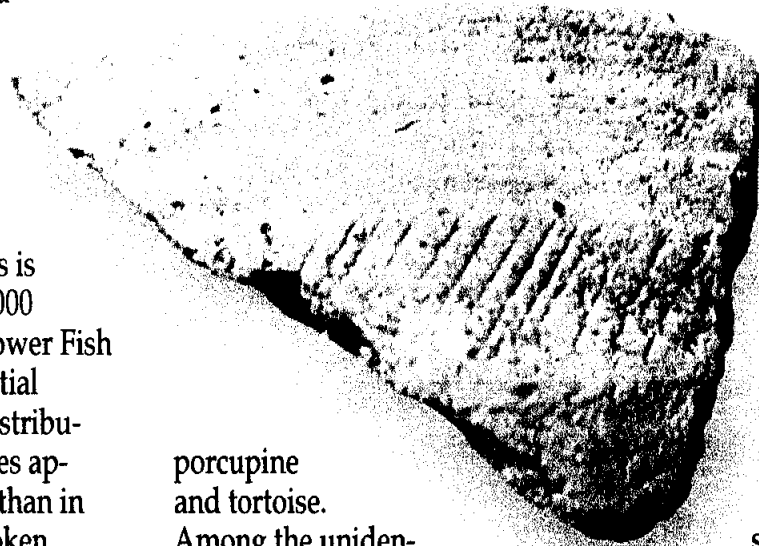


the longest well documented records of the use of beads that is known archaeologically.

Lower Fish Deposits - Early LSA: 200 - 300 cm

At a depth of approximately 200 cm the relative density of occupation increases and there was an increase in fish remains, with up over 1 000 bones found in the 240 - 250 cm level in the central block of excavations. The age of the deposits is estimated to be between 33 000 and 38 000 B.P.. While the Lower Fish deposits represent a substantial occupation of the site, the distribution of the artefacts and bones appears to be less widespread than in the Upper Fish deposits. Broken pieces of ostrich eggshell continued to be abundant, but there was no clear evidence of worked pieces such as beads. Small backed stone blades were recovered as well as several bone artefacts including the weathered base of a barbed bone tool, a broken barbed point that was most likely a spear point and a unique thin point that was refitted from three

different pieces. This broken point is marked by a series of at least 32 small incisions. Animals found in the Lower Fish Deposits include species such as the extinct giant cape horse, klipspringer, hartebeest, tsessebe, rhinoceros, bat-eared fox, springhare,



porcupine and tortoise. Among the unidentifiable bovines, more medium sized animals were being taken than in later levels where small animals were more important.

Large Blade, early LSA/transitional MSA: 300 - 420 cm

The cultural sequence is marked by a major change to the use of larger

blades, some of which were backed. Interestingly, sediment analysis done by G. Brook and A. Ivester (University of Georgia) reveals that the upper part of these deposits between approximately 300 - 352 cm accumulated under relatively dry conditions.

The discovery of an early blade industry at White Paintings Shelter is significant, given the suspected age of greater than 45 000 years. Similar MSA industries in South Africa have been dated to around 70 000 B.P.. Such tools are often seen by archaeologists as a signpost of relatively complex human behaviour. In general, these deposits at White Paintings Shelter are marked by a substantial decrease in the relative density of artefacts and animal bones, suggesting less frequent visits to the site. Remains of an extinct form of large hartebeest was recovered in these deposits. Pieces of ostrich eggshell were very rare in these layers and there were no barbed bone points.

MSA: 420 - 700 cm

A double schist fall-layer, derived from the roof of the shelter was clearly evident at approximately 420 cm from the surface. The rockfall, associated with comparatively wet (and possibly cold) conditions, forms a very clear natural boundary from the overlying deposits. Typical well made MSA points are found in the deposits below the schist layer. One of the points, studied microscopically by Dr R. Donahue (University of Bradford), has impact damage on the tip, strongly suggesting that the artefact had actually been used as a spearhead. While such points are the diagnostic tools, large blades found in the upper part of the MSA suggest continuity between the MSA and the overlying large blade industry. Animal bones were seldom preserved in these deposits but there was evidence of fish (found to a depth of 450 - 460 cm). No ostrich eggshell fragments or bone tools were found in these levels.

The MSA deposits are beyond the range of radiocarbon dating. For this reason, as in the case of Kakadu, thermoluminescence (TL) dating was

used (a technique that dates the last time the sediments were exposed to sunlight). At White Paintings Shelter these MSA deposits are thought to date to between about 50 000 B.P. - 100 000 B.P.. TL dates processed by Dr W. Downey (University of Botswana) from 500 cm resulted in an age of approximately 66 000 years, while a sample from 600 cm afforded an age of about 94 000 B.P.. While these TL dates actually have a substantial margin of error, they compare favourably with ages of other MSA sites and it is likely that they provide a reasonable assessment of the age of the earliest archaeological period thus far documented at Tsodilo. It is estimated that the base of the site at 700 cm is beyond 100 000 B.P.. These lower assemblages are fairly amorphous in character as a result of the small sample size, but are still likely to be MSA.

Iron Age

During the first few centuries of the Christian era, new technologies and economies began to filter slowly down the margins of the Okavango Delta from the north. Current evidence from sites such as Lotshitshi

and Toteng on the banks of the Thamalakane and Nhaba Rivers near Maun indicate that, by the 3rd century AD, some small foraging bands had added pottery and domestic livestock to a broad spectrum hunting and gathering economy. As might be expected, fish formed an important component of the diet, along with game from a number of different micro-environments including permanent swamps, rivers, pan edges, and dry grassland savannahs.

While these early sites indicate that gradual changes were occurring in technology and economy during the first few centuries AD, people still continued to rely upon stone tools such as backed segments (arrowtips), double backed blades (drills) and small convex scrapers. These are identical to those found at earlier LSA sites throughout the northern Kalahari. Some LSA sites along the rivers of northern Botswana, however, also include a large lithic component composed of silcrete flake knives, choppers and points, which may indicate a break down of trade networks or an increased expense in getting quality material. Finer grained chert favoured for microlithic

tools was difficult to obtain and so was traded for over distances of 100 kilometres or more.

By the 7th century AD, the pace of change in technology, subsistence and settlement organization had increased as iron and copper metallurgy were introduced. Cultivated crops such as sorghum and millet were added to the diet. Sheep and goats augmented the small numbers of domestic cattle kept by some of these early foraging communities. The residential stability that went along with this increased reliance upon domesticated animals and plants led to the construction of more substantial villages of pole and daga (hut and clay) with well defined living, midden (rubbish heap), storage, burial and other activity areas, as well as shifts in sociopolitical organisation. A variety of pottery vessels were used for cooking, storing and serving food and drink. People often elaborately decorated themselves with copper and iron beads and bangles, glass beads and

Left: Pottery sherd from White Paintings Shelter.
Right from top: Excavations at Nqoma (top two) and White Paintings Shelter (bottom two).



other jewellery that supplemented more traditional ostrich eggshell beads, ivory bracelets and such items of status and adornment.

The rapid changes in technology, economy and settlement structure that occurred in the 6th and 7th centuries AD suggest that many of these new villages incorporated within them Bantu speaking peoples in the process of expanding southward along the river systems from Angola and central Africa. The Divuyu and Nqoma settlements in Tsodilo are among the earliest such villages discovered and excavated in Ngamiland.

Divuyu and Nqoma

The Divuyu settlement lies in a saddle at the top of *Female*, 180 metres above the level, sandy plain of the northwestern Kalahari. The site was discovered in 1984 during a surface reconnaissance conducted around the nearby site of Nqoma on a lower

plateau of *Female*. It was named Divuyu, the Simbukushu word for baobab, after a small example found growing in a prehistoric midden at the eastern edge of the site.

Work was supervised by Jim Denbow and Ed Wilmsen. The baobab midden



contained 90 to 100 cm of fine, grey soil mixed with ash from cooking fires. Animal bones, broken pots, metal tools, weapons, ornaments and other discarded objects were concentrated here. One adolescent human burial found in the midden had been placed in a sitting position, with the head facing east.

At the northwestern edge of a Divuyu midden, refuse was used to fill in a one metre deep pit that had been dug, possibly for storage. After the pit was filled with rubbish, another metre of midden deposit accumulated on top of it before the site was abandoned. The stylistic uniformity of ceramics from the pit, the overlying midden and the rest of the site suggest that the total deposit built up rapidly. This impression is supported by three overlapping radiocarbon dates from the site that bracket its occupation between AD 600 and AD 800.

The aerial extent and depth of the midden area around the baobab tree suggests that it was a communal rubbish pit used by several households. Surface reconnaissance and test excavations located another such midden about 100 metres west of the baobab midden. Most of the intervening area had much shallower deposits containing isolated potsherds,

metal artefacts and other cultural material along with burned hut clay, evidence of houses and other structures. A general pattern of public housing and living spaces in the centre of the saddle and flanked on the north and east by communal middens and perhaps burial areas are suggested.

Subsistence Economy

The middens at Divuyu and Nqoma also contained large numbers of cracked and carbonized mongongo nutshells, attesting to the important supplemental role played by wild plant foods in the economy. In addition, the remains of wild bovids make up approximately 40% of the total fauna identified. Apart from a few cattle teeth, domesticated sheep and goats dominate the faunal assemblage at Divuyu in contrast to Nqoma where cattle were the major domesticated animal. While most wild animals were hunted for their meat, remains of fur bearing cats such as genet, caracal or serval, wildcat and leopard were recovered along with a smaller number of jackal and fox remains. These were probably used for clothing.

Delicate fish vertebrae were also found at Divuyu in about double the frequency found at the later site of Nqoma. Other hydrophilous animals, including waterbuck, lechwe, and reedbuck, also occur at Divuyu in frequencies almost three times that found at Nqoma. In addition, the hippopotamus remains from Tsodilo all come from Divuyu, none were found at Nqoma. This suggests that rivers and lakes where these animals lived were closer or more accessible to Tsodilo at the middle of the first millennium than at the end, or that Divuyu maintained closer trade connections with the delta people than did Nqoma. The location of a Divuyu period site at Xaro on the western edge of the Delta, suggests that trade rather than proximity may have been more important early in the sequence.

Remains of dassies, *Procavia heterohyrax*, were an unexpected find and were confirmed by finds at WPS. None of these animals live at Tsodilo today. Their presence here in the first millennium AD may suggest either that somewhat different climatic conditions prevailed in the past 1 200 years or that these animals subse-

quently became locally extinct perhaps as a result of over hunting. Impala, wildebeest, buffalo, eland and duiker were the most frequently killed animals, occurring in about equal proportions at both Divuyu and Nqoma. Giraffe, however, were obtained with greater frequency by Nqoma people. The few rhinoceros remains recovered from Tsodilo were all from Divuyu. All the elephant bone and ivory, zebra, warthog, suid and ostrich remains, on the other hand, were found at Nqoma.

Technology

The pottery Nqoma tradition was influenced by the Kumadzulu/Dambwa style of the Chobe/Victoria Falls region. Nearly all Nqoma pots have charcoal temper. The temper for bowls was usually very finely ground to produce a more uniform paste and thinner walls. Jars were more frequently tempered with coarser and chunkier bits of charcoal. Overall diameters for Nqoma vessels, like those from Divuyu, are small, with bowls averaging about 21 cm in diameter and jars 26 cm. Like Divuyu, this suggests that meals were prepared and served to small groups

of people, perhaps no larger than a small nuclear family.

The metallurgy of Nqoma was distinctive, having a variety of elaborate ivory, iron and copper ornaments along with iron tools made on the site. A fragment of a tuyere was recovered from the site, but no furnace remains have been found at Tsodilo and the tuyere is believed to have been used for smithing. More than 1 500 pieces of metal work were recovered, much of this was jewellery. Nqoma has the richest variety of metal jewellery of any known contemporary site in southern Africa. There are rich deposits of iron ore at Shakawe and of copper ore in the Khwebe Hills which may be sources of some of the Nqoma metal, but microscopic analyses suggest that at least one high phosphate copper source must be distant, possibly in Shaba, Zaire, and/or Palaborwa in the Northern Province of South Africa, suggesting long distance trading links.

Left: Pottery dating to AD 980 recovered from Nqoma.
Right: Burial of a 15 year old girl at Nqoma.



For such a rich site in terms of iron-working, particularly in terms of ornaments, it is surprising that only 659 ostrich eggshell beads were recovered from the excavations. These numbers indicate that Nqoma people, like the Divuyu community before them, chose to decorate their bodies and their clothing far more often with metal than with the readily available ostrich eggshell, perhaps as a way to distinguish themselves from those occupying the nearby rock shelters and in lower social positions. Social stratification, displayed through expensive jewellery, is clearly evident at Tsodilo.

The contrast between Ngamiland Iron Age sites and Bosutswe north of Serowe in eastern Botswana in terms of materials used for body decoration is striking. Furthermore, it suggests that, not only were some Ngamiland communities such as Nqoma wealthy in metal work, but that possession

and display of metal ornaments and jewellery may also have possessed an ideological valence that both structured and reinforced hegemonic differences between these communities. Nevertheless, the impression is gained that the relationship between forager and farmer was more informal in the west than in the east.



Other items of body decoration include cane glass beads and cowrie shells from the Indian Ocean trade.

These not only provide firm additional evidence that

Nqoma had active trade links to the relatively nearby Okavango/ Zambezi region, but that it was also a dominant centre in intercontinental trade networks extending from the east coast by the 9th century.

Trade

The material culture in the black-

smith area at Nqoma includes more than 30 backed blades and several hundred chert flakes. The chert inventory is particularly important because it may link stone using, probably Khoisan speaking peoples to metal-working, which was introduced to the region by Bantu speakers. Of the 135 formal stone tools recovered from the excavations at Nqoma, the vast majority (110) are sharp-edged backed segments used for cutting or piercing organic matter. They may have been used either to hunt some of the game brought to the site or to process the meat there. The focus on cutting and piercing functions of stone tools contrasts with what has been found in nearby rock shelters occupied at the same time. At these locations, the proportion of scrapers in the lithic assemblage is so large that it suggests that people may have been processing hides not simply for personal use, but for exchange with Nqoma or other Iron Age settlements. All this suggests an active interaction with Khoisan hunter-gatherers, with the latter probably in a subservient role, unlike during the Divuyu period. It is also of interest to note the cache of chert blocks

found at Bosutswe, suggesting that much of the Kalahari trade in lithic raw material was being controlled by emerging political centres some 600 kilometres to the east of Tsodilo.

The source of this wealth could have been cattle but the area is not particularly good ranching country. It is more likely that this wealth was from mining specularite. More than 20 shafts, some of them quite deep, are testament to large scale mining of this cosmetic stone at the time of Nqoma. Specularite is prized as a glitter stone and is mixed with fat and placed on the body and hair. This would have been traded for various commodities, including metal jewellery.

Social, Political and Religious Organization

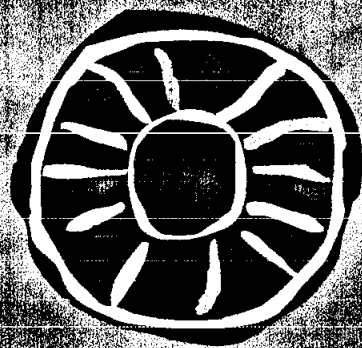
The Iron Age settlement, in particular of Nqoma, defies settlement patterns in the rest of Botswana and indeed most of the southern Africa cattle-based cultures. Eastern Botswana has generally been taken to provide

Left: Footprints left by eland, as described in a local creation story, on the Rhino Trail, *Female*.

Years ago, when water was at Tsodilo, people left their footprints while it was wet. The footprints did not fade because it was God's doing. These and the pictures were made by God to show his existence to us. We climb the *Female* as there is water and drawings there. We call it *Female* because we know that a female is kinder than a male. ”

Moruti Sennyé

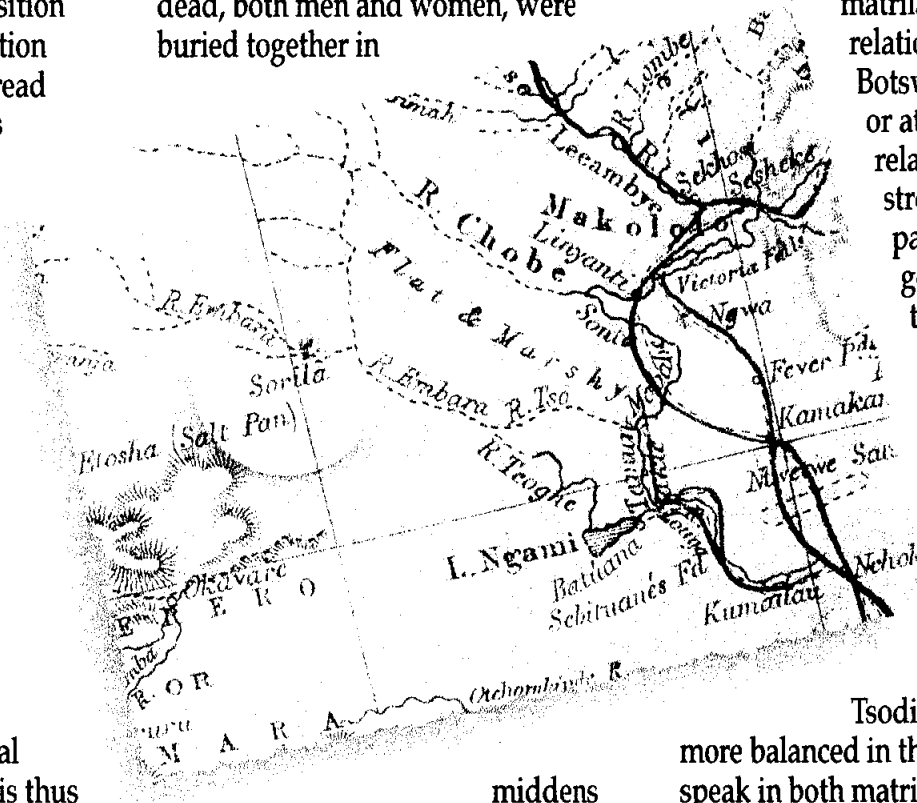
Moruti Sennyé was born in 1944 at Serenje. He was recently appointed Chief for Chobumbe, a small settlement 40km west of Tsodilo.



models of such 'cattle complex' settlements, e.g., Toutswe Mogala. Spatial organisation of such settlements comprises a central area, taken up by a large cattle kraal in which men are buried in a flexed position on their side (in part this position may be related to the widespread Bantu concepts of the earth as a womb through which ancestors are reborn into the land of the dead). The central area was surrounded by open, public spaces into which the courtyards of homesteads opened. In the domestic space surrounding the cattle kraal is where women and children were usually buried. Public granaries were in the area inside or adjacent to this peripheral area.

The cattle kraal with its central deposition of male ancestors is thus a spatial expression of hegemonic processes through which rights of social affiliation, inheritance and descent were negotiated and brought under increasing patrilineal control. Cattle wealth was an important factor in this process.

Yet Divuyu and Nqoma do not appear to share this spatial structure, despite the large number of cattle and small stock known to have been kept. There are no central kraals, while the dead, both men and women, were buried together in



middens located outside the village proper. This is more similar to the spatial patterning of villages in the 'matrilineal belt' of central Africa where cemeteries containing both men and women are usually located on the outskirts of villages, in the

'mediating' ground between village and forest, culture and nature. Such contrasts in settlement layout may indicate that there was more symmetry between agnatic and matrilineal social relations in northern Botswana at this time, or at least that these relations were not as strongly overlain by patrilineal hegemony as appears to have been the case at Toutswe and other 'cattle complex' sites in southern Africa. Extending Comaroff's (1986) interpretation, the ancestors at

Tsodilo may have been more balanced in their ability to speak in both matrilineal and agnatic idioms. As a result, their burials were not as spatially segregated along gender lines and were placed at the edge of the village where they could mediate between the community and nature, rather than to reinforce through spatial centrality the ascend-

ancy of patrilineal ties.

These very rich elements of Tsodilo Iron Age culture continued well into the 13th century when Nqoma declined possibly because of drought or even wars. The possibility of the latter cause is based on the fact that there was a challenge from the dominant centres of the eastern hardveld country, namely from Toutswe Mogala and Bosutswe, which extended their economic interest into the western sandveld in order to control the flow of trade to and from the east coast. From archaeological evidence it is evident that, after this time, no durable exotic objects seem to have entered the Tsodilo region until the effects of the European trade on the Atlantic coast began to be felt in 18th century. However, Tsodilo was now very much on the frontier of this new Portuguese based Kongo - Angola trade.

Consistent with their versatility, a characteristic already reflected in the LSA and MSA Tsodilo communities, the Tsodilo adapted to the new scenario. Their pottery changed to be characterised by a very high

proportion of calcrete and bone-tempered vessels, several of which resemble the Okavango/Hambukushu types with vertical, thickened rims decorated with incised crosshatching. Others recall the coarser pottery made by San at this time.

The arrival of the Hambukushu in 19th century introduces the last phase of the cultural traditions of Tsodilo. Small communities of Hambukushu and !Kung are resident at Tsodilo. They too are part of that Tsodilo tradition of continuity and change. MSA – LSA –farmer/forager– Hambukushu/!Kung, these are but phases in a linear progression whose common denominator is Tsodilo, the locus, symbol of stability and ability to change new phenomena and elements and be changed by them. Therein lies the universal significance of Tsodilo which, though small in geographical extent, has within it the imprints of 100 000 years of Tsodilo tradition.

The Historical and Contemporary Period

The earliest known written reference

on Tsodilo comes from a map by John Arrowsmith, dated 1857 that shows the routes of Livingstone between 1849 and 1856 (Livingstone 1858:733). The map represents information Livingstone collected during his travels and explorations of Africa from 1849 to 1856. On the map an elevated area named Sorila can be found near where Tsodilo is located. There is no direct reference of Livingstone ever seeing Sorila (Tsodilo) but he did reach Lake Ngami, some 200 kilometres south-southwest of Tsodilo, in 1849 and may have heard of the location of Tsodilo from locals or perhaps other hunters and explorers. Later in 1898 the geologist, Siegfried Passarge, visited Tsodilo and in 1907 published reproductions of some of the rock paintings found there in *Die Buschmänner der Kalahari*. These are the earliest copies of the Tsodilo art.

Schwarz in *The Kalahari and its Native Races* mentions the Tchorilo Hills and locates them south of the Okavango and describes them as made of dolomite and quartzite (Schwarz 1928:49). He does not write that he visited Tchorilo but on a map of Ngamiland he shows Tchorilo located

where Tsodilo is today (Schwarz 1928:14). According to the legend on the map, it is based on the maps of Passarge (1904) and Stigand (1923) (Schwarz 1928).

The next person to visit and write about Tsodilo was Frederic Balsan, who published books and articles in French. One book, *Capricorn Road*, was translated into English. There he describes some of the paintings and includes some comments by Abbe Breuil, who ventured opinions on the age of some of the art.

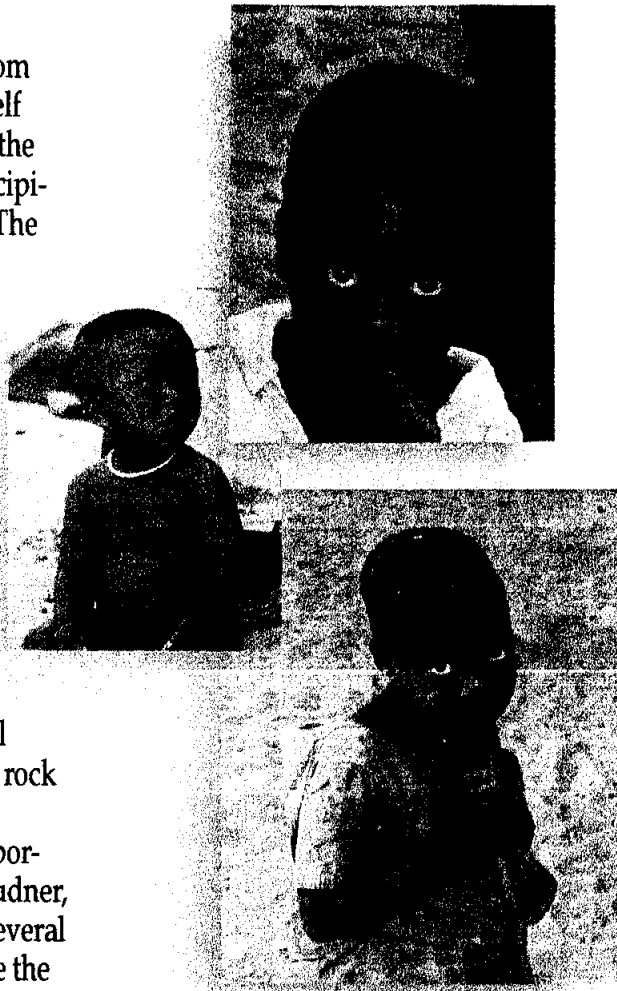
In 1955 when Laurens van der Post visited Tsodilo he was very impressed by the great spiritual reverence shown to Tsodilo by his companion and guide, Samutchoso. He credits the name Tsodilo to 'the Bushmen', the translation for which he gives as 'Slippery Hills' (van der Post 1958:9).

According to Campbell and Coulson

Left: Portion of a map by John Arrowsmith, from 1857, showing Livingstone's route through Ngamiland. Note the spelling of Tsodilo as 'Sorila' (Livingstone 1858).
 Right from top: Further Arrowsmith etchings from 1857 depicting Ngamiland scenes (Livingstone 1858).



(1988:12) Tsodilo is not the hills original name, but is derived from Sorile, their Setswana name, itself taken from other languages. To the Hambukushu they are 'The Precipitous Rocks', and to the !Kung, 'The Bracelet of Shining Copper' or 'The Bracelet of the Sunset.' On the west side of *Female*, at sunset, one can readily see where the last two names come from when, for a moment, the rocks take on a bright glowing copper hue and then fade to a dark rust colour just before dusk.



These early trips inspired several expeditions to go and record the rock art, but most results were never published. Perhaps the most important of these visitors was Ione Rudner, who published her findings in several articles (e.g., Rudner 1965). Since the 1980s, the Botswana National Museum has organized several surveys resulting in syntheses (e.g., Campbell et al. 1984, 1994).

The two ethnic groups, the click or Khoisan speaking !Kung and the Hambukushu, who are Bantu speak-

ing, live at Tsodilo today in separate villages. They are descendants of people who settled at Tsodilo in about 1860. However, they did not move into an empty land. Upon their arrival, they encountered another San

group called the N/hae. As with the !Kung, the Hambukushu were accepted cordially at Tsodilo by the N/hae. They made a village at Tsodilo and began to intermarry with the N/hae. The latter led a very similar life style to the Hambukushu, who initially grew neither crops nor owned livestock. They survived primarily by hunting and gathering (Barnard 1992:57).

After settling at Tsodilo, the Hambukushu began trading with the Bayei on the western fringes of the Okavango Delta. Trading relationships were soon formed in which the Hambukushu made regular visits to the Bayei to trade skins, especially duiker skins and other animal products in return for tobacco, cannabis and agricultural produce. Even though the Hambukushu later developed good relations with the Batawana and started paying tribute to Sekgoma Letsholathebe, the Batawana chief, they never abandoned Tsodilo (Nettleton 1934:360)

When the Hambukushu and the !Kung started living alongside one another with the N/hae at Tsodilo, a strong history of association devel-

oped between the groups. Their intermingling is demonstrated by name borrowing between the three groups and this was confirmed by the traveller Passarge.

The Hambukushu cleared fields to the western side of the *Female* which were surrounded by a dense thorn fence, in which several openings were left. In these gaps they dug pits that were covered over and disguised with branches. Animals attempting to enter the fields to graze were thus killed. The remains of these pits are still visible today.

The !Kung at Tsodilo today trace their ancestry back to the Nxauxau/ Qangwa regions where they still have relatives. The San groups were forced into servitude by Batawana and very brutal methods were used. Survivors like the !Kung fled to Tsodilo. The !Kung were probably already familiar with the N/hae at Tsodilo. This could have been through sharing of hunting areas as well as intermarriage. At first the !Kung did not settle at Tsodilo permanently. They often migrated around pans in the region and were at Tsodilo during winter for water and the abundant seasonal

wild fruit such as the mongongo nut.

The Hambukushu stand out as the most prominent inhabitants of Tsodilo today. According to Gibbons, an early traveller during the 18th century, Hambukushu rulers along the Okavango subjugated their people and sold many of them into slavery (to slave traders in Angola). Many families therefore fled southward and, after wandering in present day Ngamiland for some time, some finally settled at Tsodilo and made their village on the western side of *Female*. The Tsodilo Hambukushu trace their family tree back to their powerful chief Mbungu and his successor Kathimana. They are a matrilineal society.

At some point, tensions began to increase between the !Kung and N/hae at Tsodilo. It is not clear what led to this. Sources indicate, though, that this could have been due to fear of the lethal arrow poison used by the former and low yielding water sources at Tsodilo. The N/hae finally left Tsodilo in the mid 19th century. Descendant of the N/hae now live along the Okavango River. Therefore, only the !Kung and Hambukushu

remained at Tsodilo.

The larger village is that of the Hambukushu which has a resident population of about 160. The !Kung village has a population of about 40. Each village comprises elderly leaders and their extended families. The headman of the Hambukushu is recognized by the paramount chief of the Batawana in Maun as the spokesman for both groups and he deals with various issues at kgotla (public court) meetings.

c) Form and date of most recent records of property

During a 24 month period covering 1994-6, rock art sites, rock engravings, mines and other archaeological sites at Tsodilo were recorded by Botswana National Museum staff. Recording involved locating sites on a base map, making sketches of the rock faces on which the art appeared, dividing the rock art into approximate metre-square panels and photographing individual images and panels using Kodachrome 64 film. The sites were photographed using two perspectives. One looking in at the art and the other looking out from

the art. Site forms were used to record details of each site listing its nature, colour, direction facing, association, size, etc.. Examples of the form used can be found in Appendix 6.

Four hundred and two sites were recorded at Tsodilo including some 4 000 rock paintings, more than 2 000 rock engravings and 22 mines. Five known sites remain to be recorded and at least 50 more sites may be discovered in future. The original records and slides are on file at the Botswana National Museum, Gaborone.

In 1999 Michael Murphy was awarded a doctorate by Michigan State University. His thesis is titled 'Changing Human Behavior: The Contribution of the White Painting Shelter to an Understanding of Changing Lithic Reduction, Raw Material Exchange, and Hunter Gatherer Mobility in the Interior Regions of Southern Africa during the Middle and the early Late Stone Age.' This unpublished thesis

Left and Right: The faces of Tsodilo, from both the Hambukushu and !Kung villages.



describes excavations at White Paintings Shelter and provides 104 tables listing the recovered faunal remains, sherds, metal pieces, egg shell beads, etc..

Additional publications concerning research at Tsodilo can be found in the accompanying bibliography.

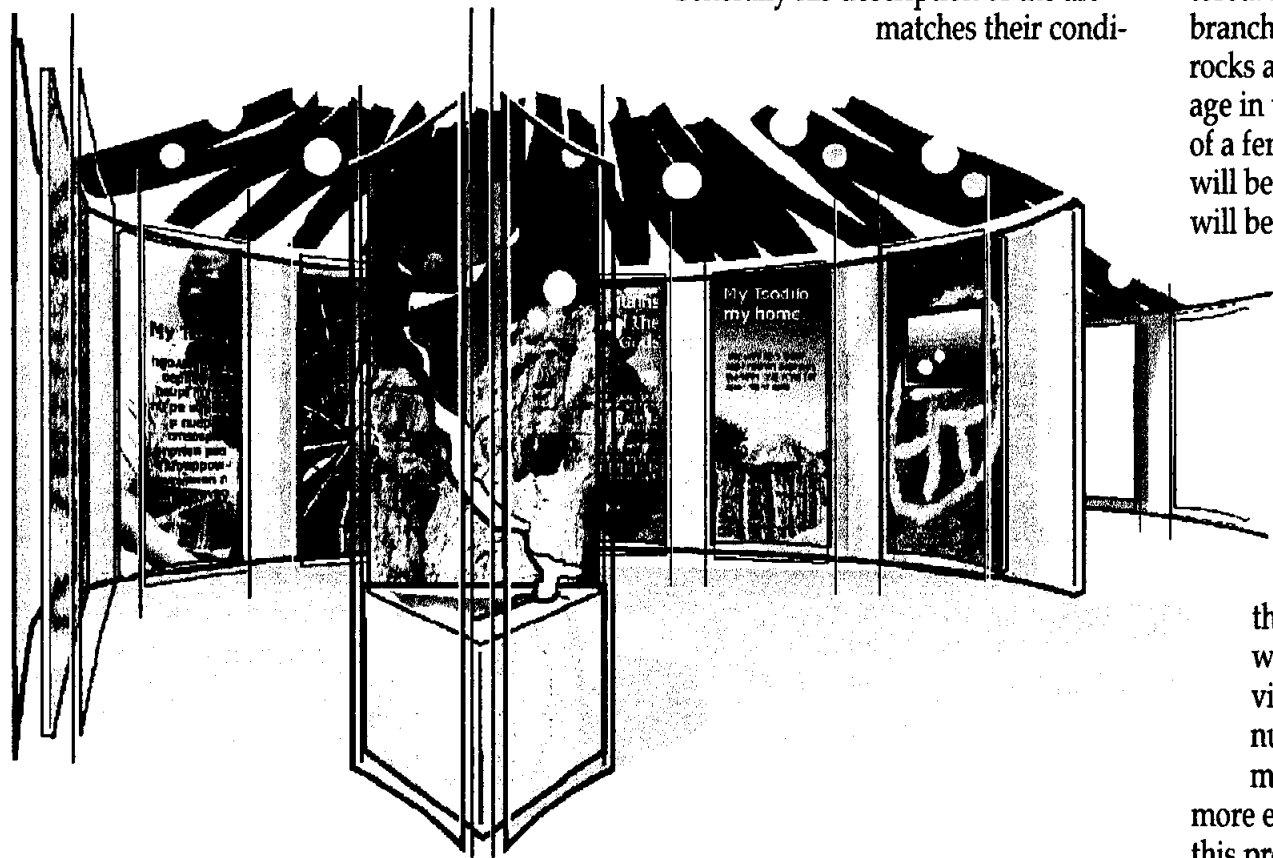
d) Present state of conservation

Flora and Fauna

Probably due to Tsodilo's remoteness and the area's very low population density, Tsodilo's flora is intact. Mongongo trees still furnish food in the form of nutritious nuts and the baobab is a prominent feature on the landscape. Many plants with traditional uses thrive and their fruits, leaves, roots, etc., are still gathered by local villagers, as has been the case for many years. Fauna, on the other hand, has suffered

declines because of drought. However, during the rainy season, gemsbok, elephant and zebra visit the area.

Rock Art



The rock art at Tsodilo is quite durable as the stone that it is painted on is hard and stable and the exfoliation rate of the stone is low. The earliest

known European recording of the rock art at Tsodilo is that by Passarge (1907) who conducted geological investigations in northwest Botswana in the later part of the 19th century. Generally his description of the art matches their condi-

Natural processes as well as human activities are monitored. Natural degradation of rock art such as exfoliation and seepage is a continuous process that can only be monitored. However, natural process like branches or animals rubbing against rocks art paintings has caused damage in the past. With the construction of a fence around the site, livestock will be kept out and trees and bushes will be cut back away from the rock art.

Wasps and swallows occasionally make their nests over the paintings and droppings sometimes flow down the panels.

Visitors pose the greatest threat to the art and the threat will increase as the number of visitors increase. The increased number of staff at the new museum complex coupled with more efficient management will offset this problem.

tion today, more than 90 years later, proof of the slow process of weathering.

To date most vandalism has been the use of charcoal or felt tipped pens to draw on the paintings. As graffiti seems to attract more graffiti, it will

be removed as soon as feasible from rock paintings and baobabs. Some graffiti using charcoal and felt tipped pens has already been successfully removed by museum staff. Scratching of paintings has been minimal and has been rendered less visible by the use of staining using ochre to blend the damage into the naturally weathered surface. The most serious vandalism was in the form of chipping off paint and scratching eyes or glasses on the faces of some of the animals on the Rhino Trail. Fearing copycat damage, the Botswana National Museum first traced the vandalised panel and then matched the lost pigment, restoring the damaged parts with red and yellow haematite/ochre blends. A control patch was sited nearby. This panel is monitored regularly.

Monitoring of all the sites is an ongoing process carried out as part of the daily exercise of escorting visitors around the site. A system of checking more remote paintings that are not normally encountered will be put in place.

In the long term the Botswana National Museum will be conducting

analyses of the various pigment ingredients and will attempt to date some of the art in order to understand its nature and the rate of deterioration. Indeed further research needs to be done on all the art to facilitate a better understanding of this remarkable heritage.

Above all, Tsodilo is a Conservation Area and its conservation holds top priority. The major concerns are protecting rock art and other archaeological remains, as well as maintaining Tsodilo's floral and faunal biodiversity.

e) Policies and programmes relating to the presentation and promotion of the property

The Tsodilo Management Plan (Appendix 2) recognizes that people have the right to learn about, appreciate and enjoy their heritage, but not to the extent that such appreciation and enjoyment damages the heritage which should be passed down, unblemished, to future generations. Thus the Management Plan provides maximum benefits to as

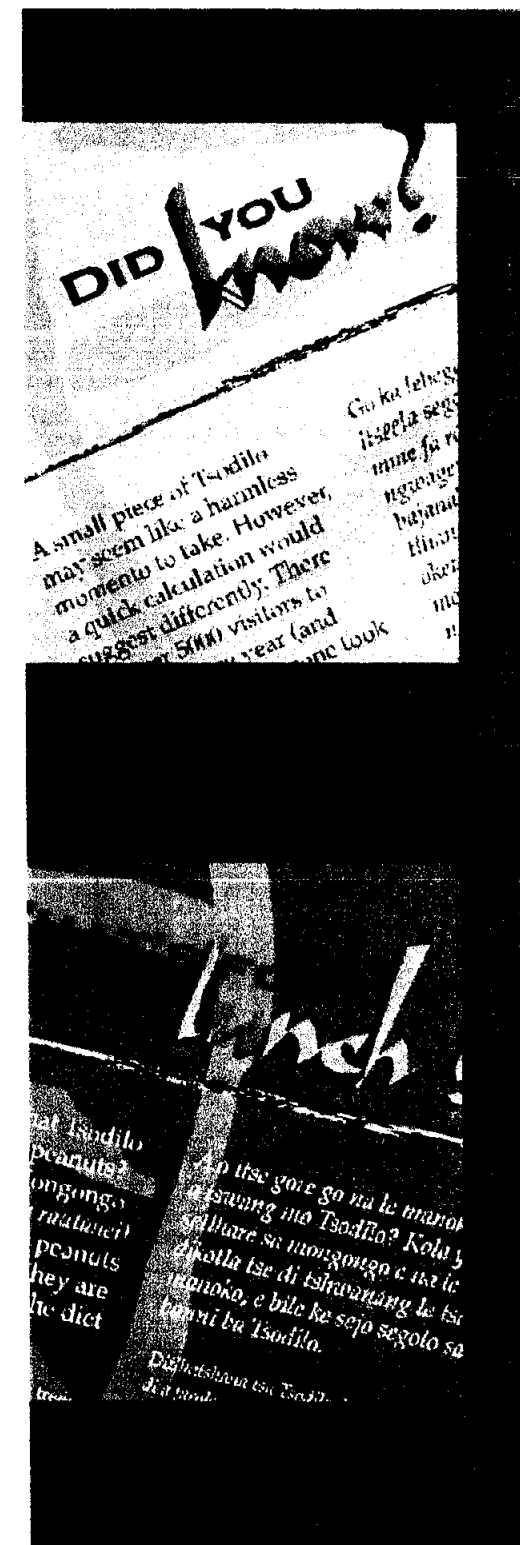
many people as possible while ensuring that every care is taken to enhance the enjoyment by future visitors. This means controlling, or even restricting activities, constantly monitoring what is happening in the monument, and taking appropriate action in good time whenever any deterioration is anticipated.

National Development Plans 1997/98 and 2002/03, place emphasis on developing cultural resources to contribute towards the expansion of the tourism sector. It estimates that 30 000 tourists visit historical sites and monuments throughout the country per year. The 1998 statistical data shows 3 698 people visited Tsodilo in that year.

The Department of Tourism will play an active role in defining the policies relating to the presentation and promotion of the property. This will be done through the Tourism Policy statement of 1990 and the Tourism Act

Left: Concept drawing for exhibitions at the Tsodilo Museum.

Right: Tsodilo Museum's exhibitions outline natural history, archaeology, ethnology as well as caring for the site, presented in English and Setswana.



of 1992. The Tourism policy seeks to:

- a) give the tourism industry due prominence.
- b) explore the potential of the industry because it is regarded as the possible significant economic activity in many parts of the economy and the country; and
- c) ensure that Botswana benefit from tourism.

The Tourism Act of 1992, makes provisions for regulating the tourist industry with a view to promoting its development and well being.

There is also the Monuments and Relics Act of 1970 which provides for better preservation and protection of ancient monuments, ancient workings, relics and other objects of aesthetic, archaeological, historical or scientific value or interest and for other matters connected therewith.

Botswana National Museum policy is to promote the heritage at Tsodilo for Botswana and tourists. Currently, a museum complex is near completion and adequate campsites are provided. The development of Tsodilo's public image has also been included in the

Botswana National Museum's larger plan for increasing its community and corporate profile as detailed in the National Museum's publication *Visual Design Manual* (Melenhorst 2000, b). This includes a signage system for the site which is recognizable as part of a larger system of signage for all National Monuments as well as the development of a specific Tsodilo logo and phrase 'Mountain of the Gods' which will be featured on all published and promotional materials, e.g., posters, brochures, tourism items, etc.

As well, the Botswana National Museum's ongoing educational programmes, including the Mobile Museum (*Pitse ya Naga*) will implement an ongoing Tsodilo and World Heritage awareness programme amongst the region's and wider Botswana's schools.

Right: The logo for Tsodilo is the cornerstone of public programmes that will continue to be run throughout the country promoting the world heritage nomination.

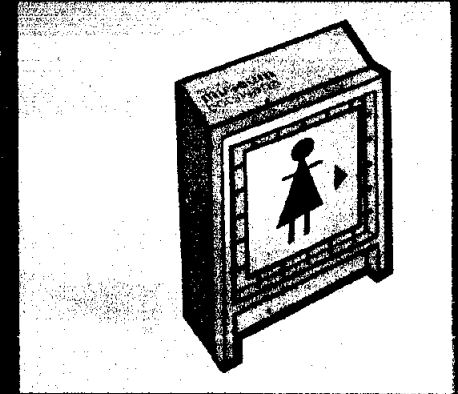


- a. Ownership. p.68
- b. Legal status. p.68
- c. Protective measures and means of implementing them. p.68
- d. Agency/agencies with management authority p.69
- e. Level at which management is exercised. Name and address of person responsible. p.72



4. Management

- f. Agreed plans related to property. p.72
- g. Sources and levels of finance. p.73
- h. Sources of expertise and training in conservation and management techniques. p.73
- i. Visitor facilities and statistics. p.74
- j. Property management plan and statement of objectives. p.74
- k. Staffing levels (professional, technical, maintenance). p.75



a. Ownership

i) Owner:

Government of Botswana

ii) Control:

Tawana Land Board

Box 134

Maun

iii) Management:

Botswana National Museum

Private Bag 00114

331 Independence Avenue

Gaborone, Botswana

b. Legal Status

The area nominated for inclusion in the World Heritage List is state land under control of the Tawana Land Board. A lease is being prepared (Appendix 9) leasing the area of the buffer zone and core zone to the Botswana National Museum by Tawana Land Board. The leased land consists of a core zone 4 kilometres by 12 kilometres or 4 800 hectares that will be fenced in and a buffer zone consisting of a rectangular section of land that extends from the centre of the site 22 kilometres east/ west and 32 kilometres north/ south or

70 400 square hectares. Strict controls are in place in the core zone, as described by the Management Plan (Appendix 2), to protect archaeological sites, wildlife and vegetation.

Under terms of the lease, building and development in the buffer zone will be controlled by the Botswana National Museum to prevent unwanted encroachment, but all attempts will be



made to facilitate the orderly development of the existing communities within national development parameters.

Tsodilo is subject to a number of legislative mechanisms that protect the area. Tsodilo is a National Monument

protected under the Monuments and Relics Act of 1970 (Chapter 59:03) (Appendix 7). The act provides for preservation and protection of ancient monuments, ancient relics and other objects of aesthetic, archaeological, historical or scientific value, or interest and other matters connected therewith. Section 17 9(1) provides that no person shall without consent of the Minister given after consultation with the Commissioner:

i) make any alterations to, or destroy or damage;

ii) or move or allow to be removed from its original state or export or allow to be exported from Botswana, any national monument, ancient monument, ancient working or relic or any part thereof.

An amendment to the Act has been submitted to parliament. Under the revised act, museum staff will be gazetted Honorary Officers so that they can take action when they suspect the law is being broken particularly in the core area. Regulations are in place to control activities within the monument area such as entry, camping, visitor access to sites, removal of plants, litter,

sale of curios, employment of guides, etc..

Anthropological Research Act of 1967 — Makes it illegal to invade the privacy and dignity of people being researched.

National Parks Act of 1967 — Protects Botswana's wildlife and seeks to prevent species from becoming endangered or extinct.

Tribal Act of 1968 — Safeguards traditional access to land.

