

THE PRINCIPLE OF 'SYMPATHETIC MAGIC' IN THE CONTEXT OF HUNTING, TRANCE AND SOUTHERN AFRICAN ROCK ART

J Francis Thackeray

In 1917 a German explorer, Reinhardt Maack, discovered a cave in the Brandberg in north-west Namibia and sketched selected examples of rock art, including the so-called 'White Lady'. The Maack shelter was revisited in 1947 by the French prehistorian, the Abbé Henri Breuil, who reported on the site in the *South African Archaeological Bulletin* the following year (Breuil 1948). Subsequently Breuil (1955) published a book called *The White Lady of the Brandberg*. In 1975 Harald Pager undertook an impressive detailed study of the rock art at the Maack shelter and recognised that the 'White Lady' was a male individual armed with bow and arrows, and coated with white pigment (Pager 1989).



Fig. 1: The 'White Lady' of the Brandberg, Namibia, copied by the Abbé Breuil. The painting represents a male with bow and arrows. Note the red stripes on the legs, lower torso and buttocks. The stripes may represent scarifications or painted stripes associated with the principle of sympathetic magic and *Inum chisi*, where *Inum* refers to supernatural potency. (copyright: RARI)

Breuil's copy of the 'White Lady' (Fig. 1) is curated by the Rock Art Research Institute (RARI) at the University of the Witwatersrand. Of particular interest is the fact that superimposed on the white pigment are at least 14 relatively short linear parallel red stripes on one leg, at least 23 linear red stripes on the other leg, at least 22 linear parallel red stripes on the lower torso, and at least eight red stripes on the buttocks. There are stripes on the upper torso as well. These stripes could represent scarifications of the kind known by the San word *!gi*, which is phonetically similar to the form *-tshi*, as in the isiXhosa words *umtshi* and *ukutshitshiza*, which refer to stripes of the

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OTHER FEATURES IN THIS ISSUE

- 5 Introducing the Qing and Orpen Project – John Wright & José de Prada-Samper
- 9 Observations from the Melkbosstrand shoreline, Table Bay – Jayson Orton
- 16 Plants in rock art: some thoughts from Zimbabwe – Paul Hubbard
- 18 Every bead tells a story – Rina Faria
- 22 A Not actually fakes, but ... – David Coulson, Alec Campbell and Jean Clottes

kind painted on the bodies of young boys in initiation rituals (L Botha, pers. comm.).

Lewis-Williams noted that San hunters scarified themselves in order to ensure success in a prospective hunt. In fact, it was explicitly stated that 'hunting success was the purpose of the scarifications' (Lewis-Williams, 1981). The same may have been true of red stripes painted on the bodies of male hunters.

Sympathetic hunting magic

Thackeray (2005) has reported a 1934 photograph of a 'buckjumper' (Fig. 2) recorded by WHC Taylor at Logageng in the Northern Cape showing a person bending forward like a quadruped under a hippotragine (roan antelope) skin that has apparently been painted with at least three stripes. Thackeray's interpretation is that the stripes on the 'buckjumper' skin probably represent symbolic wounds. The 'buckjumper' was interpreted in the context of Lichtenstein's (1812) evidence for hunting rituals in which a person took on the form of a herbivorous animal, and was symbolically wounded and killed in a ritual in the belief that this was absolutely essential for success in a forthcoming hunt. This is definitive evidence indicating that hunting rituals associated with the principle of sympathetic hunting magic were performed in southern Africa.

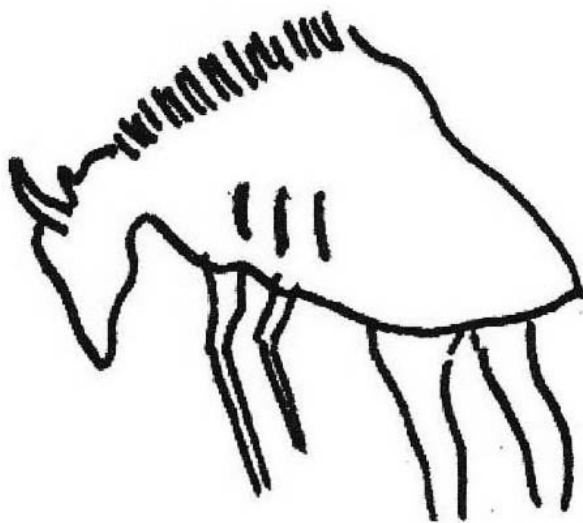


Fig. 2: Sketch based on a photograph of a 'buckjumper' recorded at Logageng, Northern Cape, in 1934. A person adopts a quadrupedal posture under the head and skin of a hippotragine antelope. At least three stripes appear to have been painted on the skin, probably representing symbolic wounds (Thackeray 2005).

Lichtenstein's evidence and the photograph of the 'buckjumper' (Fig. 2) can be used together with a valuable 19th century account of a rock painting of therianthropes at the Melikane shelter in Lesotho (Lewis-Williams 1980, 1981) to suggest that hunting rituals associated with sympathetic hunting magic

were conceptually related to trance during which individuals were believed to 'die at the same time as the antelope', in the belief that hunters could thereby access control over game (Thackeray 2005). 'Death' was a metaphor for trance (Lewis-Williams 1980, 1981).

These concepts may be associated with a therianthrope (Fig. 3) that is painted immediately above the male hunter in the 'White Lady'. This therianthrope (designated T1 for purposes of future reference) has the head and horns of a hippotragine antelope (in this case a gemsbok), but human legs. Notably, the posterior belly of the therianthrope has two sets of relatively small red stripes. I suggest here that the red parallel stripes on T1 represent symbolic wounds, conceptually associated with hunting rituals and beliefs of the kind identified with the 'buckjumper' (Fig. 2) and the Melikane therianthropes (Thackeray 2005; Thackeray & Le Quellec 2007). The red parallel stripes on therianthrope T1 may be analogous to the red stripes (scarifications or painted lines) on the lower torso and legs of the 'White Lady' hunter (Fig. 1), corresponding to the principle of sympathetic hunting magic.

The principle of sympathetic hunting magic may also apply to images of animals such as those on isolated slabs of stone (*art mobilier*) from sealed archaeological deposits at Wonderwerk cave in the Northern Cape (Thackeray 2005) and the Apollo 11 cave in southern Namibia (Wendt 1976). In these cases the animals appear to have been symbolically wounded by the deliberate breaking of the *art mobilier* down the middle of the stone on which the animals were engraved or painted (Thackeray 2005). Furthermore, in the case of the Wonderwerk engraving of a zebra (dated c. 4000 BP), symbolic wounds have been incised on the rump of the animal (Fig. 4).

The Apollo 11 example of *art mobilier* discovered by Erich Wendt (1976) and dated at c. 27000 BP, is reproduced in Fig. 5. This therianthrope (T2), which has long curved horns like a hippotragine antelope and which has human legs, is similar to therianthrope T1 from the Brandberg (Fig. 3).

Conclusion

In conclusion, I suggest that concepts associated with the principle of sympathetic hunting magic in southern Africa (Thackeray 2005a-c and 2006; Thackeray and Le Quellec 2007) were in some cases closely related to trance-associated rituals in which a hunter believed he could access control over game, and in which he was associated with a dying animal. The trance hypothesis and the principle of sympathetic hunting magic are not mutually exclusive.

This supplements the view that the use of skin costumes in hunting rituals associated with trance may be closely related to the use of skins as hunting disguises whereby hunters were able to take advan-



Fig. 3: A therianthrope (T1) in the 'White Lady' panel of the Brandberg copied by the Abbé Breuil in 1947, with detail. The therianthrope has the head of a gemsbok but human legs. Note the two sets of parallel red stripes painted on the posterior region of the belly, which are interpreted as symbolic wounds related to the principle of sympathetic hunting magic and belief in the success of a hunt. (Copyright: RARI)

tage of curiosity behaviour, perceived by San medicine men in terms of supernatural potency (Thackeray 1983). Such potency, known by the San terms *!num* and *!gi*, is associated with trance (Lewis-Williams 1981). It is not coincidental that the form *!gi* is also found in the San term for a medicine man (*!gi xa*). Notably, the San term *!gi* also refers to a scarification (cf. symbolic wound) that is believed to be necessary for success in a hunt. All of these concepts may relate to the 'White Lady' hunter and the T1 therianthrope in the same panel.

The term *!num* (supernatural potency) is associated with arrows in an account of Kalahari *!Kung* (Katz 1982: 168):

'*!Num* is usually sent by means of invisible arrows which are felt as painful thorns or needles. Teachers shoot these arrows of *!num* (*!num chisi*) to the student [initiate], sometimes by snapping their fingers, always trying to regulate the number of arrows and the intensity of *!num* they carry.'

The symbolic wounds on the 'White Lady' and on other hunters in the panel (Fig. 1) may represent wounds associated with 'arrows of *!num*'. Part of the term *chisi* in *!num chisi* is phonetically identical to *-tshi*, referred to above in the context of a wound or painted stripe. A person with a barbed stick behind the 'White Lady' hunter (Fig. 1) may be identified as an instructor who is 'teaching' an initiate (the hunter) in the context of supernatural potency and related concepts.

Slabs of red ochre were incised with fine lines about 100 000 years ago at Blombos Cave in the southern Cape, and the ochre may have been used for ornamentation of the body (Henshilwood et al 2011). The symbolism of incising red ochre and ochre body-painting in the Late Pleistocene may have been a forerunner to beliefs associated with symbolic wounds and success in hunting. The *art mobilier* at Apollo 11 (Fig. 5) suggests that the principle of sympathetic magic prevailed in African rock painting at least 27 000 years ago and continued at Wonderwerk cave (Fig. 4) at least 4 000 years ago.