The National Conservation Strategy Coordinating Agency deals with conservation methods such as those that will affect Tsodilo.

c. Protective measures and means of implementing them

The Management Plan for Tsodilo addresses issues of protection and implementation. Several measures for protecting the property have been taken. There are also means of implementing them.

An area consisting of the Tsodilo museum complex, camping grounds

and the inselbergs will be fenced to control access to the site and to prevent livestock from entering. Paid National Museum custodians, Guides, the Tsodilo Manager and the Regional Monuments Officer will closely monitor the fence. The fence is there in order to control visitors and prevent livestock from entering the core area.

There are also designated walking trails which control tourist movements. Some of the developed trails are Rhino, Cliff, Lion, Water Hole, Elephant, Divuyu and Male Trails. Since a large degree of protection is necessary, a lot of attention is paid to these trails, both in the way they are presented to the public and their general maintenance. Trails have been given names to distinguish them from each other. There are two types of trails: one for which a guide is not necessary, although not excluded if tourists so want: and one for which a guide is essential and on which tourists will not be allowed to venture without a guide. These are called 'Free trails' and 'Guided trails' respectively.

There are also designated campsites

at Tsodilo. These campsites are situated where there are large trees and should remain as natural as possible. They are marked by signboards with the campsite's name.

d. Agencies with management authority

Museum Management

The buffer zone is managed jointly by the Land Board and the Botswana National Museum, while the core zone is managed exclusively by the Botswana National Museum. The buffer zone is surrounded by an even larger area designated as mixed farming, cattle trek routes, livestock development, arable farming and gathering, and livestock development with fencing allowed. Activities in this area are controlled essentially by the Land Board, Tribal Council and the Ministry of Local Government, who liaise with the Botswana National Museum on development issues. Apart from the restricted hunting rights of the residents, no hunting is allowed in this area, which is expected to become a wildlife sanctuary.

The Tsodilo Site Museum Manager will be responsible for the day to day management of the property.

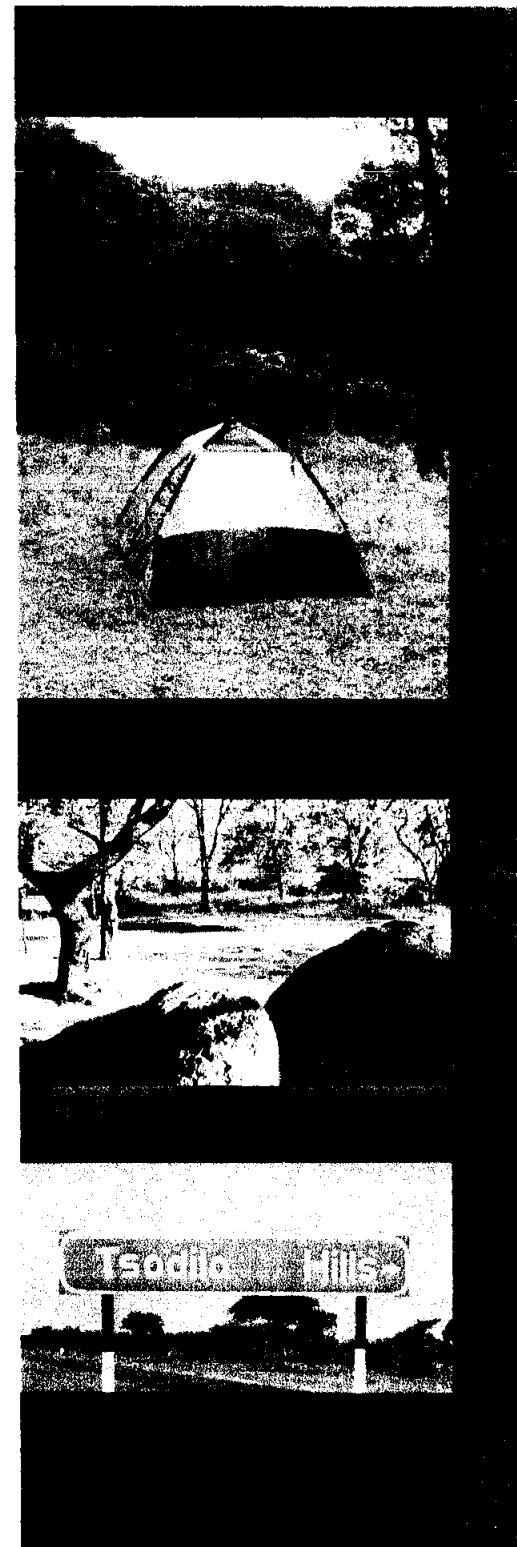
Community Empowerment

Whilst the National Museum maintains formal management of the site, it is imperative to ensure the participation of the local communities.

Within the buffer zone there are two communities, the Hambukushu and !Kung. They have occupied the area since about 1860 and, under the terms of the Tribal Land Act, they have traditional rights to the land. They will retain their hunting, gathering and pastoral farming rights in the buffer zone and will have gathering and spiritual access to the core area.

A Tsodilo Community Liaison Committee consisting of eight members (four from each village) and representatives from the National Museum meet regularly. The purpose of this committee is to ensure harmonious

*Left : View towards Male from the !Kung village.
Right from top: Camping at Mokoba I and Main Cave on Female; signage at Sepopa, 40km to the east.
Overleaf: Tsodilo's villages and villagers.*







cooperation between the two communities and the National Museum. Discussions focus on subjects such as:

- developments of a craft cooperative
- transporting visitors within the site
- efficient guiding service
- cultural heritage demonstrations
- rubbish disposal
- village supply of foodstuffs

As well, consultations have been held with all communities in the area concerning the nomination of Tsodilo as a World Heritage Site. Public meetings were held at Tsodilo, Chukumuchu, Shakawe, Sepopa and Nxamasere. The communities are supportive about prospects of a world heritage listing for Tsodilo. Various stakeholders in the area such as the Land Board, District Council, Tribal authorities and Department of Tourism also support the nomination. The consultative process will continue in the future with more public meetings.

The following agencies also have responsibilities for the management of tourism resources in Botswana:

i) Department of Tourism

Private bag 0047, Gaborone.
Tel. No: +00267 353024
Fax + 00267 308675

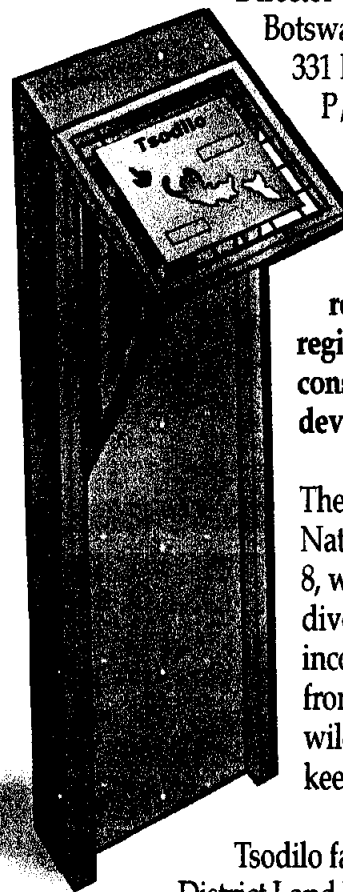
ii) Department of Wildlife and National Parks
Box 131, Gaborone
Tel. + 00267 371405
Fax + 00267 312354

e. Level at which management is exercised (e.g., on site, regional) and the name and address of responsible person for contact purposes

At the site the Botswana National Museum Tsodilo staff will be managing the site on a daily basis. The Site Manager will be in charge of the day to day management of the monument. Museum assistants and custodians will fill other posts. The Regional Monuments Officer for the North West will also supervise the Manager. Regionally the site is managed by the Botswana

National Museum on behalf of the Ministry of Labour and Home Affairs. The name and address of responsible person for contact purposes is:

Director
Botswana National Museum
331 Independence Avenue
P/Bag 00114
Gaborone, Botswana



f. Agreed plans related to property (e.g., regional plan, local plan, conservation plan, tourism development plan)

The area is covered by the National Development Plan 8, which advocates for diverse ways of generating incomes that are different from the traditional areas of wildlife tourism, cattle keeping and mining.

Tsodilo falls under Ngamiland District Land Use and Development Plan in Zone 6 for the Okavango Sub District (1994). Extensive consultations were held with local communities in order to discuss various developments

and come to a land use and development plan for each village area. This plan seeks to ensure that:

- i) Natural resources are used in a sustainable manner;
- ii) The resource base is diversified;
- iii) Food security at household level, especially for the most marginalised households is improved;
- iv) employment and income generation have increased.

The Land Use and Development Plan WCRZ was approved by the Tawana Land Board on the 9 February 1993 and subsequently accepted by the North West District Council on the 25 August 1993.

The National Conservation Strategy's (NCS) Government white paper No.1 of 1990 also has some implications for the Tsodilo project. NCS is an attempt to coordinate the concerted efforts of both government and private organizations to conserve Botswana's natural resources. It further recognizes the fact that many development pressures being experienced have harmful environmental impacts. The NCS also identifies pressures on wildlife, heritage and cultural resources.

Tourism policy (Government white paper No.2 of 1990) seeks to obtain from tourism resources of the country, on a sustainable basis, the greatest possible socioeconomic benefits for Botswana.

Tsodilo Development Committee consisting of various government departments and NGOs will continue to review the project on an annual basis and update it when necessary. The committee consists of the following: Botswana National Museum, Department of Tourism, Department of Wildlife and National Parks, Department of Architecture and Building Services and Local Authorities, Land Board, Kalahari Conservation Society and University of Botswana.

g. Sources and levels of finance

The Botswana Government has realised that cultural tourism has become one of the country's engines of growth and a contributor to economic diversification. It has committed financial resources to tap this resource. Government is currently spending about US\$620 000 in the construction of the Tsodilo Museum Complex. A

further US\$31 000 has been allocated towards installation of an exhibition at Tsodilo. About US\$2 000 is allocated annually to the Tsodilo project for hiring casual labourers. Where possible the local community is the first to be employed. The Botswana National Museum has a recurrent budget of over US\$16 000 specifically for Tsodilo. This excludes administrative costs.

The Museum has employed a Site Manager, two Senior Museum Assistants and two Custodians specifically for the Tsodilo project. A Regional Monuments Officer for the North West has also been employed. Tsodilo is one of the monuments that fall under the jurisdiction of this officer.

In future, funds will be committed towards the following:

- upgrading of Sepopa to Tsodilo access road;
- maintenance of camp sites;
- installation of sign boards;
- erection of a fence at Tsodilo;
- construction of a literature and craft shop;
- construction of a weather station;
- construction of lecture area;
- introduction of more conservation

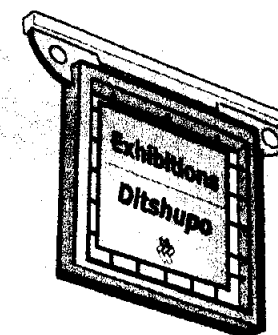
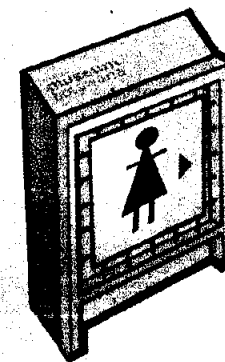
programmes;

- research;
- preservation of rock art;
- provision of additional equipment.

h. Sources and levels of training in conservation and management techniques

Botswana National Museum has professional staff that have been trained and have the skills to manage the property. There are specialists in Archaeology, Natural History, Ethnology, Art, Library, Technical Services, Education and Administration. One person has been trained in rock art management. Other sources of expertise already exist at the University of Botswana in the form of professors and researchers in the fields of Archaeology, Geology and Environmental Science. The university offers courses in Museum Studies and Archaeology.

Left and right: The Botswana National Museum's new signage system for Tsodilo will also be implemented at National Monuments throughout Botswana.



i) Visitor facilities and statistics

A number of issues are addressed in the Management Plan concerning facilities for visitors.

The Management Plan recognises that the future of the monument depends largely on keeping the area in as pristine condition as possible. The site will be managed in such a way that the cultural and natural heritage is conserved. A brochure on Tsodilo has already been made. The brochure introduces the visitor to Tsodilo and gives an interpretative explanation. Pamphlets will be issued free and will be issued for each walking trail. A small guide will be prepared giving an overview of the monument. A set of post cards on the Monument will also be produced.

A Museum complex with an interpretation centre (display area) is under construction and will be completed by July 2000. The display area will have information about Tsodilo, natural history and archaeology, and the resident communities will be very important as a means of interpreting the Monument.

Clearly marked campsites are provided. All campsites will be regularly inspected to ensure that they are kept clean. Grass will be cleared around the campsites when necessary.

There will be no restaurant or refreshment facilities provided in the core area. Visitors will be free to buy supplies from local villages.

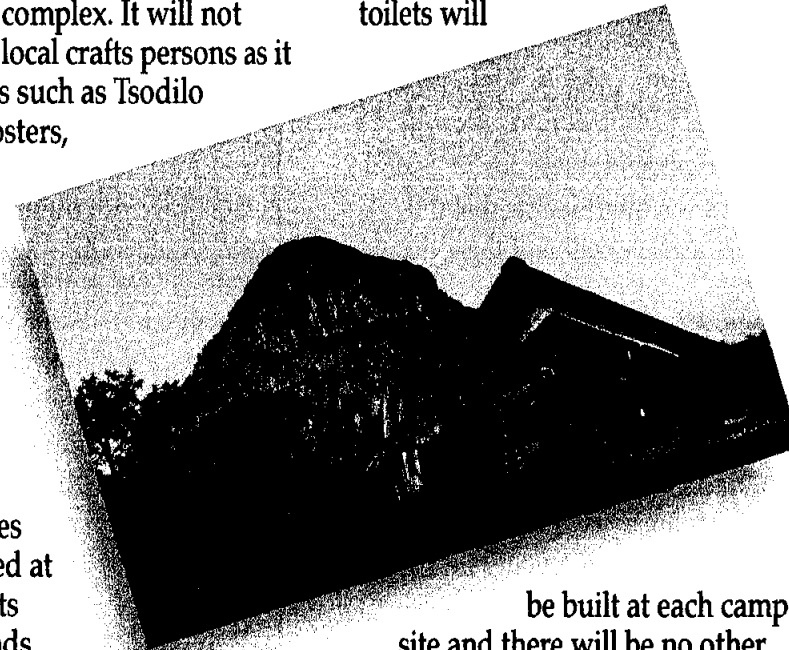
A curio shop has been constructed in the Museum complex. It will not conflict with local crafts persons as it will sell items such as Tsodilo postcards, posters, books, T-shirts, etc.. This will encourage local communities to sell crafts items.

Parking places will be needed at various points along the roads where visitors can leave their vehicles while walking trails. There will be parking at the following locations.

- Entrance Gate (outside and inside)
- At the north end of *Female Road* where it turns left to afford entry to the North Camp.
- At the Headquarters near the Site Museum.

Parking places will be cleared and signposted.

There are male and female ablution blocks at the Museum. In the future, toilets will



be built at each campsite and there will be no other construction. Toilets will be constructed on the west side of the camps and will be concealed as far as possible by the thick bush.

Museum staff will be trained in basic search and rescue techniques and first aid. The local communities know the area very well and will assist in searching for lost people under the supervision of museum staff.

Previous statistical data concerning visitors to Tsodilo are fragmentary. The most accurate records are from 1998 and they show 3 698 people visiting Tsodilo in that year. New forms are being designed and procedures put in place to collect visitor information

Of the Batswana visitors to Tsodilo, most come for spiritual reasons. Museum personnel are aware of the spiritual significance to many different and diverse persons and all efforts will be undertaken to make Tsodilo available for religious practices.

j. Site Management Plan and Statement of Objectives

A comprehensive Management Plan entitled *Tsodilo Hills Management Plan: Scheme for Implementation* (Campbell 1994) was completed in 1994 through a grant from the Folkens Museum,

Stockholm and contains the following chapters:

- 1. Introduction
- 2. Background
- 3. General Premises
- 4. Implementing the Plan
- 5. Development
- 6. Administration
- 7. Tourist Control
- 8. Research
- 9. Care of Rock Art
- 10. Equipment
- 11. Appendices

Professor Pierre de Maret evaluated the Management Plan for UNESCO and the Botswana National Museum (August 1995). In his evaluation Professor Maret wrote the following:

In order to protect, research and develop the site, the Botswana National Museum has formed an Advisory Committee and prepared an Interim Management Plan, supported by a Scheme for Implementation. These documents are among the very best of their kind produced south of the Sahara to date. They are both thorough and very practical (de Maret 1995).

Portions of the plan have been implemented, e.g., training of guides, delineation of trails, establishment of a core and buffer area. Presently a small museum, ablution blocks, staff quarters and a gate house are being constructed and are scheduled for completion by June 2000. Two Botswana National Museum staff members are on site now to monitor visitors, act as guides, monitor construction and maintain communications with Museum headquarters in Gaborone.

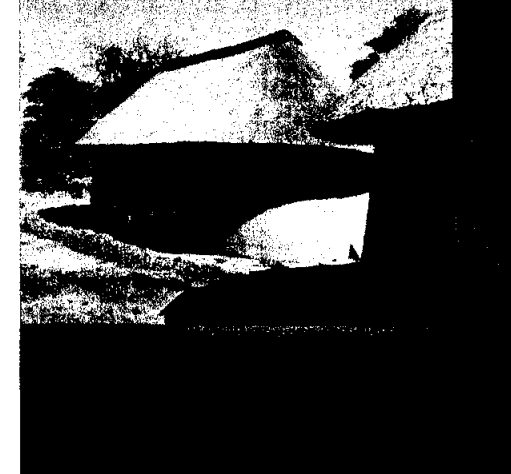
All archaeological excavations carried out at Tsodilo are under the auspices of the Botswana National Museum and have been conducted by qualified archaeologists following recognized archaeological techniques, i.e., controlled excavations, recording by layer and site, backfilling excavations and publication of results.

The Management Plan was revisited by museum staff and amended in 1999 to bring it in line with current events. The Plan with amendments can be found in section 7 of this document.

k. Staffing Level (Professional, Technical, Maintenance)

The Management Plan proposes nine upper level staff and three junior staff. To date the Museum has employed a Manager, two Museum Assistants and two Custodians. In future staffing levels will be increased in line with demand. The Site Manager holds a degree in Archaeology, while the Museum Assistants have Certificates in Museum Studies. The two Museums Assistants have many years experience with the flora and fauna of the region having grown up on nearby cattleposts. Both have articles about Tsodilo's flora and fauna in the most recent Zebra's Voice, a quarterly publication by the Botswana National Museum (Ledimo 2000, Tatlhego 2000). They will take leading rolls in conservation of the site. Their practical knowledge will be supplemented by on site courses and seminars conducted by wildlife specialists. In

Left: The new entrance gate to Tsodilo will provide visitor information as well as security for the property.
Right: Nxao Xhao, local resident and Tsodilo Guide employed by the Museum; views of the Museum complex under construction.



addition, they are supported by the Natural History Division of the Museum.

Tsodilo staff will be trained in conservation and interpretation of rock art. A guides training course for staff is planned. Locally available skilled manpower will be utilised as much as possible, that is, they will be hired to undertake various duties such as manual labour, camp keeping, water pumping, fence maintenance, guiding and any other work that might require their skills. Recruitment of locally available human resources will not be confined to Tsodilo, but will be extended to neighbouring villages. Local guides will be required to register with the Botswana National Museum and will be licensed.

The Botswana National Museum also has professional staff in Archaeology, Natural History, Ethnology, Education, Library, Art, and Technical Support Services to manage the property.

The University of Botswana (UB), with four professors of archaeology, Michigan State University, currently conducting archaeological research at

Tsodilo, and other academic organisations, will continue to be involved in the scientific investigations of Tsodilo through the Botswana National Museum.



The Archaeology Division of the Botswana National Museum will continue to improve the coordination of activities with local and foreign funded research projects thus enabling museum staff to gain practical experience and additional training.

Above: Dossier team members and staff from the Botswana National Museum

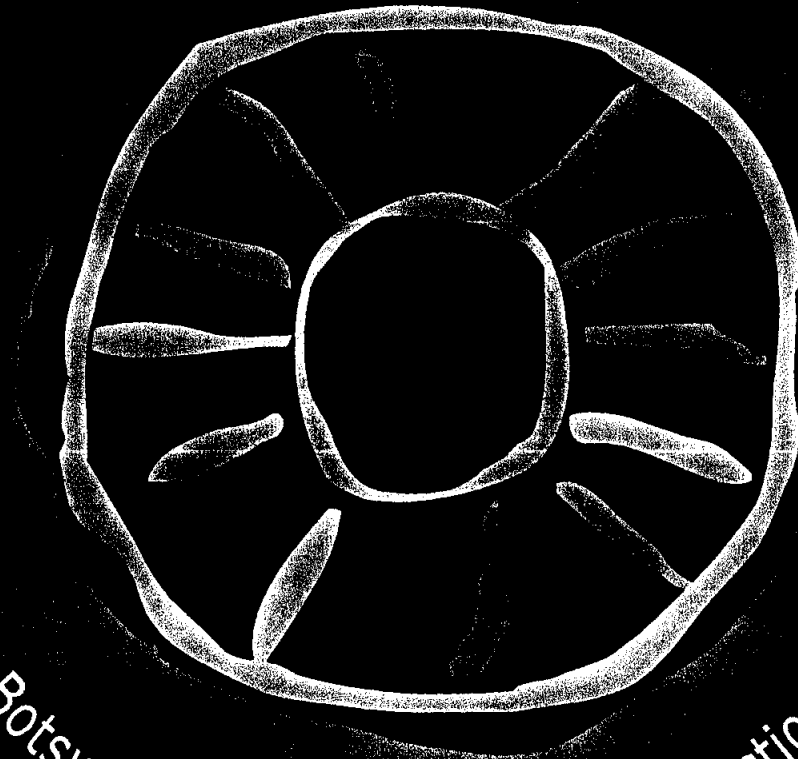
Hambukushu

!Kung

Visitors

Tour Operators

Tsodilo Site Museum Interactions



Botswana National Museum Interactions

Office of the President

District Commissioner Northwest

Ministry of Education

Northwest District Council

Department of Tourism

University of Botswana

Ministry of Agriculture

Botswana Society

Ministry of Lands

National Conservation Strategy

Ministry of Local Government

Department of Wildlife

Ministry of Finance & Development Planning

Ministry of Labour and Home Affairs



- a. Development pressures. p.80
- b. Environmental pressures. p.80
- c. Natural disasters and preparedness. p.81



5. Factors affecting the Property

- d. Visitor/tourism pressures. p.81
- e. Number of inhabitants within property, buffer zone. p.82



a. Development pressures (e.g., encroachment, adaptation, agriculture, mining)

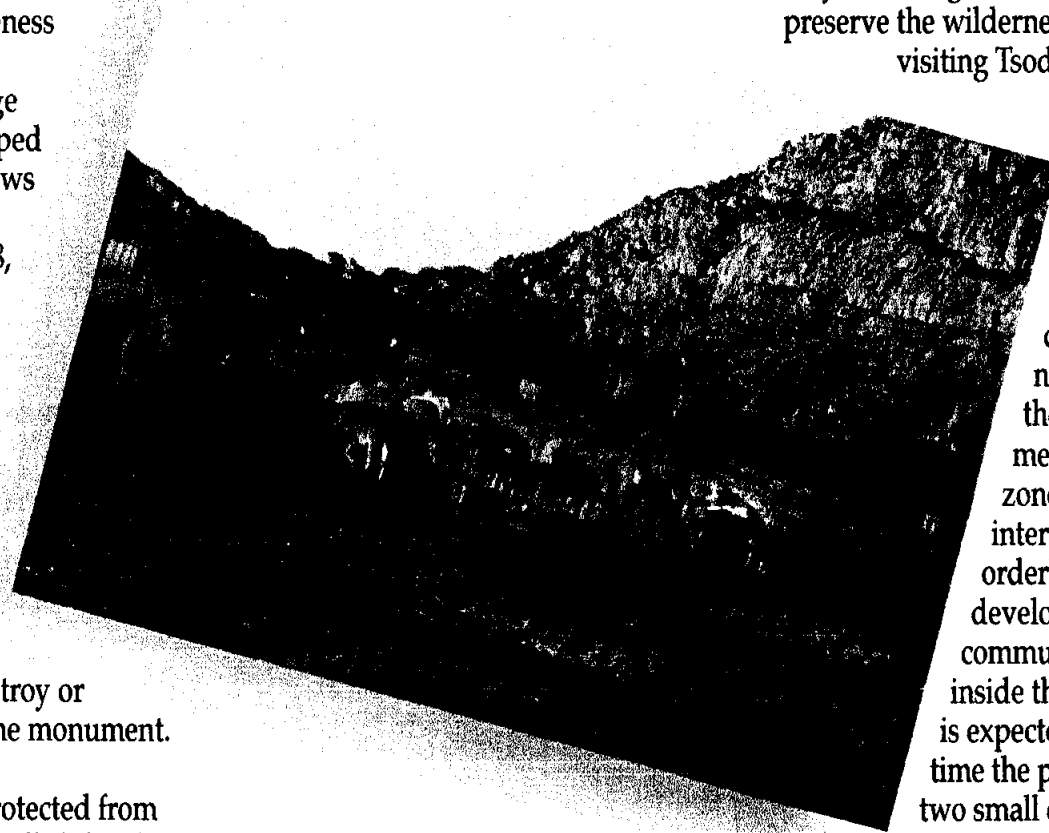
There is little chance of encroachment on Tsodilo because of its remoteness and the fact that it is surrounded by a large tract of underdeveloped land as well as the laws and regulations discussed on page 68, *Management*.

The Monuments and Relics Act of 1970 protects Tsodilo from all actions such as mining, commercial developments, etc., that would alter, destroy or otherwise damage the monument.

Tsodilo is directly protected from encroachment by a well-defined core zone and a large buffer zone already described on page 2, *Description of Property*.

The core area contains the four

inselbergs, the new museum, staff housing, ablution blocks, gate house and camping grounds. There is a comprehensive site Management Plan in place and the site will be moni-



tored daily by staff on duty at the museum.

The buffer zone is surrounded by a larger tract of under utilized land

designated for livestock development, mixed farming, arable farming and gathering, livestock development (fencing allowed) and cattle trek routes. While the area of the buffer may seem large, it is designed to preserve the wilderness experience of visiting Tsodilo and to

prevent the encroachment of commercial development that might diminish the natural setting of the site. Management of the buffer zone will not interfere with the orderly and desirable development of local communities now inside the buffer zone. It is expected that over time the population of the two small communities, now with a population of about 200, will increase and there will be a need for a school, clinic and other facilities but this orderly and desirable development is not an encroachment threat.

For the reasons stated above there is little chance of encroachment in the foreseeable future.

b. Environmental pressures (e.g., pollution, climate change)

Tsodilo is an open air monument in a vast wilderness area with a daily and consistent wind. At present there is little threat from air pollution with the exception of that caused by veld fires. However, veld fires are a naturally occurring event and there is no known evidence that they have negatively affected the site in the past. Veld fires may be beneficial for both flora and fauna by eliminating heavy brush and regenerating grazing areas.

Climatic changes in the form of severe droughts, while not affecting the rock art and other archaeological sites, will cause fluctuation in the numbers and types of plants and animals in the region.

Heavy and unusual rains may cause damage to exposed rock art but this is a natural occurring event and not

one that can be managed.

Trees and brush growing in and around the rock art can cause damage by rubbing and plants' roots can cause exfoliation of the rocks on which the art has been drawn. This is managed by monitoring the rock art sites and removing or cutting back unwanted vegetation. In the past livestock have caused some damage by rubbing.

As the number of tourists increases, erosion of trails could become a problem but this will be managed by weekly trail inspections. If erosion on a trail is indicated, the trail will be closed or redirected until it has recovered.

c. Natural disasters and preparedness (earthquakes, floods, fires, etc.)

There is no known record of any recent disasters in the form of earthquakes, floods or geological activity in the area. Tsodilo is located in a continuation of the Kalahari sands and as such, flooding is unlikely. Tsodilo is not, at present, in an active geological area. Although veld fires

occur naturally in the area, they have not caused any known damage to the rock art or other archaeological sites.

d. Visitor/tourism pressures

The core zone of Tsodilo covers 4 800 hectares. Within the core zone there are seven established trails and, with more than 400 rock art sites consisting of more than 4 500 individual rock art paintings, more trails could be developed to accommodate an increase in visitors.

Currently there are less than 4 000 visitors to the site per year. This is far below the carrying capacity which is estimated to be in the tens of thousands per year. However, access to Tsodilo is controlled by having only one entrance gate operated by museum staff and, if overcrowding becomes a threat, the numbers of persons entering the site can be controlled through permits and pre-booking much like is done in wildlife areas of Botswana.

Trails will be managed to prevent excessive wear on stones, grass or

other surfaces. As mentioned above trails can be rested or redirected if necessary.

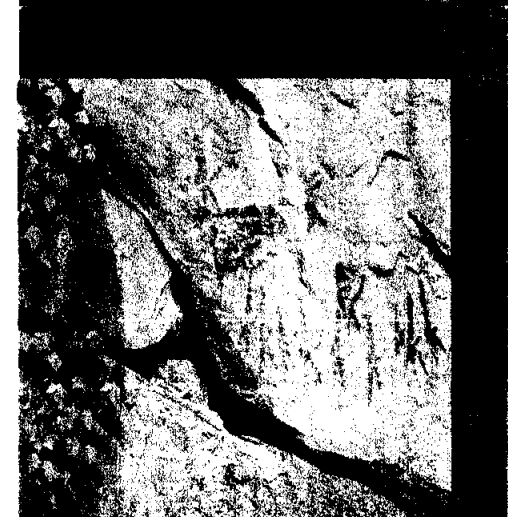
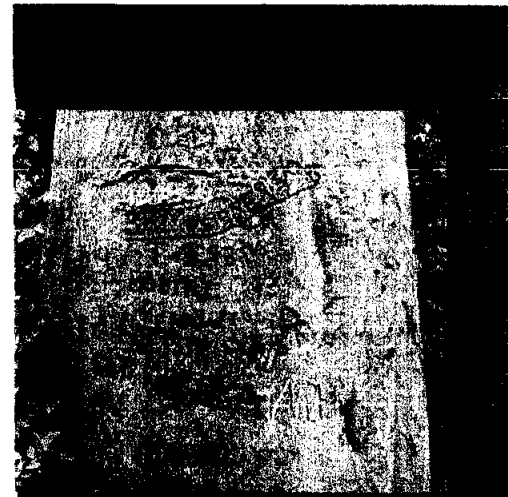
Tsodilo is an open air monument and the issue of increases in both heat and humidity level due to the presence of people is not a factor.

Tourism will be managed through published information, guides and museum staff in order to reduce the likelihood of visitors damaging the habitat of living or growing things.

e. Number of inhabitants within the property, buffer zone

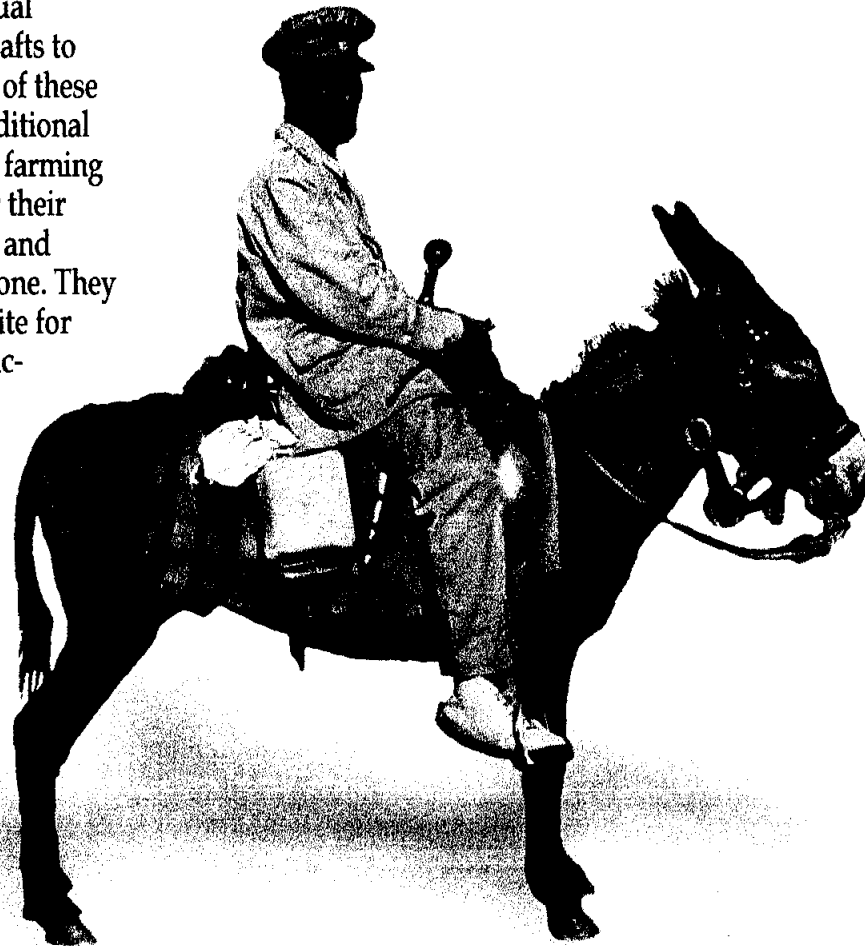
There are no persons living within the core zone, but as mentioned above, there are two small communities, the Hambukushu and the !Kung, living within the buffer zone with a

*Left : The living Tsodilo! - herding cattle near Male.
Right from top: Graffiti, although not affecting the baobab, is unsightly and needs to be controlled through supervision and education; Scadoxus sp. sprouting after recent fires passed through Tsodilo; regular vegetation cropping controls exfoliation and rubbing of rock art.*



total population of about 200 persons. Some local residents work at the site as guides and museum assistants. Others provide required casual labour and many produce crafts to sell to visitors and members of these communities retain their traditional rights of hunting, gathering, farming and use of pastoral lands for their cattle within the buffer zone and rights to gather in the core zone. They also have free access to the site for spiritual and religious practices.

Their presence is not expected to cause any negative impact to the site but rather be beneficial in its overall protection because members of the communities have strong traditional beliefs that involve respect for Tsodilo as a place of worship and ancestral spirits.



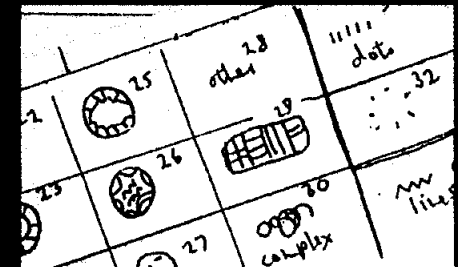
Above: A Zionist Christian Church member from Chukumuchu village, 40 kilometres away, rides to Tsodilo to collect healing water.

Style	Silhouette	A
	Outline filled in	B
	Outline	C
	Outline with detail	D
	Outline and shaded	E
	Stick-like	F

- a. Key indicators for measuring state of conservation. p.84
- b. Administrative arrangements for monitoring property. p.84
- c. Results of previous reporting exercises. p.85



6. Monitoring



a. Key indicators for measuring state of conservation

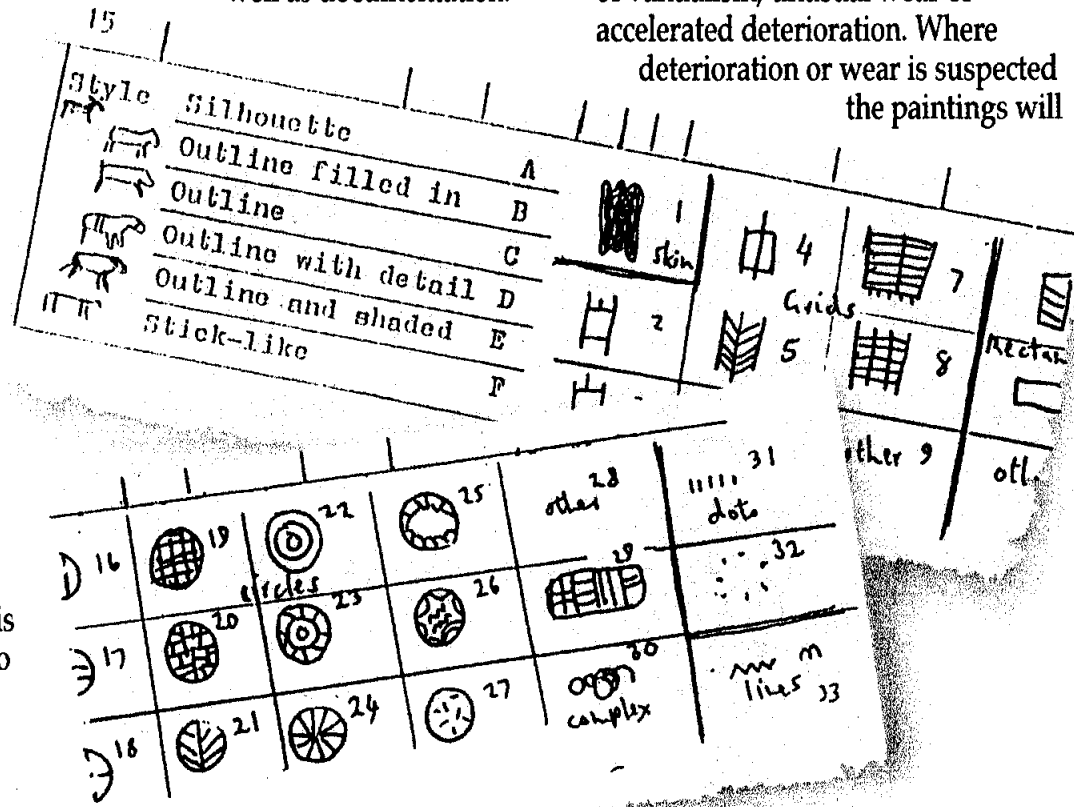
To date more than 4 000 individual rock paintings covering 402 sites have been recorded and photographed at Tsodilo. These records are on file at the National Museum and are the basis for monitoring the state of conservation of the rock art.

A project to digitally record the Tsodilo terrain and rock painting sites using 3-D modelling and image manipulation software and an EDM (Electron Distance Measuring instrument) is planned by archaeology and technical support staff of the National Museum. It is hoped that, as well as control of existing and new sites, this information will become available to the visitor to Tsodilo in the form of interactive multimedia.

b. Administrative arrangements for monitoring property

A constant monitoring programme has been initiated and is maintained.

In 1994 photographic recording began and more than 4 000 individual rock paintings have been recorded thus far. The photographs allow for monitoring the state of the rock art as well as documentation.



around the site. A system of checking more remote paintings that are not normally encountered will be put in place. Monitoring will consist of examining the paintings for any sign of vandalism, unusual wear or accelerated deterioration. Where deterioration or wear is suspected the paintings will

fauna at Tsodilo is recognized and their conservation has high priority. No hunting or taking of animals is allowed in the core zone. Also, cutting, collecting or otherwise damaging plant species is not allowed. Dead wood provides habitat for micro fauna and small animals, therefore, visitors are required to bring in firewood or purchase it from one of the local communities. This procedure will be closely monitored.

The reintroduction of some animal species such as the dassie is being considered. Remains of this small animal, whose nearest relative is the elephant, were discovered during archaeological excavations at Tsodilo. The dassie lives in and prefers rock outcroppings like those found at Tsodilo. The reintroduction of other animals such as zebra, impala, and giraffe, once resident in the area, is also being considered but this will require further consultation with wildlife specialists.

be photographed and these new photographs will be compared to previous ones.

The importance of the flora and

There is a plan to pump water into an existing depression in or near the core zone thus forming a permanent source of water that will attract

animals. This has been successfully done in the Okavango by commercial companies such as Crocodile Camp at Gomoti. However, the feasibility of such a plan will require the advice of wildlife specialists.

Staff of the Natural History Division of the Museum regularly conduct surveys, studies and monitoring exercises of the bio-diversity at Tsodilo. Early signs of possible problems, where detected, are rectified.

In addition, trails will be monitored regularly by Tsodilo Site Museum staff. They are responsible for daily maintenance, visitor control and visitor information. At present the staff consists of a Senior Curator of Archaeology as the Regional Manager, a Curator of Archaeology as Site Manager, two Senior Museum Assistants and two Site Custodians. This staff is backed by the staff of the National Museum. In addition, casual labour is supplied by local communities as needed.

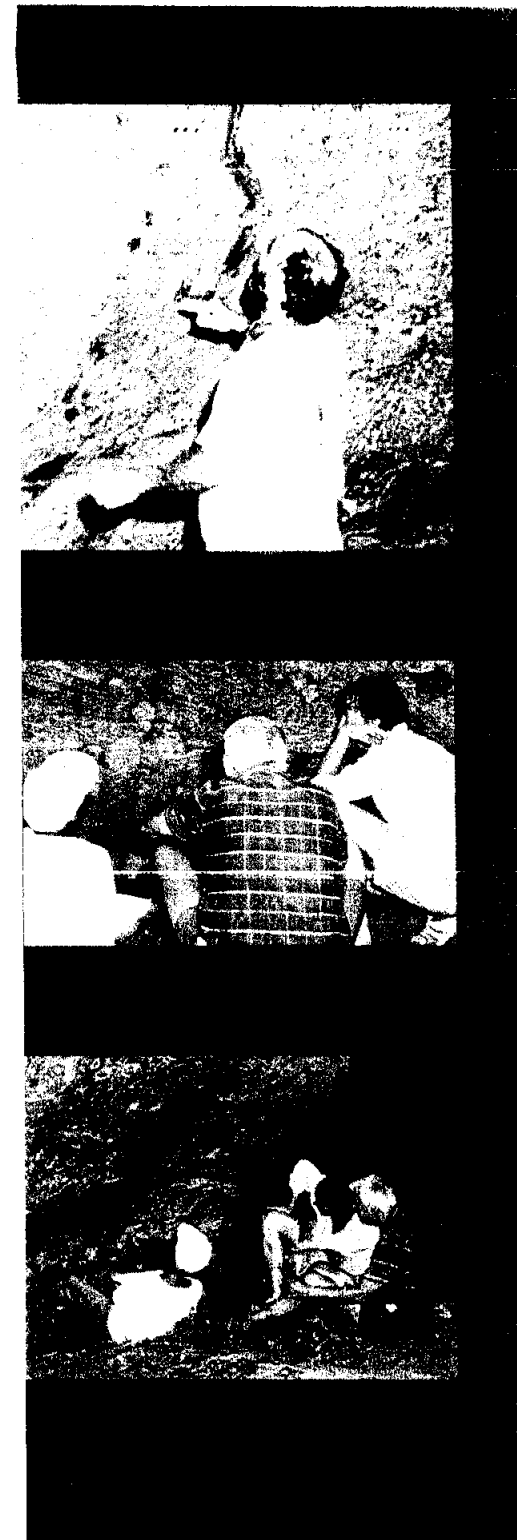
c. Results of previous reporting exercises

During February to November 1994 a careful record was made of the existing conditions of rock art sites. All of the potential dangers were noted, e.g., water run off, tree growth, possible exfoliation, etc.. A plan of action was devised to mitigate the likely problems where possible. This involved pruning back branches and removing trees.

During a 24 month period covering 1994-6, rock art sites, rock engravings, mines and other archaeological sites at Tsodilo were recorded by National Museum staff. Recording involved locating sites on a base map, making sketches of the rock faces on which the art appeared, dividing the rock art into approximate metre-square panels and photographing individual images and panels using Kodachrome 64 film. The sites were photographed using two perspectives, looking in at the art and looking out from the art. Site forms were used to record details of each site listing its nature, colour, direction facing, association, size, etc.. Examples of the form used can be found in Appendix 6.

Four hundred and two sites were recorded at Tsodilo including some 4 000 rock paintings, more than 2 000 rock engravings and 22 mines. Five known sites remain to be recorded and it is estimated that at least 50 more sites may be discovered in future. The original records and slides are on file at the Botswana National Museum, Gaborone.

The rock art at Tsodilo is quite durable as the stone that it is painted on is hard and stable and the exfoliation rate of the stone is low. The earliest known European recording of the rock art at Tsodilo is that by Passarge (1907) who conducted geological investigations in northwest Botswana in the later part of the 19th century. Generally his description of the art matches their condition today, more than 90 years later, proof of a rather slow process of weathering.



Left: Forms used by Museum staff onsite to document rock art sites.

Right from top: Monitoring and documentation of rock art sites on the Rhino Trail and White Painting Shelter.





- a. Slides. see Appendix 1
- b. Management Plan see Appendix 2
- c. Bibliography. p.88
- d. Addresses. p.91

7. Documentation



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d. Addresses where inventory, records and archives are held.

Files for the World Heritage Site, Archaeology, Natural History and Ethnology are maintained at:

Department of National Museum, Monuments and Art Gallery
Ministry of Labour and Home Affairs
Private Bag 00114
Gaborone
Botswana

Tel: 267 374 616
Fax: 267 302 797

Files and records for the lease of the property are maintained at:

Tawana Land Board
PO Box 134
Maun
Botswana

Tel: 267 660 292
Fax: 267 660 603



Nomination of Tsodilo by the Government of the
Republic of Botswana for inscription on the
UNESCO world heritage list.

Signed:



Full name:

Honourable Thebe David Mogami

Title:

Minister of Labour and Home Affairs

Prepared by:

Department of National Museum, Monuments & Art Gallery

Date:

12 June 2000

1. Slides
2. Management Plan
3. Core and Buffer Zone map
4. Land Use map
5. Topography map
6. Aerial photograph
7. Satellite photograph
8. Schematic Geology map
9. Rock art form
10. Monuments and Relics Act
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12. Copies of nomination information

Zebra's Voice, volume 27, number 1

World heritage site nomination brochure

World heritage site nomination poster



9. Appendices

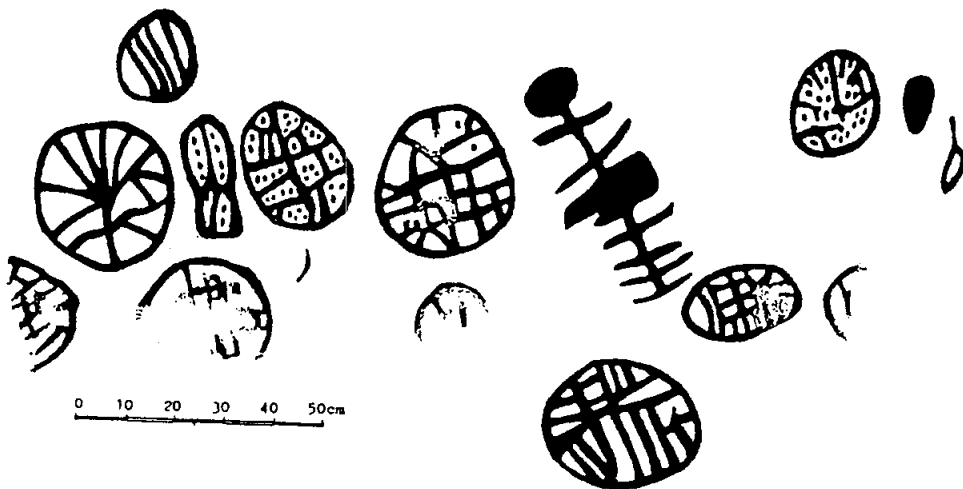






TSODILO HILLS MANAGEMENT PLAN

Scheme for Implementation



Red Geometric Paintings,
The Valley, Female Hill

20 February, 1994

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Scheme for Implementation

1. INTRODUCTION

1.1. This is the final proposal for a Scheme for Implementation of the Tsodilo Hills Management Plan. Two draft documents have already been discussed. The proposal now includes results of recent work done and discussions held at Tsodilo during the period 2-9 February, 1994. It must be noted that the scheme has been discussed only with the National Museum, Monuments and Art Gallery (NMMAG), while some innovations having social implications for local communities have been discussed with them. Aspects like water, fencing and road alignment still require discussion with the District Council.

2 BACKGROUND

2.1. I was appointed as a consultant by Folkens Museum, Stockholm (Contract dated Stockholm, 9 November, 1993). The Consultancy forms a part of the Institutional Cooperation between National Museum of Ethnography (Folkens Museum), Sweden and National Museum, Monuments and Art Gallery, Gaborone. I was asked particularly to refer to the Management Plan and the Terms of Reference, and to make a feasibility plan for the physical implementation of the project described in the Management Plan, Terms of Reference and discussion, namely the placement of infrastructure (e.g., water reticulation) and trails; the relocation, development and/or use of existing villages; responsibility for tourist facilities; conservation needs for the heritage; land use by residents; controlling tourists and transport; alternative tourism; plus, make any recommendations for the better management of Tsodilo.

2.2. The documents upon which these proposals are based are Tsodilo Hills Interim Management Plan (lacks appendices) by N Walker, NMMAG, and Tsodilo Landuse Design Project: Draft Terms of Reference, which was prepared when a consultant was considered necessary for the Tsodilo Hills Management Plan, but was never needed as NMMAG wrote the Management Plan itself, using an Advisory Committee.

2.3. I have also used discussions and meetings which took place at Tsodilo Hills between 24th and 29th October, 1993 and subsequent discussions held at the National Museum, including one held on the 20th January to discuss the first draft of this document.

3. GENERAL PREMISES

3.1 Initially, it must be recognised that national policy is to develop rural areas in such a way that local people are able to improve the quality of their lives. Government seeks to provide better education, health, communications and water facilities, particularly to recognised villages. In addition, it looks towards

helping people to make better sustainable use of natural resources in their areas and to providing opportunities for increasing employment and incomes.

3.2 Currently, the community at Tsodilo is not recognised as an established village and is not eligible for provision of facilities like schools and piped water. However, the community has rights like any other community and, in common with national practice, would expect to be able to grow by immigration from surrounding rural areas until it attains 500 members and qualifies for village status. The Management Plan recognises that the future of the Monument depends largely on keeping the area in a 'pristine' condition, and that development must be limited. To this end, the Community must receive other benefits which will compensate it for loss of those normally available to recognised villages.

3.3 The Hills contain a wealth of archaeological remains which make them unique, not just in Botswana, but internationally. People have rights to learn about, appreciate and enjoy their heritage, but only to the extent that such appreciation and enjoyment do not damage this heritage, which must be passed down unblemished to the future. Thus, the Management Plan must provide maximum benefit to as many people as possible, while ensuring that every care is taken for enhanced enjoyment by future generations. This means controlling and even restricting activities, constantly monitoring what is happening to the Monument, and taking appropriate action in good time whenever any deterioration is anticipated.

3.4 It is noted that the Management Plan is not a final plan and that it should remain flexible with the possibility, at any time, to change it as needs require. In preparing this document, I have suggested some variations to the Interim Management Plan which would seem to me to make its implementation simpler. Experimentation is also going to be necessary to determine which methods will cheaply and effectively achieve goals. In particular, infrastructure and programmes should be designed in such a way that they can be altered, if necessary, without involving the waste of large sums of money. The Plan is described as an 'open-ended' project with the existing budget of P852 000 not being the sum total allocation; if justified, further development funds will be available at a later date. For these reasons above all others, a slow approach to development is advocated.

3.5 As recognised above, there are people living in the area who will be affected by the Management Plan. Their existence has been recognised and the need to disturb them as little as possible has also been noted. However, it is impossible not to disturb them to some considerable extent. Thus, developments must always recognise their basic rights. For this reason, some points made in the Management Plan are emphasised below.

3.6 The area has been occupied by two groups of people, Hambukushu and Zhu, since about 1860. Prior to that date, it was apparently occupied by Ncaekhoe who moved to the Okavango River shortly after 1860. Some of their descendants are still believed to be living near Shakawe and Etsha. For purposes of Management Plan implementation, it is taken that only the Hambukushu and Zhu have traditional rights to the use of land in the area in terms of the Tribal Land Act.

3.7 Here, it is noted that both groups currently occupy established and permanent settlements; have dug wells in the past and have rights to use of a government installed water pump; have quite extensive fields; raise livestock including cattle, horses, donkeys, sheep, goats, dogs, ducks, chickens and cats; use natural resources for fencing, building and making household equipment; collect wild food and herbs; and periodically hunt. In addition, the North West District Council has constructed two small buildings in the Mbukushu village for use by the Mobile Clinic.

3.8 In Chapter 1, the point is made that Tsodilo is foremost a Heritage Area and only secondly a Settlement. Thus, maintenance of the Heritage Area must always take precedence over development of the Settlement. At Chapter Six, the Management Plan states the basic premise is to protect traditional rights of the local community, but encourage traditional methods of land use. While rights such as gathering may continue throughout the area, agricultural fields are to be restricted to their present locations, and grazing (with limits placed on stock numbers) must be confined to the 'outer zone'. Hunting, in terms of the Fauna Conservation Act, will be permitted outside the Core Zone. In addition, excess population should be encouraged to settle elsewhere, with a control being placed on immigration. The Mbukushu village may remain intact; however, the Zhu should be encouraged to move their village in their own time to a location of their choice outside the Core Zone, near water provided for them.

3.9 Obviously, the needs of the Monument must be balanced against those of the Community. Any actual losses incurred by the Community as results of Management Plan implementation should be compensated. This involves financial losses such as loss of houses, fields and water, and loss of unrestricted grazing area. It does not reflect loss of other activity rights such as hunting within the Core Zone. Elsewhere, Tsodilo would be recognised at a residential cattlepost, and treated as such. In the normal course of events, the community could expect to grow into a village and qualify for piped water, a school, clinic and so on. Failure to grow into a village is a major loss and must be taken into account. Thus, consideration must be given to providing them with facilities such as piped water and the ability to control livestock grazing.

3.10 The local community must be integrated into the project, not excluded from it. They know the area and its resources, and have much to contribute. To this end, they should be consulted at every stage of development; whenever possible, be the first to be employed; and be provided any feasible opportunities to participate in whatever benefits the project may create.

3.11. Although NMMAG has employed one full and one part-time employee at Tsodilo, it has no real experience of administering staff in the field. It is going to be extremely difficult to service Tsodilo at a distance of 1 400 kilometres and is likely to strain NMMAG's administrative capabilities. Probably the biggest problem will be finding someone suitable to take charge of the Monument. I would strongly suggest that no complicated procedures are introduced until staff are settled in and regular communications established.

3.12.1. Managing Tsodilo Hills as an educational monument is going to be extremely expensive; in early years, the recurrent budget alone is likely to exceed P100 000, excluding administration costs incurred in Gaborone. The monument's educational value must be carefully weighed against the need to recover some of the costs of managing it. For some time, it is likely to be the only staffed Monument with a site museum in the country. Unfortunately, it is very isolated and the cost of reaching it will be high. On the other hand, it is important to attract young people, particularly school children.

3.12.2. Costs of entry tickets and other services can be used to recover some expenditures and, if it later proves necessary, to control numbers of visitors. Below, I have suggested some preliminary charges. In line with the national policy of free education, these should be kept as low as possible for citizens, while they can be raised considerably for visitors from outside the country. In any event, they should be kept under constant review to ensure maximum benefit is gained from them, while they do not inhibit the educational value of the Monument.

4. IMPLEMENTING THE PLAN

4.1.1. Much of the Plan infrastructure depends on the location of Monument Headquarters. Originally, four sites were chosen (Map 6); however, later discussions at the National Museum resulted in the need for a fifth site (Map 3) to be selected. A short note on these discussions is included at Appendix 2.

4.1.2. Initially, I look at the Plan under some major headings, 'legal', 'Development', 'Administration', Etc., and make recommendations. In Appendix 1, I list the work involved in a chrono-

logical time frame. NMMAG has asked that this time frame be made somewhat tighter by splitting April-September into two. I have done this, but I would emphasise that, while completion dates are something to aim towards, when reliance must be placed on others to equip boreholes, lay piping, erect fences and build houses, practice often shows that too tight a schedule is unrealistic.

4.2 LEGAL

4.2.1. I understand the Monuments and Relics Act, 1970 is to be amended, and that it has long been with the Legal Draughtsman. Aspects of the Management Plan will be difficult to implement if the amended Act is not in place. The Attorney-General should be asked to set a date for its submission to Parliament.

4.2.2. The Land Board has written a letter of approval of the Management Plan. However, it is important to receive a lease document and this should vigorously be followed up with the Director of Surveys and Lands. Major developments, like installation of borehole equipment should not commence before a lease is in hand.

4.2.3. A legal description of the area to be gazetted as a National Monument is needed as soon as possible. The Senior Curator and I have discussed this and he has contacted the Director of Surveys and Lands.

4.2.4. It will be necessary to discuss with Director of Town and Regional Planning how regulations governing non-tourism activities within the Core and Buffer Zones are to be framed and how the Community at Tsodilo is to be controlled. Can this be done through Regulations gazetted under the Monuments Act, or must it be effected under an Act controlled by DTRP?

4.2.5. Obviously, Regulations will be needed to control activities within the Monument area - entry, camping, tracing paintings, visiting sites off recognised trails, removal of plants, litter, sale of curios, employment of guides, etc. Probably, some of these should be discussed with the Secretary, Natural Resources Board. Regulations should be prepared now so that they can be discussed with both the Community and the North West District Council in good time, and be gazetted immediately the amended Act becomes law.

4.2.6. If not yet secured, a written statement from the Director of Wildlife and National Parks concerning use of wild animals in the Monument area is most important. A decision is needed on who is going to be responsible for what, and how it will be implemented. Museum staff should be gazetted Honourary Officers in terms of the Fauna Conservation Act so that they can take action when they suspect the law is being broken, particularly in the Core Area.

4.2.7. The Management Plan points to the need for Tsodilo to be declared a World Heritage Site. This should take place as soon as possible after declaration of the Hills as a monument. I believe this has already been discussed with the Ministry of Labour and Home Affairs. Perhaps the matter should again be raised.

5. DEVELOPMENT

5.1. Developments of a material and infrastructural nature should be as few as is possible and, as noted above, should take place slowly, always with the possibility of reversal in mind. In other words, it is better not to rush into erecting substantial or even many buildings, cutting wide firebreaks, improving roads, putting up a lot of notice boards, and even buying expensive equipment until both their need becomes quite obvious, and it is clear that they can be adequately maintained. The following proposals are seen as the maximum that are needed to get the Management Plan off the ground. Once it is running, consideration can be given to expanding them.

5.2. Boundaries

5.2.1. Boundaries will need to be marked. NMMAG is anxious that this should be done as a priority; however, this is likely to be an incredibly expensive exercise, and will require maintenance, although not perhaps on an annual basis. At this stage, the only major reason for cutting a boundary is to indicate to hunters the area which they cannot enter. Later, it may be necessary to indicate the same to cattle-owners. It has been suggested in the past that the boundary be fenced and a firebreak be cut on the eastern boundary to prevent fires being driven into the area by the prevailing wind.

5.2.2. Cost estimates for surveying and bulldozing a boundary line should be obtained immediately. As soon as is feasible, beacons should be erected at the four corners of the declared Monument area, and stone cairns and notice boards be erected where access roads cut the boundary.

5.2.3. If costs for surveying and bulldozing the boundary line are reasonable, then this should be done. However, if these costs are large and could in any way impede progress of more important developments, then bulldozing should wait until further funds become available.

5.2.4. A fence would probably not serve a useful purpose. It would be subject to breakage by elephants and to theft by people. If people wanted to introduce their stock into the area, they would simply break the fence. It would require constant patrolling and maintenance which costs would outweigh its usefulness.

5.2.5. A firebreak wide enough to give some protection would be

incredibly expensive and require annual maintenance. Most fires reaching Tsodilo originate with the burning of reeds along the Okavango River. The new tar road should act as a firebreak for these. In the past, the old, narrow Shakawe road rarely stopped fires spreading westwards. Almost certainly, any firebreak cut would be insufficient to stop a bad fire being driven by a high wind (which is the case with most fires). NMMAG believes that some fires are started closer to Tsodilo. Currently, it is advocated that no consideration should be given to cutting a firebreak until the situation has been monitored and more is known about fires reaching Tsodilo.

5.3. Water

5.3.1. Water is the key to development. Building cannot commence until water is provided at the Headquarters site, nor can the Zhu move their settlement, nor grazing of livestock be controlled. Water should be given absolute priority.

5.3.2. There are two boreholes recently drilled at NMMAG's expense and known as Borehole No.1 and Borehole No. 2; and two hand-dug wells, one equipped with a hand pump which serves all domestic and most stock watering needs, while the other is contaminated by cattle urine and now only used periodically for watering stock. (see Map 1 at end of Report). Although the boreholes were drilled several months ago, no written report on them has been received from Director of Water Affairs. This report is needed.

5.3.3. Initially, it was intended that NMMAG should make provision for both domestic and livestock water supplies for the Mbukushu and Zhu communities as they would lose access to their existing supply. Water for domestic use was to be piped from Borehole No. 1, while that for livestock was to be developed at Qomaqau, a pan some distance away, where a well was to be sunk.

5.3.4. In fact, two boreholes were drilled instead of one, and both proved successful. Borehole No. 2 is close to the Mbukushu village and outside the Core Area. The existence of two boreholes has changed original planning, largely because it would be impossible to close Borehole No. 2 and deny the Community use of its water. In addition, costs of digging a well at the pan could be considerable, with no guarantee of water as a previous well had dried up. Nor does the Community wish to keep its cattle away from the village for the entire year, and cannot see why Borehole No. 2 cannot be used to supply them with both domestic and stock water.

5.3.5. I believe it would be a serious mistake for NMMAG to become involved in supplying water to a private community on a permanent basis. It could prove expensive but, far more important, could result in a steady deterioration of relations between NMMAG and the Community. They will always keep some cattle at Tsodilo through-

out the year for milk, haulage and other purposes. At some times of the year, they will keep all their stock at Tsodilo because of the poisonous plant, mogau, which is prevalent at the above-mentioned pan during the winter. Thus, for at least a part of the year, NMMAG would be subsidising cattle-raising as well as providing domestic water. The Hambukushu would feel that their development was orchestrated by NMMAG in particular, and would resent any controls actual or imaginary which might appear to be placed on water supply. If the borehole broke down, there would be constant pressure on NMMAG to have it fixed. There would be no way to share the costs of the borehole, since it would prove difficult to assess a fair division, and probably impossible to collect the Community's share.

5.3.6. It would appear best to reserve Borehole No. 1 for exclusive use of the National Museum for development of the Monument, and to hand Borehole No. 2 over to the local community for their use. In this way, NMMAG would not be for ever responsible for provision of water to a private community. (For further discussion and alternative suggestions, see Appendix 5). Here, I deal separately with the two boreholes.

5.3.7. Respecting borehole No. 1, discussions should take place with Director of Water Affairs concerning equipment required for it. Preferably, the pump operation should be silent and this might take the form of a windmill or solar-power system. However, it must be kept in mind that water will be needed at all times, that it must be piped over a distance of at least two kilometres to Headquarters, raised into a storage tank at some six metres above ground level, and that daily and possibly monthly maintenance must be carried out by Museum staff. Under these circumstances, it may be better to have a conventional powerful engine and pump which can fill a large tank in one hour's pumping. The borehole engine should be protected with a stone building and the exhaust run into a hole in the ground to deaden sound. A tap should be provided at the borehole. Water should be piped underground to Headquarters, and then reticulated from a raised tank to the various buildings.

5.3.8. Borehole No. 2 should be made available to the local Community for its exclusive use. It will be necessary to go back to District Council to discuss this, since the supply of water will be for domestic as well as stock-watering purposes. Possibly, the Council will agree to take over the borehole, either equipped or unequipped. If it is necessary to equip it before Council takes it over, then this should be done. It is just possible that the Community might be prepared to take over the equipped borehole and run it at its expense. In view of past practices when the Hambukushu dug their own well and often refused to let Zhu draw water from it, this could prove disastrous. In any event, Borehole No. 2 should be discussed with Council as soon as possible to determine its attitude.

5.3.9. It should be equipped with a 6,1 Lister engine with a Mono or similar type of pump, a 2 000 litre tank on a stand high enough to gravitate water to a point midway between the settlements, a tap at the borehole and piping to two tap stands, and piping to and a reservoir with trough at a location some 300 metres west of the borehole for purposes of watering livestock (See P Lan 1, page). In this regard, the Zhu settlement must be at least 300 metres distant from both the borehole and the stock-watering reservoir.

5.3.10. It may take some time to determine who will be responsible for equipping and maintaining Borehole No. 2. If this appears likely, then a temporary pipe should be laid on the surface from Borehole No. 1 to the fence, and then underground from the fence to a six metre stand and tank for supply of water to both Mbukushu and Zhu communities. The pipe should be laid through the Mbukushu village and then directed underground to Borehole No. 2 where the tank and stand should be installed (see Map 7). This must be seen as a temporary measure to ensure a supply of water to both communities so that the Plan can proceed while the administration of Borehole No. 2 is decided.

5.3.11. Both the wells should be retained as they provide a subsidiary supply of water in case of borehole breakdown. However, they should only be made available to the local Community in times of real emergency. When the fence is erected, it should provide access to both wells via a 50-metre-wide passage from the grazing area (see Map 2). These wells also form an important tourist attraction since visitors from Europe and North America have usually never seen a deep well, although it is a part of their own heritage, and will enjoy the experience of drawing water both by bucket and by pumping.

5.3.12. The surround of the open well should be repaired, and a new windlass, chain and buckets supplied for it. Should the Community borehole break down and not be timeously repaired, it may be necessary to make this borehole available for stock watering.

5.3.13. The well fitted with a hand pump contains potable water. The surround should be repaired and the pump overhauled when the boreholes are equipped. Like the first well, this should also be made available to the Community in the event of a breakdown of their borehole.

5.3.14. It must be kept in mind that the Community is being deprived of its current water supply which, if small, is reliable. Admittedly, a better water supply is being provided; however, it will cost money to operate and maintain, and is more liable to breakdown. Thus, for the time being, it is important that the need for a supplementary supply to the Community is recognised and in that event use of existing facilities not be denied them.

5.3.15. Water will eventually be required at the Entrance Gate. At this stage, piping water from Borehole No. 1 to the Entrance Gate should not be effected, since it may never become necessary as the Gate may be moved, or it may be simpler to supply water by bowser.

5.4. Buildings

5.4.1. Buildings have been discussed in detail. It was agreed that they must fit into the landscape and provide a traditional aspect, although they need not be ethnically correct. They are the subject of Savingram NMMAG 13/7 of 30th November, 1993 to Director of Architecture and Building Services and have been discussed with both Mr Larkai and the designer, Mr. Sunners.

5.4.2. There must be general agreement between National Museum and DABS on building designs. While it is likely that Mr. Sunners will produce extremely adequate designs, should it be felt that they lack anything, this must be corrected.

5.4.3. No buildings should be erected unless there is an immediate need for them. In this respect, recommendations are made on need and timing for buildings:

5.4.4. As far as possible, only local materials should be used in building construction.

5.4.5. It must be recognised that all buildings will have to be maintained to a reasonable standard. Because of its remoteness, Tsodilo may not form a part of the Buildings Branch six-year maintenance programme. Thus, buildings should as far as possible be built maintenance free. It is important to discuss responsibility for maintenance with the Chief Architect as soon as possible. Obviously, some maintenance will be necessary and this may fall on the National Museum. This is another reason for limiting the number of buildings to be erected.

5.4.6. Site Museum This building should be a priority since, after completion, it will still take time to erect an interpretive display (See Appendix 4). It is essential that a substantial part of the display area be permanently available to the public by way of an extended opening in one wall or similar devise. It should be designed in such a way that artificial lighting is not required, although solar lighting may be fitted for use during guided tours, or after dark.

5.4.7. Entrance Gate The Entrance Gate is to be sited at 'Site 4', to the north of the Mbukushu Village, and is a priority. The Gate will be manned during daylight hours, and will require some domestic facilities so that cooking, etc. do not take place in view of visitors. An office with a small safe, a cooking facility (such as

a screen fence), water tank for a supply of potable water (which need not contain more than 200 litres), and a dry toilet should be included in the design of the Gate (currently in the hands of DABS).

5.4.8. Later, it may be appropriate to establish a tourist camping site at, or in the vicinity of, the Entrance Gate, but this should not be undertaken until it is clear that there is a need for such a facility. Such a need is likely to arise if entrance to the Monument is restricted to certain hours and would provide a place to camp for those arriving after closing time.

5.4.9. Headquarters Tourist Camp A main tourist camping area should be established as a priority at Monument Headquarters. Initially, this should consist of a number of individually demarcated sites under large trees. Such sites can be up to 300 metres from a central point and demarcation simply consist of a number placed on a post or tree. On arrival, tourists should be allocated a site and given a sketch map indicating its location in the Headquarters area. Some of these sites should have reed fences erected on the northeast side as windbreaks, while others should remain completely open. With time, it will be learned whether such windbreaks both serve a purpose and are required by tourists.

5.4.10. There should be two ablution blocks incorporating showers and toilets. Initially, the showers should only provide cold water. When management of the tourist camp has been determined, hot water may be included if seen to be appropriate.

5.4.11. Outside the ablution blocks, four basins should be provided for clothes washing, and waste water be led into a soak-away. Under no circumstances should tourists be allowed to wash clothes at their campsites and then throw detergent on the ground. There should be at least four water taps provided near the ablution blocks from which tourists can fill water containers. Later, consideration can be given to providing water at individual camping areas.

5.4.12. Workshops, Stores, Etc. These buildings are enumerated in Savingram NMMAG 13/7. Priorities include the office and store incorporated in the Museum building, separate store for heavy equipment, separate fuel store, small workshop for repairing signs, etc., a free-standing roof to provide shade for vehicles, and two toilets.

5.4.13. Lecture Area A Free-standing roof with one wall and tiered seating to provide a place where lectures can be given and films shown. While this structure will be needed, it is not a priority at this stage; building should be contingent on costs and availability of funds.

5.4.14. Staff Housing Staff accommodation has been discussed in

some detail. Staff housing should only be built for middle and senior level staff; under no circumstances should housing be built for Industrial Class staff who should all be hired locally. Below, I list the problem of expecting middle and upper level staff to remain at Tsodilo for any long period. I am particularly doubtful that married staff will stay there. Housing must be provided rent-free as a quid pro quo for living in such a remote area. Careful consideration must be given to the number of middle to upper level staff who will be stationed permanently at Tsodilo. The number of houses initially built should not exceed the maximum number of staff likely to be stationed at Tsodilo during the first four-year period. Because accommodation will be rent-free, it is reasonable to expect middle level staff to share. Currently, it is thought that four staff from outside Tsodilo will be the number stationed there. Depending on costs, probably not more than three houses should initially be built.

5.4.15. The Headquarters area should be protected by a firebreak which should ensure that large trees remain while grass and dead undergrowth is removed.

5.4.16. Outside Camps Outside campsites are marked on Map 3. Currently, it is believed that these should each include two dry toilets. Remembering that these will be maintained by Museum staff, it is suggested that only two such campsites should have toilets. If the system works, then toilets can be added to other campsites. If it does not work, the campsite toilets should be removed.

5.4.17. The area of outside camps extending at least 20 metres beyond where anyone will actually camp should regularly be cleared of grass and dead undergrowth. This will help to demarcate the site and to protect it both from bush fires and from tourists starting fires.

5.4.18. Campsites must be regularly inspected to ensure they remain clean and accumulations of ash do not build up in fireplaces. Such accumulations should be buried when found.

5.4.19. I have been asked to provide names for roads, and suggest the following for campsites:

- `Main Camp' at Headquarters
- `Water Hole Camp' at north end of Female Hill
- `Dead Lake Camp' opposite the Cave
- `Male Hill Camp' near Entrance Gate

5.5. Roads

5.5.1. Currently, the poor condition of access roads helps to limit vehicle tourists to those who really wish to experience the Monument.

Improvement to access roads will increase numbers of tourists and reduce the wilderness quality of the experience. Under the circumstances, at this stage it is recommended that no improvement be made to the actual condition of access roads.

5.5.2. There are three access roads from the East, from Sepopa, from Ncamaseri, and from the Fishing Camp near Shakawe, and one from the West, from Tshukumutshu.

5.5.3. Sepopa to Tsodilo Road This road, generally known as the 'Sepopa Road', enters Tsodilo through the Mbukushu village which provides some control of visitors to the Hills. It is used by considerably more than half of all vehicles, including most tourists and by Government departments coming from the south. It also tends to be used by heavy lorries travelling to Tshukumutshu.

5.5.4. It should be considered as the main tourist access road, and known as the 'Sepopa Road'.

5.5.5. Some straightening has already been effected at both ends under a drought relief programme, and this should be allowed to continue if the need for drought relief again arises. However, future relief programmes might look towards creating a parallel road for the exclusive use of heavy lorries which would leave the existing road for narrow wheelbase transport, limiting damage caused by wide wheelbase vehicles.

5.5.6. Ncamaseri to Tsodilo Road This road is not signposted, winds through trees which are close together making it not suitable for heavy lorries, and is used mainly by Government departments such as Police, Health and District Council. It should remain as it is and not be opened to tourists.

5.5.7. Shakawe to Tsodilo Road This road, known generally as the 'Shakawe Road' is not good having long stretches of heavy sand on it. It enters Tsodilo between the Male and Female Hills and currently is not subject to any entry control. It is used by donkey traffic from Tsodilo to Shakawe, and occasionally by Government departments, but is mainly used by tourists including Professional Guides from the Shakawe tourist camps.

5.5.8. If it is closed, Tourists are likely to start using the Ncamaseri Road which would soon reduce its quality. However, users must have their entry to Tsodilo controlled. It is proposed that it be diverted southwards (See Map 3) two and-an-half kilometres before reaching Tsodilo and directed into the Ncamaseri Road. Here, it will be necessary to erect a notice warning tourists that the Ncamaseri Road is closed to them under pain of a fine if caught using it.

5.5.9. Tsodilo to Tshukumutshu Road This road, sometimes known as

the 'Tshukumutshu Road' or 'Western Road', is rarely used by tourists. It enters Tsodilo through the Mbukushu Village and thus lies outside the Entry Gate so visitors using to to gain access to the Monument can be controlled. It should be left as it is.

5.5.10 Road-Signposting There are Roads Department signposts at the Sepopa and Shakawe junctions. Additional signs should be erected at these two junctions advising visitors to Tsodilo about the Monument and some of the regulations which apply to entry, e.g., need for permits obtainable at the Gate, Opening Times, and Fees (if any). Further signs should be erected where access roads cut the Monument boundary recording the Boundary Line, and listing prohibited activities.

5.5.11. Internal Roads Currently there are a number of internal roads and vehicle tracks. Most of these roads need to be closed, and a new north-south road made on the west side of the Hills.

5.5.12. The following roads indicated on Map 1 need to be obliterated by dragging with oxen and thornscrub, and then hand-raking:

5.5.13. The road from the Cave (No. 8 on Base Map) to Rhino Panel (No. 7).

5.5.14. The road from the Cave (No. 8.) to the Lion Painting (No. 12).

5.5.15. The road to Shakawe from the Cave (No. 8) for a distance of three kilometres.

5.5.16. The road running up the west side of Female Hill except where indicated on 'Map of Proposed Roads and Trails'.

5.5.17. The eastern road from the Mbukushu Village to the Zhu Village.

5.5.18. The track from the waterhole (No. 14) to Child Hill.

5.5.19. New roads need to be cleared as shown on Map 3.

5.5.20. A road joining the Shakawe Road to the Ncamaseri Road to provide a new by-pass around Male Hill and access to the Entrance Gate from Shakawe.

5.5.21. A road from the Entrance Gate to Monument Headquarters with feeder roads to the Airstrip and the two wells.

5.5.22. A road from Headquarters to Borehole No. 1.

5.5.23. A road from Headquarters running northwards up the west side of the Hills and turning northeastwards to a place on the sand ridge marked on Map 3 as the most northern campsite.

5.5.24. At this stage, no other roads need to be cleared. Later, if it appears warranted, a road could be constructed on the east side of the Hills as indicated by a dotted line on the above Map 3. This would provide access to the northeastern end of Female Hill and could service a fourth outside campsite, thus spreading visitors as numbers increase. It should never be used by campers from other areas.

5.5.25. NMMAG has requested names for roads. Remembering that most tourists will not be able to pronounce or remember either Tswana or San names, I suggest:

Access road from Sepopa:	`Sepopa Road'
Access road from Shakawe:	`Shakawe Road'
Access road from Tshukumutshu:	`Tshukumutshu Road'
Gate to Headquarters road:	`Entry Road'
Headquarters road to north:	`Female Hill Road'
Headquarters to Cave (No. 8):	`Cave Road'
Airstrip to Cave Road:	`Zhu Road'
Branch road to Borehole No. 1:	`Borehole Road'
Possible road on east side:	`Sandridge Road'

5.5.26. During the rains, the existing road from the airstrip to the Cave (No. 8) becomes wet and muddy. It is unknown whether the proposed Entry Road will also become muddy, but this is possible; only time will tell. It would be possible to cut a road from Headquarters almost due west to Tshukumutshu Road which would travel across sand. I suggest this is kept in mind, but not cut unless experience shows that it is necessary. This would also mean installing a temporary Entrance Gate on Tshukumutshu Road.

5.5.27. At this stage, I do not believe service roads should be cut. I have noted in Parks and Reserves that visitors take no notice of 'No Entry' signs and simply drive along them. I would suggest that construction of such roads be left in abeyance until their need is actually determined.

5.5.28. Parking places will be needed at various points along the roads where visitors can leave their vehicles while walking trails. There should be parking places at:

- Entrance Gate (outside and inside)
- At the north end of Female Hill Road where it turns left to afford entry to North Camp
- At Headquarters near the Site Museum
- In the trees opposite the Cave (No. 8)
- At the existing Zhu Village

Parking places should be cleared and signposted.

5.5.29. Restrictions should be placed on the use of roads at certain times and by certain classes of vehicle.

Regulations should provide that NMMAG may close any road temporarily on account of heavy rain.

Vehicles with an unladen weight of over two tonnes should be confined to Entry Road and Cave Road, and should require a permit to use any other road.

Motor cycles should be confined to Entry Road and motor-cyclists be required to leave these vehicles at Headquarters.

A speed limit of 35km per hour should cover all internal roads.

While visitors should be allowed to stop on roads, they should only be allowed to leave their vehicles at designated parking places.

5.6. Walking Trails

5.6.1. Walking Trails are one of the most important developments as they will, to quite a large extent, control where tourists go in the Hills and which sites they visit. Since a fairly high degree of control is necessary, a lot of attention should be paid to these trails, both in the way in which they are presented to the public and in their general maintenance. In proposing trails, I have given them names rather than numbers to distinguish one from another; however, these names are given now for want of better ones.

5.6.2. I propose two types of walking trail: one for which a guide is not necessary, although not excluded if tourists so want; and one for which a guide is essential and on which tourists should not be allowed to venture without one (See Maps 4 & 5). I call these 'Free Trails' and 'Guided Trails'. Guided Trails are long and the route sometimes complicated. Guides will ensure that visitors take sufficient water, do not become lost, and see sites off the direct trail. It will also provide a means of ensuring local employment.

5.6.3. The trails have been designed to take in a good cross section of the painted sites, a variety of habitats, clusters of food plants, spectacular views, and a little rock-scrambling for the more adventurous. Some of the trails are short and suitable for older people, while others are long and require considerable stamina. I detail information for each trail against it below.

5.6.4. At the commencement of each Free Trail, there should be a notice board naming the trail, giving a map of its route, saying how long it should take to walk, whether it is suitable for elderly people, and reminding of the need to carry water. (Trails do not have to start at points indicated by me. For instance, 'Rhino', and 'Divuyu' could both start opposite Headquarters at the foot of the Gorge for visitors staying at Main Camp.)

5.6.4. A free brochure should be produced for each trail, along the lines of those prepared by Senior Curator of Natural History and Brathay Exploration, providing fairly detailed information on the route, sites to be visited, interesting trees and their uses, and possible wildlife encounters. On the back should be some 'dos' and 'don'ts', e.g., 'take water', 'take photographs', 'don't pick up artifacts', 'don't light fires', 'don't litter'. As guides learn more about interpretation and the level of English rises, it may be possible to reduce the amount of information in these brochures.

5.6.5. Under no circumstances should rubbish containers be put along trails. Clearing out rubbish containers always presents insuperable problems. In addition, Tourists must be taught to remove their own rubbish.

5.6.6. Trails must be adequately marked, particularly when they are first introduced to tourists. Twice a year, in January and early May, Free Trails should be cleared of grass and scrub, using a shovel and rake. In addition, they should be marked with small signs at all points where it is possible to take a wrong turn. These signs can be wooden arrows inscribed with the trail's name, or cement footprints worked into the floor of the trail. Once Free Trails are well established and clear to tourists, it may be possible to dispense with these signs. Guided Trails should not be marked or cleared.

5.6.7. At this stage, one walking trail has been proposed both by Brathay Exploration and by Senior Curator of Natural History. This trail is the one most often used by guides to conduct day visitors around a sample of the paintings sites. I list it here as 'Rhino Trail'. It has been rather poorly marked on the ground with stone cairns by Brathay Exploration.

5.6.8. The following Walking Trails are proposed at this stage, while others may be developed latter:

5.6.9. 'Rhino Trail' (Free) Commences at White Paintings Shelter (No. 4), and then heads north passing below Van der Post Panel (No. 11), and up the gorge to Nqoma (No. 2), from whence it travels southeast to Rhino Shelter (No. 7), Dancing Penis (No. 5), the Cave (No. 8) and return to point of commencement. This trail takes between three and five hours to walk, depending in vigour and time spent at various sites. It is suitable for all reasonably active people and is particularly suitable for groups. Visitors will start

by seeing White Paintings Shelter (possibly with a display installed), and then passing to see Van der Post panel (from below) and two further large sites at ground level. Grooves are cut in a rock at the bottom of the gorge and on the ascent are the (natural) grooves which have given rise to the Mbukushu myth-of-origin story. Passing Nqoma, they will see a 9th Century settlement site. The plateau around Nqoma has a number of fruit trees, morula, mogorogorwana, tsaudi, etc. Descending, they will pass Rhino Panel with polychrome paintings, the cave next to it with white animal paintings, Dancing Penises Shelter, the Fish Site and the Cave with depressions ground into the rock.

5.6.10. 'Cliff Trail' (Free) Commences at Shields (No. 19) and then follows the cliff foot northwards to pass Kudu Panel (No. 15), Museum Zebra (No. 17) and then southwest along the cliff to the valley and turn north climbing through the gap to pass Where Sex Originated (No. 16.), and back to No. 15, and then return along the road to point of commencement. This is a fairly easy, although long trail and suitable for most people. The whole trail takes about five hours to walk; however, older people can turn back at numerous points and do not need to complete the entire distance. Shields is one of the most interesting of the 'geometrics' sites. Walking northwards visitors pass two fine 'cattle' paintings, an excellent zebra, and a number of shelters before arriving at Kudu Panel. Close to Kudu Panel is Crab Shelter with grooves ground into a rock, and behind it the only known painting of a bird (korhaan) other than ostriches. Moving northwards, they pass below a number of large panels including the one of people either herding or stealing cattle (one of the few 'scenes'). Passing round the north end of Female Hill, they will see the NMMAG's logo, and then walk through some very interesting Baikiaea woodland. Entering the valley they pass probably the most interesting 'geometrics' site at Tsodilo, and then climb to see the 'Origin of Sex' rock.

5.6.11. 'Lion Trail' (Free) Commences at Cave (no. 8) and then proceeds northwards to No. 7, eastward to No. 5 and along the foot of the cliff past the lower mine and across the valley to Lion (No. 12), and thence along the base of Male Hill to No. 4 and return to point of commencement. This is the easiest of all trails and takes only two to three hours. It should be seen as a supplementary trail. It commences at the Cave with depressions, passes the Fish, Rhino Panel and small cave with white animal paintings to reach Dancing Penises shelter. From there, it passes along the cliff face past the lower mine and a number of excellent rhino paintings to reach the Lion Site. From there it moves along the base of Male Hill through some very fine Knobthorn and Leadwood woodland to Kudu Horn, White Paintings Shelter and possibly the Mbukushu ancestors' cavern before returning to the starting point.

5.6.12. 'Water Hole Trail' (Guided) Commences below the Water Hole (No. 14), and proceeds northwards along the foot of the cliff to No. 15, where it turns southwards up the valley past No 16, through the gap and down into the inner valley following the western cliff to a point due east of the Water Hole, from whence it climbs over the cliff, and descends past the Water Hole to point of commencement. This trail has a fairly difficult rock descent in it and should only be tackled by people who do not suffer from vertigo and are reasonably fit. It is not dangerous. It takes about four to five hours and offers a considerable range of paintings, Origin of Sex, some outstanding views from above Water Hole, Water Hole itself, and several interesting rock formations.

5.6.13. 'Elephant Trail' (Guided) Commences at Cave (No. 8) and crosses valley to No. 5, up the cliff to Elephant Panel (No. 6), past schist mines and through canyon to sand dune on east side of Female Hill, then northwards passing cow paintings to Giraffes (No. 13), and then southwards past Depression Shelter (No. 3) and Nqoma (No. 2) to No. 7, and thence to point of commencement. This is by far the most interesting trail and takes between four and six hours. It offers a wide variety of rock art including Elephant Shelter, the two schist mines, Depression Shelter, the 9th Century site at Nqoma, excellent panoramic views of Male Hill and a wide variety of fruit trees including morula, mongongo, tsaudi, mogorogorwana, mogwana, moretologa, mowana, etc. Elephant Shelter, the Giraffes and Cattle Shelter are all superb rock art sites, are all concealed and off the beaten track, and under the circumstances, may be at risk from vandals. Elephant Shelter is probably known to quite a number of visitors, although it is doubtful if many people know of the existence of the other two sites. Careful consideration should be given before the Elephant Trail is opened as to how it should be handled, if at all.

5.6.14. 'Divuyu Trail' (Guided) Commences at Cave (No. 8) and then travels north up the valley passed No. 7 and climbs directly to Divuyu (No. 1) and continues north down steep valley to Hippo and Dancers (No. 18); from whence it travels round the north end of the spur to Female Hill, passing White Rhino Cave (No. 9), No. 13, No. 3, the cow paintings, and then to Nqoma (No. 2) and down the gorge and so southwards past No. 11 to point of commencement. This is the longest of the trails and takes between six and eight hours to walk. It combines a wide variety of rock painting sites with magnificent views, several different montane, sand ridge and lake bed habitats, numerous different wild fruit trees, and White Rhino Cave, one of the very few cave sites in the Hills.

5.6.15. 'Male Hill Trail' (Free) Commences at Cave (No. 8) and heads eastward to Lion Site and then round the spur of rock to the east side of Male Hill, passing the protected site where an eland is

superimposed by a small antelope facing in reverse to it. It follows the base of Male Hill and then climbs through mongongo and morula to the ridge, and thence up the ridge to the summit of Male Hill. The return journey follows the same route. It takes an active person about one hour to climb Male Hill, the whole trail taking between three and three-and-an-half hours. Only two rock art sites are visited, but the view from the top of the alab dunes, dead lake bed, fossil rivers and settlements is magnificent.

5.6.16. Not all trails should be opened immediately; rather use of easier trails should first be monitored. The Elephant Trail should be the last to be introduced and might never be signposted, or even never opened.

5.6.17. NMMAG has asked about viewpoints along the roads. I do not believe viewpoints should be marked since too many signs will destroy the wilderness environment and tend to suggest too much control. Provided people drive slowly, they will want to stop whenever they see a fine view. I think this should be left to their devices.

5.6.18. A few visitors will want to do their own exploring. Initially, no restrictions should be placed on free roaming in the Hills since it is doubtful if it could be controlled. Rather, visitors should be encouraged to use the trails and guides. A certain amount of free roaming is unlikely to result in damage (to the best of my knowledge, no sites off the usual tourist route have yet been damaged). Provided sites are regularly monitored, it will soon be possible to determine what sort of controls on free roaming will be needed. If controls are needed, then issue of a simple permit to suitable people should suffice.

5.7. Camp Sites

5.7.1. Three camp sites (marked on Map 3) should be sited where there are large trees and should remain as natural as possible. They should be marked by a signboard with their names. Their size will depend on the vegetation (tall shade trees) in the area, but should not exceed an area about one hectare in extent. It is recognised that two toilets will be built at each; however, there should be no other construction. The toilets should be sited on the west side of the camps and concealed as far as possible by thick bush. They should not be located outside the campsite as visitors will not use them at night if they have to walk any distance through bush. In early May, grass should be cleared by shovel and rake, and each site should be visited at least once a week to ensure that they are kept clean and the ground re-cleared as necessary.

5.8. Signboards

5.8.2. Because of maintenance costs, signboards should be kept to a minimum.

5.8.3. Boards should be of good quality, not similar to metal and paint boards used in the past. They must be long-lasting and it must be impossible for painted letters to be scraped off with a knife. It is probably better to pay three times the cost of a metal and paint board and not have a lot of maintenance, than to erect a cheap board which requires regular repair.

5.8.4. The following signboards are a priority:

5.8.5. Two boards on the Maun to Shakawe main road at its junctions with access roads at Sepopa and Shakawe.

5.8.6. A major signboard at the Entrance Gate listing important regulations.

5.8.7. A board on the junction of the Ncamaseri and Shakawe roads indicating no entry to the Ncamaseri road.

5.8.8. Three boards, one at each point where an access road crosses the Monument boundary advising, visitors to proceed directly to the Entrance Gate and listing important regulations respecting camping, importation of weapons, removal of plants, etc.

5.8.9. A Board at Monument Headquarters describing the Monument in brief and advising visitors to report to the office.

5.8.10. Boards at commencement of Walking Trails showing a map of the trail.

5.8.11. Small signboards on roads indicating the whereabouts of Camping Sites, Parking, and Walking Trail commencement points.

5.8.12. A signboard should be erected at Maun Airport advising the public that landing fees are required at Tsodilo and visitors to the Monument must obtain Entry Permits on arrival.

5.9. Fencing

5.9.1. Fencing will be needed to control stock grazing and visitor entry.

5.9.2. Fence layout is shown on Map 2. The fence should be not less than 150cm high and made of a large mesh (such as that known as 'pig wire'). Fence posts, preferably cut locally of hard wood, should be sunk 60cm into the ground.

5.9.3. The main fence should commence at the point where the northwest corner of the fields meets the Base of Male Hill, run directly to the Entrance Gate, and from there pass north of the Mbukushu Village to a point on the road to Tshukumutshu. It should

then follow the north side of that road for a distance of about six kilometres. Due south of the two wells a corridor about 50 metres wide should provide access to the wells in case of a requirement for emergency watering.