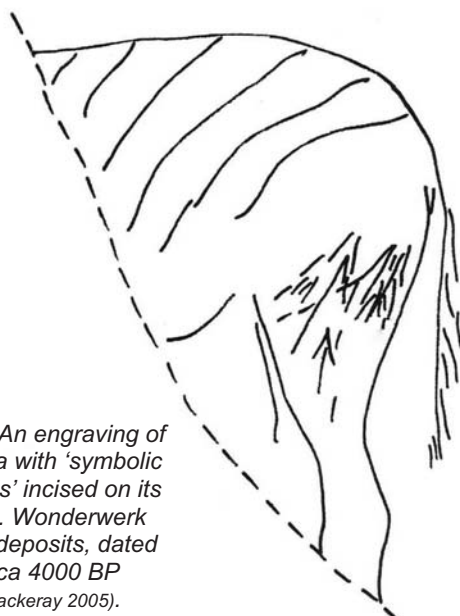


Fig. 4: An engraving of a zebra with 'symbolic wounds' incised on its rump. Wonderwerk Cave deposits, dated circa 4000 BP (Thackeray 2005).

Acknowledgements

I thank RARI, especially David Pearce and Azizo Fonseca, for permission to reproduce Abbé Henri Breuil's copy of the 'White Lady' of the Brandberg and the T1 therianthrope (reference number RARI HB NAM TRE1 1HC). I am grateful to David Lewis-Williams and to the late Harald Pager for stimulating discussions of southern African rock art. (PTO)

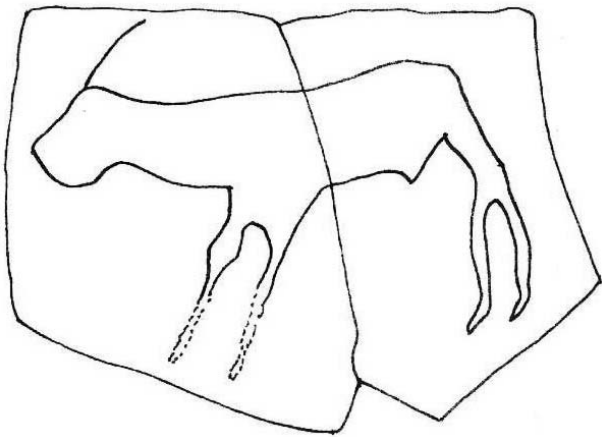


Fig. 5: Reproduction of a painted stone (art mobilier) from Apollo 11, southern Namibia (Wendt 1976). Thackeray (2005) suggests that in the context of the stone being deliberately broken down the middle of the animal the painting is associated with the principle of sympathetic hunting magic. The image has long curved horns like a hippotragine antelope and human legs (cf. therianthrope T1 from the Brandberg in Fig. 3).

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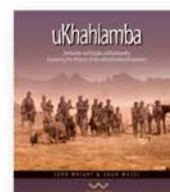
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INTRODUCING THE QING AND ORPEN PROJECT

John Wright and José de Prada-Samper

In December 1873 a young Bushman named Qing, who lived in the Qacha's Nek region of what is now Lesotho, received a summons from his patron, Chief Nqasha of the ruling house of the Baphuthi people. Qing's services as a guide were required for a detachment of police from the Cape Colony and levies from Nomansland (later part of the Transkei) that was making its way up the Senqu (Orange) river in the heart of the Maloti mountains.

The force was under the overall command of Inspector James Grant. In charge of the levies was Joseph Orpen who had recently been appointed as British Resident in Nomansland (part of what is now East Griqualand). It was one of several parties of armed men that had been sent out from Natal and the Cape to track down and capture Langelibalele kaMthimkhulu. He was chief of a group of Hlubi in Natal who had fallen foul of the colonial authorities and had fled across the uKhahlamba (Drakensberg) mountains to seek refuge in the newly annexed British colony of Basutoland.

At this time the Drakensberg-Maloti mountains were still virtually unknown territory to outsiders, and Grant urgently needed a guide through the broken country of the upper Senqu. Qing was fetched by Nqasha from a hunting trip and taken to Grant's camp on the Melikane (Medikane) river, four days' march from Qacha's Nek. Here he encountered Orpen, with results that have become famous in the annals of southern African rock art studies (though not, it seems, elsewhere in our intellectual history).

In the course of their march up the Senqu, Qing showed Orpen the large and richly painted rock shelters now known as Melikane and Sehonghong, as well as a smaller one, possibly the Pitsaneng shelter. For reasons that still need to be fully established, Orpen was interested enough to draw copies of some of the paintings and to record in some detail what Qing told him through interpreters about their meanings and how they related to myths recounted among surviving communities of Bushmen in the Malotis.

Upon his return to his headquarters on the Tsitsa River in the north-eastern Cape early in 1874, Orpen seems to have wasted no time in writing up an account of



Sehonghong cave, seen from the road from Mokhotlong to Qacha's Nek. The cave is a key site in the archaeology and history of the uKhahlamba-Maloti mountains.

what he had heard from Qing. In April or May he sent it off, together with copies of certain of the paintings, to Cape Town for publication in the *Cape Monthly Magazine (CMM)*, the colony's leading intellectual journal.

The editor, Roderick Noble, sent it for perusal to Dr Wilhelm Bleek, who had become well known in the city for his research into the languages, customs and beliefs of the /Xam Bushmen of the northern Cape. Like scholars of the time generally, Bleek knew very little about Bushman rock art and in turn showed Orpen's copies to Dialwain, a /Xam Bushman from the northern Cape who at that time was living in Bleek's household in Cape Town, and recorded his responses. Orpen's article, illustrated with a selection of the paintings copied by him, together with comments by Bleek, was published in the *CMM* in July



View westwards from Sehonghong cave on a rainy afternoon in early summer.

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Layers of history on the rock face at Matebeng cave. The graffiti (perhaps made by an overzealous schoolteacher?) reads: 'Pictures of the San (Bushmen). The San used bows and poisonous arrows to kill the animals.'

1874 under the title 'A glimpse into the mythology of the Maluti Bushmen'.

Since the beginnings of serious academic research into southern African rock art in the 1970s, Orpen's article has become a canonical text. It is the only known source that records in some detail comments on the meanings of Bushman paintings by a person who had 'insider' knowledge of the subject. Over the years, the article has been used over and over again alongside texts recorded from /Xam informants by Wilhelm Bleek and his sister-in-law Lucy Lloyd in the 1870s and 1880s, and statements made by informants among Kalahari Bushman communities recorded by academics since the 1950s, to shed light on the meanings of not only Maloti but of southern Africa rock art as a whole.

Orpen's article has been subjected to numerous detailed readings, but it has so far been given little by way of the intensive critical scrutiny and historical contextualisation that is required if its significance as an archival source is to be fully realised. Many scholars have tended to take the text at face value, without giving much attention to the particular circumstances in which it was produced and which shaped the meanings they see it as carrying.

The result is that the article is frequently raided for factual information on Bushman art and mythology in general, with little appreciation of the extent to which its content may be specific to time and place. We know what Orpen wrote, and therefore something of what Qing told him, but we know very little about why Orpen wrote as he did. By the same token, we know nothing of what he left out and why, virtually nothing about why Qing spoke as he did, and nothing about

what he failed to tell Orpen, and why.

We still have no specialised studies available that examine in detail its text, the context in which it was produced and the ways in which ideas about it have circulated since it was published.

This is where QOP comes in – the recently established Qing and Orpen Project. It was in the first instance the brainchild of José de Prada. For some years De Prada has been researching the /Xam texts recorded by Bleek and Lloyd. Towards the end of 2010 he turned his attention to the Orpen article and soon came to feel that it needed incisive textual deconstruction and extensive annotating if it was to become more readily accessible to a wider readership. He also discovered that the published text differed in a number of small but significant respects from the text originally submitted by Orpen.

From this grew his idea of republishing Orpen's text with a detailed commentary. In the course of 2011, as De Prada consulted with other scholars, this idea expanded into the notion of producing a full-length book of critical studies, written by several authors, and bringing different disciplinary perspectives to bear on the text and the accompanying illustrations.

In this way, QOP came into being. As it stands at present, six authors will contribute to the envisaged book. De Prada will edit it and, besides working up a detailed commentary with annotations to the text, will examine Qing's stories as stories. Menan du Plessis, poet, novelist and independent researcher in linguistics, will analyse the language of the text. John Wright will write on the lives of Qing and Orpen up to the moment of their meeting in the depths of the Maloti. Jill Weintraub, also of RARI, will examine how the text has been used in the literature since the time of its first publication.

Justine Wintjes, who lectures in the Department of Fine Art at Wits University, will place Orpen's article in the context of southern African rock art studies before and after its publication. Jeremy Hollmann, an archaeologist who has worked with rock paintings and ethnographic texts on the /Xam Bushmen, will write on the archaeological research that has been done at Melikane and Sehonghong, particularly as it relates to understanding the physical landscape.

Field trip in Lesotho

The project is still in its early stages, but some of its members – De Prada, Wintjes and Wright – recently charged up their intellectual batteries on a fieldtrip to the Melikane-Sehonghong area in the company of

several other researchers with varied interests in this field. Of these, Michael Wessels of the English Department at the University of KwaZulu-Natal in Pietermaritzburg has written critiques on the way in which the Bleek and Lloyd texts have been used ahistorically by some scholars. Helena Cuesta, who hails from Barcelona and Cape Town, is a professional storyteller with an interest in exploring how the sharing of one's own stories with people who are recounting theirs constitutes an essential form of human interaction.