5.9.4. A second fence should be constructed from a point on the first fence on the Tshukumutshu road, to run approximately south and to pass 300 metres to the west of Borehole No. 2 and continue in a straight line for a further two kilometres into the Mokusi woodland. A gate and cattle grid should be provided at the place where the fence crosses the Tshukumutshu Road so as not to impede road traffic and to allow people to take their stock to the fields for ploughing, and to the existing wells in the event of a borehole breakdown.

5.9.5. It will be necessary to check with the District Council to ensure that there is no problem with this second fence which was not previously discussed. In discussions, it should be pointed out that the fence is being erected to keep cattle out of the village, away from the Entrance Gate to the Monuments, and away from agricultural fields. In effect, it is similar to drift fences erected near many settlements.

5.9.6. During the visit to Tsodilo in February, it is intended to decide on exact alignments for fencing in conjunction with local people.

5.9.7. Fences should be carefully monitored for a year to determine their effectiveness. If stock are found to walk around the ends, it may be necessary to extend them.

5.10. Airstrip

5.10.1. The position of the airstrip is shown on the map, close to the proposed entrance gate and to Male Hill. It is well established, being over 35 years old. It has a mainly calcrete surface and avoids black soil. Currently, it is about 800 metres long with a further 200 metres cleared, but not used by aircraft for landing or take-off. The strip is slightly bowed with the arc to the northeast. Landing is almost invariably from the northwest, while take-off may be in either direction.

5.10.2. As far as I know, there is no other suitable site close to the Hills. Currently, it is convenient for day-visitors who can generally manage to walk to Female Hill and visit at least 10 sites. To move it would be expensive, and would inhibit day-visitors unless some form of transport is provided for them. Any new airstrip would almost certainly require considerably more maintenance than the existing one which could also prove expensive.

5.10.3. I suggest the airstrip is not moved at this stage, but

improved. The Management Plan states that advice has been sought from Civil Aviation. Some improvements could be effected locally without the use of machinery. Calcrete lumps could be removed from the runway and the flight paths at either end better cleared. A new windsock mast is needed and better markers should be placed at the ends of the runway. The runway should be dragged more frequently with oxen and thorn bushes and incipient thorn removed. The existing notice board should be replaced when landing fees are introduced.

5.10.4. Any major improvements are likely to be expensive and, subject to advice from Civil Aviation, I believe nothing further should be done.

5.11. Zhu Village

5.11.1. The existing Zhu Village is to move. This has been agreed by the Zhu Community. They have the right to choose their own site and to move in their own time.

5.11.2. They should be asked to select a new site as soon as possible. Obviously, the site will depend to a large extent on the proximity of Borehole No. 2. Preferably, it should be on the east side of the spur fence and about 300 metres from the borehole, otherwise costs of piping are going to rise. Time of movement will also depend upon equipping the borehole.

5.11.3. There are two choices for the future of the existing village. It could be demolished, and this may be the wisest move. On the other hand, it could be retained, cleaned up, and used by the Zhu for tourist purposes - taking of photographs, sale of curios, dances, etc. Its future should be discussed with the Zhu Community. If they choose to keep and use it, and then allow it to fall down, it can be later demolished. If it is decided to demolish it immediately, other arrangements must be made for the Zhu to retain their current tourism income. This could mean having them construct a new exhibition village close to Monument Headquarters where they can be photographed, sell curios, etc.

5.11.4. The existing Zhu field should be obliterated, and a parking place established in the northeast corner.

5.12. Wildlife

5.12.1. It has been suggested that animals such as zebra, impala and giraffe, once resident in the area, be reintroduced.

5.12.2. Generally, reintroduction of species to an area involves fencing and enormous costs. At this stage, re-introductions should not be considered.

5.12.3. Later, it may be possible to pump water into an existing depression near Headquarters and thus attract species such as zebra and elephant which still occasionally visit the area.

5.12.4. Leopard, and occasionally wild dogs, still cause problems to stock. These animals are to be protected within the Monument in future and the Community is to be dissuaded from killing them after stock losses. Discussion should take place with the Department of Wildlife and National Parks to determine an equitable method of compensation when stock are killed.

5.12.5. The Department of Wildlife and National Parks is to declare the Monument a non-hunting area for the general public. It is intended to allow residents of the Monument to hunt in the Buffer Zone (but not in the Core Zone) using traditional methods. The traditional method for hunting larger animals is a shotgun. I believe it will be impossible to stop them hunting with a gun and that any such attempt will only lead to the kind of trouble experienced between Remote Area Dwellers and DWNP. I feel this needs further discussion, but would advocate that 'gun' hunting under licence be allowed to continue in the Buffer Zone.

5.12.6. There should be no hunting in the Core Zone.

5.13. Literature and Crafts

5.13.1. Adequate written information about the Hills, their natural history and archaeology, and the resident communities will be very important as a means of interpreting the Monument. Production of this should commence as soon as possible, with initial material being ready for distribution by September, 1994.

5.13.2. It has been suggested that pamphlets, to be issued free, should be prepared for each Walking Trail. A small guidelet (for sale) should also be prepared giving an overview of the Monument. Walking trails should not be introduced until these pamphlets have been printed. A guidelet should be ready for distribution by April, 1995 for that tourist season. The Museum already sells a set of rock-painting postcards. A further set of postcards in full colour should be printed during early 1994 and be ready for sale in September.

5.13.3. NMMAG is anxious to have its own curio shop so that it can raise standards, control prices and make revenue. Such a curio shop should not conflict with local trade, especially as the latter is already established; rather it should compliment it. The question of a curio shop should be discussed with the Community to determine what is possible. It may be that a Community member would like to establish such a shop.

5.13.4. If it is decided to initiate a curio shop, it is suggested that it should stock mainly goods foreign to Tsodilo - postcards, posters, books, T-shirts, baskets, drums, etc. This would encourage the Community to branch out into crafts other than jewellery and bows and arrows. Collection of stock should commence at least six months before the shop is planned to open.

5.13.5. I am doubtful about the viability of Government running a shop. It involves both purchase and sale of items, keeping of records and stock-taking, accounting for cash to the Revenue Office in Shakawe on a regular basis, having a special building, and employing a person to operate it. I do not believe it will be possible to make a profit, or even to break even, and puts temptation in people's way. It may also clash with local endeavour. I would advise that such an undertaking be deferred until careful discussions have taken place with the Community.

5.14. Weather Station

5.14.1. It was proposed that a weather station be maintained at Tsodilo. This was discussed with the Director of Meteorological Services who expressed disinterest in the idea, stating that such weather stations had been started before and usually failed.

5.14.2. Tourists frequently ask about weather, particularly rainfall.

5.14.3. It is proposed that a weather station be established equipped with rain gauge, maximum and minimum thermometer, and wind directional and velocity equipment.

6. ADMINISTRATION

6.1.1. Implementation of the Management Plan is the duty of the National Museum. It is likely to be a long and often difficult task and involves spending probably in excess of one million pula. I strongly advise that the Director appoints a member of his staff by name to undertake the work. This person should be required to submit monthly reports outlining progress, funds expended, meetings held, all development shortfalls, and anticipated work during the coming month. There should be a monthly meeting between the Director and the appointed person to discuss the report and outline any extra action required. Minutes of these meetings must be kept.

6.1.2. The level of administration must depend very largely on Staff stationed at Tsodilo. For this reason alone, the right people must be selected. For instance, there is no point in selecting a senior staff member to be in charge of the Monument if he has not expressed willingness to remain there for a minimum of three years. In this regard, it is probably better to rely in the first place on support

staff recruited at Tsodilo, rather than to send in a large staff from Gaborone.

6.1.3. In considering forms of administration, certain facts must be taken in account. Tsodilo is very far from the National Museum and there is no telephone connection. Even if communication is possible by radio, it is likely to be limited. The cost of regular visits to Tsodilo is prohibitive. Staff will be largely inexperienced, even if they have received some specialised training; and when left on their own are not always going to know what to do. It is preferable that administration structures be made as simple as possible; with time, they can be expanded.

6.1.4. It is proposed that administrative structures should be developed slowly: that the Monument should not 'open with a bang' and be expected to operate efficiently from the start. At first, the level of administration should be kept as low as is compatible with reasonable efficiency, and as few jobs taken on as possible. As staff become accustomed to the area and work schedules, they can take on more responsibility.

6.1.5. It must be kept in mind that there is a 'season' at Tsodilo. For the most part, tourists visit the area between May and October, probably with a peak period between late June and mid September. This is going to be the busy time of year when activities must be controlled seven days a week. During the off-season whole weeks can pass without any tourists being present. Thus, some support staff will not be required on a full-time basis.

6.2. National Museum Staff

6.2.1. As stated, keeping permanent staff at Tsodilo is going to be difficult. My understanding is that no existing NMMAG staff are prepared to work at Tsodilo on a regular basis. A decision on how to staff the project has been deferred and deferred. Time is short and staffing decisions are an absolute priority. Decisions must be made immediately on appointments, and training commence if the Management Plan is to be implemented this year. Below, I discuss the options and make recommendations.

6.2.2. Although the Management Plan proposes nine upper level staff and three maintenance staff, initially it is intended to post only four middle and upper level staff to Tsodilo. Recognising that it may be difficult to keep senior staff at Tsodilo, even this figure could be high.

6.2.3. Only one post has currently been made available, that of the person in charge (Manager); other posts will have to be filled by temporary staff for whom there is provision in the 1993-94 budget, and will presumably be provision in 1994-95 budget. This could cause

complications, particularly if the temporary posts take time to be established into permanent positions. Considering the amount of money to be spent on the Monument, every effort should be made to acquire established posts. Apparently, two such staff have already been identified.

6.2.4. The Management Plan proposes a number of options for staff deployment:

Appoint existing staff from the National Museum on a full-time basis (the Manager) and driver;

Rotate other staff from the National Museum, Gaborone;

Contract administration to a private company, or appoint an experienced expatriate for a two-year term; and

Organise administration under an NGO supported by an expatriate Volunteer.

6.2.5. Each of these proposals has advantages and disadvantages. In my opinion, an NGO such as a District Museum Board might succeed if supported by a Volunteer with considerable large-monument experience; however, funding is likely to be a major problem, since Government tends to give money to organisations under its direct control rather than to those over which it has little say in the spending of money (see for example the National Museum and District Museums where the former is reasonably well funded while the latter are severely under-funded). In addition, such a Board is unlikely to have the expertise needed and will find great difficulty in retaining trained staff. Finally, employing a Volunteer is similar to employing an expatriate (dealt with below) and does not ensure that National Museum staff take some responsibility from the start.

6.2.6. An Expatriate contract officer could create problems like those created in the Department of Wildlife and National Parks, unless he/she is extremely skilled. Often the Officer leaves having initiated local staff into the routine of a job while failing to teach them how to take responsibility and make the right decisions.

6.2.7. Rotating staff has advantages but, as the Management Plan points out, discourages local expertise, and is very expensive.

6.2.8. Contracting administration to private companies is only possible if they can make a profit. This may initially be difficult. It also often raises problems of responsibility between Government Staff and private enterprise, resulting in conflict.

6.2.9. Currently, there is a suggestion that the National Museum deliberately hires an interested Motswana who is prepared to remain

at Tsodilo for two years. One such person has already been found who had qualifications and was prepared to live at Tsodilo, but was then rejected.

6.2.10. The solution may well be a combination of some of the above proposals. We will only learn what is possible by experimentation. I propose that:

Attempts are made to hire an interested Motswana as Manager, and the position be immediately advertised;

That Directorate of Manpower Planning be asked to establish two middle level posts for staff hired on temporary terms;

Other staff work on a rotation system for the first year;

That as many posts as possible be filled by members of the Tsodilo community, and in this respect, that the Museum start looking now for them; and

Attempts are made to contract a private company to handle certain aspects of administration; and

It is recognised now that, whoever is appointed to fill the post of 'person in charge', it will be necessary to post an archaeologist from NMMAG to Tsodilo for at least three months to initiate staff in their jobs, and for another month in May, 1995 to assist when the tourist season commences.

6.2.11. Initially, very careful thought must be given to the actual jobs to be performed. Job descriptions should be prepared for all levels of staff well before staff are selected. Senior staff will have to accept that initially they are likely to have to include menial jobs in their work schedules.

6.2.12. Probably, not more than three staff members should be sent to Tsodilo from the National Museum. These should include a Curator probably specially hired for the job, if an existing curator is not prepared to commit himself for three years, and two other staff junior to him, one of whom should hold a Government driver's licence.

6.2.13. One staff member must know the local Community well. Having a staff member present who gets on well with and is liked by the Community is of the utmost importance.

6.2.14. If it proves necessary to rotate middle level staff, then they should not be expected to spend more than four months at a stretch at Tsodilo. Only one staff member should be moved at a time so that they overlap by two months.

6.2.15. Before the Monument is 'opened', all staff must receive some training, initially in Gaborone and later at Tsodilo. If a 'person in charge' is to be appointed with no experience, then he should be appointed as soon as possible and gain some experience in Gaborone before being posted permanently to Tsodilo. I see this as really urgent and reiterate that advertising for such a person must commence immediately and appointment be made as soon as possible.

6.3. Local Staff

6.3.1. Local staff should be hired to undertake as many duties as possible, and should fill all the following posts: Labourer, Camp Keeper, Pumper and Shop Assistant, etc. As stated above, enquiries should be made at Tsodilo as soon as possible to determine who living there has qualifications and is interested in employment with the Museum. It may be that people exist with at least Junior Certificate who could undertake some middle level jobs like public relations and revenue collection.

6.3.2. Not all local staff need be employed on a permanent basis. For instance, most labourers need only be employed when actually required for trail clearing, airstrip maintenance, etc.

6.3.3. There can be two forms of guiding service: one performed by middle and upper level staff from Gaborone which will mainly involve conducting school and specialist groups, and the other performed by local people who need speak little or no English, but who must have received some training. These latter people (whom I will call 'Local Guides') need not be employed as either permanent or temporary Government employees.

6.3.4. Local Guides should be required to register with the National Museum. In other words, they would need to be licensed. They should undergo a training course which should include knowledge of the Monuments Act and its regulations, some understanding of the general research undertaken at Tsodilo and its results, knowledge of the Walking Trails and various sites on them, and knowledge of what to do in an emergency. These guides would be available to the general public at a fixed minimum fee which would be paid directly to the guides.

6.4. Private Contractor

6.4.1. It would be a distinct advantage to be able to contract out some of the administration, particularly during the first two years. This would give the National Museum time to settle in and inaugurate its own programmes (general tourist control, guiding and interpretation, handling large parties, maintenance of trails, conservation of paintings, forging relations with the local community, training guides, etc). It would relieve Museum Staff of

some duties which initially they may not be well equipped to handle, and would also reduce the new and unexperienced workload.

6.4.2. The National Museum should work out now possible options for a private administration-contract and commence sounding out Tourist Companies to ascertain possible interest. Options have been listed above, but could include, on the part of the Museum:

Allocating certain rights to a concessionaire for a fixed period of time (say one or two years) at an annual fee paid in four instalments - before commencement, at end of first year, at end of next six months, and at end of second year.

Allocating certain duties such as maintaining the water system, ablution block and airstrip, cleanliness of camps, trash collection and disposal, etc.

and on the part of the concessionaire:

The right to charge camping fees, provide a private luxury camp at a stipulated place close to Monument Headquarters, collect landing fees, hire out motor transport, and run a curio shop.

6.4.3. It will be necessary to ensure that the duties of the National Museum and the Concessionaire vis-a-vis each other are clearly defined if friction is to be avoided, (See Appendix 3).

7. TOURIST CONTROL

7.1.1. Obviously, tourists will have to be controlled, since many problems have already been identified - graffiti on trees and even on paintings, littering and leaving dirty campsites, noise, becoming lost, and so on. Control should be implemented slowly and should, in any event, be the least possible. Initially, it should take the form of registered entry, camping confined to certain areas, and organised trash disposal. A booking-in-advance system should only be implemented if it becomes essential, since it is extremely difficult to organise. Even the Department of Wildlife and National Parks, which already needs such a system for the Chobe National Park, has yet to introduce it.

7.2. Entry

7.2.1. Entry to the Monument must be by the Entry Gate and subject to some form of entry permit. The permit should stipulate the number, names and nationalities of entrants, number and make of vehicles, and duration of stay. On the reverse of the permit should appear a copy of the Monument Regulations. Such permits are vital for gathering statistics.

7.2.2. Careful consideration will have to be given to the question of entry fees. Elsewhere, fees are used to collect revenue and to control tourist numbers (the higher the fee, the fewer the tourists and the shorter their stay). Collection of money requires an appointed revenue collector and monthly deposit of revenues. This can create problems. Secondly, there is no current need to control tourist numbers, although this will arise in the future. I propose that for the first six months no fees are charged for entry, so that staff can become accustomed to the entry system. After the first six months, I suggest the following fees:

Aircraft landing fee	P20 (pilot not charged entry fee)
Vehicle under 2 tonnes	P 2
over 2 tonnes	P20
Resident of Botswana	P 2 per day
Non-Resident	P10 per day

Provision should be made for exempting certain classes of people from the need to pay fees: organised school visits, people with research permits, V.I.P.s on official visits, etc.

7.3. Firewood

7.3.1. Firewood collection should be controlled since it has already denuded a few areas of heavy dead wood. It is also a means for local people to make money.

7.3.2. Tourists should be required to pay for firewood. Local people could collect and sell firewood to Headquarters, either to a Concessionaire or to the National Museum who would then sell it to tourists. Probably, it would be best to introduce this in three steps: initially, it would be provided free at Headquarters and permits issued to people camping outside to collect it; later, it would be sold only to people camping at Headquarters, while those staying in outside camps could still collect their own under free permit. Once the system is working, firewood could also be sold to people staying at outside camps. There will always be problems stopping people camping away from Headquarters from collecting their own firewood.

7.4. Trash

7.4.1. Trash is a major problem and needs to be removed completely from the Monument. In Botswana, large pits dug in Parks and Game Reserves have not proved satisfactory and it is suggested that the pit system is not used at Tsodilo. Contact should be made with the Natal Parks Board and the Department of Parks and Wildlife Management in Zimbabwe to ascertain their trash disposal policies which may offer valuable guidelines for Tsodilo. In the event of failure to obtain satisfactory advice, I propose the following procedures listed below.

7.4.2. Ideally, Tourists should remove their own trash from the area, but this will probably prove impossible to implement. Initially, attempts should be made to require tourists to remove all hard litter from the area. They should be supplied with strong plastic litter bags and be asked to show these at exit time. If this fails, it is proposed that Tourists still be supplied with bags and be required to separate their trash into food remains, plastic, cans, and bottles. The Museum should use a can crusher to pack cans which, together with bottles should be removed to the nearest disposal dump (probably in Shakawe). Food should be buried and a decision made on plastics.

7.4.3. Only experience will determine the best way to collect trash from tourists. Experiments should be conducted with issue of trash bags and a requirement that they be returned, perhaps through use of a cash deposit system. Under no circumstances should tourists be allowed to dispose of their own trash other than by removing it from the area themselves.

7.4.4. There should be a heavy fine for people caught littering, perhaps P100 fine should be implementable on the spot.

7.5. Subsidiary Camps

7.5.1 Tourists should be encouraged to camp at subsidiary camps to reduce pressure on the Headquarters campsite.

7.5.2. It will be necessary to issue some form of camping permit which could be free, or could include the cost of firewood. At first, it should be issued free. The permit should list the camps at which people may camp, but not necessarily lists actual dates other than the last night for which the permit is valid.

7.6. Use of Trails

7.6.1. Making people use trails should also be implemented very slowly. Initially, tourists should be allowed to range freely, while the existence of trained guides and trails is brought to their attention. Most visitors to Tsodilo do not know where to go and welcome guides. There is little doubt that they will also welcome organised trails with interpretative literature.

7.6.2. Tourists should be asked to book guides and trails in advance. Under no circumstances should two parties of tourists be made to accompany a single guide, nor should they be excluded from use of a trail because other parties will also be using it.

7.6.3. Many tourists will want to spend time on their own, either whole days, or after completing a trail. They should be allowed to do so without restriction.

7.6.4. It has been proposed that Guides register, receive some training and are licensed. Guides who are available for work should inform Headquarters and report in the evening to the Entrance Gate where they can be advised if they are needed the next day.

7.7. Water

7.7.1. Almost all tourists will need to obtain water at some time during their stay. They should be allowed to collect water free from the taps at Headquarters.

7.7.2. Some tourists may wish to obtain water from the two wells and this they should be allowed to do. Later, it may be feasible to hand the tourist use of the two wells over to the Community and allow them to charge a set free for water collection at them.

7.8. Other Tourism

7.8.1. Other forms of tourism should be encouraged. Already, the Zhu make fairly substantial money from tourists through photography, curios, and dances. Above, it has been suggested that this type of tourism should take place in the existing, but cleaned-up, Zhu Village.

7.8.2. The Community should be encouraged to hire horses and donkeys to tourists and to conduct mounted trails around the foot of the Hills.

7.8.3. The Community should also be encouraged to offer transport between the airstrip and Female Hill, possibly through use of a specially constructed four-wheel cart.

7.9. Sale of Curios

7.9.1. Initially, no attempt should be made to control the sale of curios, either from the Zhu Village or from settlements, or from Headquarters. If people wish to sell curios at Headquarters direct to tourists, this should be encouraged and a suitable place provided. If a concession is granted, the Community should be asked to sell curios through the curio shop, while still retaining the right to sell direct to the public away from Headquarters.

7.9.2. The National Museum should avoid, if possible, organising sale of curios and running its own curio shop as it will almost certainly cause problems: competition in prices with local manufacturers, failure to make a profit over costs, and the possibility of misappropriation of funds.

7.9.3. Another possibility is for the National Museum to supply a curio shop at Headquarters and rent it out to a local person. Goods

produced by the Museum, postcards, T-shirts, posters, booklets, badges, mugs, etc., could be sold to the renter. Such a possibility should be investigated well before Headquarters is opened and any management concession granted.

7.9.4. It should be noted that a Mumbukushu already has a hawker's business, selling some basic foodstuff, cigarettes, soap, etc. It may be possible to help her to enlarge her business so that she can sell to tourists.

7.9.5. Once the Management Plan has been implemented and facilities are organised, the Community should be asked to see their curios only at the craft village (old Zhu settlement), or at a new Zhu settlement constructed near Headquarters, or outside the Core Zone. They should not be allowed to wander around either Headquarters or the airstrip selling curios.

7.10. Statistics

7.10.1 Future tourism planning at Tsodilo is going to depend on information gained from tourists: numbers of tourists, countries of origin and languages spoken, length of stay, activities undertaken, information sought, etc.

7.10.2. Some form of statistics collection must be devised. Existing statistics are too fragmentary to be of any real value. It could be useful to start now with circulation of a form to Tourist Operators seeking information from them. Later, it is most important to collect statistics and information directly from tourists.

7.11. First Aid Facility

7.11.1. Although the Mobile Clinic has a hut at Tsodilo and is in the process of constructing a house for over-nighting, visits are very periodic, often only once a month. Tsodilo is remote from any other medical facilities and tourists are constantly being asked by the Community for medicine. Tourists also sometimes need help. There have been accidents including death by falling from the cliffs, broken bones, bad burns, and serious bee-stings.

7.11.2. It would appear necessary that a supply of medicine be kept at Tsodilo, and that one member of staff receive some first aid instruction. Liaison should take place now with the Ministry of Health to determine what is feasible.

7.12. Education

7.12.1. Design of the display to be erected in the Site Museum is the subject of a special contract and is not dealt with in detail here.

7.12.2. An education programme should be devised in conjunction with NMMAG's Education Section. This should pay particular attention to the needs of school, organised safari and specialist groups. It should include tape-slide shows, videos, lectures using material artifacts and conducted tours of the Site Museum and trails.

7.12.3. Tape-slide shows and videos could include an explanation of the prehistoric and historic environment, both Stone Age and Iron Age archaeology, today's natural environment, edible and medicinal plants, Zhu and Mbukushu life, Tsodilo rock art, the National Museum, life in Botswana, the Rock Art of southern Africa, the Okavango Delta and the Kalahari.

7.12.4. Lectures using material artifacts could include prehistory, Zhu and Mbukushu lifestyles, plant uses, and tours of the Site Museum.

7.12.5. Conducting tours along walking trails is going to be very difficult; far more difficult than just guiding people from site to site and answering questions. Tours may consist of secondary school children, University students, fairly rich and well-educated tourists, or even specialized groups such as Museum Curators with professional knowledge of specific subjects - birds, rock art, entomology, etc. The Guide must be able to explain the significance of almost everything seen, from insects to rock art.

7.12.6. Guides will need to have a high standard of education. Initially, probably only the Manager will be able to conduct school and other groups. Even he will require a lot of training to gain the background knowledge and confidence needed. Under these circumstances, I suggest that reliance is placed at first on written interpretative material and tapes prepared for trails, and that conducting parties is introduced only when the Guide has a reasonably thorough knowledge. This is going to entail a lot of training, some of it in Gaborone and some at Tsodilo.

8. RESEARCH

8.1.1. To date most research has been of an archaeological nature: excavation of Early Iron Age villages and rock shelters, and recording of rock paintings. There has been some palaeo-environmental research and a little historical research, but practically no natural history research. Nor has any conservation research been undertaken on the preservation of the rock paintings. Sociological research has been undertaken on both the Hambukushu and Zhu, but most of this was conducted elsewhere, and little is known about the lives of the communities living at Tsodilo.

8.1.2. A research programme should be prepared which would concentrate on:

Preservation of the Rock Art;

Archaeological excavations to determine information on the Later Iron Age - AD 1200-1800;

Oral History of the Tsodilo Communities;

Recent and current lifestyles of the Communities;

Vegetation Map;

Utilisation of natural resources;

Lists of wild species in the area; and

Community development needs over the next 20 years.

8.1.3. In conjunction with research, a monitoring programme is required to:

Record tourist statistics, and provide proposals for future infrastructural and other tourism developments;

Monitor effects of increasing tourism on the environment and on archaeological sites;

Monitor condition of all rock paintings and provide conservation advice; and

Monitor activities of local communities to determine their effects on the environment, and to provide proposals for mitigation of these;

8.1.4. Investigations should be made now into hormone paint which can apparently be used to remove graffiti carved into baobabs. Such a repair project could be immediately undertaken.

9.1. Care of Rock Art

9.1.1. With increases in tourism, the rock paintings are going to require constant care. Already, the Van der Post Panel has suffered from a local visitor writing his name across it, the Rhino Panel has two initials scratched into the rock, and there are numerous initials scratched into the rock outside the entrance to the Cave at the notice board. A number of baobab trees have also been defaced, and there are small carvings on a tree near the Rhino Panel.

9.1.2. Once graffiti are allowed to remain on rocks or trees for others to see, then they also will add to them. It takes more determination to produce the first graffiti, than to add to an already existing situation. For this reason, it is important to ensure that people do not put graffiti on the rocks and that, if they do, it is promptly removed.

9.1.3. For this reason, a constant monitoring programme should be initiated and maintained, as soon as possible.

9.1.4. A start to this programme is being made in February, 1994 when the photographic recording of all the rock art commences. At the same time, existing graffiti should be cleaned.

9.1.5. During the period February to November, a careful record must be made of the existing condition of sites and all potential dangers noted: water run, tree growth, possible exfoliation, etc. and a plan of action devised to mitigate likely problems. This could involve pruning back branches, removing trees and possibly even looking at ways to deflect water seepage.

9.1.6. The Curator appointed to be in charge of Tsodilo must receive some training in the removal of graffiti at NMMAG. This should include warning him when not to try and remove graffiti because it has been applied in such a way that it will require expert removal. Later, someone should be sent of a course outside Botswana. I understand such courses are held in Australia, Canada, USA, and Scandinavia.

9.1.7. All paintings sites regularly visited by tourists should be inspected at least once a week, and all other sites at least once every month.

10. EQUIPMENT

10.1.1. A considerable volume of new equipment will be needed and could prove extremely costly. A Toyota Landcruiser has already been purchased, and other proposals include a water bowser, two trail bikes, an electric generator, solar-powered batteries, and a radio system. It is important that equipment should be simple to operate and easy to maintain.

10.1.2. It is suggested that a lot of equipment is not bought in a hurry. Rather, systems should be evaluated slowly to see how effective they are.

10.1.3. In the first instance, the following equipment is proposed:

Solar panels and batteries for staff housing, Site Museum building, and tourist ablution blocks;

Petrol driven generator for showing films, videos and slides;

Television set with video attachment and projection screen;

One ton, two-wheel trailer for the Toyota;

One radio-phone, or two-way SSB radios;

Four walkie-talkie radios with a broadcasting distance of at least 10 kilometres. One of these should be kept permanently at Headquarters and another at the Entrance Gate;

Windlass, chain and buckets for the well;

Basic furniture for the staff quarters;

A small safe to be built into the Office and another to be built into the room at the Entrance Gate;

Office furniture including chairs, desk, steel cupboards, etc.

Shovels, axes, rakes saws, ladder, 200 litre drums, etc.

Manual typewrite, camera, drawing board and drafting equipment;

Camping equipment.

10.1.4. At this stage, I would advise against purchase of a water bowser; drums of water can be used instead for supply to the Entrance Gate. I can only see the need for a bowser if it becomes necessary to supply the Zhu Community with water because their borehole has not been equipped.

10.1.5. Solar cooking facilities should be investigated for possible use by Museum staff, but at this stage I do not think they should be purchased. This should be discussed with DABS and possibly the Botswana Technology Institute. Initially, one could be bought and used on a trial basis.

Appendix 1

Schedule of Implementation

As stated above, for the National Museum this is a new venture and is being conducted at considerable distance. Implementation can be seen as a number of stages: Planning, Construction, and Initiation. Each stage is going to take several months to complete. It appears advisable to set up a realistic time schedule and to try to work to this. The following schedule may be too ambitious, but it provides a basis:

January - April

Planning

Appoint an officer by name to be responsible for the implementation programme and commence monthly meetings to determine progress and problems.

Discussions to take place with District Council respecting the supply of water and decisions made as to who is to be responsible for what. This is a major priority.

In conjunction with DABS, DWA and Planning Officer, determine all equipment and stores required and prepare more realistic total estimates for development costs and recurrent budget for first year.

Complete legal requirements respecting land allocations.

Hold discussions with other Government Departments.

Have Monuments Act amended and draught Tsodilo Hills Monument Regulations.

Locate Headquarters and Entrance Gate sites. Demarcate fence line on the ground.

Zhu to locate new settlement location.

Start looking for suitable staff both nationally and at Tsodilo.

Complete building designs.

Commence designing and making displays for Site Museum.

Get both boreholes equipped.

Locate contractors for building construction and fence construction.

Award contract for fencing.

Compensation for Zhu calculated and agreed.

Have hand pump on well serviced.

Locate interested tourist operators and discuss various concession options.

April - June

Initiation

Appoint staff and start training.

Fence completed and boreholes equipped.

Award contract for building construction.

Zhu move their settlement.

June - September

Building construction completed by November.

Design and make all signboards.

Purchase equipment.

Mark Boundary corners.

Prepare interpretative literature.

Install Weather Station.

Print Entry Permits.

Cut link road from end of existing Shakawe road to Ncamaseri road.

Cut new road up west side of Hills.

September - December Construction

Post staff to Tsodilo and hire local staff.

Erect signboards.

Close roads and open new roads.

Upgrade airstrip and equip well.

Instal displays in Site Museum.

Mark Free Walking Trails.

Advertise Concession Contract.

November

Hold short training programme at Hills, commence issuing free tickets, control camping and trash, provide guides.

Award contract for management.

December to April will be a period during which to become accustomed to the project and to iron out problems

April, 1994

Clear subsidiary campsites; clear Free Walking Trails.

May

Start of Tourist Season

Commence charging for entry and firewood; allow camping only at designated sites.

Appendix 2

Siting the Headquarters

During the visit to Tsodilo in September, 1993 four possible sites were chosen for Monument Headquarters. These sites are shown on Map No. 1. The sites were shown to both the Mbukushu and Zhu Communities living at Tsodilo and discussed in detail.

At the time, it was agreed by all present that Site No. 4 offered the most advantages in terms of general position for control, proximity to airstrip and local Community, distance from borehole, fencing, flooding, soil consistency, fires and general environment.

However, after discussions with the Director, it was agreed to look for another site between three and four kilometres to the north. This site was located on 8th February, 1994, and is marked on Map 1.

Headquarters is to be situated about 250 metres west of Female Hill and directly opposite the gorge leading up to the plateau on which Ngoma is situated.

It has advantages and disadvantages. The advantages include numerous large trees which will provide ample shade and add to its aesthetic value, and its short distance from Borehole No. 1 from which it will draw water (about 1,2 kilometres).

Disadvantages include its proximity to the Hills (only 250 metres), its distance from the Entrance Gate and airstrip (three kilometres), and its soils which involve a thin layer of sand over black earth. In addition, during really heavy rains, a stream runs through the site and floods its western areas.

The next really suitable site lies a further two kilometres to the north. Trees are not as good as those at the previous site, the distance from the gate and airstrip (five kilometres) is too far, and from Borehole No. 1 it is some three kilometres adding considerably to equipping costs; however, it can be sited 600 metres from the Hills and is situated on much better soils. Generally it is too far to the north and not central to the best paintings areas.

Really heavy rains are not frequent and the number of tourists during the rainy season is invariably low. Areas which may flood can be used for winter tourist camping when they will, in any case, be dry. Under the circumstances, it is considered that Site 5 is satisfactory.

Appendix 3

The Question of a Concessionaire or not.

There are many advantages and disadvantages in putting some, or even all, of the management out to contract. These should be carefully considered only after all information has been obtained.

The advantages include not being responsible for certain jobs for which staff have little or no practical experience such as maintaining borehole equipment, solar systems, the airstrip, trash disposal, collection of revenue, etc.

It permits staff to learn the job slowly. Part of such a contract could be that the Concessionaire train staff to carry out the above jobs. It also frees staff to get on with the more important work of caring for the Monument, and controlling interpretation.

It will also lessen the impact between staff and local communities, and allow good relations to be built up without staff having to take the entire blame when problems arise.

If the Museum is anxious to control entry from the start, this can be done by the Museum issuing free entry tickets, while the Concessionaire charges a realistic fee for camping. The Museum will, in any event, receive a portion of this through the concession fees.

On the other hand, problems between Museum Staff and the Concessionaire are bound to arise. The Museum is in overall charge of the Monument, which means the Concessionaire will have to obey various instructions. Tourists will not know to whom to complain and will expect Museum Staff to support them when complaining about the Concessionaire.

The Concessionaire will almost certainly want to run things his way, which may not always be the way the Museum wants to see things done.

Thus, much depends on the Concessionaire and the Agreement. This is why it is important to discuss such a contract well in advance and to make absolutely certain that there are no clauses in it which may allow good relations to deteriorate. It may also mean that when time for tenders arise, the Museum may want to ask tenderers to describe in detail how they would manage whatever aspects they are being asked to manage, and then to choose the one who looks the most competent, irrespective of the revenue value to the Museum.

Appendix 4

Site Museum

The design of interpretative materials and installation in the Site Museum building is the subject of a separate special contract. The contract should be awarded as soon as possible and design started, certainly not later than 31st March, 1994. I will prepare a separate and much more detailed proposal for the displays once the contract has been awarded and finished designs for the Site Museum received from the Chief Architect.

I suggest that the display be prepared for three different areas: (a) the open area in the Museum building, (b) the closed area in the building, and (c) in White Paintings Shelter. Areas (a) and (c) would always be open to the public, while area (b) would be lockable and contain any exhibits which could be stolen or broken. Areas (a) and (c) should be completed by October, 1994 for the training programme. Area (b) should be completed by April, 1995 and ready for the beginning of the Tourist Season in May.

(a) Together with (c), this should be the first display to be made. It should be simple and include only graphic information sheets and a three-dimensional model of the Hills. The graphic information should include drawings and photographs introducing the visitor to the area: palaeo-environment, plant and animal life, short history of human occupation, past and modern human lifestyles, rock art and its place in history, list of dos and don'ts.

(b) Both graphics and some artifacts, etc. Geology, plants as natural resources, animals past and present, dangerous insects (bees, scorpions, spiders) and snakes (cobras, mamba, adders, boomslang), archaeological materials, description of research projects, modern household and village artifacts, etc.

(c) A 1x2 metre excavation in the floor of the shelter, covered with perspex, showing dated levels and some artifacts in situ. A notice describing some of the information revealed.

Appendix 5

Alternative Water Provision

Water has always been a problem at Tsodilo. In the 1960s and early 1970s the Hambukushu had their own five-metre deep pit at the base of Female Hill where they drew water with buckets for themselves and thirty or so head of cattle. The Zhu had no water supply of their own and relied on the Mbukushu pit when relations between them and the owners were good, and otherwise on natural springs. Later, the Hambukushu dug their own well near the airstrip, but it became polluted by stock urine. Finally, the Council arranged a new well and handpump for them which supplied all domestic and stock water for both communities. They have a history of only one water supply for all their needs.

As discussed under 5.3. above, water is one of the most important aspects of development, and likely to cause the most difficulties. Originally, it was agreed that NMMAG would ensure a supply of water to both Mbukushu and Zhu communities, and agreed that a borehole would be drilled in the Core Area, and a well dug at Qomaqau where the Hambukushu have a dry well and traditionally grazed their cattle in summer.

In the event, two boreholes were drilled, one in the Core Area and another in the Buffer Area two kilometres from the Mbukushu village. It is understood that both boreholes have a copious supply of water, a fact known by both local communities.

A major problem appears to lie with Borehole No. 2. Perhaps this borehole should never have been drilled, and certainly not in its actual position, so close to the Mbukushu community. The Hambukushu see it as a major water supply which they have always lacked and badly wanted. To deny it to them now would seriously erode relations between NMMAG and themselves, and could jeopardize efficient implementation of the project.

At the same time, it is important to recognise that Tsodilo is on Tawana Tribal Territory. Even if it is a National Monument, it is still the property of the people living on Tribal Land. Development of the Monument by NMMAG will be for the benefit of the Nation, the District Council, and finally for the community living at Tsodilo, who will receive increased economic opportunities. It will benefit tourism in the District by offering an organised alternative to wildlife and the Okavango Delta.

NMMAG is spending some P800 000 in the first instance without the District being asked to contribute anything. However, while NMMAG will always be responsible for costs of developing the Monument, it would seem fair that the Council help with development of the local community who will be deprived of the opportunity to become a

recognised village with all that implies. Such deprivation will certainly offer them new economic opportunities, but will not provide them with a school, village water supply, clinic and other facilities.

For these reasons, I look at and discuss all apparent options for water development:

(i) Borehole No. 1 is equipped by NMMAG for domestic use by both it and the local communities, while a well is sunk at Qomaqau by NMMAG for livestock. NMMAG will remain responsible for the Borehole (running and maintenance), while the communities share and operate the well themselves. Water would need to be piped about three kilometres to a place between the Mbukushu and proposed Zhu villages. Borehole No. 2 is capped.

(ii) Both boreholes are equipped by NMMAG. No. 1 is reserved for use only by NMMAG and is run and maintained by it. No. 2 is given to local communities for their domestic use only and is run and maintained by them. The well is dug by NMMAG at Qomaqao and is used by both communities for stock watering who run and maintain it.

(iii) Both boreholes are equipped by NMMAG. No. 1 is reserved for use only by NMMAG and is run and maintained by it. Borehole No. 2 is given to both communities and can be used for both domestic and stock watering. In this event, a fence is erected running south to north about two-and-an-half kilometres northwest of the Mbukushu village, and stock are kept on the west side, while water is piped through the fence. The well at Qomaqao is not dug. The borehole is run and operated by the Communities.

(iv) Borehole No. 1 is equipped by NMMAG. Borehole No. 2 is treated as a village water supply and is equipped and run by Council. A decision would then be needed respecting water for stock. Either it provides water for both domestic and stock use, or it provides only water for domestic use and the well is dug at Qomaqau.

(v) Borehole No. 1 is equipped by NMMAG and used by it for the Monument. Borehole No. 2 is equipped by Council and used for both domestic and stock water supplies. NMMAG erects a fence between the grazing area to the southwest and the two settlements. The Communities are told to dig their own wells at Qomaqau and to move their stock away from Tsodilo during the next five years.

(vi) This option is virtually the same as Option (v) except that NMMAG funds equipping of both boreholes and then hands Borehole No. 2 to the District Council to operate on behalf of the community.

Option (i) involves NMMAG in supplying domestic water to two local communities on a fulltime basis. As described under 5.3.5., I believe it would be a serious mistake for NMMAG to become involved in supplying water to local communities. NMMAG will have enough problems operating and maintaining Borehole No. 1, let alone operating and maintaining a separate village water supply; it would only lead to friction. In addition, there is no guarantee that a new well dug at Qumaqau would be successful, since the existing well is now dry.

Option (ii) requires the Hambukushu and Zhu jointly to operate and maintain a borehole. Apart from their lack of understanding of a borehole, friction would arise between them over both operating and maintenance costs. The well could easily prove a problem as outlined above.

Option (iii) gives Borehole No. 2 to both communities jointly for domestic and stock use. Again, the communities do not know how to operate and maintain a borehole and friction is likely to arise.

Option (iv) involves the District Council which would have to equip and maintain the borehole. Council would need to supply, at least initially, water for stock and would have to recover costs from stock-owners. Later, a well or borehole could be sunk at Qumaqau, and stock slowly moved away from the village. This is the option most likely to work, but it will involve Council in considerable expense and the need to operate and maintain a borehole in an unrecognised village.

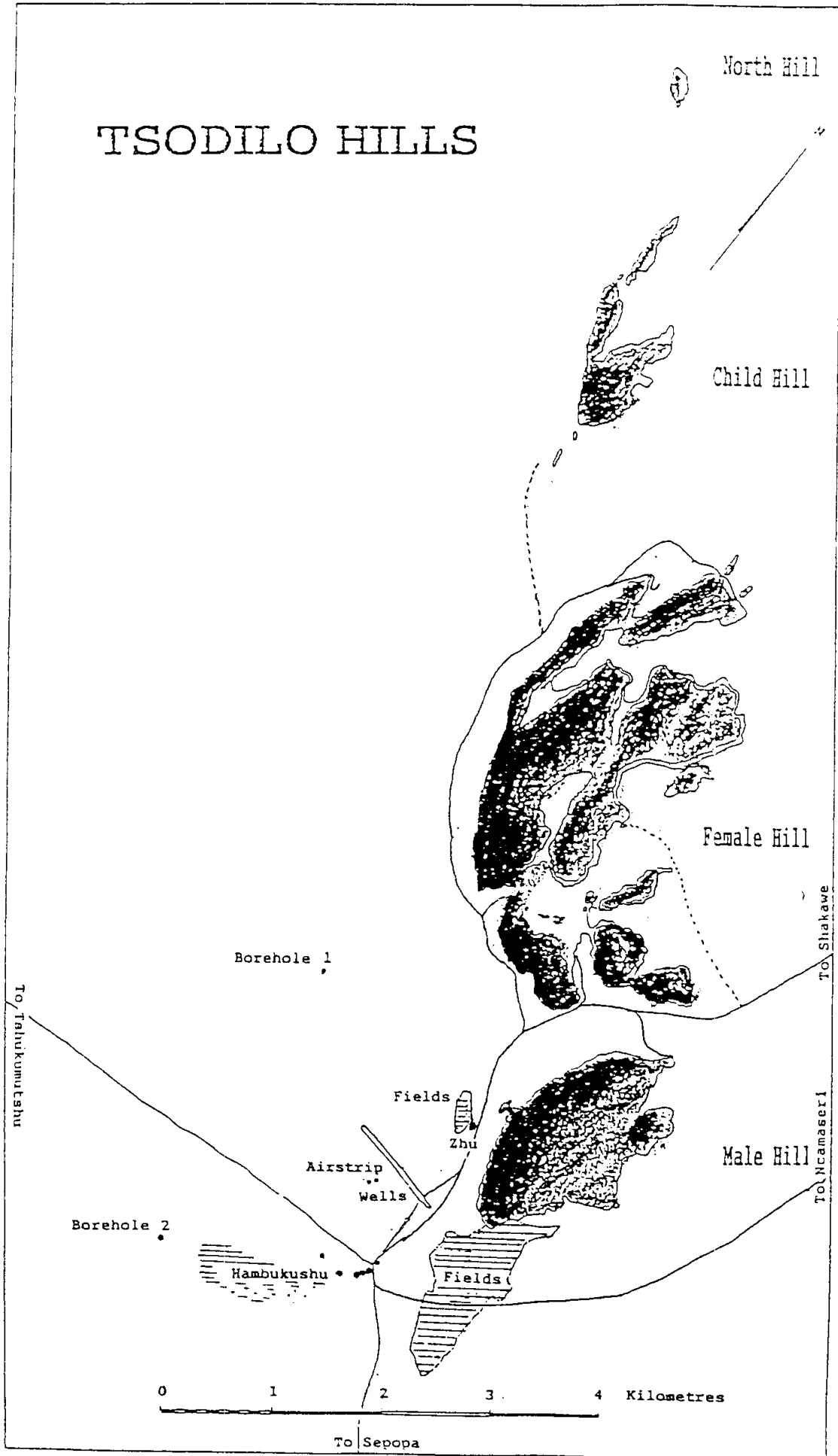
Option (v) is generally the same as Option (iv), but could be used to set a time limit on grazing near the settlements and place the onus on the two Communities to develop their own stock watering points at Qumaqau.