Of the other members of the party, Vicky Nardell, an archaeologist with the African Conservation Trust in Pietermaritzburg, has done energetic research into the rock art of the uKhahlamba, while ethnobotanist Isolde Mellett has worked on cultural knowledge among people of Bushman descent. Kwanele Mbatha and Sifiso Shange are both trained surveyors with experience in working on rock art sites. Kevin Crause, a photographer and interactive media designer based in Stellenbosch, is becoming widely known in rock art research circles in southern Africa for his design of CPED (Capture, Process, Enhance, Display), a stunningly powerful digital toolset, which is revolutionising the recording of rock art through its ability to recapture images on the rock face that have faded to the point where they are invisible to the human eye.



Two members of the party inspect Melikane cave, another major archaeological site. This is where Qing caught up with Grant's and Orpen's parties.

Participants in the fieldtrip together with guide Matthew Wiggill drove over the uKhahlamba via Sani Pass to Molumong near Mokhotlong. Half a day's drive southward on roads good and bad brought them to Sehonghong shelter. Here they spent three days photographing rock paintings, making a measured survey of the cave and examining the landscape round about.

Melikane shelter is only two valleys further south, but there is no passable route even for 4x4 vehicles through the gorges of the Senqu and its tributaries. Getting there took a full day's drive on a roundabout route east over Matebeng pass to Sehlabathebe and

Ramatselitso's Nek, south towards Qacha's Nek and west and north again into the Senqu valley. After a day of photographing, surveying the cave and walking the landscape, the group returned home by way of Qacha's Nek and Matatiele.



The Melikane gorge downstream from the cave, showing the kind of terrain that the Grant-Orpen expedition had to negotiate.

For some members, the eight days of interaction were mainly about the place of rock art in the study of archaeology. For others, it was about the relationship between landscape and narrative, or about the interaction between colonialism (at its most repressive) and scientific endeavour. For all, in one way or another, it was about the unsuspected echoes though time and space of brief conversations held in the Maloti mountains nearly 140 years ago between a young Bushman and a colonial official.

In April this year the authors in QOP all attended the seminar on Khoi and San representation organised by Michael Wessels and Keyan Tomaselli at the University of KwaZulu-Natal in Pietermaritzburg. In June some of them will be going on another fieldtrip, this time to Moorosi's country in southern Lesotho.

Acknowledgements

Funding for the fieldtrip came mainly from the African Conservation Trust and from Michael Wessels's National Research Foundation (NRF) research grant on San representation. Mellett contributed a vehicle as far as Sehonghong. The authors' thanks go to the Archive and Public Culture Research Initiative at the University of Cape Town, the Centre for Curating the Archive, and the Rock Art Research Institute for providing them with research bases for the Qing and Orpen Project.

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ARCHAEOLOGY IN AFRICA

Madagascar founded by women

Madagascar was first settled by about 30 women (and some men), mostly of Indonesian descent, who may have sailed off course in a wayward vessel 1 200 years ago. The discovery negates the theory that a large, planned settlement process took place. Traditionally it was thought to have been settled by Indonesian traders moving along the coasts of the Indian Ocean. Most native Malagasies can trace their ancestry back to the founding 30 mothers, according to an extensive DNA study published in the *Proceedings of the Royal Society B*. Murray Cox from Massey University's Institute of Molecular BioSciences analysed genetic samples from 2 745 individuals hailing from 12 Indonesian island groups. This was compared with genetic information from 266 individuals from three Malagasy ethnic groups: Mikea hunter-gatherers, semi-nomadic Vezo fishermen and the dominant Andriana Merina. The biological contribution from Africa is much smaller.

Cox said that typical Indonesian trading ships in the mid-first millennium could hold around 500 people and the distance from Indonesia to Madagascar is close to 8 000 km. The small founder population of Indonesian women makes the scenario of a large boat unlikely. The new evidence favours a small movement of people, perhaps even an unplanned crossing of the

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Successful applicants will be required to provide six-monthly progress reports and a final project report. An article for *The Digging Stick* on the grant project may be requested on project completion.

Applications should be forwarded to the Secretary, Trans-Vaal Branch, South African Archaeological Society, PO Box 41050, Craighall, 2024, or by e-mail to secretary@archaeology.org.za. Enquiries to: Reinoud Boers, fox@boers.org.za, tel. 011 803 2681.

Indian Ocean. Scant archaeological evidence, consisting of a few bones marked by stone tools and an increased rate of forest fires, suggests people may have first visited, but not settled Madagascar 2 000 years ago. Madagascar was one of the last places on earth to have been settled, with remote islands like New Zealand, Hawaii and Easter Island settled even later around 900 years ago. *Discovery News*, 20/03/2012

MBS164: OBSERVATIONS FROM THE MELKBOSSTRAND SHORELINE, TABLE BAY

Jayson Orton

Before European settlement in the south-western Cape, there were vast numbers of shell middens along that coast, including along the shores of Table Bay. Sadly, 360 years of development has taken its toll on these resources and few have survived. Consequently, we have very little record of the pre-colonial occupation of the Table Bay coastline. Modern urban development has resulted in a few excavations of pre-colonial material, with those at Atlantic Beach having been published (Sealy et al. 2004). Burials are also regularly encountered.

This article describes a recently excavated shell midden, MBS164 (named after its location on erf 164, Melkbosstrand). The midden is located immediately behind the rocky shoreline within the Melkbosstrand town area (S 33° 43' 46.3" E 18° 26' 15.0"). It was disturbed during renovation of a 19th century cottage and only reported after discovery of a human burial within the midden. Emergency intervention sought to rescue the burial, test the deposits for significance and sample the latter as necessary (Orton 2010).

Four locations along the seaward side of the property some 25 m from the high-water mark (Holes F to I) and six some 15 m further inland (Holes A to E & J) were tested. Only two (Holes E and J) yielded meaningful archaeological content and in each case the archaeological shell deposits were subsequently excavated in five levels until undisturbed shelly beach deposits were intersected. The general sequence of deposits in Holes E and J was as follows:

- Grass with topsoil and building rubble.
- Topsoil with building rubble, scattered shell and modern items.
- Low-density shell material, including some water-worn shell fragments and a few modern intrusions.
- Higher density shell material, including water-worn shell fragments and no modern intrusions.
- Low density shell material, including many water-worn shell fragments.
- Beach sand (in places) with in situ Holocene beach deposits at the base.

The burial was located close to Hole J, but owing to the position of the already built walls, excavation of the midden in this area had to take place about 1 m away on the other side of a foundation trench.

Although the midden was sampled in two areas some 18 m apart, only one of these was dated. In the absence of any evidence to the contrary, there

seemed little reason to believe that the middens were much different in age and so both were treated as components of the same site. Table 1 presents the dates obtained on the midden and burial. The sample was taken from a shell lens immediately alongside the burial, which is without doubt the same lens exposed and sampled in Hole J. This midden was deposited during the latter half of the first millennium AD, with the burial dug into it during the first half of the second millennium. Sadly, the marine reservoir corrections have resulted in large calibrated age ranges.

Essentially, the site is a low-density shell midden, or patches of midden, deposited on top of a storm beach such that variable quantities of water-worn shell were incorporated within the midden structure. In places, a stringer of white sand separated the natural and anthropogenic shell bodies. The primary shell midden layer in Holes E and J was supported by a number of large perlemoen shells (*H. midae*), but many other species were also present (Table 2). No quantitative shellfish analysis was performed owing to the degree of breakage present and the considerably variable wear among water-worn shells; the latter made impossible an accurate estimation of what was anthropogenic and what was not. Faunal remains were generally sparse but tortoise, mammal, micro-mammal, fish and snake were noted, the vast majority being from the inland area of the property. Eight isolated mandibles of the Cape rock lobster (*Jasus landii*) were found, with seven from the inland excavation areas.

Cultural material was surprisingly scarce. One flake and one chip, both in quartz, were found in separate holes close to Hole J. Hole E produced many manuported beach cobbles, one of which may have been ground and three of which were fire-blackened. The latter were all above the midden, rather than being associated with it, and suggest the presence of a stone hearth. No other evidence for a hearth was apparent though. A single ostrich eggshell bead came from the base of Hole E. It measured 8,10 mm in diameter, while its aperture and thickness were 2,94 mm and 1,96 mm respectively. Pottery was more common, with nine plain body sherds being recovered, all from the inland areas of the property. Their thicknesses are all between 5,5 mm and 7,5 mm. Other cultural material relates to 19th and 20th century occupation of the property and is irrelevant here.

The burial was poorly preserved and somewhat damaged by at least two phases of construction, one each in the 19th and 21st centuries. The majority of the

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skeleton was nevertheless recovered. It was probably a female at least 60 years old. The teeth showed plaque accumulation and cavities, with one tooth lost during her lifetime because of an abscess. There was minor evidence of osteoarthritis (Dewar 2010).

Overall, MBS164 is poor in cultural material but, although the evidence is slim, it seems likely that the site relates to Khoekhoen herders rather than to Bushman hunter-gatherers. Three facts support this conclusion: a) the single bead is large (Jacobson 1987; Smith et al. 1991), b) pottery is present (Smith

et al. 1991) and the calculated pottery index (percentage of potsherds among the sum of all sherds and stone artefacts – Sadr et al. 2003) is 81,8 per cent, which is well above the 60 per cent threshold suggested to represent herders. The nearby Atlantic Beach sites were also attributed to herders (Sealy et al. 2004). Although Smith et al. (1991) proposed a set of criteria for distinguishing between hunter-gatherer and herder sites, the list of sites definitively identified as of herder origin is short. MBS164 might thus be an addition to this list.

[Continued on page 12]

Table 1: Radiocarbon dates on samples taken close to Hole J. Both are calibrated on OxCal (Bronk Ramsey 1995, 2009) utilising the Marine 09 curve (Reimer et al. 2009) and a marine reservoir correction of 146 ± 85 (Dewar et al. 2012). Following Dewar and Pfeiffer (2010), and because of the highly enriched $\delta^{13}C_{\text{‰}}$ value of the burial, UGAMS-6604 was treated as 100% marine.

Lab. number	Provenance	Material	C ¹⁴ age	$\delta^{13}C_{\text{‰}}$	Calibrated age
UGAMS-6605	Midden	Marine shell	1930 \pm 30	+1,5	AD 416–797
UGAMS-6604	Burial	Bone collagen	1260 \pm 25	-10,4	AD 1095–1427

Table 2: Shellfish species present in the water-worn (natural) and fresh (anthropogenic) shell samples from Hole E and square J2 of Hole J. Asterisks denote species where only juveniles were observed. Species listed in bold type are those commonly expected to have been collected and eaten by people. Fresh land snails were also found in J2 L1.

	E (all levels)		J2 Level 1		J2 Level 2		J2 Level 3		J2 Level 4		J2 Level 5	
Shell species	WWS	fresh	WWS	fresh	WWS	fresh	WWS	fresh	WWS	fresh	WWS	fresh
<i>Choromytilus meridionalis</i>	X	X	X		X	X	X	X	X	X	X	X
<i>Aulacomya ater</i>	X	X	X		X		X	X	X		X	
<i>Scutellastra argenvillei</i>	X		X	X	X	X					X	
<i>Scutellastra barbara</i>	X			X*	X	X		X		X		
<i>Scutellastra granularis</i>		X		X		X		X		X		
<i>Scutellastra cochlear</i>			X		X							
<i>Cymbula granatina</i>		X		X		X		X	X	X		X
<i>Cymbula tabularis</i>		X						X		X		
<i>Cymbula compressa</i>		X		X	X		X		X			
<i>Cymbula miniata</i>										X*		
<i>Helcion</i> sp.						X						
<i>Crepidula</i> sp.	X		X		X		X		X			
<i>Fissurella</i> sp.					X				X			
<i>Haliotis midae</i>		X		X		X		X		X		X
<i>Conus</i> sp.					X						X	
<i>Burnupena</i> sp.	X		X		X		X	X	X		X	
<i>Nucella</i> sp.	X											
<i>Littorina</i> sp.							X					
<i>Bullia digitalis</i>	X								X		X	
<i>Diloma</i> sp. / <i>Oxystele</i> sp.	X		X		X	X	X				X	X
<i>Turbo</i> sp.	X										X	
<i>Protoma capensis</i>								X				
Barnacle				X			X		X		X	

NEW STUDIES SHAKE UP THE HUMAN FAMILY TREE

Everybody knows 'Lucy'. For nearly four decades this famous partial skeleton of *Australopithecus afarensis*, dated to 3.2 million years ago, has been an ambassador for our prehistoric past and her species has stood as the most likely immediate ancestor of our own genus. But in a spate of new studies, paleo-anthropologist Lee Berger of Wits University and a team of collaborators have put forward a controversial claim that another hominin, *A. sediba*, might be even closer to the origin of our lineage.

The 1.98-million-year-old *A. sediba*, known from partial skeletons of an adult female and a juvenile male, along with an isolated tibia, was discovered at the Malapa cave site in the Cradle of Humankind in 2008. Subsequent studies have culminated in a series of six papers published in *Science* (11 April 2013). Together, the papers on the teeth, jaw, limbs and spine of *A. sediba* highlight the fact that this early human possessed a strange mixture of traits seen in both early Australopithecines and Homo.

In a paper examining 22 discrete traits on *A. sediba*'s teeth, Joel Irish of Liverpool John Moores University found that the species more closely resembles *A. africanus*, which also lived in South Africa from around three to two million years ago, than other early hominins. But the teeth also show some features shared with early members of our own genus, such as *H. habilis*. Jawbone analysis by Darryl de Ruiter of Texas A&M University also argues for a distinct species status for *A. sediba*. According to Berger, the dental features make *A. sediba* the best candidate for the ancestor of the *Homo* lineage, although he notes that this connection is contingent on finding more complete fossils of other hominins.

Other aspects of the skeleton retain a more archaic anatomy. The upper arms of *A. sediba*, anthropologist Steven Churchill of Duke University reports, had the anatomy and proportions of a limb still suited to climbing through the trees, while University of Zurich anthropologist Peter Schmid reports that the chest of *A. sediba* retained the funnel-like, flared shape of other early australopithecines. Curiously, however, less well-preserved parts of the lower rib cage have a much more human-like appearance. Scott Williams of New York University reports that the spine of *A. sediba* was also human-like, with a relatively long and flexible lower back that shares more in common with the spines of *H. erectus* than with those of other australopithecines, including the curvature of the spine that is a hallmark of upright walking.

But while *A. sediba* was clearly a biped, it did not walk at all like we do. According to Jeremy DeSilva of

Boston University, the heel bone of the female skeleton suggests she would have turned her foot inward as she stepped, with the outside edge of the foot contacting the ground along with the heel. According to Berger this starts a chain reaction of rotation of the shin, femur and torso to keep balance. No other known hominin walked like this, hinting that the way humans walk is not the outcome of an ever-improving evolutionary trajectory, but one result out of several possible evolutionary alternatives.

Because of all these varied skeletal clues, *A. sediba* is said to possess a 'mosaic' of traits that mix the archaic and the derived. But are the ways that *A. sediba* resembles early Homo species true indicators of a close evolutionary relationship, or are they traits that evolved independently in both lineages? Few scientists believe this question has even begun to be settled, but Berger has more confidence. 'My stance is that *A. sediba* exhibits so many derived Homo-like traits across the whole of the body that it must be considered as, at the very least, a possible ancestor of the genus Homo.' This hypothesis faces difficulties, Berger says, because of a 'nostalgia' for previous hypotheses and because *A. sediba*'s remarkably informative skeletons are being compared 'with a fragmentary and disassociated record of a small number of bits and pieces, many of which have simply been cobbled together into the basket we call early Homo'.

Berger also discounts the record of possible earlier *Homo* fossils, such as a 2.33-million-year-old jaw found in Ethiopia, as 'shockingly bad' and argues that such fragmentary finds do not rule out *A. sediba* as a Homo ancestor. Most other researchers, however, concur that the Ethiopian jaw is indeed Homo and that the trail of our own genus significantly precedes the *A. sediba* finds. Paleoanthropologist John Hawks of the University of Wisconsin-Madison points out that the dental details are the best evidence for a possible connection between *A. sediba* and early *Homo*. 'The new papers really spell out the shared features in the mandibles and teeth in a way that supports their position with *A. africanus* as a sister taxon to Homo.'

He nevertheless cautions that the story could be more complicated. Relatively little is known of early Homo species and 'knowing what we do about the mixture of later humans, including Neanderthals, it is possible that early Homo and later australopithecine relationships included widespread mixture also. That mosaic of anatomy is the most important insight from this site. It says that when you find a fragment that looks like Homo, you cannot expect the rest of the skeleton will look like Homo,' Hawks said.

Smithsonian National Museum of Natural History paleoanthropologist Rick Potts is uncertain of how *A. sediba* might be relevant to the origin of Homo, especially since the earliest Homo fossils are hundreds of thousands of years older, but notes that the combination of features in *A. sediba* 'is astonishing'. That is what makes the placement of hominins so difficult. 'From what we know so far,' Potts says, 'I think *A. sediba* is best seen as a compelling example of the highly experimental nature of evolution in the several hundred thousand years around the time of the origin of Homo.' Ultimately, he says, determining the place of *A. sediba* will hinge upon 'debates about whether it is the overall morphological pattern that is key to assessing where something like *A. sediba* sits in human evolution, or it is the discovery of isolated traits in each area of the skeleton'. The hominin 'is so curious in its totality,' he says, 'it might lead to some rethinking of how we classify fossil humans and place them in our evolutionary tree'.

National Geographic News, 11/04/ 2013

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MBS164: Melkbosstrand [from page 10]

Acknowledgement

N Mjikeliso, M Sasa and N Stassen are thanked for their assistance in the excavation of MBS164.

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THE NOK OF NIGERIA

West Africa's earliest-known civilisation

In 1943, a terracotta head was brought to British archaeologist Bernard Fagg in the central Nigerian town of Jos. The piece was said to have been perched atop a scarecrow in a nearby yam field and resembled a terracotta monkey head Fagg had seen previously. Neither piece matched the artefacts of any known ancient African civilisation. Travelling across central Nigeria, Fagg subsequently discovered that local people had been finding terracotta figurines for years. He soon gathered nearly 200 terracotta figurines through purchase, persuasion and his own excavations.

Soil analysis dated the artefacts to around 500 BC. This seemed impossible since the type of complex societies that would have produced such works were not supposed to have existed in West Africa that early. But using the then-new radiocarbon-dating technique, the dates ranged from 440 BC to AD 200, and he later also dated a scarecrow head to about 500 BC using thermo luminescence. Fagg named the civilisation Nok.

One excavation site also revealed iron furnaces and he went on to find 13 such furnaces. The terracotta figurines were in such close association – inside and around the furnaces – that he postulated that the terracotta figurines were objects of worship to aid blacksmithing and smelting. Carbon-dating of charcoal inside the furnaces revealed dates as far back as 280 BC, giving Nok the earliest dates for iron smelting in sub-Saharan Africa up to that time. The high number of smelters and quantity of terracotta figurines suggested he had found evidence of a dense, settled population.

Fagg had discovered some of the key markers of an advanced civilisation: refined art and organised worship, metal smelting and sufficient population to support these activities. He postulated that the Nok culture had begun earlier and survived longer than he had evidence for at the time. 'It was the product of a mature tradition,' he wrote, 'with the probability of a long antecedent history, of which as yet, no trace has been found.' Scholars are now finding evidence that his supposition was correct. The Nok may have been the first complex civilisation in West Africa, existing from at least 900 BC to about AD 200.