In support of Option (v), it must be remembered that, in the interests of conserving the Monument, the two communities, Hambukushu and Zhu, will be prevented from growing to a size recognised as a village, and will probably never have the means to provide the facilities which Government offers elsewhere. In addition, they will have been deprived of their existing water supplies and much of their winter grazing. For these losses they are entitled to compensation,

probably in the form of a reliable water supply. In addition, Council could implement the proposals for the Tsodilo grazing areas contained in the District Development Plan.

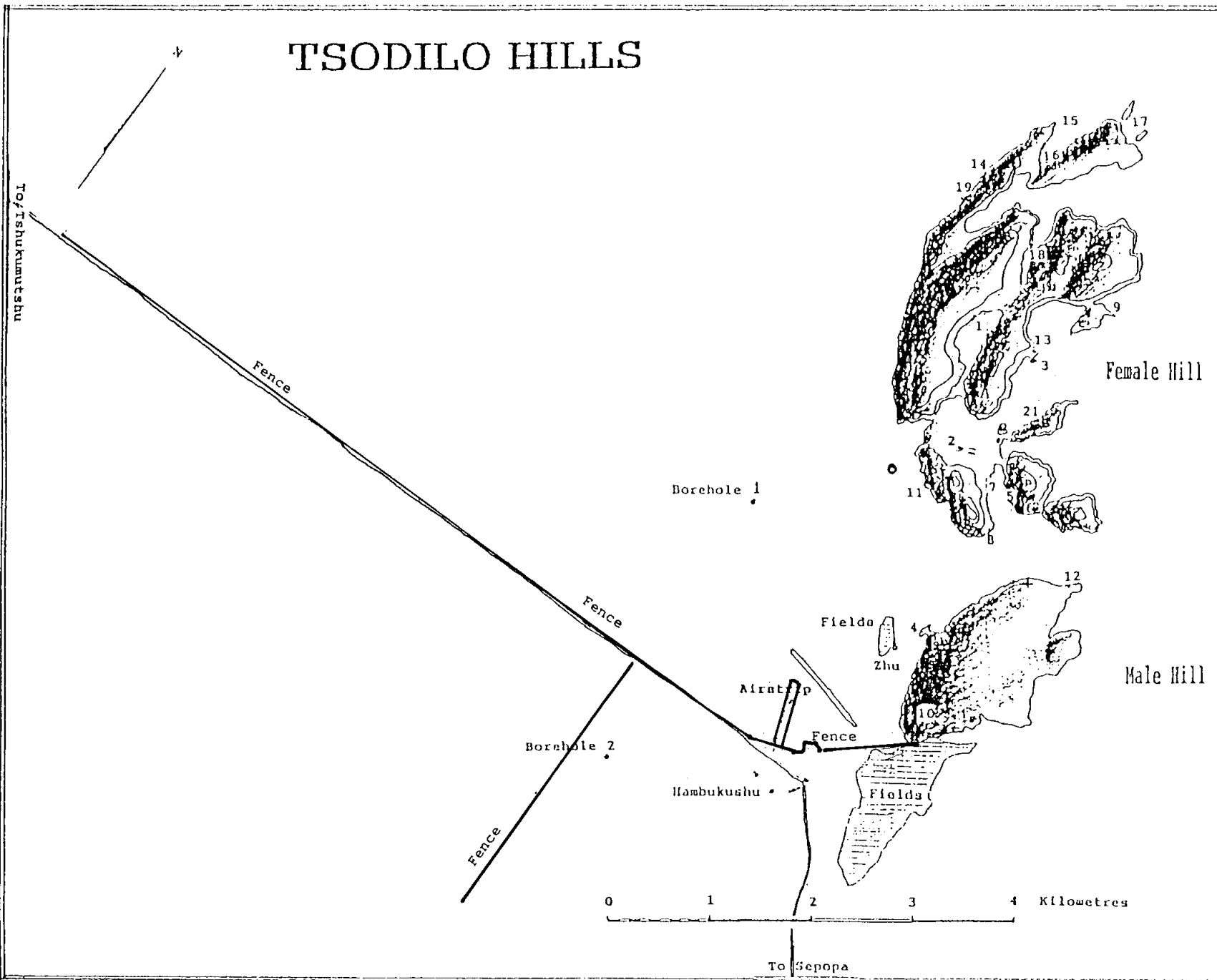
Option (vi) means that NMMAG must find the funding for both boreholes, but requires Council to take over the operation and maintenance of Borehole No. 2. At least, NMMAG would not be involved in trying to run a domestic water supply.

I recommend that every consideration should be given to Option (v) which incorporates a high measure of compensation to the communities for their losses, relieves NMMAG of the problem of operating and maintaining a community water supply (thereby almost certainly avoiding future friction), and merely advances Council's obligation to supply water when the village would have grown to 'recognised village' size, possibly in five years time.



Map 1 Base Map indicating Settlements, Fields, Airstrip, Boreholes and Through Road to the West.

TSODILO HILLS



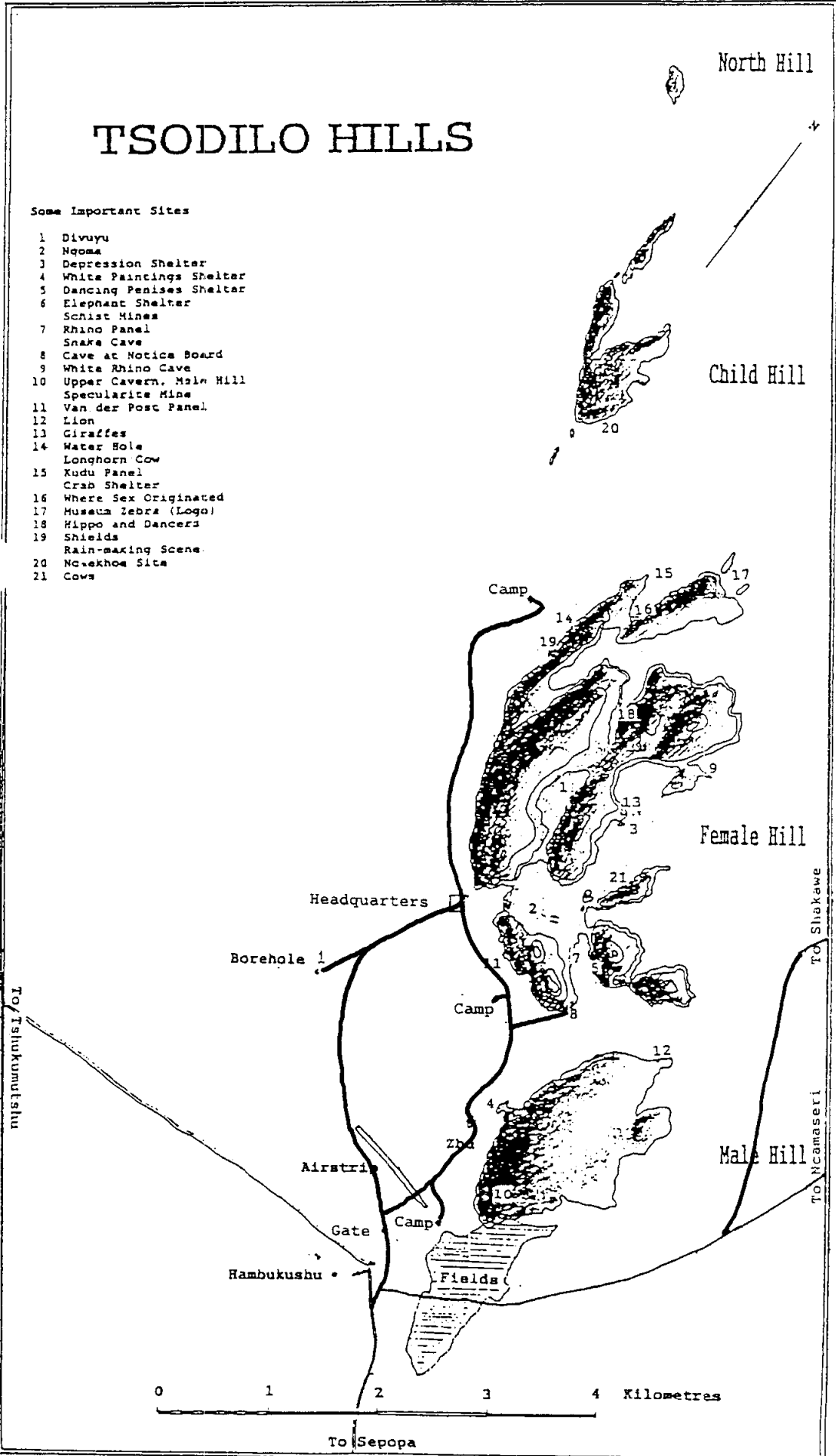
47

Map 2 Proposed Fences (indicated in red).

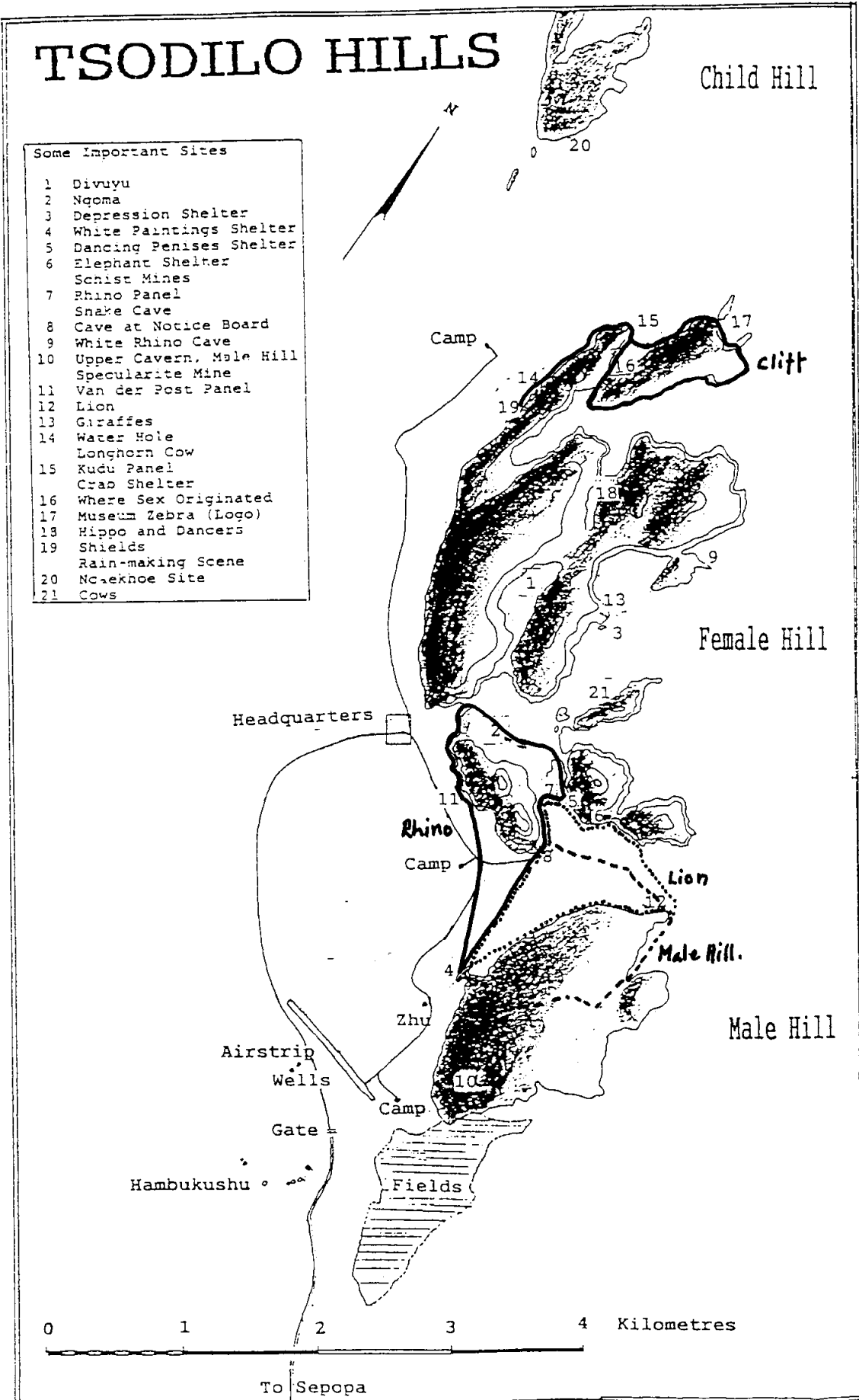
TSODILO HILLS

Some Important Sites

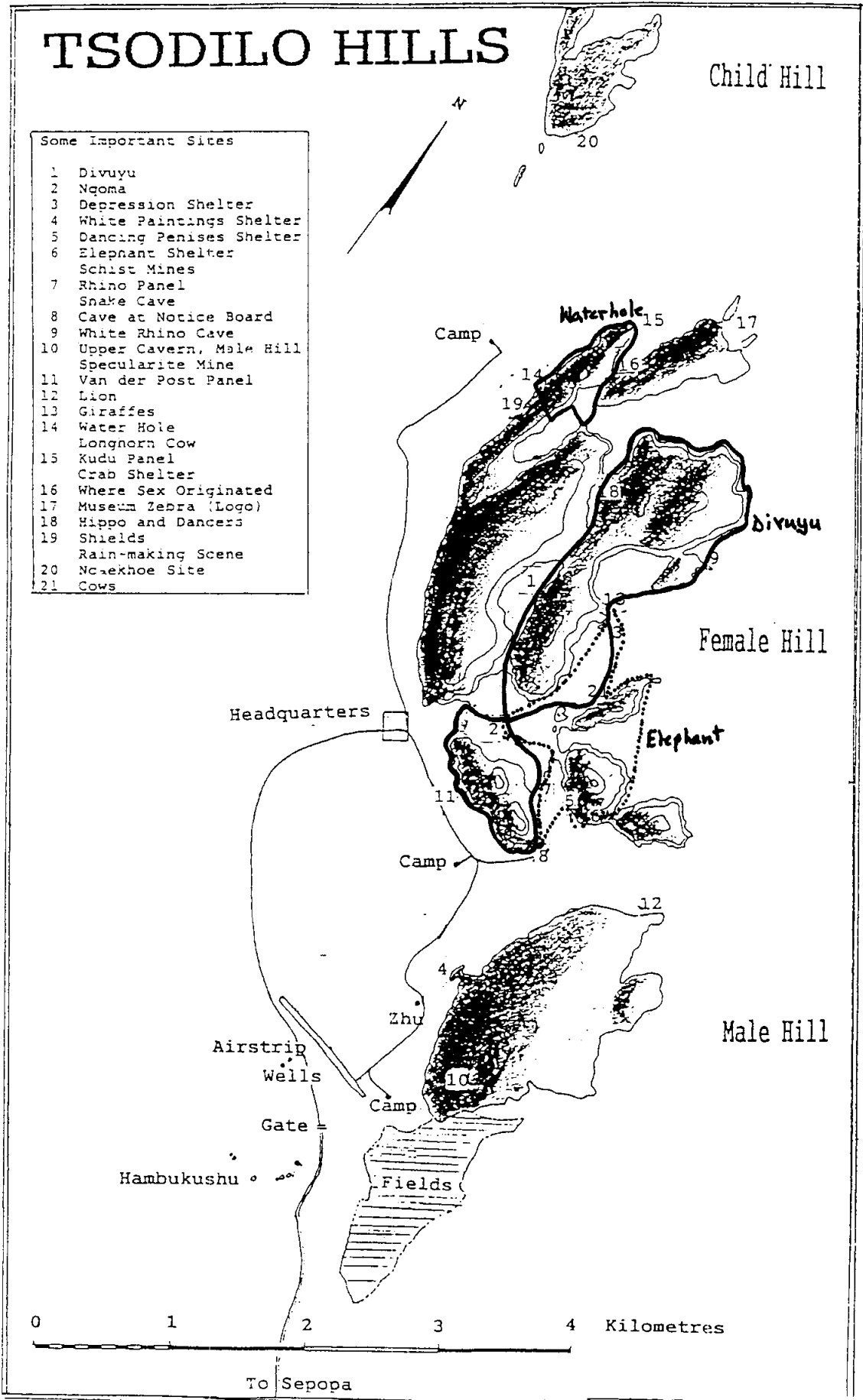
- 1 Divuyu
- 2 Ngoma
- 3 Depression Shelter
- 4 White Paintings Shelter
- 5 Dancing Penis Shelter
- 6 Elephant Shelter
- 7 Schist Mines
- 8 Rhino Panel
- 9 Snake Cave
- 10 Cave at Notice Board
- 11 White Rhino Cave
- 12 Upper Cavern, Male Hill
- 13 Specularite Mine
- 14 Van der Post Panel
- 15 Lion
- 16 Giraffes
- 17 Water Hole
- 18 Longhorn Cow
- 19 Kudu Panel
- 20 Crab Shelter
- 21 Where Sex Originated
- 22 Museum Zebra (Logo)
- 23 Hippo and Dancers
- 24 Shields
- 25 Rain-making Scene
- 26 Ncakhoe Site
- 27 Cows



Map 3 Proposed Headquarters, Entrance Gate, Camps and New Roads.



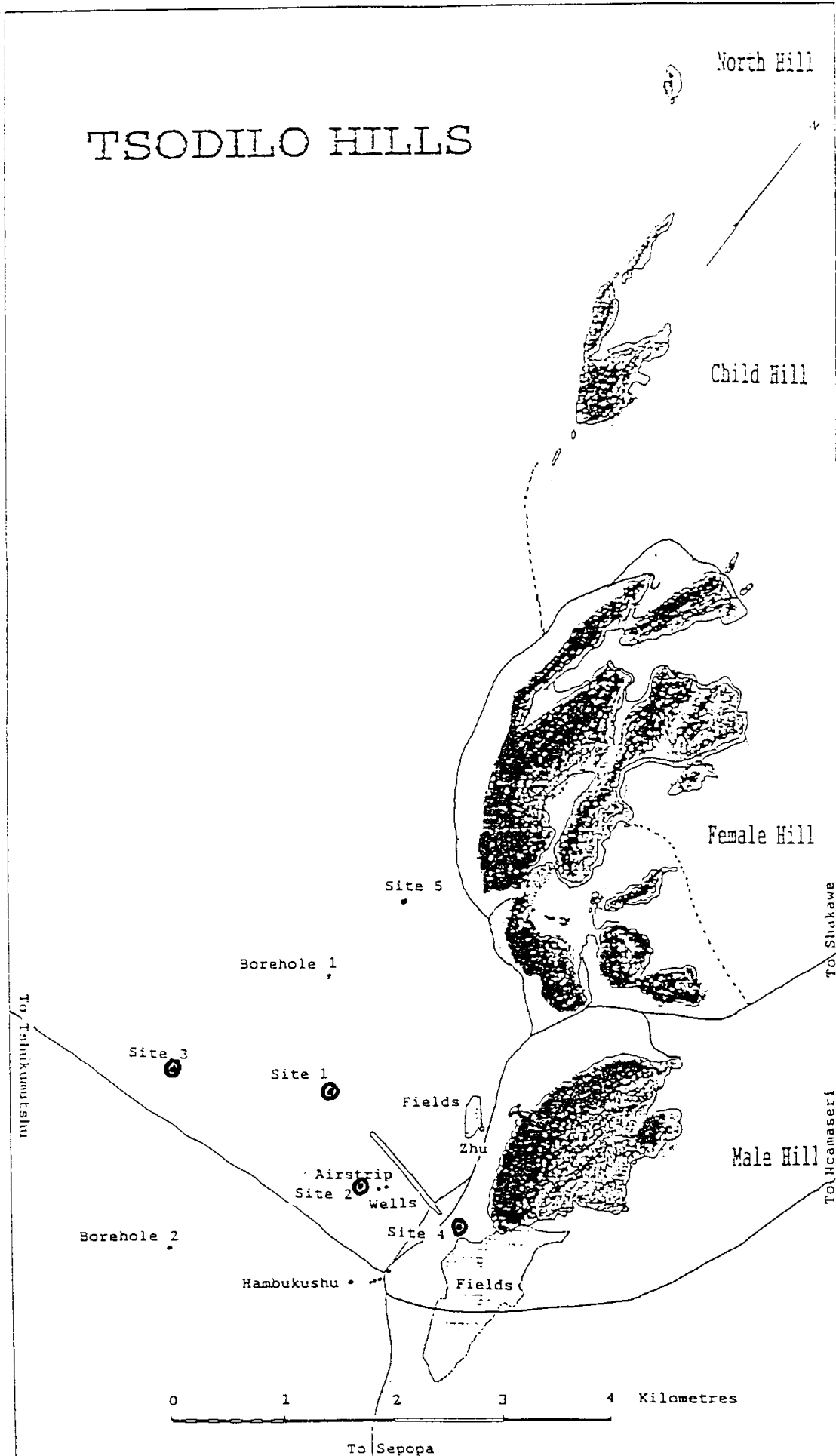
Map 4 Proposed Free Walking Trails (indicated in red).



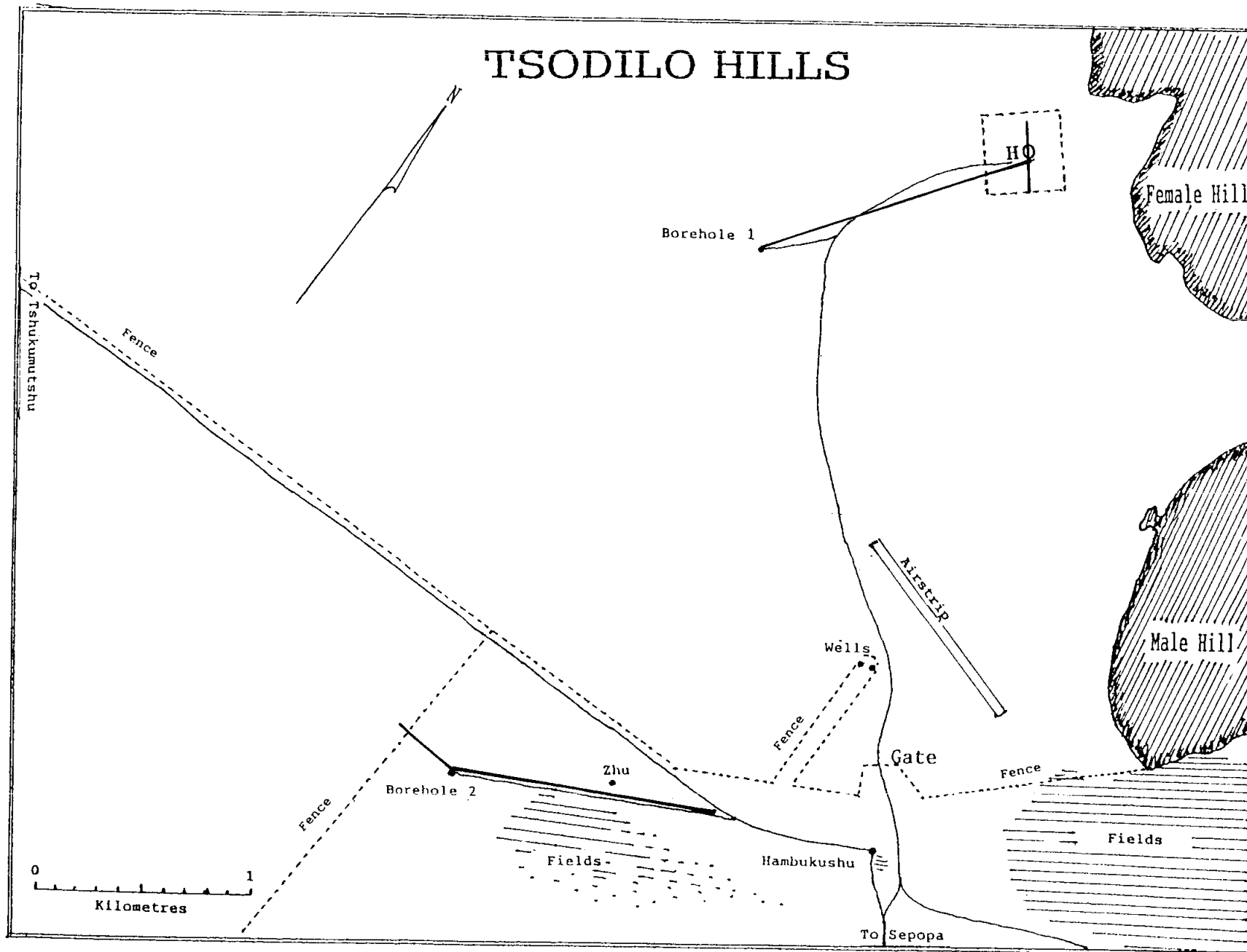
0 1 2 3 4 Kilometres

To Sepopa

Map 5 Proposed Guided Walking Trails (indicated in red).

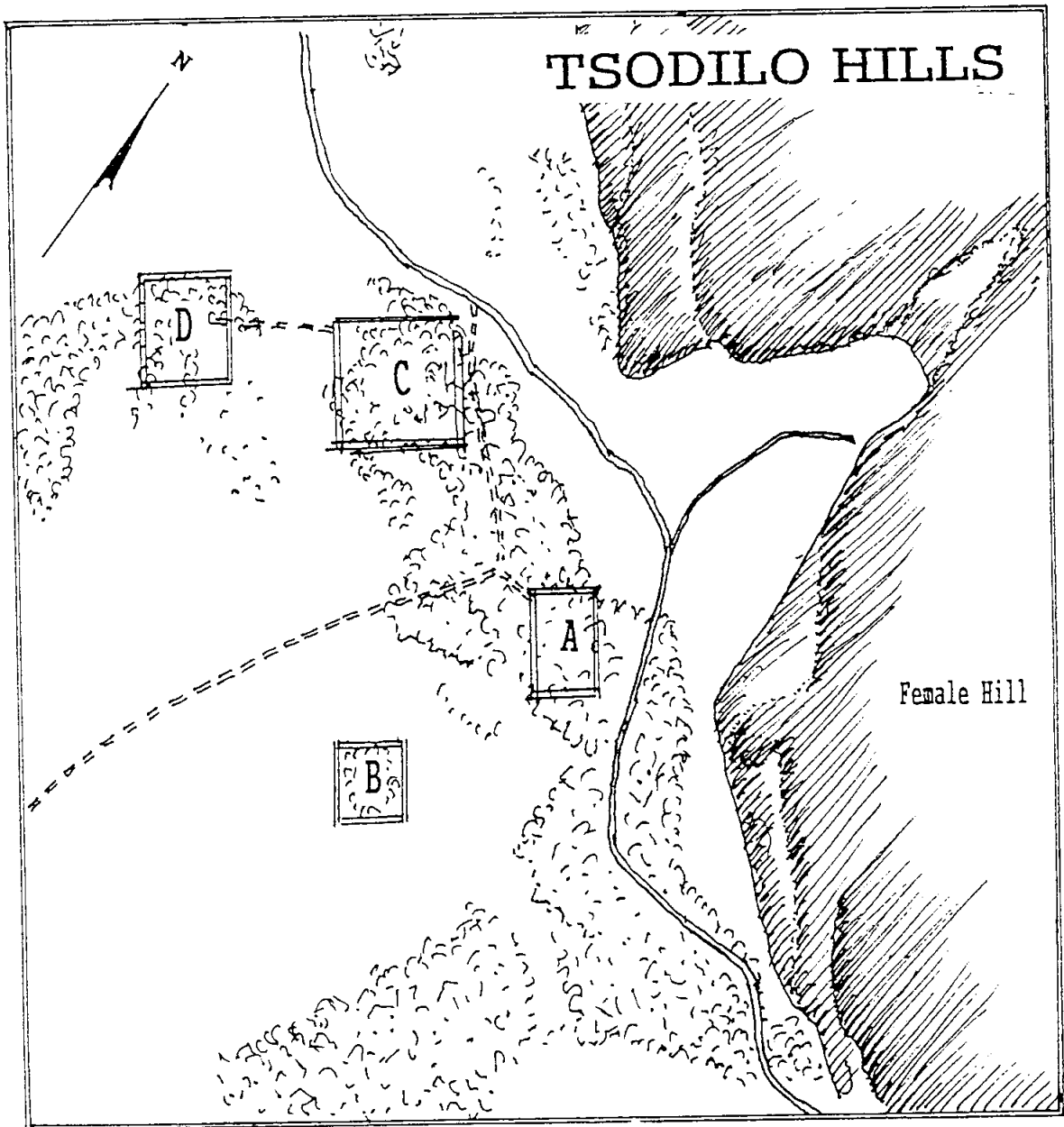






Map 6 Original Proposals for Headquarters Sites (ringed in red).



Map 7 . Water Reticulation (indicated in red).

Plan of Suggested Layout for Headquarters



	Existing Road	A	Site Museum
	Proposed Entry Road from Gate	B	Staff Housing
	Taller Trees	C	Main Public Campsite
	(Not drawn to scale)	D	Dry Weather Campsite
			Female Hill

AMENDMENTS TO THE TSODILO MANAGEMENT PLAN

INTRODUCTION

The internal Tsodilo Management Committee has reviewed the Tsodilo Management Plan of 1994 by Alec Campbell. This was essential in order to keep in pace with recent developments. Discussions were held on 25th May 1999, 26th June 1999, and 18th October 1999. The review was focussed mainly on crucial aspects of the Management Plan affecting the implementation of the project.

Item 3.2 reads: Currently, the community at Tsodilo is not recognised as an established village and is not eligible for provision of facilities like schools and piped water. However, the community has rights like any other community and, in common with national practice, would expect to be able to grow by immigration from surrounding rural areas until it attains 500 members and qualifies for village status. The Management Plan recognises that the future of the monument depends largely on keeping the area in a 'pristine' condition, and that development must be limited. To this end, the Community must receive other benefits, which will compensate it for loss of those normally available to recognized villages.

Amended to read: While it is important to keep the area in a 'pristine condition', by minimising developments, Community development should not be hampered. The NMMAG has a responsibility of managing the management and core area. Therefore, NMMAG should encourage and advise the Community on how to centre their developments on tourism related activities. The Community has to be part of the developments at Tsodilo so that they can be able to identify with the project. Further consultations with the Community are recommended.

Item 5.2.4 reads: A fence would probably not serve a useful purpose. It would be subject to breakage by elephants and to theft by people. If people wanted to introduce their stock into the area, they would simply break the fence. It would require constant patrolling and maintenance which costs would outweigh its usefulness.

Amended to read: A hired local resident will do constant patrolling and general maintenance of the fence.

Item 5.4.11 reads: Outside the ablution blocks, four basins should be provided for clothes washing, and wastewater be led into a soak-away. Under no circumstances should tourists be allowed to wash clothes at their campsites and then throw detergent on the ground. There should be at least four water taps provided near the ablution blocks from which tourists can fill water containers. Later, consideration can be given to providing water at individual camping areas.

Amended to read: Regulations restricting the use of laundry facilities should be put in place to minimise the changes in vegetation associated with increasing amounts of water released from ablutions and washing facilities. Thus, the effects of detergents in the environment and the use of water should be monitored.

Item 5.5.1 reads: Currently the poor condition of access roads helps to limit vehicle tourists to those who really wish to experience the monument. Improvement to access roads will increase numbers of tourists and reduce the wilderness quality of the experience. Under the circumstances, at this stage it is recommended that no improvement be made to the actual condition of access roads.

Amended to read: Currently, the poor condition of roads limits access to those with suitable vehicles. While, restricting some locals, access to the site. During the implementation of the management plan, the Nxamasere to Tsodilo road should be improved. Tourists who wish to enjoy the wilderness quality of experience would use the Sepopa to Tsodilo road, which will not be improved.

Item 5.5.11 reads: Internal Roads - Currently there are a number of internal roads and vehicle tracks. Most of these need to be closed, and a new north – south road made on the West Side of the Hills.

Amended to read: As stated in the main management plan, unnecessary roads and tracks should be closed. Local people should be involved in the naming of internal roads, giving them local names.

Item 5.6.8 reads: The following Walking Trails are proposed at this stage, while others may be developed later.

Amended to read: The following Walking Trails are proposed at this stage, while others may be developed later. These Walking Trails should also have local names.

Item 5.8.3 reads: Signboards should be of good quality, not similar to metal and paint boards used in the past. They must be long lasting and it must be impossible for painted letters to be scraped off with a knife. It is probably better to pay three times the cost of a metal and paint board and not to have a lot of maintenance, than to erect a cheap board, which requires regular repair.

Amended to read: Signboards should follow specifications for monument signage as outlined in the Museum publication: ‘Visual Design Manual’. They should be standardised, professionally written, professionally fabricated, and durable.

Item 5.9.1 reads: Fencing will be needed to control stock grazing and visitor entry.

Amended to read: Fencing should be done in consultation with the Community. The fence should be built according to Government specifications, such as those for the Veterinary Department. High strain wire and gum poles are recommended. Mesh wire should not be used because cattle can easily damage it.

Item 5.10.3: I suggest the airstrip is not moved at this stage, but improved. The Management Plan states that advice has been sought from Civil Aviation. Some improvements could be effected locally without the use of machinery. Calcrete lumps could be removed from the runway and the flight paths at either end better cleared. A new windsock mast is needed and better markers should be placed at the ends of the runway. The runway should be dragged more frequently with oxen and thorn bushes and incipient thorn removed. The existing notice board should be replaced when landing fees are introduced.

Amended to read: The airstrip should be handed over to the Department of Civil Aviation for management purposes. Due to the influx of tourists the airstrip should be upgraded.

Item 5.12.3 reads: Later, it might be possible to pump water into an existing depression near Headquarters and thus attract species such as Zebra and elephant, which still occasionally visit the area.

Amended to read: Water should be pumped into an existing depression near the museum headquarters to attract wildlife within the fenced area.

Item 5.13.3 reads: NMMAG is anxious to have its own curio shop so that it can raise standards, control prices and make revenue. Such a curio shop should not conflict with local trade, especially as the latter is already established; rather it should complement it. The question of a curio shop should be discussed with the Community to determine what is possible. It may be that a Community member would like to establish such a shop.

Amended to read: It is not viable for Government to have its own curio shop especially in a remote area such as Tsodilo. Attempts to run a curio shop in Gaborone at NMMAG have been unsuccessful. It is recommended that the curio shop should be a Community project. Other viable Community projects should be looked into.

Item 6.3.1 reads: Local staff should be hired to undertake as many duties as possible, and should fill all the following posts: Labourer, Camp Keeper, Pumper and Shop Assistant, etc. As stated above, enquiries should be made at Tsodilo as soon as possible to determine who living there has qualifications and is interested in employment with the Museum. It may be that people exist with at least Junior Certificate who could undertake some middle level jobs like public relations and revenue collection.

Amended to read: Locally available skilled manpower should be utilised as much as possible. Recruitment of local staff should not only be confined to Tsodilo, it should be extended to the neighbouring villages.

Item 6.4.2 reads: The National Museum should work out now possible options for a private administration – contract and commence sounding out Tourists Companies to ascertain possible interest. Options have been listed above, but could include, on the part of the museum:

Allocating certain rights to a concessionaire for a fixed period of time (say one or two years) at an annual fee paid in four installments – before commencement, at end of first year, at end of next six months, and at end of second year.

Allocating certain duties such as maintaining the water system, ablution block and airstrip, cleanliness of camps, trash collection and disposal, etc.

And on the part of the concessionaire:

The right to charge camping fees, provide a private luxury camp at a stipulated place close to monument Headquarters, collect landing fees, hire out motor transport, and run a curio shop.

Amended to read: Administration of the project will be the responsibility of NMMAG. The NMMAG will adopt the first option proposed by the management plan, for staff deployment (Item 6.2.4). NMMAG will appoint existing staff on a full time basis, that is, the Manager and driver. There will be no need to contract a private company or a Non Governmental Organisation.

Item 7.2.1 reads: Entry to the Monument must be by the Entry Gate and subject to some form of entry permit. The permit should stipulate the number, names and nationalities of entrants, number and make of vehicles, and duration of stay. On the reverse of the permit should appear a copy of the Monument Regulations. Such permits are vital for gathering statistics.

Amended to read: The Department of Wildlife and National Parks should be approached for advice on the design of entry permits to the monument. The entry fees that are proposed in the Management Plan Section 7.2.2 are to be revised before the project commences.

Item 7.2.2 reads: Careful consideration will have to be given to the question of entry fees. Elsewhere, fees are used to collect revenue and to control tourist numbers (the higher the fee, the fewer the tourists and the shorter their stay). Collection of money requires an appointed revenue collector and monthly deposit of revenues. This can create problems. Secondly, there is no current need to control tourist numbers, although this will arise in the future. I propose that for the first six months no fees are charged for entry, so that staff can become accustomed to the entry system. After the first six months, I suggest the following fees:

Aircraft landing fee	P20 (pilot not charged entry fee)
Vehicle under 2 tonnes	P2
Over 2 tonnes	P20
Resident of Botswana	P2 per day
Non-Resident	P10 per day

Provision should be made for exempting certain classes of people from the need to pay fees: organised school visits, people with research permits, V.I.P.s on official visits, etc.

Amended to read: Changes in revenues generated at the site will indicate changes in popularity of the site as a tourist destination. Therefore, the issue of entry fees should be re-visited.

Item 7.3.1 reads: Firewood collection should be controlled since it has already denuded a few areas of heavy dead wood. It is also a means for local people to make money.

Amended to read: The NMMAG should seek advice on both seasonal and long-term changes at a large scale on all the available resources such as water and firewood, so as to make informed decisions on their use.

Item 7.4.4 reads: There should be a heavy fine for people caught littering, perhaps P100 fine should be implementable on the spot.

Amended to read: An on the spot charge of P500.00 should be levied against people who are caught littering. This should be in accordance with the Monuments Regulations incorporated in the revised Monuments and Relics Act 1970.

Item 7.8.1 reads: Other forms of tourism should be encouraged. Already, the Zhu make fairly substantial money from tourists through photography, curios, and dances. Above, it has been suggested that this type of tourism should take place in the existing, but cleaned up, Zhu village.

Amended to read: Photographing of local people should be through their permission. The NMMAG discourages exploitation of the local people through photography. These people should know that they have the right to consent to being photographed and can charge those interested in photographing them. Laws regulating commercial photographing within the monument will apply at all times and the NMMAG shall make sure that they these laws are enforced. Visitors should be advised to apply for permits for any type of research or commercial endeavour.

Item 7.10.2 reads: Some form of statistics collection must be devised. Existing statistics are too fragmentary to be of any real value. It could be useful to start now with circulation of a form to Tourist Operators seeking information from them. Later, it is most important to collect statistics and information directly from tourists.

Amended to read: Tourism statistics should be gathered through information forms. The existing forms should be revised and updated.

DRAFT

EVALUATION OF THE TSODILO HILLS
MANAGEMENT PLAN AND ITS IMPLEMENTATION

by

Professor Pierre de MARET

for

UNESCO/NMMAG

AUGUST 1995

EVALUATION OF THE TSODILO HILLS MANAGEMENT PLAN AND ITS IMPLEMENTATION

1. Summary
2. Introduction
3. Management Plan and its Implementation
4. Guiding Philosophy
5. Conservation
6. Planning of Archaeological Research and Training of Museum Staff
7. Material for School Curriculum
8. Implementation of Cultural Tourism
9. Infrastructure
10. Social Aspects
11. Staff and Management
12. Finances
13. Implementation Strategy
14. Recommendations

Appendices

1. a) b) Terms of Reference
2. Mission Agenda
3. List of Contacts
4. Bibliography and List of Documents
5. Extracts from Tsodilo Visitor Surveys

1. SUMMARY

Tsodilo is a major landmark in the Kalahari Desert. It is not only a wonder of nature but also a rock art area of major international significance. This series of archaeological sites going back to the Middle Stone Age, tens of thousand years ago, contributes greatly to the understanding of how Botswana's various ethnic groups lived in the past. It provides, for instance, evidence for early cattle keeping or for very elaborate metallurgies dating from the 5th century AD.

Local and foreign tourists in growing numbers are attracted by the site whose difficult access is appreciated by most visitors as a kind of "wilderness experience". Tsodilo Hills has a significant tourist potential because the whole of the Northern Botswana/Victoria Falls area is steadily becoming a major international tourist destination. As the attraction develops, there will be an increasing need to diversify activities, especially with the current trend in limiting access to National Parks through a booking system.

Declared a National Monument in 1927, the responsibility of looking after Tsodilo Hills rests with the NMMAG since the Monuments and Relics Act of 1970. In order to protect, research and develop the site, the NMMAG has formed an Advisory Committee and prepared an Interim Management Plan, supported by a Scheme for Implementation. These documents are among the very best of their kind produced south of the Sahara to date. They are both thorough and very practical. Funds were made available from the government, mostly for infrastructure, and from SIDA for consultancy and documenting the rock art.

Work on the infrastructure started in late 1994. Elements include track, fencing, trails, boreholes, a water tower and levelling. Since then, two junior members of the NMMAG staff and a Peace Corp volunteer camp there.

This report is an evaluation of the various components of the Tsodilo Management Plan and its implementation. The main objective of cultural management is to protect and preserve cultural heritage together with important natural sites - but this constitutes a challenge. How can the safeguard of heritage be balanced with the need to increase knowledge through research and education and the needs and desires of local communities. While tourism provides a wide range of opportunities for rural people and increased revenues for the government and governmental bodies, it needs to be closely monitored.

Botswana already has several ongoing natural resource management projects. Tsodilo Hills thus offers a unique opportunity to launch an innovative, cultural resources management project. It could be used as a demonstration project not only in the country but for all of the SADCC region. This should be done by collaborating closely with other government departments such as Wildlife and National Parks, Tourism or Land Use. The broad picture, and especially the tremendous tourist potential of the whole area, should be kept in mind. This will develop gradually and the management of Tsodilo should be planned accordingly.

At this stage, conservation is, and must remain, the top priority. The most pressing threats related to conservation are adequately addressed in the Management Plan. Natural degradation of rock art, mostly through exfoliation and seepage, has been a continuing process for centuries. The cost of checking the spread of these problems will only be justified for some major panels should it become necessary. Graffiti can be prevented by better control of visitors: monitoring access, visitor registration and by hiring appropriately trained guides and guards. Zionists tramping around the area during rituals is a matter of concern and must be addressed. Maps at adequate scale should be commissioned.

In order to ensure optimum conservation of Tsodilo Hills, given their significance for Botswana, Africa and mankind in general, it is strongly recommended that this site be put on the World Heritage List. Botswana should sign the UNESCO Convention (1972) concerning the protection of world cultural and natural heritage. Tsodilo Hills meet all the criteria justifying being put on the list of cultural heritage sites as a 'Site' in the meaning of Article 1 of the above mentioned Convention. Having Tsodilo put on the World Heritage List should be a priority for the Botswana government. It will help in marketing the site to tourists, in raising additional capital and in negotiating international assistance.

The proposal should be brought up at the UNESCO/ICOMOS meeting to be held in October 1995 in Harare, precisely in order to identify and enlist more cultural heritage sites in Africa.

For the sake of conservation as well as research, the systematic recording of all the rock art should be carried out. A duplicate of all the records should be kept on location in order to verify any chance discovery. While research projects in archaeology are already being carried out, more attention should be devoted to the Later Iron Age, recent history and the ethnography of the Tsodilo communities. Much more attention should be paid to the natural history of the entire area. The NMMAG should take the initiative to devise a systematic research plan and encourage field work where it is needed. This will

Maun concerning boundaries of areas and fencing. Recent veterinary fencing has also modified cattle stock movement throughout the area.

Relations between NMMAG and the two local communities require delicate handling. A top-down approach in balancing the needs of conservation with those of the local people fails most of the time. It is thus strongly recommended that an innovative approach in cultural conservation be designed. Drawing on the experience of the "National Resources Management Project" of the Department of Wildlife and National Parks, a pilot "Cultural Resources Management Project" could be developed. As a pilot project demonstrating community-based cultural and natural resource utilisation, it should not be difficult to attract donor funding. The originality of this approach should appeal to many and the NMMAG will ultimately not only be responsible for conservation of the heritage but also play an active role in the sustainable development of the whole area. The experience thus gained by the NMMAG staff will be useful for heritage conservation projects in other areas. Such an approach will require placing someone within the communities for several years. It will be up to this person to promote a dialogue between the NMMAG and the two local communities and to help in launching income generating activities. These could take the form of, for example, joint ventures, craft production, local transportation (by donkey cart), performances, nature trails, tracking, etc.

Staffing is the single most important factor in the successful implementation of the management plan. Unfortunately the NMMAG is under-staffed, especially as far as archaeology is concerned. As the development of Botswana requires an increasing concern for heritage conservation across the country, the NMMAG is compelled to decentralise and to regionalise activities. There is a particularly pressing need to have a NMMAG representative in Maun. This representative should not only oversee Tsodilo, but the Gcwihaba hills and caves, and the special management zone for sites of interest in the various National Parks in the area as well. The District, Land Use and Wildlife have strongly requested that a museum representative in Maun act as a facilitator between the various concerned parties and supervise activities on the different sites. A carefully selected contract officer, probably an expatriate, should be appointed initially. As this will connect closely with a Commission of European Communities funded project for the Department of Wildlife and National Parks, the CEC should be approached in this matter.

Meanwhile in Tsodilo, under the supervision of the NMMAG person in Maun, another person could be appointed, mainly to launch communal and rural development activities and to simultaneously oversee on a day-to-day basis the implementation of the various phases of the management plan. The Netherlands Development Organisation (SNV/NDO) is willing to provide a Development Associate to be based at Tsodilo on

short notice. This opportunity should be taken under close supervision from NMMAG. A detailed job description should be written for those two positions. Once the most pressing supervision problems are solved, a Motswana should be hired as a manager in training and be put in charge gradually. Local staff should be hired and trained as the local communities should benefit as much as possible directly from the project.