'No one continued with the work of Bernard Fagg. Instead of scientific exploration, the Nok became a victim of illegal digging and international art dealers,' says Peter Breunig of the Johann Wolfgang Goethe University in Frankfurt. Looting tapered off after about 2005 because of tighter export restrictions and a glut of fakes that frightened off collectors. Now, interest in Iron Age (IA) societies in Africa is surging as archae-

ologists contemplate a field that could hold essential insights into how technologies, especially iron production, spread across continents. Breunig is leading a team of researchers in excavating sites over some 400 km² in central Nigeria, but the study area is but a microcosm of the Nok world, which covered more than 80 000 km².

In his classic survey of African art, Frank Willett wrote that the Nok created Africa's earliest sculptural tradition outside Egypt. Like their contemporaries, the soldier-builders of Xian in China, the Nok mastered the almost limitless sculptural possibilities of terracotta. They created figures depicting illness, warfare, love and music, such as a sculpture of a man and woman kneeling in front of each other, their arms wrapped around each other in a loving embrace, and several bare-buttocked prisoners with ropes around their necks and waists. Another figure, which has a skull for a head and wears an amulet around its neck, is shaking two instruments resembling maracas. There is also a figure of a man with a wispy moustache, mouth open, as if in speech or song, and one of a man playing a drum resting between his legs, possibly the earliest depiction of musical performance in sub-Saharan Africa. At one site, Breunig found 1 700 pieces of terracotta in barely 375 m².

Despite the thematic variety, Nok terracotta has some characteristics that persist over huge areas and centuries of production. Figures almost always show large-headed people with almond-shaped eyes and parted lips. They often have grand headdresses or hairdos, which may indicate high status. A common pose shows a man sitting with his arms resting on his knees, gazing outward. Microscopic inspection of the clay used in the terracotta shows it to be remarkably uniform over the whole Nok area, suggesting that the clay came from a single source. It could, says Breunig, support the idea of a unified Nok state or central authority.

Breunig has also found about 20 fairly crude-looking iron implements, including spear points, bracelets and small knives. How and when Africans developed iron is important because metallurgy is considered a crucial marker in the shift to complex societies. Carbon-dating on charcoal gathered from a Nok iron smelter at a site called Intini yielded a date of between 519 and 410 BC, suggesting that iron technology was established earlier than previously realised. However, these may not be the oldest smelters in sub-Saharan Africa. French archaeologists have located evidence of iron-smelting in the Termit Hills of Niger from as early as 1400 BC, although critics point out that the wood used for dating could have been centuries old.

Breunig has been able to isolate a moment in time when iron and stone implements coexisted. Excavators regularly find iron tools only a short distance from Nok stone axes, suggesting they were used in the same communities. 'When iron first develops, it might be too rare or too costly to be wasted on axes or other things that you can make with stone,' he says. This evidence has reinforced a view held by most archaeologists that ancient West Africans moved from stone tools directly to iron without an intervening copper age, a leap that few other parts of the world appear to have made. With the exception of a site in Mauritania known as Grotte aux Chauves-souris, where French archaeologists have found copper tools and furnaces dating from 800 to 200 BC, and another in Niger called Cuivre II dating from slightly earlier, researchers have yet to find evidence of copper smelting before iron smelting in West Africa. The transition from Stone Age to IA has puzzled researchers since Western European and North African cultures moved into iron after first smelting copper for a millennium or so, while others, such as those in Peru, made copper for centuries without ever developing iron.

Iron technology was probably brought across the Sahara by travellers from North Africa, says Rod

McIntosh, an African specialist at Yale University. But archaeologists are looking at the possibility that West Africans developed iron-working technology autonomously, possibly starting with the Nok. A sceptic of this theory is Rüdiger Krause, an IA expert at Goethe University. 'When people see that somebody else has better technology, it moves very fast. From the north coast of Africa to Nigeria is not a great distance for the movement of a new technology.'

Little is understood about how Nok society ended. Sometime after AD 200 the Nok population declined, as attested to by a sharp drop in the volume of pottery and terracotta found for that period. Overexploitation of natural resources and a heavy reliance on charcoal may have played a role. Even more puzzling is Nok's legacy to later cultures. Art historians have long seen Nok as an isolated phenomenon, a splendid relic cut off from the sequence of African art over the next two millennia. Later civilisations in southern Nigeria had advanced metalworking skills and a tradition of naturalistic portraiture. The most celebrated of these later cultures was Ife in south-western Nigeria, which turned bronze into stunning portrait heads around AD 1300.

Roger Atwood, *Archaeology* 64(4), July/August 2011



ARCHAEOLOGY IN BRIEF

Huge find throws new light on ancient Iraq. University of Manchester archaeologists have started the excavation of an enormous, possibly 4 000-year-old building complex in Iraq that could have been an administrative centre serving one of the world's earliest cities. The 80 m² Tell Khaiber site was identified by satellite. Prof. Stuart Campbell and Dr Jane Moon from Manchester and independent archaeologist Robert Killick are the first British archaeologists to excavate in Southern Iraq since the 1980s. The site is only 20 km from the ancient city of Ur, the last capital of the Sumerian royal dynasties who founded the earliest cities in the world. One of the most striking finds at the site to date is a 9 cm high clay plaque showing a worshipper in a long robe approaching a sacred place.

University of Manchester, 04/04/2013

Japan's oldest census records found. Tablets containing census registration records dating back to the 7th century have been found south-western Japan. The wooden tablets are believed to be the oldest census registration records in Japan's history. One of the tablets contains at least 16 names of families along with their titles and relationships. The description on the tablet also includes some words related to changes of address and historical names of places.

Bernama 13/06/2012

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WORLD ARCHAEOLOGY

Pottery used for cooking from the start

Ancient leftovers indicate that the earliest pottery was used by hunter-gatherers for cooking thousands of years before farming communities began heating their food in vessels.

Chemical analyses of charred food clinging to 101 Jomon vessels from 13 sites across Japan indicate that hunter-gatherers who lived there between 15 300 and 11 200 years ago cooked freshwater or marine animals in ceramic vessels, says bioarchaeologist Oliver Craig of the University of York in England. Craig's finding raises the possibility that East Asian hunter-gatherers, rather than Middle Eastern farmers, may have introduced pottery making into Europe.

Until the 1990s, researchers traced the origins of pottery in Japan to rice farmers living no more than 2 300 years ago. An excavation of a large Jomon settlement containing buildings, graves and numerous pottery fragments first challenged that view. Further discoveries have shown that ancient hunter-gatherers across East Asia made pottery and a study last year traced the earliest-known examples to about 20 000 years ago in China. *Nature & Science News* 11/04/13

Mammoths wiped out by multiple killers

Woolly mammoths were driven to extinction by a multitude of culprits, with climate change, human hunters and shifting habitats all playing a part in the long decline of these giants. The animals wandered the planet for about 250 000 years, but virtually vanished by about 10 000 years ago, although dwarf mammoths survived on Wrangel Island in the Arctic Ocean until 3 700 years ago. Scientists have long speculated over what might have driven the mammoths to extinction. For years researchers suspected that ancient human tribes hunted the mammoths and other ice age giants to oblivion. Others suggested that a meteor strike might have drastically altered the climate in North America about 12 900 years ago, wiping out most of the large mammals there.

Now an analysis by the University of California of thousands of fossils, artefacts and environmental sites spanning millennia suggest that no one killer is to blame for the demise of woolly mammoths. Scientists investigated the extinction of woolly mammoths living in Beringia, the last refuge of mammoths that nowadays lies mostly submerged under the icy waters of the Bering Strait. To get an idea of woolly mammoth abundance, past climate and other environmental factors, they analysed samples from more than 1 300 mammoths, nearly 450 pieces of wood, almost 600 archaeological sites and more than 650 peat lands, compiling their ages and locations to see how these

giants and their environments changed over time.

Their results revealed that woolly mammoths flourished in the open steppe of Beringia between 30 000 to 45 000 years ago. Humans coexisted with mammoths back then, clearly not driving them to extinction at that time. Later, during the iciest part of the ice age 20 000 to 25 000 years ago, northern woolly mammoth populations declined, probably because the area became too barren to be hospitable. However, the giants became abundant in the warmer interior parts of Siberia. Northern mammoth populations grew after the Last Glacial Maximum, but then dipped again during the Younger Dryas period about 12 900 years ago. At that time there was a very rapid and profound cooling of many regions, followed by rapid warming. The mammoths disappeared about 10 000 years ago as the climate warmed and peat lands, wet tundra and coniferous forests developed, environments to which mammoths were poorly suited. The long-lasting proximity between mammoths and humans suggested that humans were perhaps a factor in the beasts' decline, possibly killing off the final island populations of woolly mammoths.

Nature Communications/LiveScience, 12/06/2012

Oldest farming village in Mediterranean

The oldest agricultural settlement to be found on a Mediterranean island has been discovered in Cyprus by a team of French archaeologists. Previously it was believed that because of the island's geographic isolation the first Neolithic farming societies did not reach it until a thousand years after the birth of agriculture in the Middle East around 11500 to 11400 BC. However, the latest findings from the archaeological excavations of Klimonas indicate that organised communities were built in Cyprus between 11100 and 10600 BC. The early cultivators brought with them wheat, as well as dogs and cats, and reveal the early development of maritime navigational skills.

The site has yielded the remnants of a half-buried mud-brick communal building, 10 m in diameter and surrounded by dwellings, that must have been used to store the village's harvests. A few votive offerings have been found inside the building, including flint arrowheads and green stone beads. Many remnants of other objects, including flint chips, stone tools and shell adornments, have been discovered in the village. The stone tools and the structures erected by these early villagers resemble those found at Neolithic sites from the same period in the Middle East continent. Remains of carbonised seeds of local plants and grains, including emmer, have also been found.

Proceedings of the National Academy of Sciences, May 2012

Discussion

PLANTS IN ROCK ART: SOME THOUGHTS FROM ZIMBABWE

Paul Hubbard

Re-reading the article by Henning and le Clus (2011) on plants in rock art in the *Digging Stick* (Vol. 28, No. 3), I confess I cannot agree with two statements: '... it is therefore difficult to anthropomorphise an assemblage of plants and to incorporate plants into a belief system or religion', and 'Hence one could deduce that the few depictions of plants in rock art are not part of the artists' religion or belief system' (both from p. 4). In my experience this is simply not valid. I am not qualified to comment on the other aspects of the paper; I restrict my comments here solely to rock art.

Following the interpretive work of Garlake (1995), Lewis-Williams (1981), Mguni (2002, 2009) and others, as well as a vast array of historical and ethnographic data, it is clear that there is religious and spiritual function, meaning and symbolism behind all images painted on the rocks. Paintings were not created randomly, nor was there a lack of purpose.

Plants in the rock art of Zimbabwe

Plants were essential sources of medicine, bedding, hallucinogens, tools, weaving materials and even shelter for hunter-gatherers in Zimbabwe. Paintings of plants are widespread in the country, although they are far from common when compared with other categories, such as animals or humans. Compared with more elaborate examples from Mashonaland (Garlake 1995; Goodall 1959; see Figs. 1, 3 & 5), the trees painted in the south, especially the Matobo Hills, are stylised, mostly lacking roots, with rudimentary branches and leaves (Fig. 4).

In general, species are seldom identifiable, although this has not stopped numerous authors making less than convincing attempts (e.g. Cooke 1959, 1964; Goodall 1959; Mguni 2009; Mitchell & Hudson 2004). Some smaller blobs have been said to represent flowers and underground tubers and bulbs (e.g. Cooke 1959, 1964; Erwee 1987a & b; Goodall 1959), but this cannot be comfortably confirmed. Trees and other plant-like eidolons are often associated with formlings (Mguni 2002, 2009), as well as groups of dots and flecks indicating a deeper meaning, perhaps associated with potency (Garlake 1995: 101) and the spirit world (Mguni 2002).

'The sap of the spirit': plants in rock art

Mguni (2002, 2009) has made a convincing argument that certain plants and trees had qualities and

associations beyond the natural world. Ethnographic evidence from the Kalahari and elsewhere shows how hunter-gatherers valued the arboreal world as much as the animal or human realms, and that trees figure largely in many creation myths and religious metaphors (cf. Mguni 2009: 143-145).

Given the greater quantity of painted sites, the role of plants in Zimbabwean rock art seems to be different to that elsewhere in the region. Mashonaland has many more sites with trees and plants than the rest of the country (cf. Goodall 1959) and as noted by Cooke (1964: 11): 'there must be a reason for the greater number of tree paintings north of the 20° parallel'. There is a very strong likelihood that, given their associations with formlings and other complex friezes, paintings of trees and plants are related to episodes of trancing and access to the spirit world. 'Unfortunately there is no collection of local San folklore to sustain this possibility and it is based on the suspect evidence of juxtapositioning and numbers, neither of which has been documented' (Erwee 1987b: 14).

Using creation myths and folklore from various sources (e.g. Bleek 1956; Bleek & Lloyd 1911; Stow 1905; Thomas 1959), Mguni (2009) has revealed many facets of Bushman beliefs that inform interpretation of tree and plant rock paintings. The caricaturisation of trees, focusing mainly on roots, trunk and branches, relates to the way trees were conceptualised as bridges, links between the spirit world (God's realm) and the real world, where most people lived. 'Metaphors of trees are frequently associated with divinities in hunter-gatherer belief' and some were even 'avatars of the gods' (Mguni 2009: 145).

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Fig. 1 (left): Part of a much larger panel of paintings, also including more trees, this scene apparently shows a person cutting down an unidentifiable tree



Fig. 4: A fine line painting of a tree in the Matobo Hills area



Fig. 2: Gourds and possible tubers abound at the site of Diana's Vow, one of the best painted sites in Zimbabwe. These have further meanings beyond utilitarianism.



Fig. 5: An Ilala palm, one of the few tree images that could be tentatively identified (photo courtesy of Jono Waters)



Fig. 3: This remarkable figure with a swollen belly has been interpreted as a medicine man in the spirit world imbued with potency and spiritual power, perhaps in part sourced or reinforced by the fruit of this tree

Goodall, E. 1959. The rock paintings of Mashonaland. In *Prehistoric Rock Art of the Federation of Rhodesia and Nyasaland*, 3-111.

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EVERY BEAD TELLS A STORY

Rina Faria

'Beads are miniature bundles of secrets waiting to be revealed. It is a master of creation that unites the entire world.'
Robert K Liu

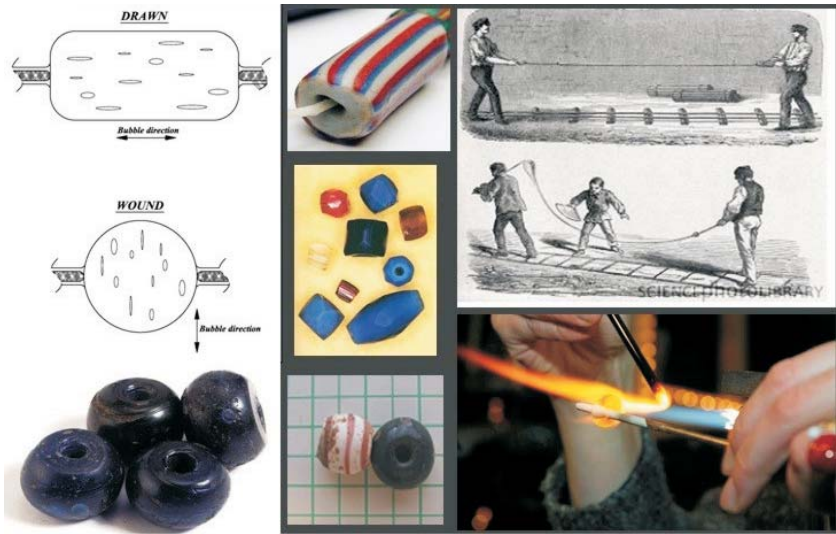
Glass beads have been traded into the interior of southern Africa for more than 1 000 years and are often the most frequently encountered imported artefacts in an archaeological context. Unfortunately, beads often represent an underutilised category of material culture, the study of which is laden with obstacles such as incomplete documentary sources and the complex cultural and commercial context in which beads functioned. While recognising the difficulties of bead analysis, it has however become evident that trade beads offer immense possibilities for the study of the early colonial frontier in southern Africa, and may be useful to illuminate trade contacts and routes, and determine cultural affiliations.

Glass beads in archaeology and history

A combination of qualities makes beads as artefacts especially interesting to study. Beads function as elements of social interaction on different levels, form part of transactions of trade, and work as glue in social relations. As legal tender beads were bartered to buy slaves, gold and ivory in the Atlantic and Indian Ocean trade.

But what is it about glass beads, of all things, that make them so well suited to serve as a medium of exchange? Beads fit most of the standard criteria economists usually attribute to money. They may not be divisible, but they are highly portable and do not decay. Most often they were used as trade currency between societies that had advanced economies and those where this was not the case. Another reason beads lent themselves so well to this role is that they can be easily transformed from unique forms

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Bead manufacture: drawn and wound beads (redrawn from Van der Sleen 1958)



Popular European trade beads around 1800

to generic ones: they can be bought in bulk, sewn together into elaborate beadwork or used on other forms of adornment, and then, whenever the need arises, be broken up into individual, mutually indistinguishable items once again. It made them ideally suited for passing back and forth between radically different domains of value.

Even the most ordinary bead may have travelled great distances and been exposed to many human experiences. Although foreign objects are selected and integrated into a culture according to traditional cosmologies, their appropriation can generate a renewal of thought worlds. Following the movement of

objects through time and space, from one culture to another, allows one to understand better how value is acquired and expressed through exchange as they become culturally re-contextualised, acquiring new functions and changes in meaning.

Although the technological deductions beads permit us to make are of great interest, of perhaps equal importance are the cultural and cognitive deductions they make possible. Beads were able to be used in a number of ways or for several purposes: they might, for instance, be emblematic and provide various forms of information about the wearer and his or her status in society. Their use in marriage or to indicate political status might indicate such possible symbolic meanings. Ethnographic accounts confirm that beads sewn onto apparel or worn on necklaces may signify complex social, economic, ethnic, ideological, religious or symbolic meanings, all of which are only accessible to a participant of the culture in question (Faria 2010). For instance, for the Xhosa and Zulu beadwork traditions are semiotic systems, a vehicle of self-expression. They symbolised a sense of belonging, a place and a chain of traditions, very much like a coat of arms.

Bead manufacturing

Glass was invented about 4 500 years ago in the Middle East, possibly in present-day Iraq, and beads are considered to be the first glass product (Francis 1994: 75). The technology behind raw glass production is complex. The major constituent of most glasses is silica, which is usually introduced as a raw material in the form of sand. Although silica itself is colourless in glass, most sands contain iron as an impurity and this imparts a greenish tint to glass. As well as containing an alkali, all historical glasses have other ingredients added to them.

The earliest method for making glass beads, which are called wound beads, involved a process of drawing a molten blob of glass out of a furnace and winding it around a metallic rod or mandrel. The mandrel was spun around, building up layers of glass until the desired bead size was reached. By forming molten material in this manner there is no need to drill or perforate the bead as a separate step. Once shaped (also referred to as marvering), decoration such as dots or contrasting coloured glass can be added.