NMMAG local management should be granted more autonomy, due to the problems of communication with Gaborone. This applies also to the financial aspects of the project to which inadequate attention has been devoted thus far. There is a strong need for less centralised, more flexible management of available funding, especially in a community development perspective. NMMAG needs more autonomy to operate. The experience in other countries proves that the most successful museums are "parastatals" that can generate some cash on their own, in addition to the recurring budget covered by the government. In the short term, this could be partially achieved by simply implementing the Monuments and Relics funds provided by Article 15 of the 1970 Monuments and Relics Act. This is of the utmost importance for NMMAG. In any case, the recurring budget should be increased to cover all the new developments to take place in Tsodilo. This should be put in the new National Development Plan (NDP 8).

Experience shows that investment in cultural heritage conservation and development pays back and is thus a sound investment from an economic as well as from a social point of view. It is becoming increasingly recognised by the highest level of government that tourism is the biggest growth industry in Botswana. This growth will take place over a period of several years. The strategy to implement the Tsodilo Hills Management Plan should take that into account and be planned accordingly, in several phases. It is better not to rush in setting up major infrastructure until needs have been identified and until it is clear that these needs are harmonious with the detailed strategy of conservation and local development to be elaborated in continuous collaboration with various concerned parties.

2. INTRODUCTION

The Tsodilo Hills consist of four micaceous, quartzite schist outcrops situated in the north-west corner of Botswana, 40 km west of the Okavango River. Known as 'Male', 'Female' and 'Child', the three main hills stretch in a line extending 10 km north-west. Male, the tallest and most compact, rises about 400 m above the surrounding flat plain. Separated by a gap of some 500 m lies Female, a conglomeration of smaller summits and valleys covering some 12 sq kms. Almost 2 km beyond is Child, a much smaller hill forming a V-shaped ridge.

This cluster of hills isolated in the middle of the Kalahari, forms a spectacular landscape which has attracted human interest since very early days. Part of the attraction to these hills was the numerous rock overhangs providing natural shelters and a number of perennial springs and water holes. Human occupation of the hills can be traced back to over 50,000 years ago as Middle Stone Age and Late Stone Age levels have been excavated in some of the caves. Important Early Iron Age sites, dating from between the 5th and the 11th centuries AD have also been located, providing some of the earliest evidence for cattle keeping in the area. Large collections of iron and copper tools and ornaments, as well as evidence for smelting demonstrate the mastery in metallurgy by the ancestors of the present day people. But the most spectacular archaeological feature of Tsodilo Hills lies in the presence of over 4,500 rock paintings. Once abundant wildlife has been disappearing rapidly in recent years. Kudu, leopard, warthog, monkeys and brown hyena are among the more common remaining species. Many varieties of plant and fruit trees grow on the hills.

Today the area is occupied by two groups of people, Zhu (San) and Hambukushu (Bantu). The total population of these two communities is about 110 persons. The whole area remains quite isolated as the access tracks from the Gumare/Shakawe highway are 50 km long, with a travelling time of approximately two hours with a four-wheel drive vehicle. A small airstrip also allows visitors to be flown in.

Combining highly unusual artistic, archaeological, ethnographic and natural features, plus the chance of a wilderness experience, the place attracts visitors from far afield, in an ever increasing number. This has unfortunately resulted in problems of vandalism and other abuse so a better system of looking after the area needed to be devised. As Tsodilo Hills was declared a National Monument in 1927, the responsibility of looking after it rests with the National Museum, Monuments and Art Gallery (NMMAG) since the Monuments and Relics Act of 1970.

In order to accomplish this, and due to the complexity of the project, a Tsodilo Advisory Committee has been formed to inform and advise NMMAG on setting up appropriate management practices. An *Interim Management Plan* was prepared in 1993 by N. Walker of the NMMAG. At the end of that year, A. Campbell was appointed as a consultant by Folkens Museum, Stockholm and was asked to make a feasibility plan for implementation. This resulted in the production in February 1994 of a *Scheme for Implementation*. Meanwhile, in November 1994, the author of this report was contacted by UNESCO Harare and asked to undertake a mission aimed at providing the NMMAG with a management plan for safeguarding and controlling the exploitation of Tsodilo Hills (Appendix 1a Terms of Reference).

As the NMMAG had already made extensive progress on the management strategy of Tsodilo, it slightly amended the initial terms of reference. Evaluation and assessment of the various components of the Tsodilo Management Plan were requested instead (Appendix 1b Terms of Reference). Hence the objective of this report.

This report is based on a two week mission (5-18th June 1995) in Botswana at Tsodilo (Appendix 2 Mission Agenda) and over 40 interviews and numerous discussions with people in Gaborone, Maun and Tsodilo (Appendix 3 List of Contacts). Many documents were also consulted (Appendix 4 and 5).

3. MANAGEMENT PLAN AND ITS IMPLEMENTATION

Tsodilo Hills Interim Management Plan by N. Walker, NMMAG (1993) and *Tsodilo Hills Management Plan - Scheme for Implementation* by A. M. Campbell (1994) are two very thorough, detailed and yet practical documents on which this report is based to a large extent. I also had access to a *Report on Visit to Tsodilo 5-13 April 1994* by A. Campbell (a visit which was necessary to supervise some of the initial work carried out on the site) and a *Draft Design Outline for Tsodilo Hills Site Museum*, prepared for discussion (22 April 1994).

These documents go into great detail in addressing all possible options and in making a recommendation. They are among the very best of their kind available for sub-Saharan Africa. The major challenge lies, as always, in their practical day-to-day implementation in the field, even if considerable thought was given to the range of issues involved. The major problem here is obtaining adequate means - mainly competent staff and sufficient funding. The various documents do not elaborate on this latter aspect, presumably because it concerns more NMMAG *modus operandi* in general than Tsodilo Hills in particular.

The Botswana Government has recognised the need for better management of what is considered the country's most important heritage area and has made some funding available for the project. Its implementation was started in 1994. Works to date include:

- a new bypass from the Shakawe Road has been cut;
- the site of the entrance gate has been selected;
- a new access road from the village has been cut;
- 9.2 km of new fences have been put up;
- the headquarters site has been cleared and water made available there thanks to two boreholes, 1,800 metres of pipelines, faucets and a water tower.

The NMMAG team now permanently in Tsodilo has in addition cleared and marked 25 km of trails, improved 10 km of road around the hills, completed an interpretative trail leaflet, removed rubbish and graffiti and cleared two camp sites. The Site Museum is due to open in 1996. The Zhu village has been displaced from the hills and villagers have been compensated with a sum established by the Ministry of Local Development.

4. GUIDING PHILOSOPHY

As stated in the *Tsodilo Hills Interim Management Plan*:

"1. The main aims of the Monuments Section of NMEMAG are to locate all archaeological and historical remains in Botswana, to research significant aspects of this heritage and to protect and conserve the more outstanding remains together with the more important natural monuments.

2. The purpose of management is to safeguard this heritage for future generations, to increase knowledge about the past and to promote the educational value and enjoyment afforded to visitors to places selected for such purposes.

3. It is recognised that people live in these areas and that their activities need to be managed and incorporated into any management so that they can benefit from and contribute to this development."

If the project is primarily designed to safeguard a major national treasure and one of the most significant archaeological sites in southern Africa, the maintenance of the Heritage Area must take precedence over other developments. The challenge is to balance the needs of conservation with the need to increase knowledge through archaeological, historical, ethnographic and natural history research and the need to make Tsodilo Hills an educational monument as well while respecting the needs and rights of the people living in the area.

Performing this very difficult balancing act requires being aware that:

- The Botswana Government seeks to provide a better standard of living to rural communities, and thus to provide opportunities for employment creation and incomes.
- The presence of a Zhu community links the project to the increasingly sensitive problem of the San (Bushmen or Basarwa). The 'indigenous peoples' issue is raising more and more concern worldwide and should not be neglected.
- The Government is concerned with widening the economic base and appreciates the economic potential of tourism, presently the biggest growth (15-20% a year) industry in the country.
- Botswana is pioneering conservation through community action by giving rural people a greater role in the management of wildlife resources. It is considered by many to be the only realistic option for both wildlife conservation and a broad based diversification of rural economy.
- There is a need for greater cooperation between the various government ministries, agencies and departments.

The Tsodilo Hills Project offers a unique opportunity, using the know-how of the Department of Wildlife and National Parks (DWNP), to launch a "Cultural Resources Management Project" which could be used as a demonstration project not only in the country but for the benefit of all the SADC region. It complements Natural Resources Management Projects.

These priorities should be addressed in collaboration with other Government departments such as DWNP, Tourism, Agriculture or Land Use. While the tremendous tourist potential of the whole area should be kept in mind, broad and long-term perspectives must not be neglected. Tourism will develop gradually over the next 10 years and the management of Tsodilo should be planned accordingly. As rightly stated in the Scheme of Implementation, the Management Plan is not a final plan and it should remain flexible. Moreover, a gradual approach to development is advocated.

5. CONSERVATION

Tsodilo Hills is above all else a Heritage Area. Its conservation is, and must thus remain a top priority. The most pressing threats related to conservation at this stage in the development of the project are adequately covered through the Management Plan. A major twofold concern is protecting the rock art and other archaeological remains and keeping the whole area in a pristine state. Natural processes as well as human activities by visitors, local inhabitants and developers must be monitored.

Photographic recording of the rock art must be completed, computerised: any potential danger of exfoliation, water seepage or vegetation growth should be noted. This data bank must be accessible in Tsodilo in order to constantly update it.

Natural degradation has been a continuing process over time and has already resulted in the deterioration or the disappearance of the art in the most exposed locations. Remaining art does not seem to be in immediate danger of weathering. The cost of mitigating those processes will only be justified for the most significant panels, should it become necessary.

Visitors pose a much greater threat than nature and this will increase with growing numbers. Vandalism, such as the removal of panels as souvenirs, or defacing panels with graffiti, must be prevented by better control of visitors (visitor registration, hiring guides and guards, selection of sites for public use) and by providing them with information (leaflets, guided tours, sign posts). As graffiti attracts graffiti, if it does occur it should be promptly removed from rocks or baobab trees. This checking and cleansing is already being carried out by the NMMAG team permanently based in the Hills. For the compulsive graffiti carver, one baobab could be experimentally designated as an official "graffiti tree", and become over the years a landmark, like one in Boma (Zaire) which bears the name of Stanley and other illustrious early explorers. By restricting camping to specifically designated campsites, the risk of inadvertent damage to buried archaeological deposits by digging pits and latrines will be eliminated. The management plan provides for controlling litter.

The Tswana Landboard and North West District Council approved in August 1993 the designation of a core zone embracing the actual rock outcrops as a conservation area enclosed in a rectangular area of 22.5 by 32.5 km designated as a National Monument buffer zone (cf. Land Use Map - Western Communal Remote Zone / Planning Zone 6 - 1994). This defines an adequately sized management area for the conservation needs of both archaeological sites and a wilderness area. The flora and the fauna should

be conserved and studied. Their traditional utilisation should be inventoried. The area could become a refuge for wild game. This should be undertaken in close cooperation with the Department of Wildlife and National Parks which has shown interest. Some reservation, nonetheless, has been expressed by Land Use officials due to increasing pressure from farmers coming from the West and the extensive fencing taking place in the zone

As the controlled movement of people and livestock adversely impacts certain aspects of the environment, it is urgent that rules and regulations concerning the rock paintings, the archaeological site, the core and buffer zones be clearly formulated. They must be made official and enforced. NMMAG staff on location must be given the authority to enforce the regulations and be issued uniforms and badges identifying them as Museum officials, and eventually as "Honorary Game Scouts" as well. Close cooperation with DWNP will be essential in this matter.

The use of the Hills by Zionists as a cult area could evolve into a major problem if left unchecked. Even if the ritual use of the area is an interesting reappropriation process, and as such should not be prevented, the resulting trampling and littering is more problematic.

For the conservation and the management of the area a detailed map should be commissioned. Presently there is not even 1/50,000 maps of the area and thus locations are not certain. The rectangular conservation area should be mapped at least at the 1/50,000 scale, the core area should ideally be mapped at 1/10,000 scale or at least at 1/25,000.

In order to ensure optimum conservation of Tsodilo Hills, in view of their significance for Botswana, Africa and mankind in general, it is strongly recommended that this site be put on the World Heritage List. Botswana should sign the UNESCO Convention Concerning the Protection of World Cultural and Natural Heritage adopted by the General Conference at its seventeenth session, Paris, 1972. Tsodilo Hills meets all the criteria to be put on the list of World Cultural Heritage Sites as a "Site" in the meaning of Article 1 of the above mentioned convention.

A proposal of nomination should be submitted to the World Heritage Committee before July 1st. The proposal should be drafted in a manner to include and emphasise:

- a) specific location: country, province, map;
- b) legal and administrative data: owner, type of ownership, public access, responsible administration;

- c) identification: description, inventory, history, bibliography;
- d) state of conservation: diagnosis, responsible agency/organism, history of conservation, development plans;
- e) justification for inclusion in the World Heritage List: reasons for which the property is considered, comparisons with similar sites, indication on authenticity;
- f) specific documentation
 - three maps are to be provided:
 - 1) one map which shows the exact location of the property and its immediate natural and built environment. Scale: between 1/20,000 or 1/50,000 and 1/100,000;
 - 2) one map which precisely delimits the perimeter of the nominated area. Scale: between 1/5,000 and 1/25,000
 - 3) one map indicating the zones of different degrees of legal protection which might exist:
 - inside the perimeter of the nominated property,
 - outside the perimeter of the nominated property. Scale: between 1/5,000 and 1/25,000
 - photographic documentation;
 - relevant laws and acts, responsible administration.

This proposal should be brought up at the UNESCO / ICOMOS meeting to be held in October 1995 in Harare (contact persons are Mr A. Gatanazi, Head of Office UNESCO and Mr D. Munjeri, Chairman NMMZ), precisely in order to enlist more cultural heritage sites in Africa. So far only 17 sites have been registered for Africa out of 440 worldwide.

Putting Tsodilo on the World Heritage List should be a priority. It will help in stimulating interest among international tourists and national visitors, in raising additional funding and in requesting assistance from international donors. The Botswana Government should consider proposing some other major cultural sites (Toutswe) and natural sites (the entire Okavango Delta, other National Parks) for the World Heritage List.

6. PLANNING OF ARCHAEOLOGICAL RESEARCH AND TRAINING OF MUSEUM STAFF

The ongoing systematic recording of all rock art should be completed. The recording sheets used are adequate, although they could have gone into more detail in considering ease of access and indication of chronological overlapping. The records should be computerised and made available to the NMMAG team at Tsodilo in order to add any new discoveries and to monitor evolution. Ongoing archaeological research focuses on paleoenvironmental changes and the Late Stone Age. The Archaeological Department of the NMMAG should improve the coordination of its activities with those of foreign funded research projects in order to gain practical experience and additional training. As stated in the Management Plan, more attention should be devoted to the Later Iron Age, recent history and the ethnography of the Tsodilo communities. Much more attention should be paid to the natural history of the entire area.

The NMMAG should take the initiative to devise a systematic plan of research and encourage field work where it is needed. This will also be crucial in constituting the collection of artefacts and specimen to be put on display in the site museum. It will be a good opportunity for the museum staff to be more active in the field. In many scientific fields, the University of Botswana has most of the needed expertise. Should this prove insufficient, UB should be able, in connection with the NMMAG, to organise *ad hoc* training in cooperation with some foreign universities, museums or institutes. With specific reference to archaeology, the Archaeology Unit of the Department of History at UB has four young, dynamic and very able Ph.D. lecturers in archaeology. A joint and systematic programme of research and training should be established and if needed opportunities for additional training abroad should be negotiated with universities active in Botswana such as Michigan State University, the University of Texas at Austin or Cambridge University.

7. MATERIAL FOR SCHOOL CURRICULUM

No material devoted exclusively to Tsodilo for school curriculum exists to date. The book *Uncovering Botswana's Past* by James and Jocelyne Denbow, published by the NMMAG, does nonetheless make frequent mention of the site. The same NMMAG series should publish a school book on Tsodilo and it should be integrated into the Programmes of Environmental Education, a subject in which Botswana is particularly competent (cf Proceedings of the 1991 National Planning Conference on Environmental Education in Botswana). There is considerable potential for the production of such low-budget educational material which could contribute to an overall appreciation of Botswana's cultural heritage.

With its Educational Section, the NMMAG has the resources to do much more. The Denbows are willing to assist along with archaeologists at UB. Tsodilo Hills, especially once the Museum will be completed, has a great educational interest, and will be able to attract school trips. Its remoteness and the lack of adequate lodging will hamper this initially. An educational programme should be devised by the Education Section of NMMAG and it should be taken into account when determining the level and themes of the site museum displays.

8. IMPLEMENTATION OF CULTURAL TOURISM

The location of the hills in an area where five countries converge is a remarkable plus from the tourist dimension. It is something that the global tour operators' market could take advantage of. This is especially true as the tourist industry is steady increasing throughout the area and in the northern Botswana in particular. It is consequently important to diversify the points of interest and to demonstrate that the African Heritage is not only natural but cultural as well.

Close to the Okavango Delta which is probably the most attractive geographical wonder in Botswana, Tsodilo presents an opportunity to get an impression of the unspoiled Kalahari and at the same time to be exposed to both ancient and modern cultural achievements. There is consensus among tour operators that Tsodilo has a considerable tourist potential and that demand is growing. It is likely to grow even faster now that the DWNP has started a booking and a quota system. This will encourage some tourists to visit other places of interest while awaiting admission.

Current Tourism Policy emphasises high-cost low density tourism which generally attracts elderly people who expect comfort. So far, however, Tsodilo has appealed more to the adventurous, younger, and usually less affluent visitor. It is likely to remain that way until adequate permanent or semi-permanent facilities are available. These facilities should be developed as a joint venture at a later stage. For many interested backpackers, the logistics and cost of reaching the site with a guide and a rented car are obstacles. In the first phase, most visitors will be part of organised tours. Revenues will consequently be modest, generated mostly by low volume, low income tourism. This is not a major problem as it will allow for the gradual and careful implementation of the management plan. NMMAG will eventually have to agree with tour operators on some comprehensive fees for entry, guided tours and the use of the facilities. Tsodilo can help disperse the tourist load away from the Okavango and National parks by becoming a focal point in an itinerary extending to the Gcwihaba Caves and Xai Xai and including a safari in zone 6 and the Okavango panhandle.

There is presently no accurate figure of the number of visitors. Estimates vary from 1,000 to 5,000 a year. A precise figure with a breakdown per week is needed in order to work out financial figures and to guarantee accommodation. Analysis of the Tsodilo visitor forms (appendix 5) reveals that many visitors are attracted to the hills for the rock art as much as for the wilderness experience, the opportunity to see the Kalahari and to have chance to meet and observe local inhabitants. It is suggested that more detailed analysis of these forms be undertaken.)

While these expectations should be satisfied where possible, discretion is needed in achieving a balance between various conflicting priorities. It may be necessary to limit the number of visitors through a system of booking, similar to the one recently introduced by the DWNP. This department will be able to do so in Maun if requested by NMMAG.

The absence of adequate ground transportation to the hills, visitor center and villages is a major problem for tourists arriving at the airstrip. The use of donkey carts operated by local people could be an excellent solution. Making the necessary funding available is a priority. The carts are convenient for tourists, but just as importantly, they are visible and practical examples of how local communities can benefit from the project.

Cultural tourism should involve some ethnographic exposure. The Zhu were able to earn some money through the sale of handicrafts, by performing trance dances and by posing for photographs. The Zhu community is more dependent on tourism than the Hambukushu and they complain bitterly that since their village was displaced, their contact with tourists has diminished significantly. They know what appeals to tourists and are clever in marketing themselves - presenting a stereotyped, idealised hunter-gatherer image. If the Zhu are interested in performing and demonstrating their know-how to tourists, it should be encouraged. To avoid abuse by tourists or tour operators, however, this must be closely monitored. Experience elsewhere shows that these kinds of activities must be supervised in order to avoid loss of dignity by those on "display" and in order to avoid the creation of artificial tourist attractions or "tourist traps". Zhu should take pride in demonstrating their abilities. Hambukushu should also be encouraged to enhance the human dimension of the visit.

9. INFRASTRUCTURE

The Management Plan and related documents express in detail the infrastructure needed. Considerable thought was given to all of the options for this first phase and work on infrastructure is in progress. Two boreholes were drilled and a water tower was put up. Pipelines and faucets will provide running water for the designated visitor center and staff headquarters areas. Those areas have been cleared and levelled by bulldozer. An unnecessarily large new access road was also cut with a bulldozer.

Concern for the environmental impact caused by this work should be imparted to and shared with contractors. The wide new track and the pipeline trench have left a permanent scar in the landscape which is clearly visible from the above hills. Landscaping of the visitor center area should be kept to a strict minimum because it will be at the foot of the Hills. Future work needs careful day-to-day supervision, especially when bulldozers are involved.

9.5 km of poor quality fencing have been put up. Cattle, however, are not prevented from roaming into the visitor center area. It has moreover, deprived villagers of expanses of possible grazing area and they have complained. The long (5.8 km) fence stretching west from the airfield could be extended, eventually by reusing the smaller fence that has been put up at a right angle. Fencing between Male and Female Hills could improve cattle control while providing an efficient means of closing the old Shakawe road. The new veterinary fences which have recently been put up in the zone should influence future fencing decisions. It is also necessary to maintain closer contact with Land Use in Maun concerning boundaries and fencing. In order to keep livestock out of the core area, herd boys supervised by rangers would be more effective than completely fencing off the whole area.

The above mentioned work was undertaken by contractors. In addition to it, the NMMAG team has cleared and marked 25 km of trails, cleared and improved 10 km of access roads, drafted an interpretative trail leaflet, and cleared two camp sites which are going to be equipped with a total of 10 fire pits.

The building of sanitary facilities (showers and toilets) should be considered. Toilets in any case are needed and rubbish bins should be installed to avoid litter. Trash control is a major problem and tourists have already complained (cf Visitor Survey and tour operator interviews). Taking into account what has been done to date, a new Schedule of Implementation should be designed.

As stated in the Management Plan, it should be emphasised that:

"The overall monument development strategy is to:

- 1) keep development relevant to the guiding philosophy;
- 2) harmonise with the surroundings by favouring discrete structures, local and traditional resources and appropriate architectural styles where possible;
- 3) keep development to a minimum;
- 4) have all development reversible where possible to allow for easy rectification of any planning which subsequently proves to have been illfounded; and
- 5) keep as much development to the periphery of the site as possible".

In this perspective, even though the western side of the hills are less picturesque, using them should be considered in later phases of infrastructure development.

10. SOCIAL ASPECTS

Relations between NMMAG and the two Hambukushu and Zhu communities are particularly sensitive: both communities are competing for scarce resources. Avoiding social friction should be an important priority because for many foreigners, the presence of a San community greatly adds to the fascination of Tsodilo (cf Visitor Survey). While the San may no longer identify themselves with the rock paintings which were supposedly created by their ancestors, training them as guides could enhance visitor interest and improve social relations.

As suggested by new research in Zambia and Malawi, it also appears that some of the paintings may have been executed by early Bantu stock owners as early as the sixth century AD. They could well have been the authors of the white, mostly geometric painting. As the artists were thus associated in some ways with the ancestors of both communities, both should be given the possibility of guiding and caring for the monument. This is a sound means of applying decisions delineated in the Scheme for Implementation. On page 29 for instance, it is clearly stated that local inhabitants should be hired by the museum to fulfil as many duties as possible. Rangers, gatekeepers, camp attendants, guards, maintenance and sales persons should come from these communities. While this will entail some initial training, NMMAG will not only be able to create employment locally, but will progressively be able to get the communities involved in the functioning of the site.

Members of both communities could supplement their incomes by dancing and performing music; by demonstrating their hunting skills; by sharing their knowledge of the environment through tracking, use of traditional plants or bird watching; by posing for photographs; or by selling handicraft and curios. Providing firewood or ground transportation in donkey carts are other potential means of supplementing income. While this is largely contingent upon being able to communicate in English, only a few individuals have even basic language skills for the present.

Two additional problem areas are: first, the two communities may not agree on priorities or approaches; and second, local people have already heard so many rumors of projects that they no longer know who to believe. This latter point results in increasing scepticism and insecurity. This is another reason why a permanent development agent should be working with them.

Raising community awareness with respect to resources is usually a very long process. The challenge is even greater amongst competing communities. A grassroots

approach must however be designed and implemented because if not, implications on society, conservation and sustainable development could well be disastrous. As the indigenous peoples issue is being discussed widely in international forums, downplaying it would be a display of poor political judgement - despite the difficulties admittedly encountered in dealing with some communities. In this context, the Tsodilo project offers an excellent twofold opportunity of demonstrating political and social concern while testing a new strategy.

Adopting a top-down approach in balancing conservation imperatives with the needs of local people frequently fails: especially in a situation as complex as that of Tsodilo. Drawing on the experience of the "Natural Resources Management Project" of the DWNP and its knowledge of conservation through community action, a pilot "Cultural Resource Management Project" could be developed. As a pilot project, demonstrating community-based cultural and natural resource utilization, it will not be difficult in attracting outside donor funding. The originality of this approach should appeal to many. Ultimately, the NMMAG will not only be responsible for heritage conservation but will also play an active role in the sustainable development of the whole area. The experience thus gained by the NMMAG staff will be useful for heritage conservation projects in other areas. Such an approach will require placing someone as a teacher/facilitator within the communities for several years. It will be up to that person to promote dialogue between the NMMAG and the two local communities while fostering income generating activities.

11. STAFF AND MANAGEMENT

Staffing emerges as the single most important factor in the successful implementation of the management plan. Considerable thought has already been given to the range of questions involved here in the *Scheme for Implementation* (pp. 25-30). Unfortunately, the NMMAG is under-staffed, especially in archaeology. Tsodilo is far from Gaborone and going from one place to the other is difficult. Communicating is also difficult. Moreover, it has not yet been possible to find a qualified national willing to live permanently (or even semi-permanently) at the site. In the context of increasing concern for heritage conservation across Botswana, the NMMAG is compelled to decentralise and to regionalise activities. There is a particularly pressing need to have a NMMAG representative in Maun who should oversee Tsodilo. This representative should also oversee the Gcwinaba caves and the many special management zones for sites of interest within the various National Parks in the northern part of the country as well. This problem needs to be considered timely as some archaeological sites are already being wrecked by tourists.

District, Land Use and Wildlife are eager to have a museum representative in Maun to act as a facilitator between the various concerned parties and to supervise conservation, research and sustainable development of the different national monuments. A carefully selected contract officer, probably an expatriate, should be appointed initially. As there are clear linkages here with a project already funded by the Commission of the European Communities for the DWNP, the CEC should be approached. In principle, however, all available funds have been allocated for the present National Indicative Programme.

A second staff person who could launch communal and rural development activities and simultaneously oversee on a daily basis the implementation of the various phases of the management plan could be appointed in Tsodilo. The NMMAG representative in Maun could supervise. The Netherlands Development Organisation (SNV/NDO) is willing to provide a Development Associate on short notice. This opportunity should be taken but under close NMMAG supervision. As NMMAG decentralisation takes place, autonomy for local staff should increase. If this staff does not have some real decision-making power in the field, the process will be self-defeating. Detailed job descriptions should be written for these two positions. A Motswana should be hired as a manager in training and should gradually be put in charge.

12. FINANCES

More attention should be devoted to the financial aspects of the *Management Plan*. The recurring budget should be increased to cover expenses for all new development in Tsodilo. This should be included in the new National Development Plan (NDP 8). Even though monument management is expensive, calculations of the return should take into account educational aspects and all the direct and indirect benefits generated by tourism on a nation-wide level: both are long-term investments. Some expenditures will have to be recouped by charging entrance and various service fees. Whenever possible, and especially if members of the local communities are involved, compensation such as a fixed percentage of monument revenues should go into a trust destined for community development.

Available funds need to be managed in a less centralised, more flexible manner, notably in a community development perspective. NMMAG thus needs more autonomy to operate. The experience in other countries proves that the most successful museums are "parastatals" which can generate earnings on their own, to supplement the recurring budget awarded by the government (cf conclusion of the 1991 ICOM workshop on the Future of Museums in Africa). In Botswana, this could be partially achieved by simply implementing the Monuments and Relics Fund provided by Article 15 of the 1970 Monuments and Relics Act. This is of the uttermost importance for NMMAG. Experience shows that investment in cultural heritage conservation and development pays back and is thus a sound investment from an economic as well as from a social point of view (cf World Bank 1992 International Conference on Culture and Development in Africa).

Once Tsodilo Hills is on the World Heritage List, NMMAG should be successful in applying for assistance and additional funding to implement various aspects of the management plan. UNESCO, CEC, World Bank, and other multilateral or bilateral aid agencies are possible sources.

13. IMPLEMENTATION STRATEGY

The implementation's success or failure depends to a large extent on the skills and talents of the persons put in charge. It is becoming increasingly recognised in the highest echelons of government that tourism is Botswana's largest growth industry. This growth will take place over several years. The strategy to implement the Tsodilo Hills Management Plan should take that rhythm into account and be scheduled accordingly, with several phases. The timetable of the more difficult phases should be reworked, taking into consideration the current stage of implementation. It is preferable to identify needs clearly and to insure that these needs are harmonious with the detailed strategy of conservation and local development (to be elaborated in continuous collaboration with various concerned parties) before taking hasty decisions to set up major infrastructure.

"Joint management" conservation initiatives are difficult to implement and there are very few documented examples of such initiatives in the area of cultural conservation. While bridging wide cultural divides, they also have to accommodate the different priorities of the various players. As there is no blueprint to do this, only continuous joint-efforts and communication, along with a trial and error approach will be able to progressively lead to local participation. NMMAG and the Botswana government have here an excellent opportunity to launch a truly innovative programme from which all parties concerned can benefit.

14. RECOMMENDATIONS

It is recommended that

- the Government of Botswana

- increase the recurring budget to cover expenses for all new development in Tsodilo for the duration of the new National Development Plan (NDP3);
- give more autonomy to operate to NMMAG;
- implement the Monuments and Relics Fund provided for by Article 15 of the 1970 Monuments and Relics Act;
- ratify the Convention concerning the Protection of the World Cultural and National Heritage;
- request the Commission of the European Community to fund a cultural conservation project in connexion with its DWNP project and appoint an officer to be based in Maun as a NMMAG representative.
- request that the Netherlands Development Organisation (SNV/NDO) provide a Development Agent for NMMAG in Tsodilo;
- give NMMAG local staff the authority and means to enforce regulations;

- NMMAG

- launch a Cultural Resources Management Project at Tsodilo;
- establish closer collaboration with other governmental departments such as DWNP, Tourism, Agriculture or Land Use;
- carry on the complete recording of rock art;
- commission detailed maps;
- support staff on location more effectively;
- prepare a tentative list of sites which it intends to nominate for inscription to the World Heritage List;
- draft a proposal for the World Heritage List with all the necessary information and documentation concerning Tsodilo;
- encourage research projects on the Later Iron Age, recent history, ethnography and natural history of the Tsodilo area;
- devise a systematic programme of research and practical training with the University of Botswana archaeology unit;
- produce educational material on Tsodilo;
- compile an accurate figure of the number of visitors with a weekly breakdown;
- help raise funds for the purchase of donkey carts;

- carefully supervise new constructions on a day-to-day basis;
- consider herd boys for more efficient livestock control in the core area;

- UNESCO

- continue supporting and advising NMMAG in order to have Tsodilo Hills put on the World Heritage List.

Appendix 1 : TERMS OF REFERENCE

a) " The Contractor shall:

Undertake a mission aiming at providing the National Museum, Monuments and Art Gallery of Botswana with a management plan for safeguarding and controlling the exploitation of the Tsodilo Hills.

The Contractor shall:

1. advise the NMMAG in the management of the site in view of safeguarding especially the Rock Art sites which are to be listed with different features
2. assist the NMMAG in the planning of the programme of archaeological research and site training of the museum staff
3. prepare a draft of materials to be used for education programmes in schools
4. draft a proposal of cultural tourism around the site
5. submit to UNESCO a workplan.
6. submit to UNESCO a final report of the mission including the proposals for further contribution from UNESCO as well as from external partners. "

b) Amended terms of reference following National Museum, Monuments and Art Gallery , Director letter of May 29th, 1995

" The National Museum appreciates the contribution which UNESCO is readily availing to the Scientific Development of Tsodilo.

However we are pleased to inform you that the National Museum has made extensive progress on the management strategy of Tsodilo We are now half-way through the management implementation.

The Botswana Government has provided funds, since 1993, for Tsodilo Management plan implementation, approximately P1 00 00.00 will be spent on the project.

Consequently we propose to amend the initial terms of reference, that the contractor should instead come to Botswana to evaluate and assess the various components of the Tsodilo Management. Plan such as:

1. The strategy for Rock Art preservation and exploitation
2. Evaluate the planning of the programme of archaeological research and training of the Museum staff
3. Evaluate materials which are to be used for education programmes in schools
4. Evaluate the implementation of cultural tourism around the site.

The contractor will finally make recommendations on his evaluation and/or assessment. "

Appendix 2 : MISSION AGENDA

- June 5th 1995 Arrival of P. de MARET at Gaborone and first meeting with Mr M. Makgolo, acting Senior Curator of Archaeology in the NMMAG who took charge of organizing the mission.
- June 6th Gaborone. Working session with NMMAG archaeological staff. Visit to the Kalahari Conservation Society and to the Delegation of the European Communities.
- June 7th Gaborone. Working session with the Director of the NMMAG. Visit to the Tourism Unit of the Ministry of Commerce and Industry and to the Department of Wildlife and National Parks. Working session with its Deputy Director and the NMMAG Director.
Visit to the Archaeology Unit of the University of Botswana.
- June 8th Gaborone. Working session with NMMAG ethnographical and educational staff. Working session with staff of the Natural resources Management Project/DWNP.
Visit of Modipe Hill archaeological sites and Mochudi Museum.
- June 9th Gaborone-Maun. Air travel to Maun with Ms M. Mmutle, Assistant Curator of Archaeology NMMAG.
Interviews of various Tour Operators.
- June 10th Maun-Okavango. Due to the lack of an available four wheel drive to go to Tsodilo during the week-end, visit of Shinde Camp instead.
- June 11th Okavango-Maun. Interviews of Tour Operators and Camp managers.
- June 12th Maun-Tsodilo. Interviews of the District Commissioner, the District Land Officer and the Senior Wildlife Park Planner.
Drive to Tsodilo.
- June 13th Tsodilo. Visit of hills and infrastructure.
Working session with NMMAG staff.
Visit of Zhu (San) community.

- June 14th Tsodilo. Visit of hills and infrastructure being developed.
Meetings with the Hambukushu and Zhu communities.
- June 15th Tsodilo-Maun-Gaborone. Drive from Tsodilo to Maun.
Interview at the Land Use office and with Wildlife management staff.
Return to Gaborone.
- June 16th Gaborone. Working sessions at NMMAG.
- June 17th Gaborone. Paperwork.
- June 18th Departure from Gaborone.

Acknowledgment

This report benefited greatly from the information provided by the people listed in appendix 3.

Special thanks to Messrs Tjako Mpulubusi, Makgolo Makgolo, Roger Meyer and Ms Amthodi Mmutle for their assistance. Without their help this mission would not have taken place.

Appendix 3 : LIST OF CONTACTS

In Gaborone

Mr. T.L. MPULUBUSI	Director, NMMAG
Mr M. MAKGOLO	Acting Senior Curator of Archaeology, NMMAG
Ms M. MNTUTLE	Assistant Curator of Archaeology, NMMAG
Mr G. PHALADI	Curator of Archaeology, NMMAG
Mr L. RAMATOKWANE	Assistant Curator of Archaeology, NMMAG
Mr L. BAELETSI	Assistant Curator of Archaeology, NMMAG
Mr G. BABUTSI	Museum Assistant, NMMAG
Mrs T. PULE	Senior Curator of Education, NMMAG
Mr S. MOGOTSI	Senior Technical Officer, NMMAG
Mr B. HARGREAVES	Senior Curator of Natural History, NMMAG
Mr M. TAYLOR	Assistant Curator of Ethnology, NMMAG
Mr G. SANGA	Senior Curator of Art, NMMAG
Mr P. APADILE	Registrar, NMMAG
Mr A.C. CAMPBELL	Botswana Society
Ms A. ESCUIN SANTAOLALA	Agricultural Adviser, Delegation of the CEC
Mr LAGGETT	Kalahari Conservation Society
Mr J. HARDBATTLE	Co-ordinator Kgeikani Kweni, first people of the Kalahari

Dr P. J. LANE	Lecturer in Archaeology, Dept of History, U. of Botswana
Dr D. A. REID	Lecturer in Archaeology, Dept of History, U. of Botswana
Dr A. K. SEGOBYE	Lecturer in Archaeology, Dept of History, U. of Botswana
Dr K. SADR	Lecturer in Archaeology, Dept. of History, U. of Botswana
Mr N. PEARSON	Lecturer in museology, Dept of History, U. of Botswana
Mr M. OWENS	Archeologist, Mochudi Museum
Dr J. HABARAD	Community Development Advisor, DWNP
Dr M. PAINTER	Rural Sociologist, DWNP
Mr N. WINER	Chief Natural Resources Management Project, DWNP
Mr S. L. MODISE	Deputy Director, DWNP
Mr J. M. KALAKE	Principal Tourism Officer (Marketing), Ministry of Commerce and Industry
Ms C. van WAARDEN	Archaeologist, Maroje Research
in Maun	
Mr GOFHAMODIMO	District Commissioner, North-West District
Ms C. A. van AS	General Manager Okavango Tours & Safari
Mrs D. WRIGHT	Managing Director Safari South/Ker & Downey Botswana

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Appendix 5: EXTRACTS FROM TSODILO VISITOR SURVEYS

- It would be my wish that such a special place should be kept as natural and undeveloped as possible. Simple guide books should be made available with more informations on the historical aspects of the hills and painting.
- Keep visitors to a minimum until they can be controlled to protect the site.
- The Tsodilo Hills are a very special part of Botswana which should not be developed.
- Consider toilet and shower facilities.
- Please keep this place as it is: maybe improve access.
- Best impression: Remoteness - Wildeness - Lack of developement impact.
 - Worst impression: the premonition that this will be developed into a tourist trap.
 - Further comment or ideas: will this place still be "special" in 10 years?
- Best impression: its unspoiled beauty.
- Best impression: Peaceful - rather inaccessible.
 - Worst impression: Litter - Toilet paper.
- The way tourism hasn't been developed was my main reason for coming here. One of the few undevelopped areas worth visiting.
 - Do not ever improve road place will turn into a tourist live.
- Leave it as simple as possible - but protect it.
- Worst impression: Bushman staying far from the hills should be relocated somewhere near the hills.

Further comments

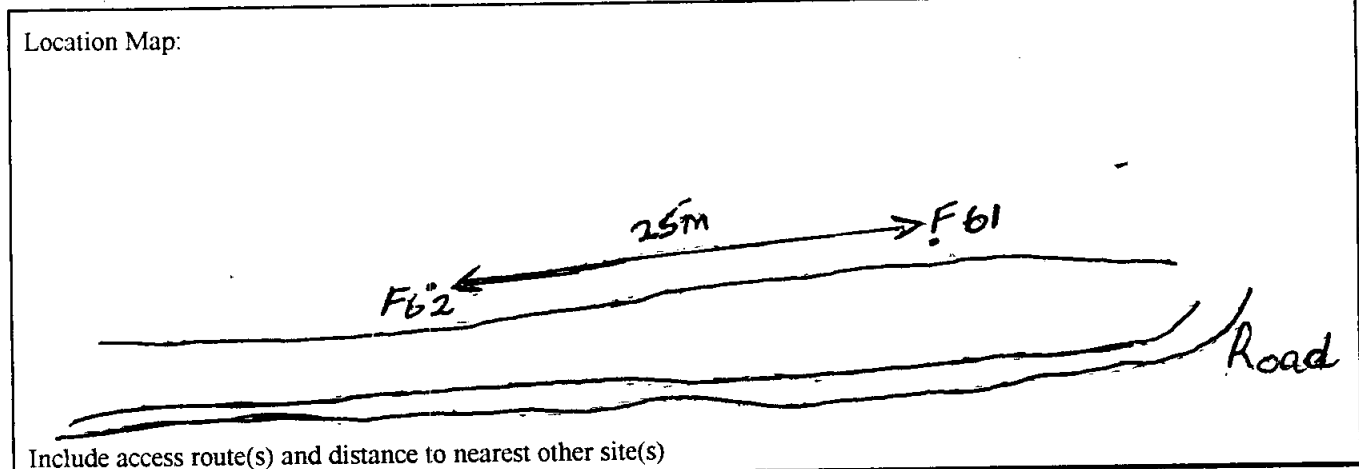
 1. This project has received a lot of negative coverage in the media. The museum staff needs to respond more effectively to this information and begin a campaign to promote the positive aspects of the project.
 2. Please do not overdevelop this area. No hotels, road improvements, large visitor centers or other tourist driven facilities. The remote, primitive aspect of this area is what makes it unique and worth coming to visit.
 3. I think it was a big mistake to remove/ evict the Bushman from this area. Their presence would have provided a rich cultural context for the monument and enhanced the visitor experience. The area now seems sterile and "museum like".

People and cattle have much less of an impact than the development proposed for the monuments.
- Best impression: the stories one guide total us; and there is not many people. That 's nice.
- It could be ruined if too many people come without basic facilities such as simple toilet and rubbish disposal.

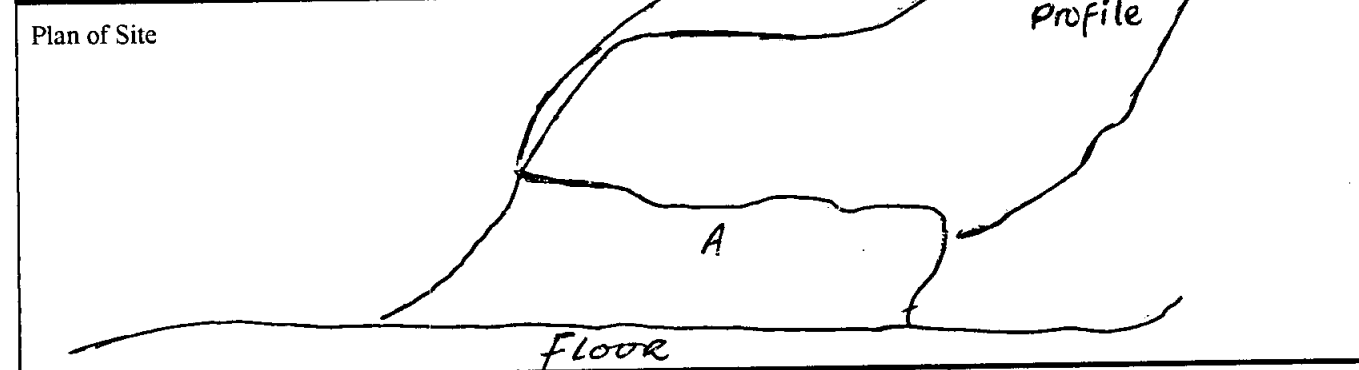
- Best impression: mystery and atmosphere.
- Tourists come to see the wilderness.
- Worst impression: breakdown of local culture and litter.
 - Suggestion: make some tracks for old people to climb to have an overview.
 - Small game reserve around the hills to improve the wildlife.
- Worst impression: cattle droppings everywhere in village and around sites and water.
 - Best impression: San are lovely people.
 - Further comments: look after San before it is too late and they are all gone. They are far more valuable than cattle or game. Lord P.
- Comments: English speaking guide.
- Comments: San guide - proud of the heritage. Involve San.
- Why not give the major responsibility for the site to the Basarwa? Why are the Hambukushu in charge write a regular visitor (5 visits over 3 years period)
- Make more of the hills themselves (wide panorama views) when advertising/marketing Tsodilo. They are as impressive and unusual in Northern Botswana as are the painting themselves.