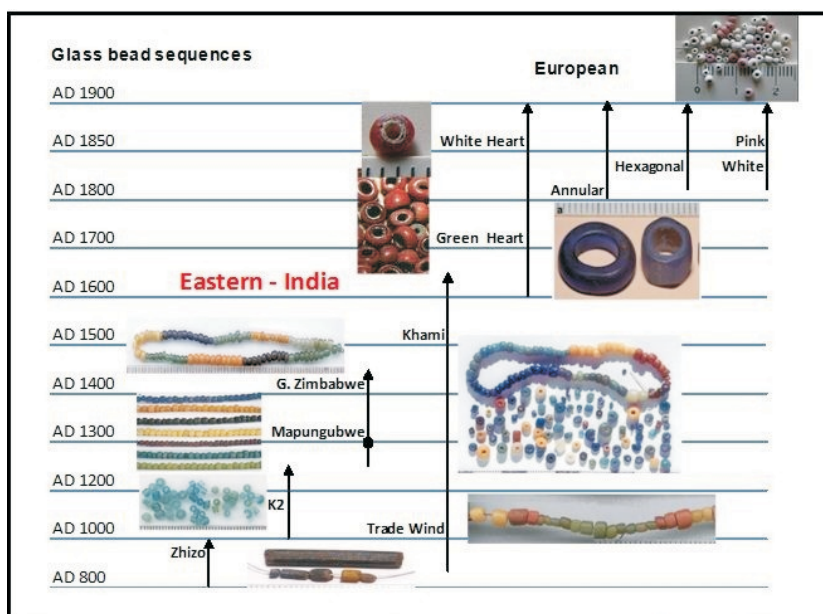
Later, but prior to 1840, drawn beads were made by attaching molten glass to the end of a blowpipe,

whereafter a bubble was blown into the molten glass, forming a hollow. Another worker then attached a rod to the opposite end of the molten glass and pulled the glass into a long hollow tube, thereby forming the perforation required in the bead. The glass tube was then cut into lengths of about a metre, where after it could be cut or chopped into desired bead lengths. These beads were left with sharp ends (often referred to as 'chopped' or cut 'cylinders') and normally heat-treated by packing them in ash or some similar material in a large pan or tumbler. They were then heated while being stirred or tumbled until the glass began to melt or slump. This caused the ends to close and become smoothed or rounded (Wood 2000; 2008).

Technological differences between bead types can often be distinguished by the naked eye: drawn beads display striations parallel to the length of the bead, while the striations or inclusions in wound beads encircle the bead perpendicular to the perforation.

The bead trade

For almost 2 000 years Indian and Arab traders were bartering up and down the eastern coast of Africa (Wood 2000: 85). Beads from the Middle East, India, South-east Asia and to some extent from China were traded throughout the area stretching from West Africa to South-east Asia and beyond (Wood 2000: 85). From around 1450 explorers and missionaries were carrying European mass-produced glass beads to Africa for trade. The volume of bead production in Europe rose in response to the African demand (Dubin 1987: 106). Throughout the 18th century glass beads were imported into Africa by the tonne, in hundreds of patterns, particularly from Venice and Bohemia, Germany and Holland. During the 19th century, intercontinental trade routes forged by explorers centuries earlier were actively expanded by European colonial powers as the demand for primary commodities such as ivory and gold increased. With low production costs, high demand and easy trans-



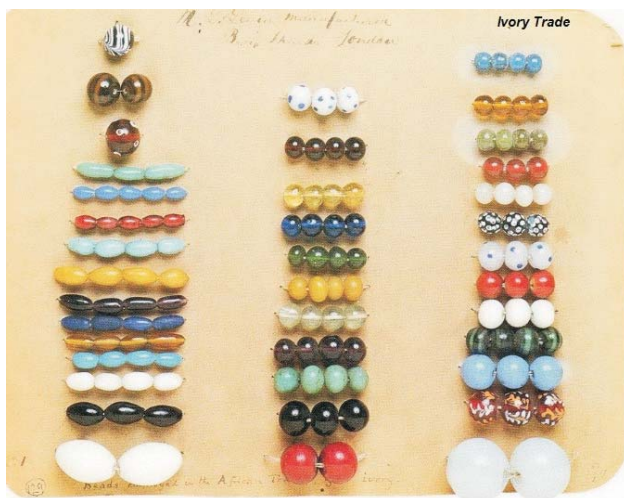


Trade beads from central Africa (Pitt Rivers Museum, Oxford, UK)

portability, glass beads quickly assumed an important position in 19th century trade.

Examination analysis to answer research questions

Several characteristics, including size, manufacturing techniques, structural complexity, shape, colour and diaphaneity are used to classify beads. The laboratory analysis of beads is limited only by the imagination and budget of the researcher. Many questions can be answered by looking at the chemical composition of a bead.



A trade card of Moses Lewin Levin, a London bead merchant from 1830 to 1913, acquired by the British Museum in 1865
(<http://library.clevelandart.org/node/205544>)

A general rule used to identify the source of a bead by means of chemical composition is that glass with a very high lead and barium percentage was most probably produced in the east, i.e. China or Japan, from 2000 BC to the early 19th century. Western counterparts, i.e. Venice, Italy and Czechoslovakia, used a soda-lime base. Beads containing high levels of potassium carbonate (potash) were Dutch-made (Van der Sleen 1967). Because unique combinations of elements were used during specific time periods, or by specific manufacturers, identification and comparison of these quantities provide manufacturing dates or, more specifically, information on the manufacturer itself.

The most commonly used scientific method for this purpose is Raman spectroscopy, which provides a unique spectroscopic identity for the bead based upon the way in which light is refracted off the bead itself. Micro-Raman spectroscopy (with X-ray fluorescence, X-ray powder diffraction, electron microscopy and photoluminescence as supportive techniques) was utilised to study archaeological artefacts from the Mapungubwe Collection. By using this method, it was possible to re-date celadon shards excavated on Mapungubwe hill in 1934 to the Yuan (1279–1368 AD) or even early Ming (1368–1644 AD) dynasties, instead of the original Southern Song dynasty (1127–1279 AD) classification (Prinsloo et al 2005).

Basic questions that always confront a researcher in bead analyses revolve around the original source of the beads and the date of their manufacture. However, the age of a specific bead must always be approached from several levels, including the date of manufacture, the date of initial trade and the date of use. 19th century trade bead catalogues, such as the *Levin Catalogue*, *The Venetian Bead Book* and a number of other Venetian documents, are essential in assisting with the identification of excavated trade bead types and verifying their chronological associations (Karklins 1993). Manufacturers' trade cards are particularly attractive resources because they generally include bead samples produced especially for the African trade. Even so, sample cards only display minute fractions of the bead varieties traded in the 19th and 20th centuries.

The interpretation of ancient glass beads depends on high quality examination analysis supported by certified reference materials to complete the report. Without scientific analysis and written reports, beads become voiceless objects – forgotten and gathering dust in storerooms in academic institutions and museums.

Bead sequence in southern Africa

The object of a glass-bead sequence is to develop a chronology. The key date required would be the approximate date of manufacture of a specific bead type, as well as an indication of the sustained trade in

that specific type. Well-developed bead sequence series, with temporal parameters, can help refine site chronology, although care must be taken to recognise that some beads may have been handed down from one generation to another and thus survive long beyond the time they were imported.

Archival and archaeological research has made it possible to match specific bead types to particular manufacturing industries. For example, while it can be comfortably stated that many of the drawn and wound beads found in sub-Saharan Africa probably originated from Venice, more specifically Murano, archaeological excavations and/or documentary research in Bohemia, the Netherlands, Germany and France have shown that these areas were bead-making centres at various points in time (Faria 2010). It is well known that pressed moulded beads were made in Bohemia (the northern part of the Czech Republic), while the drawn faceted types characteristic of 19th century archaeological sites were made both in Venice and Bohemia (DeCorse et al 2003: 84-85).



Zulu beadwork traditions are semiotic systems, a vehicle of self-expression
(www.flickr.com/photos/randall/6811033291/)

In southern Africa, bead preference differed from group to group. The availability of specific beads and how they were used may have contributed to the development of bead preferences. If beadwork was popular, then a preference would be for small, rounded, uniform beads, but if the beads were strung into necklaces or other singly strung ornaments, larger beads of varying size might be preferred. In many instances, the elite were able to establish and then reinforce hierarchical relations within their ranks and between themselves and commoners by controlling access to and the redistribution of beads.

For example, the Bohemian blue hexagonal beads were popular especially in the northern part of the country until the early 20th century and appear to be elite prerogatives with Northern Sotho and Venda groups during this period. This proposition may be reinforced by information present in the Van Riet

Lowe bead collection, which consists of a large display card of Venda beads that were presented to Van Riet Lowe in 1950. Major HA Pittendrigh from Sibasa had collected these beads over some time and information about them was compiled from interviews with numerous Venda chiefs. All the beads were considered to be ancient and sacred. The cobalt hexagonal bead known as *mawatwa* and the blue annular one called *tomba lwa Venda* were said to be worn only by royalty or the aristocracy (Van Riet Lowe collection, Catalogue 48). They might possibly have some relevance for Northern Sotho peoples as well. Kinahan (2000: 63) records that these beads were also popular in Namibia during this period.

Conclusion

Since the beginning of time, beads have never functioned on their own; they have always communicated all themes of human behaviour and continue to have personal connotations for the wearer, expressing personal tastes, status and political affiliation. We truly experience the universe in a bead.

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NOT ACTUALLY FAKES, BUT ...