TSODILO	MALE	FEMALE <input checked="" type="checkbox"/>	CHILD	GRANDCHILD	DATE: 13/6/94
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Site Number: F62	Description:
Name if any:	Recorder: L. R
	Height: 3 m



Proximity to other sites:	No.:	Distance: m	No.:	Distance: m
Aspect of site (compass bearing)	280		Floor	m ²
Art area (m ²)	≤0.25	0.25	0.5	State Size



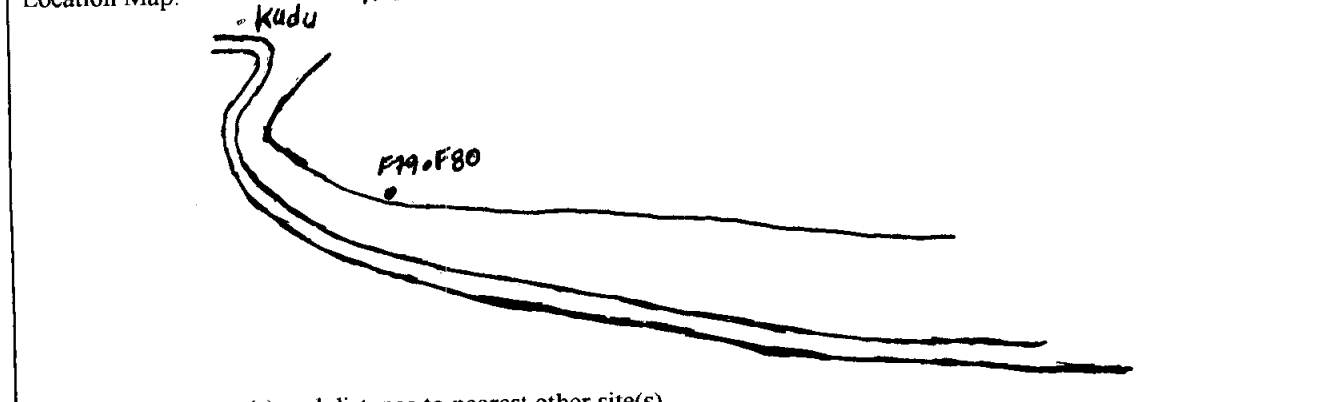
Type of Site	Open	Large Shelter	Small Shelter	Cave	Overhang					
Painting Protection	Exposed	Partly Protected <input checked="" type="checkbox"/>	Protected	Excavated?						
Artefacts	Pottery	Stone	Bone	Ash	Deposit	Detail	NIL			
Preservation	Good	Fair <input checked="" type="checkbox"/>	Faded	Exfoliated	Rubbed	Pitted				
Damage	Nests	Seepage <input checked="" type="checkbox"/>	Exfoliated	Plants	Animals	Sun	Smoke	Droppings		
Vulnerability to Humans	High <input checked="" type="checkbox"/>	Medium	Low	Nil	Tourism Value	High <input checked="" type="checkbox"/>	Med.	Low		
Photograph Ref.	Site	Individual Paintings	Panels	Depressions	Groves					
No. of Panels	Comments									

TSODILO MALE FEMALE CHILD GRANDCHILD DATE:

Site Number: **F80** Description:

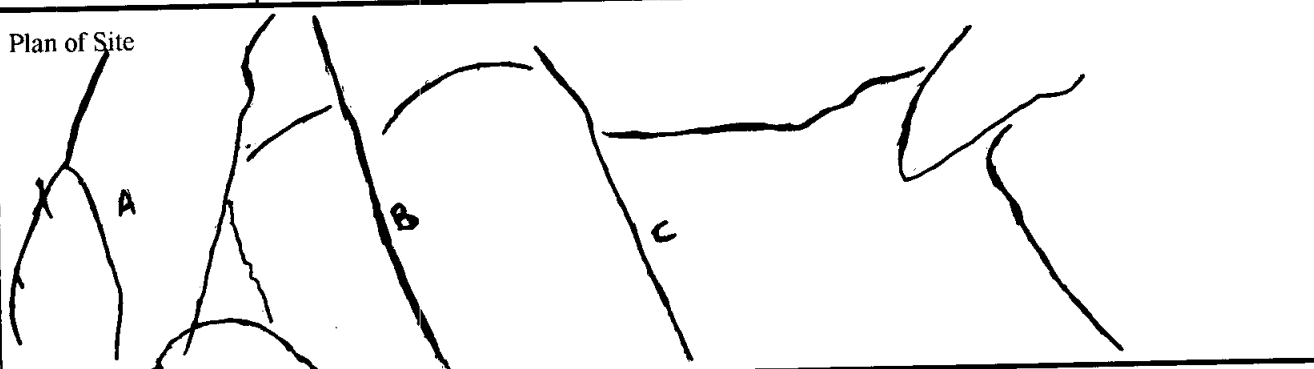
Name if any: Recorder:

Height: **5** **M**



Include access route(s) and distance to nearest other site(s)

Proximity to other sites:	No.:	Distance:	m	No.:	Distance:	m
Aspect of site (compass bearing)				Floor		
Art area (m ²)	≤0.25	0.25	0.5	1.0	State Size	



Type of Site	Open <input checked="" type="checkbox"/>	Large Shelter	Small Shelter	Cave	Overhang			
Painting Protection	Exposed <input checked="" type="checkbox"/>	Partly Protected	Protected	Excavated?				
Artefacts	Pottery	Stone	Bone	Ash	Deposit	Detail <input checked="" type="checkbox"/>		
Preservation	Good	Fair	Faded <input checked="" type="checkbox"/>	Exfoliated	Rubbed	Pitted		
Damage	Nests	Seepage <input checked="" type="checkbox"/>	Exfoliated	Plants	Animals	Sun	Smoke	Droppings
Vulnerability to Humans	High	Medium	Low <input checked="" type="checkbox"/>	Nil	Tourism Value	High	Med.	Low <input checked="" type="checkbox"/>
Photograph Ref.	Site	Individual Paintings	Panels	Depressions	Groves			

No. of Panels	Comments
3	2 pictures

Number from left	Subject	Direction facing		Human			Positioning			Style	Colour	Number legs	Size (cm)	Group	Condition
		L	R	M	F	U	Over Define	Under Define	Next to Define						
1 A	geometric									red		13		faded	
2 A	Dots									red		26			
3 A	geometric									red		20			
4 A	Geometric									red		67		faded	
5 A	ANIMAL	✓								C	red	2	22	faded	
6 A	ZEBRA	✓								B	red	2	32	faded	
7 A	ANIMAL	✓								B	red	2	26	faded	
8 B	Geometric									red		40		faded	
9 B	ANIMAL	✓								C	red		37	faded	
10 B	Vertical line		✓							red		6			
11 C	Giraffe		✓							B	red		34	faded	
12 C	Giraffe		✓							B	red		45	faded	
13															

Style:	1	4	7	10	13	16	19	22	25	28	31
Silhouette-----A										other	dots
Outline filled in---B											
Outline-----C											
Outline w/detail---D											
Outline Shaded---E											
Stick-like-----F										complex	m lines



Republic of Botswana

MONUMENTS AND RELICS

CHAPTER 59:03

Price P1,00

Printed by the Government Printer, Gaborone, Botswana

CHAPTER 59:03

MONUMENTS AND RELICS

ARRANGEMENT OF SECTIONS

SECTION

- 1. Short title
- 2. Interpretation
- 3. Appointment of officers
- 4. Honorary officers
- 5. Functions of a custodian
- 6. Functions of an inspector
- 7. Functions of the Commissioner
- 8. Functions of the Minister
- 9. Agreements for preservation of monuments and relics
- 10. Declaration of national monuments
- 11. Notification of discoveries: Minister's option to acquire ownership
- 12. Minister's power to acquire access to national monument
- 13. Minister's power to prevent access to national monuments
- 14. No excavation without permission of Minister
- 15. Establishment of Monuments and Relics Fund
- 16. Reports
- 17. No alteration, damage or removal without consent of Minister
- 18. Damage to erected tablets
- 19. Arrest, seizure and ejection
- 20. Offences and penalties
- 21. Regulations
- 22. Saving

An Act to provide for the better preservation and protection of ancient monuments, ancient workings, relics and other objects of aesthetic, archaeological, historical or scientific value or interest and for other matters connected therewith

Act 15, 1970,
S.I. 12, 1977.

[Date of Commencement: 10 June, 1970]

1. This Act may be cited as the Monuments and Relics Act.

Short title

2. In this Act, unless the context otherwise requires—
“ancient monument” means any building, ruin, remaining portion of a building or ruin, stone circle, grave, cave, rock shelter, midden, shell mound or other site or thing of a similar kind, which is known or believed to have been erected, constructed or used before 1st June, 1902, but does not include an ancient working;

Interpretation

Cap. 59:01

“ancient working” means any shaft, cutting, tunnel or stope or any building or machinery appertaining thereto, which was made or used for mining purposes and was in existence before 1st June, 1902;

“Board” means the National Museum and Art Gallery Board established under the National Museum and Art Gallery Act;

“Commissioner” means the Commissioner of Monuments appointed under section 3;

“custodian” means a custodian appointed under section 3;

“excavation” includes any process of digging or unearthing and any act involved in such process, and “excavate” bears a corresponding meaning;

“inspector” means an inspector of monuments appointed under section 3;

“monument” means—

- (a) any ancient monument;
- (b) any area of land which is of archaeological or historical interest or contains objects of such interest;
- (c) any area of land which has distinctive or beautiful scenery or a distinctive geological formation;
- (d) any area of land containing rare or distinctive or beautiful flora;
- (e) any cave, rock shelter, grove of trees, tree, old structure or other object or article (whether natural or constructed by man) other than a relic, of aesthetic, archaeological, historical or scientific value or interest;

“national monument” means a monument, ancient working or relic which has been declared a national monument under section 10;

“relic” means—

- (a) any fossil;
- (b) any drawing, painting or carving on stone or petroglyph executed in Botswana before 1st June, 1902;
- (c) any artefact, implement or ornament of archaeological, historical or scientific value made or used in Botswana before 1st June, 1902;
- (d) any anthropological or archaeological contents of any ancient monument or ancient working; and
- (e) any treasure trove discovered in Botswana.

Appointment of
officers

3. (1) The Minister shall appoint an officer in the public service to be Commissioner of Monuments.

(2) The Minister shall appoint one or more officers in the public service to be inspectors of monuments.

(3) The Minister may appoint custodians and such other staff as may be necessary for the purposes of this Act, and fix any wages or remuneration to be received by them.

(4) Any appointment made under the provisions of subsection (1) or (2) shall be made only with the consent of any Minister in whose Ministry the officer appointed is employed, and shall be published in the Gazette.

4. (1) The Minister may, by notice published in the Gazette, appoint fit and proper persons to be honorary officers for the purpose of assisting in the carrying out of the provisions of this Act and the regulations made thereunder.

Honorary
officers

(2) An honorary officer shall have such powers as may be prescribed, which shall not exceed the powers conferred upon an inspector of monuments by this Act and the regulations made thereunder.

(3) An honorary officer shall hold office for a period of three years unless the appointment is sooner revoked.

5. A custodian shall preserve and protect from interference any monument, ancient working or relic assigned to his custody by the Commissioner.

Functions of a
custodian

6. An inspector shall—

- (a) report to the Commissioner any monument, ancient working or relic, not being a national monument, of which he becomes aware, the declaration of which as a national monument or the control or custody of which may be considered desirable by the State;
- (b) when required by the Commissioner, investigate and report upon any matter relating to any monument, ancient working or relic and upon the desirability of declaring any monument, ancient working or relic as a national monument;
- (c) have reasonable access at all reasonable times to any monument, ancient working or relic in order to secure the utilization thereof as part of the cultural resources of Botswana for the benefit of the community; and
- (d) undertake such other functions as the Commissioner may direct.

Functions of an
inspector

7. The Commissioner may—

- (a) receive reports from inspectors on monuments, ancient workings and relics of which they become aware;
- (b) instruct inspectors to investigate and report upon any matter relating to any monument, ancient working or relic and upon the desirability of declaring any

Functions of the
Commissioner

- monument, ancient working or relic as a national monument;
- (c) assign to inspectors such further functions as he may deem fit for the purpose of assisting him in discharging his functions under this Act;
 - (d) recommend to the Minister the declaration of any monument, ancient working or relic as a national monument;
 - (e) recommend to the Minister, the negotiation or conclusion of agreements for the acquisition, protection or preservation of monuments, ancient workings or relics;
 - (f) undertake, with the written permission of the Minister, the excavation or exploration of any monument, ancient working or relic owned by the Republic or in respect of which the Minister has concluded with the owner an agreement permitting such excavation or exploration;
 - (g) in the case of any monument, ancient working or relic owned by the Republic or in respect of which the Minister has concluded with the owner an agreement for its protection or preservation, do or authorize to be done any act (not inconsistent with any agreement which may be applicable) which he considers necessary for its investigation, protection or preservation;
 - (h) cause tablets to be erected in suitable places giving information about historical events which have occurred at or near such places;
 - (i) compile a register of all national monuments and of such monuments, ancient workings and relics which have been acquired for the Republic or which have been brought to his notice;
 - (j) advise the Minister on the exercise of his functions under this Act.

Functions of the
Minister

8. (1) The Minister may—
- (a) purchase or take on lease or on loan any monument, ancient working or relic;
 - (b) accept a gift or bequest of any monument, ancient working or relic;
 - (c) accept from the owner of any monument, ancient working or relic the custody and control thereof;
 - (d) preserve, protect, repair, restore or insure any monument, ancient working or relic which is owned by the Republic or under its control;
 - (e) with the agreement of the Board, give, lend, sell or give in exchange, any movable monument or relic to

any person, body or institution whether within or without Botswana.

(2) The powers conferred by this section shall be exercised by the Minister as agent for the Government and shall be exercised after consultation with the Commissioner.

9. (1) The Minister may, after consultation with the Commissioner, enter into a written agreement with the owner of any national monument for its protection or preservation.

Agreements for preservation of monuments and relics

(2) An agreement under this section may provide for all or any of the following matters—

- (a) the maintenance of the national monument;
- (b) its custody and the duties of any person who may be employed in connexion therewith;
- (c) the restriction of the owner's right to destroy, remove, alter or deface the national monument or, in the case of a fixed or immovable national monument, to build on or near its site;
- (d) the facilities of access to be permitted to the public or to any portion thereof, and to persons deputed by the owner or Minister to inspect or maintain the national monument;
- (e) the notice to be given to the Minister in case the land on which the national monument is situated is offered for sale by the owner, and the right to be reserved to the Minister to purchase such land or any specified portion of such land at its market value and to acquire rights of access thereto;
- (f) the payment of any expenses incurred by the owner or the Minister in connexion with the protection or preservation of the national monument;
- (g) the procedure for resolving any dispute arising out of the agreement;
- (h) any matter connected with the protection or preservation of the national monument which is a proper subject of agreement between the owner and the Minister; and
- (i) the removal of the national monument, if movable, to a place of safe custody.

(3) The terms of an agreement under this section may be altered from time to time by agreement between the parties.

(4) An agreement under this section shall be expressed to endure either for a specified period or in perpetuity.

(5) If it is expressed to endure for a period of 10 years or upwards or in perpetuity, and if it relates to a national monument which is not a movable object, it shall, on the application of the Minister, be registered in the Deeds Registry without fee or other charge against the title to any land in or upon which the national monument is situated.

(6) An agreement under this section, notwithstanding that it is not registered, shall be binding on any person claiming to be the owner of the national monument to which it relates through or under a party by whom or on whose behalf the agreement was executed.

(7) For the purposes of this section an owner under disability may be represented by any person legally competent to act on his behalf.

Declaration of
national
monuments

10. (1) The Minister may, after consultation with the Commissioner, by order published in the Gazette, declare any monument, ancient working or relic to be a national monument:

Provided that at least one month before the declaration of any monument, ancient working or relic which is not owned by the Republic, the Minister shall notify the owner thereof in writing that he proposes so to declare the monument, ancient working or relic, and such owner may lodge with the Minister objections in writing to the proposed declaration.

(2) The Minister may, after consultation with the Commissioner, by order published in the Gazette, cancel the declaration of any national monument.

Notification of
discoveries:
Minister's
option to
acquire
ownership

11. (1) The discovery of any ancient monument, ancient working or relic shall be notified in writing to the Minister without delay by the discoverer, and also by the owner or occupier of the land upon which such ancient monument, ancient working or relic is discovered as soon as such discovery comes to his notice.

(2) The Minister shall have a right of option to acquire for the Republic, after consultation with the Commissioner, the ownership of any national monument, ancient monument, ancient working or relic, together with the site thereof, whether or not its discovery has been notified in terms of subsection (1), upon payment to the owner thereof and to any other person having an interest therein or right thereover of a sum of money to be agreed upon as fair and reasonable compensation or, failing agreement, upon payment of such sum as may be determined by the High Court on application made by the Minister.

(3) The right conferred by subsection (2) may only be exercised in order to secure the utilization of a national monument, ancient monument, ancient working or relic as part of the cultural resources of Botswana for the benefit of the community.

(4) Any dispute as to the interest or right of any person claiming to have an interest in or right over any national monument, ancient monument, ancient working or relic intended to be acquired or as to the legality of the exercise by the Minister of the right conferred by subsection (2) shall be

determined by the High Court on application made by the Minister before the national monument, ancient monument, ancient working or relic concerned is acquired.

12. (1) The Minister may, after consultation with the Commissioner, acquire the right of access for members of the public and for persons exercising functions under this Act, to any national monument situated on land not owned by the Republic, both across such land and across any adjoining or adjacent land by payment to the owner thereof and to any other person having an interest therein or right thereover of a sum of money to be agreed as fair and reasonable compensation, or failing agreement, upon payment of such sum as may be determined by the High Court on application made by the Minister.

Minister's
power to
acquire access
to national
monument

(2) The right conferred by subsection (1) may only be exercised in order to secure the utilization of the national monument as part of the cultural resources of Botswana for the benefit of the community.

(3) Any dispute as to the interest or right of any person claiming to have an interest in or right over land across which the Minister intends to acquire a right of access in terms of subsection (1) or as to the legality of the exercise of the Minister's power under that subsection, or as to the definition of the right of access and the conditions subject to which it is to be acquired shall be determined by the High Court on application made by the Minister before such right is acquired.

13. (1) The Minister may, by order published in the Gazette, specify and define sites or portions of sites of national monuments which no person shall enter upon without the permission of the Commissioner or a person authorized by him to grant such permission.

Minister's
power to
prevent access
to national
monuments

(2) No person shall without such permission enter upon any site or portion of a site specified or defined in terms of subsection (1) except, in the case of a site or portion of a site upon land not owned by the Republic, the owner or occupier of such land or persons visiting the site with the consent of the owner or occupier.

14. (1) No person shall, without the written permission of the Minister, given after consultation with the Commissioner, and after making such enquiries as he may deem fit, excavate any national monument, ancient monument, ancient working or relic or, if he receives such permission, excavate it contrary to any conditions which may have been imposed in such permission or which may be prescribed.

No excavation
without
permission of
Minister

(2) The Minister may grant permission in terms of subsection (1) in respect of an ancient monument, ancient working or relic, other than a national monument, only with the consent of the owner of the land in or upon which it is situated and of any other person having an interest therein or right thereover.

(3) The Minister may grant permission in terms of subsection (1) in respect of a national monument which shall entitle the grantee to enter upon the land in or upon which such monument is situated with such assistants or servants, animals, vehicles, appliances and instruments as may be necessary for the purpose of excavation and to excavate such monument:

Provided that, in the case of a national monument situated in or upon land which is not State land—

- (i) the consent of the owner of such land and of any person having an interest therein or right thereover to such entry and excavation has been obtained; or payment of such sum of money as may be determined by the High Court on application made by the Minister or by the person seeking the Minister's permission as fair and reasonable compensation to such owner or other person for such entry and excavation has been made; and
- (ii) any dispute as to the interest or right of any person claiming to have an interest in or right over the land in or upon which the national monument is situated or as to the legality of the exercise by the Minister of the power conferred by this subsection has been determined by the High Court.

Establishment
of Monuments
and Relics
Fund

15. (1) There is hereby established a fund called the Monuments and Relics Fund which shall comprise—

- (a) moneys allocated by the Government for the acquisition, administration, excavation, protection, repair or improvement of national monuments, monuments, ancient workings or relics, or to promote the knowledge and study thereof or public interest therein;
- (b) moneys contributed by any person to the fund for any of the said purposes;
- (c) moneys contributed by any person to the Government for any of the said purposes.

(2) The Commissioner shall be responsible, under the supervision of the Minister, for the management and administration of the Fund, and shall keep proper accounts of the Fund and other records in relation thereto, and shall prepare in respect of each financial year a statement of accounts showing in detail the assets, liabilities, revenue and expenditure of the Fund in a form which shall conform with the best commercial standards.

(3) No payment in excess of P50 shall be made from the Fund except upon the authority of the Minister:

Provided that the Minister may delegate to the Commissioner authority to pay recurrent and periodical administrative expenses in excess of P50.

(4) The Minister may, in his discretion, sanction payments from the Fund for any of the purposes mentioned in subsection (1), which, without prejudice to the generality thereof, shall include—

- (a) the protection of national monuments and of monuments, ancient workings and relics from damage of any kind, including their fencing and repair;
- (b) the payment of wages and remuneration to custodians;
- (c) the investigation, exploration and excavation of national monuments and of monuments, ancient workings and relics;
- (d) the provision of signs at sites of national monuments and on roads and routes leading thereto.

(5) The accounts of the Fund in respect of each financial year shall within four months after the end of such financial year be audited by auditors to be appointed by the Minister:

Provided that no person shall be qualified to be so appointed unless he holds one or more of the qualifications referred to in section 123(1) of the Companies Act.

Cap. 42:01

(6) The auditors shall report, in respect of the accounts for each financial year, whether or not—

- (a) they have received all the information and explanations which, to the best of their knowledge and belief, were necessary for the performance of their duties as auditors;
- (b) the accounts and related records of the Fund have been properly kept;
- (c) the Commissioner has complied, in relation to his administration of the Fund, with all the provisions of this Act with which it is his duty to comply; and
- (d) the statement of accounts prepared by the Commissioner presents a true and fair view of the information and explanations given and the accounts and records produced to them.

(7) The Minister shall, within 30 days of receiving the report of the auditors and a copy of the audited accounts, lay such report and accounts before the National Assembly.

16. (1) As soon as possible after 31st December in each year the Commissioner shall report to the Minister on all actions taken by the Minister or the Commissioner under the provisions of this Act during that year and on any other matters connected

Reports

with national monuments, monuments, ancient workings or relics which he may wish to bring to his notice.

(2) Before 31st March in each year the Minister shall lay before the National Assembly the Commissioner's report in respect of the preceding year together with his observations thereon.

No alteration,
damage or
removal
without consent
of Minister

17. (1) No person shall without the written consent of the Minister given after consultation with the Commissioner—

- (a) make any alteration to, or destroy or damage; or
- (b) remove or allow to be removed from its original site or export or allow to be exported from Botswana,

any national monument, ancient monument, ancient working or relic or any part thereof.

(2) In the case of any national monument, ancient monument, ancient working or relic or any part thereof situated in a tribal territory, no consent in terms of subsection (1) shall be given without the concurrence of the Tribal Land Board.

(3) Any person who desires to remove from its original site or to export from Botswana any national monument, ancient monument, ancient working or relic or any part thereof shall, when applying to the Minister for his consent, supply the Minister with a drawing or photograph of the national monument, ancient monument, ancient working or relic or part thereof in question, and shall state the exact locality in which it is situated and the place to which and the purpose for which he desires to remove or export it.

Damage to
erected tablets

18. No person shall deface, damage or destroy any tablet erected by the Commissioner under the powers conferred by section 7(h).

Arrest, seizure
and ejection

19. (1) The Commissioner, every inspector, every custodian may arrest without warrant—

- (a) every person who commits an offence under this Act in his presence;
- (b) every person whom he has reasonable grounds to suspect has committed an offence under this Act;
- (c) every person whom he finds attempting to commit an offence under this Act or clearly manifesting an intention to do so.

(2) The Commissioner, every police officer, every inspector and every custodian may take or seize from any person to whom subsection (1)(a), (b) or (c) applies, any article by means of which or in respect of which such person has committed, or is on reasonable grounds suspected of having committed, or is found

attempting or clearly manifesting an intention to commit, an offence under this Act.

(3) Any person taking or seizing any article in pursuance of subsection (2) shall without delay deliver it to a judicial officer for safe custody pending the determination of any legal proceedings which may be instituted in which the said article may be produced in evidence.

(4) The Commissioner, every police officer, every inspector and every custodian may eject from the site, owned by or in control of the Republic, of any national monument, monument, ancient working or relic any person to whom subsection (1)(a), (b) or (c) applies and any person whose presence on such site or whose access to such national monument, ancient monument, ancient working or relic is prohibited under the provisions of this Act or of regulations made thereunder.

20. (1) Any person who—

- (a) contravenes any provision of this Act relating to a national monument or a tablet under section 7(h);
- (b) knowingly or having reason to believe that any ancient monument, ancient working or relic is such, contravenes any provision of this Act relating to such ancient monument, ancient working or relic;
- (c) in any application to the Minister for his consent in terms of section 17, knowingly makes any statement which is false in any material respect or supplies therewith any drawing or photograph which is false in any material respect,

Offences and
penalties

shall be guilty of an offence and liable to a fine not exceeding P2000 or to imprisonment for a term not exceeding two years, or to both.

(2) If any person is convicted of an offence under this Act or any regulations made thereunder which has involved or resulted in damage to, or the destruction or removal of, any national monument, ancient monument, ancient working or relic or any part thereof or any tablet which the Commissioner has caused to be erected, the court may, in addition to any other penalty which it may impose—

- (a) order him to pay such sum as the court may determine for the purpose of repairing such damage or of compensating the Republic or any person who has sustained loss by the removal or destruction of any article or thing for the value of such article or thing;
- (b) order the confiscation of any article or thing removed and of any tool or implement used in committing such offence.

Regulations

- 21.** (1) The Minister may make regulations—
- (a) prescribing anything which in terms of this Act is to be or may be prescribed;
 - (b) regulating the access of the public to any monuments, whether national or not, ancient workings or relics which are the property of the Republic or (in a manner not inconsistent with any agreement made under section 9) to monuments whether ancient or not, ancient working or relics which by agreement with the owner are under the custody or control of the Republic;
 - (c) fixing fees which shall be payable for such access;
 - (d) regulating the excavation of national monuments, ancient monuments, ancient workings and relics and the removal of relics from national monuments, ancient monuments or ancient workings;
 - (e) generally for the better carrying out of the provisions of this Act.
- (2) Such regulations may prescribe fines not exceeding P1000 for contraventions thereof.

Saving

22. Any object declared to be a natural and historical monument or relic or monument under the provisions of any enactment in force immediately before the commencement of this Act shall, unless the declaration is cancelled under section 10(2) of this Act, be deemed to be a national monument for the purposes of this Act.

DRAFT AGREEMENT

MEMORANDUM OF AGREEMENT OF LEASE

Made and entered into by and between

TAWANA LAND BOARD

hereinafter referred to as “the Lessor”

herein represented by

in his capacity as Chairman of the Land Board

he being duly authorised thereto by virtue of a

Resolutin of the Land Board at its meeting held at **MAUN**

on the 2000.

(Copy annexed hereto marked “A”)

and

**NATIONAL MUSEUM, MONUMENTS
AND ART GALLERY**

hereinafter referred to as “the Lessee”

hereinafter represented by

TICKEY T. PULE

in her capacity as Director of the Lessee

she being duly authorised thereto by virtue of Resolution

of the Lessee signed at Gaborone dated 2000.

(Copy annexed hereto marked “B”)

WHEREAS:

- a) The Lessor is the Land Controlling Authority in the North West District by virtue of the Tribal Land Act: (Chapter 32:02) (as amended)
- b) The Lessee is a creature of Statute established in terms of the National Museum and Art Gallery Act: (Chapter 59:01) (as amended) for purposes of administration of the National Museum, Monuments, Relics and other purposes as set out in the National Museum and Art Gallery Act as well as Monuments and Relics Act; (Chapter 59:03) (as amended) .
- c) Tsodilo Hills has been declared a national monument site in terms of the Monuments and Relics Act; (Chapter 59:03) (as amended).
- d) Tsodilo Hills lies within North West District and therefore under the authority of the lessor.
- e) In accordance with Provisions of the Tribal Land Act: (Chapter 32:02) (as amended) the Lessor has agreed to grant to Lessee, which hereby accepts a lease for the area known as Tsodilo Hills under the terms and conditions hereinafter set forth;

NOW THEREFORE it is hereby agreed as follows and these presents witnesseth that;

1) **LEASE**

The Lessor hereby grants to the Lessee which hereby accepts a Lease of the area known as **TSODILO HILLS** situate in the Ngamiland District of Botswana of approximately the following geographical location namely;

- i) Northeast Corner - S18⁰ 40'11" Latitude and E21⁰43'07" Longitude
- ii) Northwest Corner - S18⁰41'21" Latitude and E21⁰40'45" Longitude
- iii) Southeast Corner - S18⁰46'25" Latitude and E21⁰46'44" Longitude
- iv) Southwest Corner - S18⁰47'40" Latitude and E21⁰44'25" Longitude

being a rectangular area measuring approximately 22 kilometres by 32 kilometres or 70 400 hectares as will more fully appear from a diagram attached to this lease and marked **TSODILO: CORE & BUFFER ZONES** which area has been declared a National Monument site in terms of Monuments and Relics Act: (Chapter 59:03) (as amended).

2. **THE AREAS**

The leased area shall be divided into two areas namely;

2.1 **CORE ZONE**

This is a rectangular area of approximately 12 by 4 kilometres or 4800 hectares being an area consisting of Four (4) Inselbergs (Hills), referred to as the Female, Male, Child and Grandchild.

2.2 **BUFFER ZONE**

This is a rectangular area of approximately 22 by 32 kilometres or 70400 hectares and in includes the Core Zone.

3. **USE FOR THE LEASED AREAS**

3.1 **CORE ZONE**

3.1.1 The Lessee shall use or preserve the Core Zone as a Cultural and Natural Heritage Site and for other purposes as provided for by the Monuments and Relics Act and in terms of Act aforesaid the Lessee shall be entitled to the exclusive use and or management of the Core Zone.

3.1.2 Without derogating from the foregoing generality, the lessee shall be entitled to make rules and regulations including but not limited to the movement of persons, vehicles, designation of camping sites, roads, tracks, trails and for the prohibition of any activities inconsistent with the basic protection and ethical management of the entire environment including the removal of persons, objects, materials and any other thing that the curators shall consider hazardous to the monuments and generally to act inaccordance with the provisions of the Monuments and Relics Act.

3.2 BUFFER ZONE

3.2.1 The Lessee shall be entitled to the use and management of the buffer Zone comprising land designated as a conservation area including but not limited to preservation of the wilderness.

3.2.2 Without derogating from the foregoing generality, the Lessee shall be entitled to make rules and regulations governing the movement of persons, vehicles, designated camping sites, roads, tracks, trails and for prohibition of any activities inconsistent with the basic protection and ethical management of the entire

environment including the removal of persons, objects, materials and any other thing that the curators shall consider hazardous to the monument and generally to act inaccordance with the provision of the Monuments and Relics Act.

3.2.3 In addition to the rights granted to the Lessee in the immediately preceding sub - paragraphs the Lessee shall have the right in the Buffer Zone to extract, quarry, transport and utilize sand, sand stone, gravel rock and stone for purposes of any infrastructural development necessary for the Lessee to carry out the Lessee's obligations in terms of the provisions of the Monuments and Relics Act or any other law.

4. **COMMUNITY RIGHTS IN THE BUFFER ZONE**

4.1 Notwithstanding the provisions of this lease in the preceding paragraphs, the Lessee shall respect the rights of the established local communities presently residing within the Buffer Zone including but not limited to the rights of the communities to do any of the following activities;

- i) The rights to gather fruits and other methods of traditional land use
- ii) The right to continue agricultural activities in the form of ploughing fields and grazing rights in areas not deemed to be cultural and or natural heritage sites
- iii) The right to hunt game in terms of the Wildlife Conservation and National Parks Act No 28 of 1992
- iv) The rights to the use of natural resources for fencing, building and household equipment including firewood and herbs.

4.2 Notwithstanding the foregoing provisions of the lease, the Lessee may make rules and regulations in consultation with the communities for the provision of any matters or things as may be considered necessary by the Lessee and the communities in the leased area.

5. **PERIOD**

5.1 This lease shall be for a period _____ years and shall be deemed to have commenced from _____ day of _____ notwithstanding the date of signature hereof.

5.2 The Lessee shall have an option upon expiration of this lease for a renewal of the lease on the same terms and conditions and

the Lessee may exercise such option by written notice of its intention to do so to the Lessor within _____ months before expiration of the lease.

- 5.3 The renewal aforesaid shall be on the same terms and conditions as are contained herein except as to the rentals payable by the Lessee to the Lessor which rentals shall be mutually agreed between the parties.

6. **RENTALS**

6.1. The Lessee shall pay to the Lessor or such other authority as may be directed from time to time a rental at the rate of P per month for each square kilometre of the leased area.

6.2. The rental aforesaid shall escalate at the rate of _____ per annum on the anniversary date of the lease.

6.2. Any amounts required to be paid under this clause shall be payable by the Lessee to the Lessor annually in advance.

7. **SUBLETTING, ASSIGNING AND CESSIONS OF LEASE**

- a) The Lessee shall not be entitled to sublet part of the leased areas or part possession of them nor assign or cede its rights and

obligations under this lease except with the prior written consent of the Lessor, which consent not be unreasonably withheld except that the same may be given with such reasonable conditions as the Lessor may determine and impose.

- b) The Lessor and Lessee record that as at the date of signature hereof, portions of the leased area have been occupied by the **!KUNG** and **HAMBUKUSHU** communities at Tsodilo and the rights of such communities are hereby recognised as lawful in terms of this lease and the Tribal Land Act (Chapter 32:02) (as amended) .

6. DOMICILIUM

The parties choose their domicilium citandi et executandi for all purposes of this agreement as follows:

THE LESSOR - THE SECRETARY
TAWANA LAND BOARD
P .O. Box 134
MAUN

THE LESSEE - THE DIRECTOR
BOTSWANA NATIONAL MUSEUM
331 INDEPENDENCE AVENUE
GABORONE

All notices to be given to either party under this lease shall be deemed to have been duly given and received if:

- a) sent by pre-paid registered mail, then (10) days from the date of posting:
- b) delivered by recorded delivery, on the date of delivery.

11. **INDULGENCES**

Any indulgence, lenience, favour or no-exercise of any rights shall not be deemed nor shall it operate as a waiver of rights, an estoppel or abandonment of rights and the party entitled to such rights shall be entitled to enforce them strictly notwithstanding previous indulgences.

12. **REGISTRATION**

This lease may be registered in the Deeds Registry for Botswana and the Lessee shall be responsible for such registration and the costs thereof.

THUS DONE AND SIGNED at MAUN on this day of
2000 in the presence of the undersigned witnesses.

.....
For and on behalf of
THE LESSOR

AS WITNESSES:

1.

2.

THUS DONE AND SIGNED at **GABORONE** on this day of
2000 in the presence of the undersigned witness.

.....

for and on behalf of

THE LESSEE

AS WITNESSES

1.

2.

Tsodilo (Botswana)

No 1021

Identification

<i>Nomination</i>	Tsodilo
<i>Location</i>	The Ngamiland District, north-west Botswana
<i>State Party</i>	Botswana
<i>Date</i>	19 June 2000

Justification by State Party

Tsodilo, a major geological landmark in the Kalahari Desert, has been called the "Louvre of the Desert" for the quality and quantity of the rock art contained in an area of only 10km². The archaeological record is particularly good. The place offers a singular opportunity to comprehend the traditions, cultures, and technologies of the people of the Kalahari region from time immemorial to the present.

Geologically, Tsodilo provides a rare opportunity to observe one of the ancient rock formations that make up the Earth's crust, for its very old rock, uplifted by tectonic forces, has resisted many millions of years of weathering and erosion. The place combines several aspects of Earth's history with the cultural history of humankind. It shows an interplay between geological processes spanning more than a billion years and human activities, particularly those involving minerals, over tens of thousands of years.

The archaeology of the area preserves a chronological account of human activities and environmental changes over at least 100,000 years. Outstanding in this record is the rock art. It consists of over 4500 paintings and numerous carvings which provide a vivid insight into early perceptions of this environment while giving artistic expression to contemporary ways of life. Tsodilo has one of the highest concentrations of rock art in the world and so is of major international significance; it also possesses the largest concentration of such work in Botswana. The emphasis on large herbivores echoes the metaphorical idiom of the San people, indicating that, although the symbolism behind the art remains obscure, it is of a religious nature. Whatever the original intentions of the artists, the art has inspired modern interpretations and been put to current use in stamp designs, etc.

Criterion i

The archaeology also demonstrates technology, exchange, and significant detail of settlement pattern and form. It ranges in time from Middle Stone Age to traditional societies, demonstrating not just antiquity but also great diversity. The sites consist of caves, rock shelters, seasonal camps, and settlements; their stratification contains the palaeo-environmental record and cultural sequence. In

particular, the caves and rock shelters provide evidence of a relatively rare phenomenon in Botswana, the evidence of repeated use over an extensive period of time. The combination of natural and artefactual evidence in stratified deposits demonstrates the interaction of people and environment through time and space.

Criterion iii

Tsodilo is unique in being different from the rest of southern Africa in terms of its Iron Age settlement pattern and the way in which its spatial organization within settlements was executed. It defies stereotypes, be they of aboriginal or Bantu peoples.

Criterion v

Traditions speak of Tsodilo as being the home of all living creatures, more particularly home to the spirits of each animal, bird, insect, and plant that has been created. Though exact interpretation and dating of the rock art is uncertain, the art itself clearly testifies to the long tradition of the site as spiritual, a tradition continued today in practices of the !Kung and in visits by, in effect, pilgrims in Western parlance, often from some distance.

Criterion vi

Category of property

In terms of the categories of cultural property set out in Article 1 of the 1972 World Heritage Convention, this is a *site*. It also qualifies as a *cultural landscape* as defined in paragraph 39 of the *Operational Guidelines for the Implementation of the World Heritage Convention*.

History and Description

History

Present evidence indicates the earliest occupants at Tsodilo probably in the Middle Stone Age, perhaps around 100,000 years ago or earlier. A Late Stone Age cultural presence is dated around 70,000 years ago. In general, repeated use over an extensive period of time appears to reflect small mobile groups of people camping briefly, perhaps on seasonal visits, for example when the fruit of the mongongo tree, *Ricinodendron rautanenii*, ripens. Local quartz as well as exotic stone were used for tool-making in both the Middle and Late Stone Ages. The use of non-local raw material suggests that contact and some form of exchange have existed at Tsodilo for tens of thousands of years. The Middle Stone Age is marked by the appearance of large stone blades. Tsodilo is unique in demonstrating an extensive record of freshwater fish exploitation in a now arid landscape where rivers formerly flowed. Barbed bone points were probably used to tip fish-spears; bone toolmaking at Tsodilo may well go back 40,000 years.

Fishbone and stone artefacts decrease in the Late Stone Age (*c* 30,000 BP). The appearance of ostrich eggs in archaeological deposits around that time indicates the development of a new strategy for acquiring a new resource for food and artefact-making. In particular, a tradition of making beads of ostrich egg-shell began then and continues today. Until as recently as *c* AD 600, the people of Tsodilo lived entirely by hunting, fishing, and foraging for wild food.

By the 7th century AD, however, the pace of change in technology, subsistence, and settlement organization increased as iron and copper metallurgy were introduced. This phase is also marked by the introduction of cattle. Interaction between Late Stone Age foragers and Early Iron Age agro-pastoralists occurred. Settlement took the form of

apparently unique social structures. Divuyu itself is the richest site yet discovered in southern Africa for this period. Copper and iron beads, bracelets, and other ornaments became common. All the metal was imported – the copper probably from southern Zaire or north-eastern South Africa, the iron perhaps from only 40km distant – and worked locally. Nqoma at the end of the 1st millennium has the richest variety of metal jewellery of any known contemporary site in southern Africa.

The same two sites in particular, Divuyu and Nqoma, have indicated domestic herding and a settled lifestyle as early as the 7th–8th centuries AD from evidence of middens and house foundations. Cultivated crops such as sorghum and millet were added to the diet. Sheep and goats augmented the few domestic cattle kept by earlier foraging communities. Pottery was produced for a range of domestic purposes and personal adornment became common and often elaborate. Mining for specularite was extensive in 800–1000, and continued into the 19th century. The output was enormous, doubtless contributing to the amount of jewellery and cattle owned by the Nqoma people. The rich elements of Tsodilo Iron Age culture continued well into the 13th century when Nqoma declined, possibly because of drought or war. No further durable exotic objects seem to have entered the Tsodilo region until the effects of the European Atlantic trade began to be felt in the 18th century. Tsodilo became part of the Portuguese Congo-Angola trade axis.

Historically, the Tsodilo area was occupied by the N/hae, who left in the mid-19th century. Its first appearance on a map was in 1857, as a result of information collected by Livingstone during his explorations in 1849–56. In the 1850s the earliest known horsemen, Griqua ivory hunters, passed through the region. The !Kung arrived in the area and made at least a few of the paintings, possibly some of those showing horsemen. The rock art was first sketched and brought to Western attention in 1907 by Siegfried Passarge, a German geologist.

The two, present-day local communities, Hambukushu and !Kung, arrived as recently as c 1860. Nevertheless, they both have creation myths associated with Tsodilo, and they both have strong traditional beliefs that involve respect for Tsodilo as a place of worship and ancestral spirits. The spirituality of the place has become best known to non-local people through the writings of Laurens van der Post, notably *The Lost World of the Kalahari* (1958). Today, local churches and traditional doctors travel to Tsodilo for prayers, meditation, and medication. Most visitors arrive for religious reasons.

Description

Tsodilo is situated in the north-western corner of Botswana near the Namibian border. Its massive quartzite rock formations rise from ancient sand dunes to the east and a dry fossil lake bed to the west. They are therefore called "inselbergs," meaning prominent isolated residual small mountains of circumdenudation rising from and surrounded by an extensive lowland erosion surface in a hot dry region. The surrounding dunes are covered with trees and open savannah vegetation. The setting and the multicoloured rock formations combined with the large number of rock paintings immediately bestow an iconographic quality to the place, and comparisons with Uluru in central Australia inevitably spring to mind. Three of the inselbergs form a cluster over a 3km x 10km rectangle; a fourth, and smallest,

lies 2.1km to the north-west. Their height, shape, and spatial relationships have given rise to a distinctive name for each: *Male, Female, Child, and Grandchild*. *Male*, at 400m above sea level, is the highest peak in Botswana. The rock ensemble is visible from the Okavango River, c 40km to the north-east.

Caves and shelters are one of the main resources of the rock outcrop from the human point of view. Where excavated, they characteristically show a long, though not necessarily continuous, sequence of occupation beginning in some cases as early as c 100,000 years ago (Middle Stone Age). They indicate repeated use thereafter, the artefact densities appearing to reflect visits, perhaps seasonal, by small mobile groups of people. At White Painting Shelter, Tsodilo, for example, excavation has exposed a 7m deep stratigraphy demonstrating such use over at least 100,000 years.

Divuyu and Nqoma are two excavated settlements of particular significance in the 1st millennium AD. Divuyu lies in a saddle at the top of *Female*; Nqoma is on a plateau below. A general pattern of public housing and living spaces in the centre of the saddle at the former, flanked by communal middens and perhaps burial areas, seemed to be the settlement plan. Much the same was suggested by Nqoma. If so, then these sites at Tsodilo do not share the spatial structure of other settlements in southern Africa, and suggest similarities with the spatial patterning of villages in the "matrilineal belt" of central Africa.

The rock art paintings are often large and imposing, and can be seen from a distance. Most of it has been executed in red ochre derived from hematite occurring in the local rock. Much of the red art is naturalistic in subject and schematic in style, described in the dossier as "sketches capturing the essential character of the creatures depicted." The rock art occurs throughout the rock outcrop. Many of the graphics have been executed in fairly small, isolated panels in contrast to the large friezes elsewhere in the region. In comparison with the naturalistic styles in Namibia, Zimbabwe, and South Africa, the Tsodilo paintings are more schematic, characterized by a variety of geometric symbols, distinctive treatment of the human figure, and exaggerated body proportions of many animals. Overall, in terms of style and content the art has more in common with paintings of similar antiquity in Zambia and Angola to the north and north-east than neighbouring Namibia, Zimbabwe, and South Africa.

The wild animals depicted are characteristically "big game" such as giraffe and rhinoceros until the relatively late appearance of domestic cattle. Some depictions are in outline only, others are in silhouette, differences in style which seem to relate to particular animals (eg zebra in outline and elephant in silhouette). Human figures, or abstracts of them emphasizing, for example, sexual features, are frequent. There is nevertheless a high proportion of geometric designs, frequently lines and grids enclosed in circles or ovals and in rectangles. Such apparently symbolic graphics are rare in southern African Stone Age art.

A distinctive series of white paintings occurs at only twelve sites, in some instances superimposed on the reds but never the other way round. Animals in white are rarer and include more domestic species than the reds. Human figures are common, as are geometric designs.

The art in general is not well dated, though at least some of it could be two thousand and more years old. Pictures with

cattle are regarded as c 600-1200, following the introduction of cattle to Tsodilo after the 6th century AD. Geometric art is generally regarded as about a thousand years old. The latest paintings date to the 19th century on oral evidence. Some white paintings appear to be riders on horses, unknown at Tsodilo until the 1850s, which possibly provides a date for the last paintings. Certainly domestic animals indicate a relatively recent date for the white paintings.

Cup- and canoe-shaped hollows in rock, a common phenomenon throughout the continent, are particularly numerous at Tsodilo. One group, interpreted as a trail of animal footprints, is spread over several hundred metres and is one of the largest rock pictures in the world. As poorly dated as the other art, these hollows may have been made in the Late Stone Age about two thousand years ago.

The extent and intensity of mining activity on the mountains to recover ochre, specularite, and green stone, used for decorative purposes, is impressive. The mines are clearly pre-colonial.

Management and Protection

Legal status

The Monuments and Relics Act 1970 provides for better preservation of ancient monuments, ancient workings, relics, and other objects of aesthetic, archaeological, historical, or scientific value or interest. Tsodilo was declared a National Monument under an early version of this Act in 1927.

Tsodilo is a Conservation Area (but no information is given about the meaning of that phrase in Botswana or its legal standing).