David Coulson, Alec Campbell and Jean Clottes

During recent years, Africa's rock art heritage and particularly rock paintings have suffered careless damage at the hands of artists along with other visitors such as vandals and thieves. At Spitzkoppe, a famous granite mountain in Namibia, a local white artist recently painted a row of figures on the rock that was indistinguishable from earlier art alongside created by autochthonous peoples. In northern Chad, a well known French artist, helped by the French army, imported huge quantities of paint and spray-painted all the boulders on a large granite outcrop near ancient rock art sites in the Tibesti Mountains. He painted the boulders red, blue and green, an artistic statement visible from space. In Botswana, a tourist nearly deleted prehistoric white Herder paintings superimposed over earlier red paintings believing the overlays to be graffiti. These 'atrocities' are over and above all the other threats facing rock art, including graffiti, vandalism and theft.

Here, we draw attention to two unconnected rock paintings in East Africa that were, it emerges, made by professional artists for use in modern films.

Mount Suswa, Kenya

In 2005, the Trust for African Rock Art (TARA) learned about a rock painting in a cave/tunnel leading off a sinkhole (Fig. 1) on Mount Suswa in the Rift Valley, Kenya, whose outer caldera is about 15 km in diameter. Suswa is a volcano that was last active more than 15 000 years ago, although steam jets/fumeroles still emit north of the crater. There are several other sinkholes on the southeast side of the outer crater with other sets of lava tunnels leading off them.

A team from TARA visited the Suswa site that same year. They found a sinkhole about 15 m to 20 m deep with two major tunnels leading off it. One of these continues for about 200 m towards an open-air area where the upper rock has collapsed. But before this point a branch tunnel leads off and this is where the painting (Fig. 2) is located. What immediately struck us on our first visit was the huge size of the animal depicted on the lava slab ahead of us. The polychrome painting represents a life-size or even larger animal facing right, possibly an eland or bovid, or even a mythical beast with charcoal



Fig. 1: View from the larger Mount Suswa cave looking out at the sinkhole and a smaller cave.

designs on the head and above the backside. The head of the animal was in fact not obvious and appeared to be 'represented' by a natural white seep, a technique often seen in African and in European Palaeolithic rock art.

In another side tunnel a second painting was found, a smaller, somewhat cruder rhinoceros facing right (Fig. 3) with some daubs of similar pigments on the wall at the entrance to the tunnel. At first, we decided the paintings were modern but later began to change our minds, believing the paintings might conceivably be ancient, particularly when the pigments used were found to be made of natural, local materials and there was some evidence of weathering. At the end of the main tunnel where the roof had collapsed, allowing

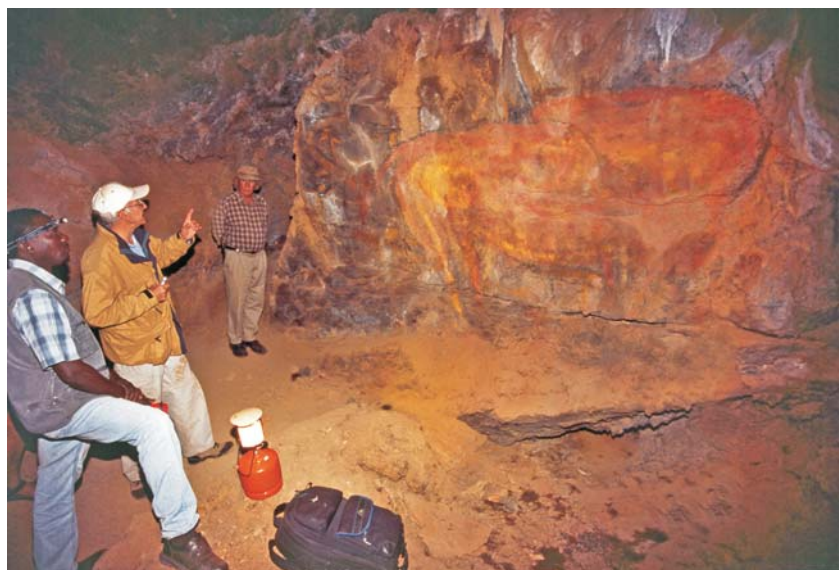


Fig. 2: Jean Clottes and Kenyan archaeologist George Abungu looking at the large painting of a 'bovid' facing right, deep in Suswa cave.

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direct access from above, we found crude geometric shapes painted on the rock, almost certainly modern Maasai symbols painted at meat-feasting sites and obviously unconnected with the paintings in the tunnel.

Because for us the large painting resembled Palaeolithic cave art rather than the African art, we invited Jean Clottes, an international rock art authority and a member of TARA's Advisory Board, to examine it. The project was supported by the French Embassy in Nairobi. At first Clottes suspected the paintings to be modern, but later, like us, he recognised the possibility that the paintings might be ancient. George Abungu, a Kenyan archaeologist and heritage expert, accompanied us on this visit and originally also shared our suspicion that the paintings could be ancient. Clottes' doubts as to their authenticity increased substantially, however, when he noticed black-forked lines on top of the head of the red 'rhino' (Fig. 3) that might have been used as a stag's antlers in imitation of Palaeolithic techniques. He took pigment and charcoal samples for analysis in France by the Laboratoire des Sciences du Climat et de l'Environnement; they turned out to be modern.



Fig. 3: The red 'rhinoceros' facing right, not far from the 'bovid' in Suswa cave.

Extensive research by TARA eventually elicited the art's probable provenance. It appears that in 1979 sequences to be included in a French feature film, *La Guerre du Feu* (The Quest for Fire), had been filmed at Suswa caves. From a local man who had worked with the film crew we learned that an artist, now deceased but then employed by the film company, had made some paintings in the caves. However, we later viewed a copy of the film and noted that there were no rock paintings in it. Possibly the paintings were never used for the film.

Lukenya mountain

This mountain is situated about 100 km southeast of Nairobi. It is actually a big granite ridge with numerous rock shelters and massive boulders. There are rock paintings in some shelters and underneath balanced

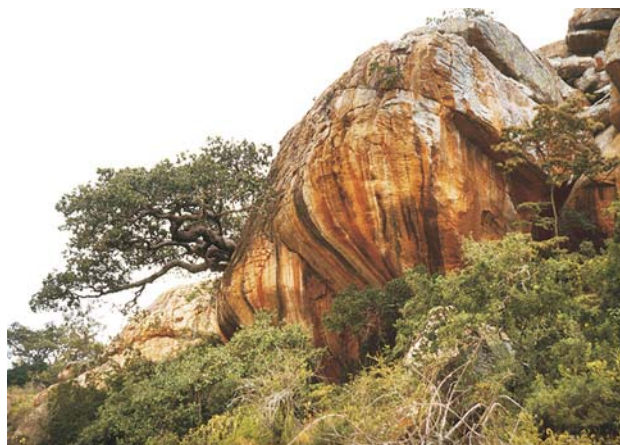


Fig. 4: One of the two main shelters at Lukenya where 'Twa' rock paintings are found.

boulders (Fig. 4). Some paintings are ascribed to the Maasai, made during meat-feasting ceremonies, while others are much older, probably made by hunter-gatherers sometimes known as Twa.

In 1989 a Kenyan artist, Robyn Anderson, was hired by a film company that was shooting the *Young Indiana Jones* TV series. The company apparently commissioned her to create some rock art images at a large rock shelter on the eastern slopes of Lukenya mountain. The rock shelter used was a well-known rock art site with Twa paintings, possibly more than a thousand years old, as well as some relatively modern Maasai meat-feasting paintings. Anderson, not knowing about the genuineness of the rock art, mistook it for graffiti. Nor did it occur to her that this could be a rock art site.



Fig. 5: Twa rock paintings (dark red) and two 'modern' engravings scratched over the top by a Nairobi artist for an American TV film.

Her paintings are now very faded compared to the genuine rock paintings. However, she unfortunately scratched 'engravings' over some of the old paintings (Fig. 5). When making these 'engravings', she used ancestral Sandawe images as her reference, while her paintings were based on South African Bushman art (Fig. 6). Her images were so accurate that they



Fig. 6: Faded paintings at Lukenya copied from photos of South African bushman paintings.

fooled at least one archaeologist, who believed them to be genuine and thought he had made an important discovery.

In the case of Mount Suswa it is almost certain that a permit to make paintings in the cave was never issued. No record has been found stating that paintings had been made, nor is there any record of permission having been sought. In the case of Lukenya, the film company did not obtain permission to make rock art paintings and certainly not in a shelter known to contain prehistoric art. Although this instance of vandalism has been brought to official attention, no action has been taken against the company and no effort made to remove the new paintings and engravings.

These paintings were made for films and in that sense cannot really be called 'fakes' made to deceive the visiting public. At the same time, there is little doubt that this type of vandalism could continue unless responsible authorities, including local communities, are prepared to take action when people interfere with rock art. One of TARA's roles and responsibilities is to sensitise the public about the existence and importance of this art heritage to avoid such vandalism and prevent this type of confusion in future. To this end, TARA has organised photographic exhibitions in a number of African countries that have now been seen by over a million people. The trust has also published on this subject. For further information, see www.africanrockart.org.



ARCHAEOLOGY IN BRIEF

Persepolis sewage system unearthed. Iranian archaeologists have discovered 20 m of a canal of the sewage system of Persepolis, the ceremonial capital of Persia in the Achaemenid era. The sewage system branches off into many canals. Persepolis was built by Darius I in the late 6th century BC and was destroyed by Alexander the Great in 330 BC.

Tehran Times, June 2012

The South African Archaeological Society

This is the society for members of the public and professionals who have an interest in archaeology and related fields such as palaeontology, geology and history. Four branches serve the interests of members. They arrange regular lectures and field excursions guided by experts, annual and occasional symposia, and longer southern African and international archaeological tours.

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The Digging Stick

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