It is also affected by conditions in the Anthropological Research Act 1967, National Parks Act 1967, and Tribal Act 1968.

Management

The site is owned by the Government, controlled by the Tswana Land Board, and managed by the Botswana National Museum. The area nominated for inclusion in the World Heritage List, including both the core and buffer zones (respectively 4800ha, to be fenced in, and 70,400ha), will be leased to the Botswana National Museum.

The Tsodilo Hills Management Plan: Scheme for Implementation (20 February 1994) was reviewed and amended in 1999. Essentially, it is a modern management plan based on generally accepted principles of conservation in a broad sense, while recognizing its particular context, for example within a national policy to develop rural areas in such a way that local people are able to improve the quality of their lives. One of its premises is that Tsodilo is primarily a heritage area and only secondly a settlement; another basic one is to protect traditional rights but encourage traditional methods of land use. Excess population will be encouraged to settle elsewhere, but any actual financial or other loss incurred by the community as a result of the Management Plan should be compensated. Further, the Plan recognizes that people have the right to learn about, appreciate, and enjoy their heritage, provided that they do not damage it. On-site activities are, therefore, controlled, and restricted and monitoring is constantly leading to appropriate and timely action.

One of the strongest recommendations of an Evaluation (August 1995) of the Management Plan was that the site should be nominated for World Heritage Listing, to which end it recommended that Botswana sign the 1972 Convention. It identified reasons for this as "help in marketing the site to tourists, in raising additional capital and in negotiating international assistance." It noted that increasing tourism was already then (1995) leading to vandalism of some art and so it recommended "the systematic recording of all the rock art." Between 1994 and 1996 the archaeology of Tsodilo, including the rock art sites, was recorded by Botswana National Museum staff. The Evaluation's long list of recommendations was much concerned with acquiring and training appropriate personnel.

National Development Plans 1997/98 and 2002/03 emphasize the development of cultural resources to contribute towards the expansion of the tourism sector. It estimates that 30,000 tourists visit historical monuments throughout Botswana annually. In 1998, 3698 people visited Tsodilo, a low on-site number but nevertheless c 10% of the national total of such visitors.

The Department of Tourism will play an active role in defining the policies relating to the presentation and promotion of the property. The Department of Wildlife and National Parks also has responsibilities for the management of tourism.

The Management Plan recognizes the importance of securing the participation of the local communities (c 200 people), expressed in a Tsodilo Liaison Committee of tribal and Museum representatives. The purpose of this Committee is "to ensure harmonious co-operation," but a distinction is drawn between community participation and "formal management" by the National Museum. An elaborate consultation process preceded the nomination of Tsodilo for World Heritage status, a nomination which consequently comes forward with broad-based support over a wide area.

Botswana National Museum policy is to promote the heritage at Tsodilo for Botswana and tourists. A new museum complex is nearing completion, and campsites are provided. A signage system is in hand within a larger system for all National Monuments. Educational programmes will implement a continuing Tsodilo and World Heritage awareness programme among Botswana schools.

Financial resources for Tsodilo include US\$651,000 for the new museum, about US\$2000 a year for hiring casual labourers, and US\$16,000 a year within the National Museum budget. Five full-time staff have been employed specifically on the Tsodilo project. Unspecified amounts of funding are mentioned for a range of tasks like fencing and "preservation of rock art."

In January 2001, a somewhat long list of tasks identified in the Schedule of Implementation awaited completion.

Conservation and Authenticity

Conservation history

Three basic long-term facts contribute to Tsodilo's outstanding state of preservation: its remoteness, its low population density, and the high degree of resistance to erosion of its quartzitic rock.

Recording of the rock art began in the early 20th century. The site became a National Monument in 1927. A landmark

in its conservation, in part led by consideration of the needs of the national economy and tourism at the site, was the preparation of a Management Plan in the early 1990s. This was followed by an expert evaluation which, while generally approving, provided in its recommendations the basis for at least a ten-year programme of improvement.

Authenticity and integrity

Tsodilo is a classic case where both integrity and authenticity must be taken into account. The whole ensemble, over and above its scientific interest, possesses an aesthetic dimension.

The diverse fauna and flora have remained largely intact because of the remoteness of the site. Many species attested in archaeological deposits of the 7th century AD were depicted in rock paintings, and most were probably still present until the early 20th century. Mongongo nuts continue to be a food staple; a particular beetle, *Diamphidia sebae*, continues to provide poison for the !Kung's hunting arrows; two African rock pythons, *Python sebae*, have been living at the waterhole halfway up *Female* for at least ten years and are regarded as messengers of the spiritual realm. The baobab tree, *Adansonia digitata*, continues to be used in different ways (food, water collection, textile raw material, medicine, manure, etc). The tree clearly therefore possesses considerable socio-economic and cultural significance, as was recognized at the First Global Strategy meeting in Harare (October 1995). It has been called "a symbol of the continent and the people of Africa" and was strongly recommended for World Heritage listing.

The archaeological record is large, generally well preserved, and still respected, for some of its content is still living rather than redundant. Excavations have been well conducted and backfilled, leaving deposits and strata intact as a resource for future investigation. Results from the site so far have been illuminating both of the local prehistory and of key significance at regional and continental levels. Overall, the condition and authenticity of the rock art in terms of materials, techniques, setting, and workmanship is impeccable. The art remains a key element in the spirituality of the site today.

Taken as a whole, the site embraces a diverse authenticity, dependent on an integrity nurtured over tens of thousands of years and providing a vivid illustration of natural/cultural interdependence.

Evaluation

Action by ICOMOS

An ICOMOS expert mission visited the site in January 2001. ICOMOS also consulted a distinguished expert on the rock art of southern Africa.

Qualities

The physical attraction and availability of shelter that probably originally drew people to Tsodilo was and still is augmented by local animals, fruit-bearing trees and shrubs, edible plants, and tubers. The plants and the diversity of wild life offered food, water, protection, and sanctuary to the earliest visitors and caused them to settle or return during annual foraging expeditions, a process which has continued over at least 100,000 years. Although changes have occurred through time, particularly in the availability of water, Tsodilo's resources have in general been exploited within

sustainable strategies. Over and above the geological interest of the rock itself, the fact that it is granite is of considerable significance for the site. On the one hand its impermeability has meant that it collects water; on the other, it is resistant to erosion and has therefore preserved the art upon it very well.

Tsodilo is also important for its intellectual contribution to scientific studies of human adaptation and the revision of ideas on forager/farmer interaction. The Stone Age of Botswana is poorly understood, partly through inadequate study, partly because the nature of the landscape offers little incentive for repeated visits to the same locations. Tsodilo, because of its nature as a place where people stay and to which they return, has already contributed significantly to African prehistory, and it has a high potential in its stratification further to illuminate the sequence and character of human activity and environmental change.

The rock art is outstanding in quantity, quality, distinctiveness, scientific interest, and state of preservation. It represents in graphic form a long-lived traditional practice giving cultural expression to different and, until right at the end, anonymous cultures.

Comparative analysis

There are no other African sites like Tsodilo on the World Heritage List. The Brandberg inselberg in neighbouring Namibia is similar in some ways geologically, but the rock art and archaeological history are different. It compares favourably with the Uluru/Kata Tjuta cultural landscape of central Australia in terms of both its spectacular rock formations which, from a geological perspective, represent exceptional examples of tectonic and geomorphic processes; and as a basically natural feature which has become an icon in a cultural landscape.

The cultural heritage is manifest in many forms with similarities to others in Botswana, in southern Africa, in Africa, and in the world but whose combinations may only be peculiar to Tsodilo, an area which itself possesses a unique combination of features. For its size, it compares favourably with Kakadu National Park, Australia, in terms of the concentration of rock art: Tsodilo is of 10km² with c 4500 paintings in more than 400 sites, Kakadu is of 19,804 km² with 15,000 rock-art sites. At Matobo in Zimbabwe some 30,000 paintings are estimated to exist at c 3000 sites over c 2000km²; at the Drakensberg/uKhahlamba, South Africa, 600 sites with 35,000 individual images are spread over a vast area; an estimated 6000 sites occur in c 30,000km² in Lesotho. Quantitatively, the density of rock art at Tsodilo is among the highest in the world.

The art itself exhibits idiosyncratic characteristics rather than close parallels with other sites and areas. Certainly there is nothing to suggest that its origins and development were externally introduced or influenced. Its qualities are very much of this place and its peoples. The art is usually found, for example, on overhangs and ledges; it is not hidden as at Matobo and Drakensberg. Nor is it closely correlated with living sites such as Matobo. Stylistically, the paintings are distinct, being more schematic than the naturalistic paintings in most other parts of southern Africa. Both humans and animals are characteristically expressed by strokes and other minimalist devices; some, humans in particular, are not immediately recognizable. Overall, the style, though neither the colour nor the content, is closer to that of the Iron Age or agro-pastoralist art found elsewhere in southern Africa than shamanistic hunter-gatherer art. The Tsodilo artists preferred

big game, cattle, humans, and geometric or, to modern eyes, abstract, images. Similar large game emphases occur in the paintings of Namibia, South Africa, and Zimbabwe. Geometric shapes are rare in southern African Stone Age rock art, though comparisons have been drawn between the Tsodilo examples and similar designs in the arid interior of southern Africa, especially in Namibia. The nearest examples are c 400km west of Tsodilo. Paintings in eastern Zambia, 1000km away, also contain schematic animals and geometric designs. The nearest art is 250km away at Savuti; it is in a similar style to that at Tsodilo.

Tsodilo's flora and fauna provide the basis of much of the cultural development there. While this is not in itself of universal significance, the relationships within the environment including humankind are.

ICOMOS comments and recommendations for future action

The site is nominated in an excellent dossier which is a credit to those concerned and the State Party. The rock art alone, so persistently created over centuries, represents a masterpiece of human creative genius. Tsodilo vividly demonstrates an exceptional testimony to a specific place as the meeting place of humanity and an environment over 100,000 years. And the very place is directly and tangibly not just associated with, but is itself, a living tradition.

A claim is made under criterion v. As expressed, however, it is largely academic, and the academic argument itself is not sound. The claim is not, in any case, necessary.

Tsodilo should be considered as a cultural landscape because it is well qualified in this category of cultural site. It qualifies primarily under category iii, "an associative cultural landscape" with "powerful religious, artistic, and cultural associations of the natural element." It is also an organically evolved landscape, falling into the sub-category of "continuing landscape." The *Operational Guidelines* require the retention of "an active social role in contemporary society closely associated with the traditional way of life and in which the evolutionary process is still in progress," which closely defines Tsodilo. The presence of Tsodilo among the emerging group of cultural landscapes on the World Heritage List would both grace that group and help clarify its nature.

There are currently less than 4000 visitors to the site per year. The carrying capacity is estimated to be in the tens of thousands per year (though no definition of "carrying capacity" is offered, even though it is well known that absolute numbers are not the only criterion for judging stress on a site). Clearly, with a site so robust in some natural qualities but so fragile in others, not least in its art and human/environment relationships, the development of the place as a tourist destination must be very clear-sighted and sensitively managed, with a sharp, scientifically well informed management focus on the essential qualities of the place. In that context, despite a new museum having only just been completed near the rocks, ICOMOS suggests that, given the close parallel with Uluru, the possibility of moving everything away from the rocks themselves should be borne in mind, perhaps, as at Uluru, when a second phase of tourism facilities is planned.

Noting that the excellent 1994 Management Plan is now nearly seven years old, ICOMOS also recommends that a new one be drawn up including an annual schedule of works to be implemented.

Brief description

A small area of quartz outcrop in the Kalahari Desert has provided shelter and other resources to people for over 100,000 years. It now retains a remarkable record, in its archaeology, its rock art, and its continuing traditions, not only of this continual use but also of the development of human culture and of a symbiotic nature/human relationship over many thousands of years.

Statement of Significance

The significance of the place lies in its visual prominence, its geological and archaeological character as scientific resources, its use over ten of thousands of years as an area of settlement and nourishment, its outstanding rock art, and its long-term sanctity. All of those elements individually bear witness to different universal significances; collectively they combine to create a veritable "node of universal significance" on the surface of the earth. Furthermore, the symbiotic relationship between nature and culture, the very essence of Tsodilo, is, in itself, universally significant.

ICOMOS Recommendation

That this property be inscribed on the World Heritage List on the basis of *criteria i, iii, and vi*:

Criterion i For many thousands of years the rocky outcrops of Tsodilo in the harsh landscape of the Kalahari Desert have been visited and settled by humans, who have left rich traces of their presence in the form of outstanding rock art.

Criterion iii Tsodilo is a site that has witnessed visits and settlement by successive human communities for many millennia.

Criterion vi The Tsodilo outcrops have immense symbolic and religious significance for the human communities who continue to survive in this hostile environment.

Bureau Recommendation

That Tsodilo be inscribed on the World Heritage List on the basis of *criteria i, iii, and vi*.

ICOMOS, September 2001

Tsodilo (Botswana)

No 1021

Identification

<i>Bien proposé</i>	Tsodilo
<i>Lieu</i>	District de Ngamiland nord-ouest du Botswana
<i>État partie</i>	Botswana
<i>Date</i>	19 juin 200

Justification émanant de l'État partie

Tsodilo, site géologique de première importance dans le désert du Kalahari, est aussi appelé le « Louvre du désert » en raison de la qualité et de la quantité d'art rupestre contenu dans une zone de 10 km² seulement. Les vestiges archéologiques sont d'une très grande valeur. Le lieu offre une occasion unique de comprendre les traditions, les cultures et les technologies du peuple de la région du Kalahari depuis les temps immémoriaux jusqu'à nos jours.

D'un point de vue géologique, Tsodilo offre une rare opportunité d'observer l'une des plus anciennes formations rocheuses qui constituent la croûte terrestre, car sa roche très ancienne, soulevée par les forces tectoniques, a résisté à des millions d'années d'usure et d'érosion. Le site associe maints aspects de l'histoire de la terre à l'histoire culturelle de l'humanité. Il témoigne de l'interaction entre les processus géologiques qui se sont déroulés sur plus d'un milliard d'années et les activités humaines sur des dizaines de milliers d'années, en particulier celles appliquées aux minéraux.

L'archéologie du site conserve la mémoire de l'évolution chronologique des activités humaines et de l'évolution environnementale sur au moins 100 000 ans. L'art rupestre constitue un élément de ce témoignage remarquable. Avec plus de 4 500 peintures et de nombreuses gravures, il offre un éclairage frappant des premières perceptions de cet environnement tout en donnant une expression artistique aux modes de vie contemporains. Tsodilo possède l'une des plus fortes concentrations d'art rupestre au monde. À ce titre, il est d'un intérêt international majeur. C'est aussi la plus grande concentration de ce type d'ouvrage au Botswana. L'accent sur les grands herbivores rappelle la langue métaphorique du peuple San, indiquant que, si la symbolique de l'art rupestre reste obscure, elle est néanmoins de nature religieuse. Quelle qu'ait été l'intention originale des artistes, leur art a inspiré des interprétations modernes ; il est utilisé aujourd'hui, par exemple pour la conception de timbres-poste.

Critère i

L'archéologie met aussi en lumière la technologie, les échanges et des éléments importants du mode d'occupation du territoire. Les études archéologiques s'étendent de l'âge de la pierre aux sociétés traditionnelles, démontrant non seulement l'ancienneté mais aussi la diversité des occupations humaines. Les sites consistent en grottes, abris sous roche, campements saisonniers et villages ; leurs stratifications contiennent des vestiges paléo-environnementaux et des successions de cultures. En particulier, les grottes et les abris sous roche révèlent l'existence d'un phénomène relativement rare au Botswana, à savoir la réutilisation de lieux sur une longue période. L'association de témoins naturels et des fruits de l'activité humaine en dépôts stratifiés démontre l'interaction des hommes et de l'environnement dans l'espace et dans le temps.

Critère iii

Tsodilo est unique en ce qu'il se distingue du reste de l'Afrique du sud par ses modes d'occupations de l'âge du fer et par leur organisation spatiale. Tsodilo défie les stéréotypes, qu'ils soient aborigènes ou Bantous.

Critère v

Les traditions parlent de Tsodilo comme du lieu de vie de toutes les créatures et plus particulièrement des esprits de chaque animal, oiseau, insecte et plante de la création. Bien que l'interprétation et la datation exactes de l'art rupestre soient incertaines, l'art lui-même atteste clairement de la longue tradition spirituelle du site, une tradition qui se perpétue au travers des pratiques des !Kung et des visites de pèlerins venus de l'ouest, parfois d'assez loin.

Critère vi

Catégorie de bien

En termes de catégories de biens culturels telles qu'elles sont définies à l'article premier de la Convention du patrimoine mondial de 1972, le bien proposé est un *site*. C'est aussi un *paysage culturel* aux termes du paragraphe 39 des *Orientations devant guider la mise en œuvre de la Convention du patrimoine mondial*.

Histoire et description

Histoire

En l'état actuel des connaissances, la présence des premiers occupants de Tsodilo remonte probablement à l'âge de la pierre moyen, il y a environ 100 000 ans ou même plus. Une présence est datée à environ 70 000 avant notre ère. En général, la réutilisation d'un site sur une longue période semble refléter la présence de petits groupes mobiles campant pour des périodes courtes ou saisonnières, par exemple pour la cueillette des fruits du mongongo (*Ricinodendron rautanenii*). Le quartz trouvé localement ainsi que des pierres importées sont utilisées pour la fabrication d'outils à l'âge de la pierre moyen et supérieur. L'utilisation de matières premières importées suggère l'existence de contacts et d'échanges entretenus à Tsodilo pendant des dizaines de milliers d'années. L'âge de la pierre moyen est marqué par l'apparition de grandes lames de pierre. Tsodilo est unique dans le témoignage d'une pêche importante de poissons d'eau douce dans une région devenue aride mais où, jadis, coulaient des fleuves. Des

arrêtes de poissons ont probablement servi de pointes pour des harpons. La fabrication d'outils en os à Tsodilo remonte vraisemblablement à 40 000 ans.

Les objets en pierre et en arrête se font plus rares à la fin de l'âge de la pierre (vers 30 000 avant notre ère). L'apparition des œufs d'autruche dans les dépôts archéologiques indique le développement d'une nouvelle stratégie pour procurer une autre ressource pour l'alimentation et la fabrication d'objets. En particulier, la tradition de la fabrication de perles en coquilles d'œuf d'autruche est née à cette période et se poursuit actuellement. Jusqu'à vers l'an 600 de notre ère, les hommes de Tsodilo vivaient exclusivement de la chasse, de la pêche et de la cueillette.

Au VIIe siècle, l'évolution des technologies, des modes de vie et de l'occupation s'accélère cependant avec l'introduction de la métallurgie du cuivre et du fer. Cette période est également marquée par l'introduction de l'élevage. Il s'est alors produite une interaction entre les groupes humains de la fin de l'âge de la pierre vivant de la cueillette et les sociétés agricoles et pastorales du début de l'âge de fer. Les établissements humains ont pris la forme de structures sociales originales. Divuyu est le site le plus riche découvert à ce jour dans le sud de l'Afrique, pour cette période. Les perles de cuivre et de fer, les bracelets et autres ornements y sont produits en grande quantité. Le fer, provenant d'un gisement situé à 40 km seulement et le cuivre, venant probablement du sud du Zaïre ou du nord-est de l'Afrique du sud, étaient importés et travaillés sur place. À la fin du premier millénaire, Nqoma possède une grande variété de bijoux en métal sans égal avec tous les autres sites connus du sud de l'Afrique.

Sur les deux sites de Divuyu et Nqoma, on trouve des fondations de maisons et des fosses à détritiques révélant la présence de sociétés vivant de l'élevage dès les VIIe et VIIIe siècles de notre ère. La culture du sorgho et du millet complétait l'alimentation. Des moutons et des chèvres vinrent compléter les maigres troupeaux que possédaient déjà les groupes vivant de la cueillette. Ils avaient une production souvent élaborée de poteries à usage domestique et pour l'ornementation. Les hommes pratiquèrent l'exploitation extensive de la spécularite du VIIIe au IXe siècle et jusqu'au XIXe siècle. La production était très importante, contribuant sans doute à la prospérité du peuple de Nqoma qui se manifestait par l'abondance de bijoux et l'importance du cheptel qu'ils possédaient. Les richesses de la culture de l'âge du fer à Tsodilo se sont maintenues jusqu'au XIIIe siècle, époque à laquelle Nqoma connut un déclin, probablement dû à la sécheresse ou à la guerre. Aucun autre objet ne semble avoir été importé dans la région de Tsodilo avant que le commerce européen, venu par l'Atlantique, n'exerce une influence au XVIIIe siècle. Tsodilo se trouva sur la route commerciale du Portugal avec le Congo et l'Angola.

Historiquement, la région de Tsodilo était occupée par les N/hae, qui la quittèrent au milieu du XIXe siècle. Sa première apparition sur les cartes date de 1857, d'après des informations recueillies par Livingstone au cours de sa campagne d'exploration de 1849 à 1856. Dans les années 1850, les premiers groupes à cheval connus, les chasseurs d'ivoire Griqua, traversèrent la région. Les !Kung arrivèrent dans la région et réalisèrent au moins quelques-unes des peintures, peut-être celles qui représentent des cavaliers.

L'art rupestre fut porté à la connaissance de l'occident en 1907 par le géologue allemand Siegfried Passarge.

Les deux communautés locales aujourd'hui présentes, les Hambukushu et les !Kung, ne sont arrivées dans la région que vers 1860. Elles possèdent néanmoins toutes les deux des mythes de la création associés à Tsodilo, et leurs croyances traditionnelles impliquent le respect de Tsodilo en tant que lieu de culte peuplé des esprits ancestraux. La spiritualité du lieu a été révélée aux étrangers, notamment par les écrits de Laurens van der Post, en particulier dans *The Lost World of the Kalahari* (1958). Aujourd'hui, les églises locales et les médecins traditionnels viennent à Tsodilo pour prier, méditer et soigner. La plupart des visiteurs viennent en pèlerinage, pour des raisons religieuses.

Description

Tsodilo est situé dans le nord-ouest du Botswana, près de la frontière namibienne. Il est formé d'un socle massif ancien de roches quartzites, qui est bordé d'anciennes dunes à l'est et du lit d'un lac fossilisé à l'ouest. Ces petits monts résiduels et dénudés appelés *inselbergs* s'élèvent au-dessus de terres basses et érodées dans une région aride et chaude. Les dunes environnantes sont couvertes d'arbres et de savane. Le cadre naturel et les formations rocheuses multicolores, associés au grand nombre de peintures, donnent au lieu une qualité iconographique immédiatement comparable à Uluru au centre de l'Australie. Trois des *inselbergs* forment un ensemble rectangulaire de plus de 3 km sur 10 km; le quatrième, plus petit, se trouvant à 2,1 km au nord-ouest. Il ont reçu une dénomination particulière liée à leur hauteur, leur forme et leur relation dans l'espace ; on les appelle les monts *Male*, *Female*, *Child* et *Grandchild*. *Male*, culminant à 400 m au-dessus du niveau de la mer, est le mont le plus élevé du Botswana. L'ensemble rocheux est visible du fleuve Okavango qui coule à environ 40 km au nord-est.

Les grottes et les abris sous roche sont l'une des principales ressources d'affleurement rocheux pour les hommes. Les fouilles de ces lieux livrent très souvent - mais pas nécessairement - des traces d'occupations successives ininterrompues, certaines datant d'environ 100 000 ans (âge de la pierre moyen). Elles indiquent des utilisations répétées, la densité des objets semblant refléter les visites, peut-être saisonnières, de petits groupes mobiles. À l'abri *White Painting Shelter* de Tsodilo, par exemple, les fouilles ont mis au jour une stratigraphie de 7 mètres de profondeur prouvant une utilisation remontant à plus de 100 000 ans.

Les fouilles de Divuyu et Nqoma révèlent deux établissements d'une importance particulière, datant du premier millénaire de notre ère. Divuyu est implanté sur un col au sommet du mont *Female* et Nqoma est situé sur un plateau en contrebas. Des constructions communales et des habitats se trouvent au centre du col, flanqués de fosses à détritiques et peut-être d'un lieu d'inhumation. On retrouve à peu près le même plan d'occupation à Nqoma. Les sites de Tsodilo ne partagent pas la même occupation de l'espace que les autres établissements humains du sud de l'Afrique. Ils suggèrent en revanche des similitudes avec l'organisation spatiale des villages de la « ceinture matrilineaire » de l'Afrique centrale.

Les peintures rupestres sont souvent de taille imposante et visibles de loin. La plupart ont été exécutées à l'ocre rouge tiré de l'hématite que l'on trouve dans la roche locale. Une grande partie des œuvres en rouge sont d'inspiration naturaliste et d'exécution schématique. Dans le dossier, elles sont décrites comme étant « des dessins saisissant le caractère essentiel des créatures dépeintes ». Les œuvres rupestres sont présentes dans la totalité de l'ensemble rocheux. Nombre de dessins ont été exécutés sur des panneaux relativement petits et isolés, contrairement aux grandes frises qui existent ailleurs dans la région. Par comparaison avec les styles naturalistes rencontrés en Namibie, au Zimbabwe et en Afrique du Sud, les peintures de Tsodilo sont plus schématiques. Elles se caractérisent par divers symboles géométriques, un traitement original de la représentation humaine et l'exagération des proportions corporelles de nombreux animaux. Globalement, du point de vue du style et du contenu, l'art rupestre de Tsodilo se rapproche davantage des peintures et antiquités similaires de la Zambie et de l'Angola au nord et au nord-est que des pays voisins : Namibie, Zimbabwe et Afrique du Sud.

Les animaux sauvages représentés sont généralement des « grands gibiers » tels que la girafe et le rhinocéros, le bétail étant représenté assez tardivement. Certaines représentations se limitent au dessin de la silhouette, différence de style qui semble liée à certains animaux, par exemple le zèbre et l'éléphant. Les représentations ou les abstractions humaines insistant par exemple sur les caractères sexuels sont fréquentes. Il y a cependant une grande proportion de dessins géométriques, des lignes et des grilles s'insérant dans des formes ovales, circulaires ou rectangulaires. Dans le sud de l'Afrique, ces graphiques, apparemment symboliques, sont rares dans l'art de l'âge de la pierre.

Une série particulière de peintures blanches ne se retrouvent qu'en douze sites, parfois peintes au-dessus d'œuvres en rouge, mais jamais l'inverse. Les animaux peints en blanc sont plus rares et comportent davantage d'espèces domestiques que ceux représentés en rouge. Les silhouettes humaines sont fréquentes, de même que les dessins géométriques.

L'art en général est difficile à dater avec précision, bien qu'une partie puisse remonter à deux mille ans et plus. Les peintures représentant le bétail sont datées entre 600 et 1200 de notre ère, puisque l'introduction du bétail à Tsodilo remonte au VI^e siècle. L'art géométrique semble être apparu aux environs de l'an 1000. Les dernières peintures sont datées du XIX^e siècle d'après la tradition orale. Certaines peintures blanches semblent représenter des cavaliers montés sur leurs chevaux, inconnus à Tsodilo jusque dans les années 1850, ce qui pourrait indiquer la date des dernières réalisations. En ce qui concerne les peintures blanches, les animaux domestiques sont certainement de facture relativement récente.

Des creux arrondis ou allongés ménagés dans la roche, un phénomène courant sur tout le continent, sont particulièrement abondants à Tsodilo. Un groupe, que l'on interprète comme les traces d'empreintes d'animaux, s'étend sur plusieurs centaines de mètres. C'est l'une des plus grandes manifestations de ce type au monde. Tout aussi difficiles à dater que le reste, ces creux pourraient remonter à la fin de l'âge de la pierre, il y a environ deux mille ans.

L'activité minière dans les montagnes pour l'extraction de l'ocre, de la spécularite et des pierres vertes à usage décoratif est impressionnante. Il est clair que les mines ont été exploitées avant la colonisation.

Gestion et protection

Statut juridique

La loi de 1970 sur les monuments et les vestiges prévoit une meilleure préservation des monuments anciens, des ouvrages anciens, des vestiges et autres objets d'intérêt ou de valeur scientifique, historique, archéologique ou esthétique. Tsodilo a été déclaré monument national en 1927 dans le cadre d'une version antérieure de cette loi.

Tsodilo est une zone de conservation, (aucune information n'est cependant fournie quant à la signification générale ou la portée juridique de cette expression au Botswana).

Tsodilo est également visé par la loi de 1967 sur les recherches anthropologiques, la loi de 1967 sur les parcs nationaux et la loi de 1968 sur les tribus.

Gestion

Ce site est la propriété du gouvernement, contrôlée par le conseil de la région de Tawana et gérée par le musée national du Botswana. La zone proposée pour inscription sur la Liste du patrimoine mondial, comprenant la zone principale et les zones tampon (respectivement 4800 ha à clôturer, et 70 400 ha) seront donnés à bail au musée national du Botswana.

Le plan de gestion des monts de Tsodilo : Programme de mise en œuvre (20 février 1994) a été révisé et amendé en 1999. Il s'agit essentiellement d'un plan de gestion moderne, basé sur les principes de conservation généralement admis, mais qui prend en compte son contexte particulier, par exemple une politique nationale de développement des zones rurales visant à améliorer la qualité de vie de leurs habitants. L'un des principes de base est que Tsodilo est avant tout une zone de patrimoine et ensuite seulement une zone d'habitation. De même, le programme protège les droits traditionnels et favorise les utilisations traditionnelles des sols. La population en surnombre sera encouragée à quitter la zone pour s'installer ailleurs, mais toute perte financière ou autre occasionnée à la communauté par le plan de gestion devra être compensée. De plus, il prévoit une action pédagogique auprès des populations afin qu'elles puissent apprendre à connaître et apprécier leur patrimoine et en profiter sans le dégrader. Les activités sur le site sont donc contrôlées et limitées. La surveillance constante du site permet d'intervenir à temps et à bon escient.

L'évaluation du plan de gestion réalisée en août 1995 recommande que le site soit proposé pour inscription sur la Liste du patrimoine mondial et qu'à cette fin le Botswana signe la Convention de 1972. Les raisons invoquées étaient : « l'aide au développement du tourisme, la collecte de moyens financiers supplémentaires et l'obtention d'une aide internationale ». On notait déjà en 1995 que le développement du tourisme s'accompagnait d'actes de vandalisme sur certaines œuvres et on recommandait donc « le recensement systématique des œuvres d'art rupestres ». De 1994 à 1996, le musée national du Botswana a entrepris

une campagne de recensement des dépôts archéologiques de Tsodilo, en particulier des sites d'art rupestre. La longue liste des recommandations de l'évaluation insistait sur l'embauche et la formation d'un personnel qualifié.

Les plans de développement nationaux de 1997/1998 et de 2002/2003 mettent l'accent sur le développement des ressources culturelles pour contribuer à l'essor du secteur du tourisme. Environ 30 000 touristes visitent les monuments historiques du Botswana chaque année. En 1998, 3698 personnes ont visité Tsodilo, soit un nombre restreint qui représente néanmoins près de 10 % du nombre total de visiteurs au niveau national.

Le département du Tourisme jouera un rôle important dans l'élaboration des politiques de présentation et de promotion du bien. Le département de la Faune et de la Flore et des parcs nationaux partage des responsabilités dans la gestion du tourisme.

Le plan de gestion reconnaît l'importance de la participation des communautés locales (environ 200 personnes), facilitée par le comité de liaison de Tsodilo composé de représentants du musée et des tribus. L'objectif de ce comité est « d'assurer une coopération harmonieuse, » mais il fait une distinction entre la participation de la communauté et « la gestion formelle » assurée par le musée national. Un processus complexe de consultation a précédé la proposition d'inscription du site de Tsodilo sur la Liste du patrimoine mondial, une demande qui, par conséquent, recueille un large soutien et concerne une vaste zone.

La politique du musée national du Botswana consiste à promouvoir le patrimoine de Tsodilo au Botswana et auprès des touristes. Un nouveau complexe muséal est en cours d'achèvement. Des emplacements de camping sont aménagés. Il existe un système de signalisation pour tous les monuments nationaux. Des programmes éducatifs feront connaître Tsodilo et le patrimoine mondial dans les écoles du Botswana.

Les ressources financières attribuées à Tsodilo s'élèvent à 651 000 USD pour le nouveau musée, une dotation annuelle d'environ 2 000 USD pour l'embauche d'ouvriers et 16 000 USD par an prélevé sur le budget du musée national. Cinq employés permanents travaillent à plein temps sur le projet de Tsodilo. Des montants de financement non spécifiés sont destinés à des divers travaux tels que la clôture du site, et la « préservation de l'art rupestre. »

En janvier 2001, une longue liste de tâches identifiées dans le programme de mise en oeuvre était en cours de réalisation.

Conservation et authenticité

Historique de la conservation

Trois facteurs essentiels contribuent à l'état de conservation exceptionnel de Tsodilo : son éloignement, sa faible densité de population et la forte résistance à l'érosion de la roche quartzite.

Le recensement de l'art rupestre a commencé au début du XXe siècle. Le site est devenu monument national en 1927. La préparation du plan de gestion au début des années 1990

était fondamentale pour la conservation de Tsodilo, et s'imposait en partie par la nécessité de développer l'économie nationale et le tourisme sur ce site. Elle a été suivie d'une phase d'évaluation par des experts qui, tout en l'approuvant, ont formulé des recommandations constituant la base d'un programme d'amélioration, d'une durée minimum de dix ans.

Authenticité et intégrité

Tsodilo est un cas classique où l'intégrité et l'authenticité doivent être prises en compte. L'ensemble, par delà son intérêt scientifique, possède une dimension esthétique.

La faune et la flore très variées sont en grande partie demeurées intactes en raison de l'éloignement du site. De nombreuses espèces trouvées dans les gisements archéologiques du VIIIe siècle de notre ère sont représentées dans les peintures rupestres, et la plupart d'entre elles étaient probablement encore présentes au début du XXe siècle. Les noix de mongongo sont toujours un aliment de base; un insecte appelé *Diamphidia sebae* fournit toujours le poison dont les !Kungs enduisent leurs flèches pour la chasse ; deux pythons africains, *Python sebae*, vivent dans un trou d'eau à mi-hauteur du mont *Female* depuis au moins dix ans et sont considérés comme les messagers du royaume des esprits. Le baobab, *Adansonia digitata*, offre encore diverses ressources (aliment, eau, matière première textile, remède, engrais etc.). Cet arbre possède à l'évidence une importance socio-économique et culturelle, comme l'a reconnu la première réunion sur la stratégie globale, qui s'est tenue à Harare en octobre 1995. Il est reconnu comme « un symbole du continent et des peuples d'Afrique » et a été fortement recommandé pour inscription sur la Liste du patrimoine mondial.

Le gisement archéologique est important, généralement bien conservé, et respecté, car une partie de son contenu est toujours l'objet d'un culte vivant. Les fouilles ont été bien conduites, laissant des dépôts et des strates intactes pour servir de ressources aux investigations futures. Les résultats des fouilles sur le site ont mis en lumière la préhistoire locale et l'importance du site aux niveaux régional et continental. Globalement, l'état et l'authenticité de l'art rupestre sont impeccables en termes de matériaux, de techniques, de cadres et de mise en oeuvre. L'art reste aujourd'hui un élément clé de la spiritualité du site.

Considéré dans son ensemble, le site recouvre une authenticité différente, issue d'une intégrité nourrie depuis des milliers d'années et offrant une illustration vivante de l'interaction de la nature et de la culture.

Évaluation

Action de l'ICOMOS

Une mission d'expertise ICOMOS a visité le site en janvier 2001. L'ICOMOS a également consulté un éminent expert en art rupestre du sud de l'Afrique.

Caractéristiques

L'attrait physique et la présence d'abris sous roche, de gibier, d'arbres et de buissons à fruits, de plantes et de tubercules comestibles ont probablement attiré des groupes

humains à Tsodilo. La diversité de la faune et de la flore offrait des ressources – aliments, eau, protection et sanctuaire – aux premiers visiteurs et les incitait à s'établir ou à installer des campements saisonniers à certaines périodes de cueillette, un processus qui s'est poursuivi sur au moins 100 000 ans. Malgré des changements intervenus au cours des âges, en particulier en ce qui concerne la disponibilité de l'eau, les ressources de Tsodilo ont généralement été exploitées dans le respect de l'environnement (stratégie d'exploitation durable). Outre l'intérêt géologique de la formation rocheuse, le fait qu'elle soit constituée de granite est d'une importance considérable pour le site. L'imperméabilité de la roche permettait de recueillir l'eau et sa résistance a préservé le site de l'érosion et donc ses peintures rupestres à un niveau élevé.

Tsodilo est également important pour sa contribution intellectuelle aux études scientifiques sur l'adaptation de l'homme et la révision des idées sur l'interaction entre les sociétés de chasseurs-cueilleurs et les sociétés agricoles et pastorales. L'âge de la pierre au Botswana est peu connu, en partie faute d'études appropriées et en partie parce que la nature du paysage encourage peu les visites répétées de groupes mobiles sur les mêmes sites. Tsodilo, par sa nature et sa fonction d'abri et de lieu de séjour pour les groupes humains, joue un rôle important dans la préhistoire africaine. Tsodilo recèle dans sa stratification géologique et archéologique des ressources importantes pour la compréhension de l'histoire et de la nature de l'activité humaine et l'évolution environnementale.

L'art rupestre y est exceptionnel, en quantité, en qualité, en originalité ou pour son intérêt scientifique et son état de conservation. Il représente, sous forme graphique, une pratique traditionnelle ancienne qui donne une expression culturelle à différentes cultures restées anonymes.

Analyse comparative

Aucun autre site africain inscrit sur la liste du patrimoine mondial n'est semblable à Tsodilo. L'inselberg de Brandberg dans la Namibie voisine est similaire d'un point de vue géologique, mais l'histoire archéologique et l'art rupestre y sont différents. Tsodilo est comparable au paysage culturel de Uluru-Kata Tjuta du centre de l'Australie, à la fois par ses formations rocheuses spectaculaires qui, d'un point de vue écologique, sont des exemples exceptionnels du processus géomorphique et tectonique, et par son caractère naturel, emblématique d'un paysage culturel.

Le patrimoine culturel de Tsodilo présente des similitudes avec d'autres sites au Botswana, dans le sud de l'Afrique, sur le continent africain et dans le monde, mais aucun ne présente la même configuration d'éléments originaux qui en font un patrimoine unique. Par sa taille et la concentration d'art rupestre, il est comparable au parc national de Kakadu en Australie : Tsodilo à une superficie de 10 km² et compte environ 4500 peintures dans plus de 400 sites. Par comparaison, le parc de Kakadu s'étend sur 19 804 km² et comporte 15 000 sites d'art rupestre. À Matobo, au Zimbabwe, il y a quelque 30 000 peintures réparties sur environ 3000 sites et plus de 2000 km². À Drakensberg (uKhahlamba), en Afrique du Sud, 600 sites comportant 35 000 dessins s'étendent sur une vaste zone. Environ 6000 sites sont répartis sur près de 30 000 km² au Lesotho. Quantitativement, la densité d'art rupestre à Tsodilo est parmi les plus fortes au monde.

L'art lui-même présente des caractéristiques particulières qui le distinguent d'autres exemples rencontrés dans d'autres sites et régions. Rien ne suggère qu'il doive son origine et son développement à des productions ou des influences extérieures. Ses qualités sont essentiellement vernaculaires et appartiennent aux peuples de la région. Les œuvres sont réalisées sur des parois en surplomb ou en saillie. Elles ne sont pas dissimulées comme au Matobo et au Drakensberg. Elles ne sont pas non plus étroitement associées à des lieux vivants comme le Matobo. Du point de vue du style, les peintures sont originales et plus schématiques que les peintures naturalistes observées dans la plupart des sites d'Afrique du sud. Les figures humaines et animales sont exprimées de manière caractéristique par des traits et des moyens minimalistes. Les représentations humaines, en particulier, ne sont pas immédiatement reconnaissables. Globalement, sauf pour la couleur et le contenu, les peintures sont plus proches de l'âge de la pierre ou de l'art agropastoral présent dans le reste de l'Afrique du Sud que de l'art chamaniste des chasseurs-cueilleurs. Les artistes de Tsodilo préféraient représenter le gibier, les bovins, les hommes et les formes géométriques que nous assimilons à de l'abstraction. De grands animaux similaires apparaissent dans les peintures de Namibie, d'Afrique du Sud et du Zimbabwe. Les formes géométriques sont rares dans l'art rupestre de l'âge de la pierre africain, bien que les exemples de Tsodilo aient été rapprochés de dessins semblables dans les régions arides du sud de l'Afrique, surtout en Namibie. Les exemples les plus proches se trouvent à environ 400 km à l'ouest de Tsodilo. Les peintures rencontrées dans l'est de la Zambie, à quelque 1000 km de là, comportent aussi des animaux schématiques et des dessins géométriques. Le site d'art rupestre le plus proche, par son style et géographiquement, est celui de Savuti, à une distance de 250 km.

La faune et la flore de Tsodilo offrent la base du développement culturel local. Les relations construites dans l'environnement et incluant l'homme ont une valeur universelle.

Commentaires et recommandations de l'ICOMOS pour des actions futures

Le dossier de proposition d'inscription est excellent, ce qui est à mettre au crédit de ceux qui l'ont préparé et de l'État partie. À lui seul, l'art rupestre, créé en continu à travers les siècles, représente un chef d'œuvre du génie créateur humain. Tsodilo apporte de manière éclatante un témoignage exceptionnel pour un lieu spécifique où se sont rencontrés l'homme et la nature sur plus de 100 000 ans. Ce lieu n'est pas seulement associé à une culture vivante de manière tangible et directe, il est lui-même une tradition vivante.

Le critère v est invoqué. Cette demande repose cependant sur un argument trop théorique qui n'est pas considéré comme valable. En tout état de cause, cette demande n'est pas nécessaire.

Tsodilo devrait être considéré comme un paysage culturel parce qu'il correspond parfaitement à cette catégorie de bien culturel. Le site remplit d'abord la catégorie iii, « un paysage culturel associatif » avec la « force d'association de phénomènes religieux, artistiques ou culturels de l'élément naturel ». C'est aussi un paysage essentiellement évolutif relevant de la sous-catégorie du « paysage vivant ». Les *Orientations devant guider la mise en œuvre de la*

Convention du patrimoine mondial requièrent que soit conservé « un rôle social actif dans la société contemporaine étroitement associé au mode de vie traditionnel et dans lequel le processus évolutif continue », ce qui s'applique précisément à Tsodilo. La présence de Tsodilo dans le nouveau groupe de paysages culturels sur la Liste du patrimoine mondial honorer ce groupe et contribuera à clarifier sa nature.

Le site reçoit actuellement moins de 4000 visiteurs par an. La capacité d'accueil est estimée à des dizaines de milliers de personnes par an (bien qu'aucune définition de la « capacité d'accueil » ne soit fournie et sachant que les nombres absolus ne sont pas le seul critère qui permette de juger les pressions imposées à un site). À l'évidence, pour un site qui possède des qualités naturelles si solides et d'autres si fragiles, comme les relations homme - environnement - art, le développement du lieu en tant que destination touristique doit être bien étudié et géré intelligemment avec un objectif de gestion clair et scientifiquement bien renseigné sur les qualités essentielles du lieu. Concernant le nouveau musée dont la construction s'achève près des rochers, l'ICOMOS suggère que, comme à Uluru, il soit envisagé d'éloigner des rochers toute infrastructure, dès la planification de la seconde phase de construction des structures d'accueil.

L'excellent plan de gestion de 1994 ayant maintenant près de sept ans, l'ICOMOS recommande également l'élaboration d'un nouveau plan comprenant un programme annuel de travaux à réaliser.

Brève description

Une zone relativement petite d'affleurement de quartz dans le désert du Kalahari a offert un abri et d'autres ressources aux groupes humains depuis plus de 100 000 ans. Il conserve actuellement une riche mémoire archéologique des oeuvres d'art rupestre et des traditions vivantes, non seulement en ce qui concerne son utilisation continue, mais aussi le développement de la culture humaine et la relation symbiotique de l'homme et de la nature depuis des milliers d'années.

Déclaration de valeur

La valeur du lieu repose sur sa proéminence visuelle, son caractère géologique et archéologique en tant que potentiel scientifique, son utilisation depuis des dizaines de milliers d'années en tant que lieu d'occupation et de ressources pour les groupes humains, son art rupestre remarquable et son caractère spirituel. Tous ces éléments pris individuellement témoignent de différentes valeurs universelles. Ensemble, ils créent un véritable « nœud d'importance universelle » à la surface du globe. La relation symbiotique entre nature et culture, l'essence même de Tsodilo est, en soi, d'une importance universelle.

Recommandation de l'ICOMOS

Que ce bien soit inscrit sur la Liste du patrimoine mondial sur la base des *critères i, iii et vi* :

Critère i Pendant des milliers d'années, les hommes ont visité les affleurements rocheux de Tsodilo, dans le paysage aride du désert du Kalahari et s'y sont installés, laissant de nombreuses traces de leur présence, sous la forme d'un art rupestre exceptionnel.

Critère iii Le site de Tsodilo témoigne des visites et peuplements de communautés humaines successives pendant des millénaires.

Critère vi Les affleurements rocheux de Tsodilo ont une immense signification symbolique et religieuse pour les communautés humaines qui survivent encore aujourd'hui dans cet environnement hostile.

Recommandation du Bureau

Que Tsodilo soit inscrit sur la Liste du patrimoine mondial sur la base des *critères i, iii et vi*.

ICOMOS, septembre 2001