



## THE EARLY IVORY TRADE AND SOUTHERN AFRICA

Gavin Whitelaw

### Schroda and K2 in the Limpopo valley

are the two Iron Age sites most commonly associated with ivory in southern Africa (Fig. 1). Other sites have yielded ivory but Schroda and K2 are notable for the quantity and range of remains recovered, from tusks to carved ivory objects to waste ivory fragments and shavings. The remains – along with the bones of carnivores – are taken as evidence that Schroda and K2 were supplying ivory and carnivore pelts to the Indian Ocean trading system between 900 and 1200 (Voigt 1983; Hanisch 2002). In return they received glass beads and probably cloth. This trade contributed to the emergence of the Zimbabwe Culture at Mapungubwe in the 1200s. An early mention of the African ivory trade appears in the *Periplus of the Erythraean Sea*, written in ‘business-style’ Greek for Greco-Roman merchants around the middle 100s (Casson 1980, 1989). The *Periplus* describes voyages on the monsoon from the Gulf of Aden to Rhapta, somewhere on the East African coast. Chami (1999; Bitu et al. 2023) argues that Rhapta was in the Rufiji delta–Mafia islands area; Kirwan (1986) opts for the bay of Dar es Salaam (see also Casson 1989: 141) (Fig. 1).

Rhapta was the southernmost trading port of Azania, the country that stretched from northern Somalia southwards. At Rhapta, traders purchased

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Fig. 1: Indian Ocean rim: dotted lines = possible extent of Azania; double lines = possible extent of land of the Zanji; 1 = KwaGandaganda; 2 = Wosi-Ndondondwane; 3 = Schroda-K2-Mapungubwe; 4 = Chibuene; 5 = Rufiji-Mafia; 6 = Dar es Salaam; 7 = Pemba; 8 = Muza; 9 = Gulf of Aden; 10 = Persian Gulf; 11 = India; 12 = Malayo-Indonesia.

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ivory, tortoise shell and rhino horn, then returned to Egypt when the monsoon reversed. The *Periplus* makes it clear that the Azanian trade route was well-established. Arabians were marrying Rhaptans and taxes from Rhapta benefitted merchants in the Red Sea port of Muza, part of an Arabian kingdom in what is now Yemen (Casson 1989). Trading continued through the rise of the Sasanian (Persian) Empire, which incorporated the Muza region, and its collapse in the 640s in the face of Islam-inspired Arab conquests. The Muza region was an early loss in the 620s.

In the 800s, the Chinese poet Duan Chengshi produced his compendium *Miscellaneous Morsels from Youyang*. In it he wrote:

'The land of Po-pa-li is in the south-western Ocean. The people do not eat any cereals but they eat meat: more frequently even they prick a vein of one of their oxen, mix the blood with milk and eat it raw. ... The products of the country are ivory and ambergris [and slaves]. ... When Persian traders wish to enter this country, they form a caravan of several thousand men and present them with strips of cloth' (Freeman-Grenville 1962: 8).

This reference is most likely to pastoralists of Kenya or the Horn of Africa. The Arab polymath al-Mas'udi provided a fuller description of the trade from the early 900s in his book *Meadows of Gold and Mines of Gems*:

'The pilots of Oman pass by the [Gulf of Aden] ... to reach the island of Kanbalu, which is in the Zanj sea ... Kanbalu is the furthest point of their voyages on the Zanj sea, and the land of Sofala [along the Mozambican coast] and the Waqwaq [Madagascar], on the edge of the Zanj mainland and at the end of this branch of the sea. The people of Siraf also make this voyage, and I myself have sailed on this sea ... My last voyage from Kanbalu to Oman was in [AD 916] ... There the whale is found. ... Amber is found in great quantities on the Zanj coast ... The best amber is that found in the islands and on the shores of the Zanj sea. ...

'The land of Zanj produces wild leopard skins. The people wear them as clothes, or export them to Muslim countries. They are the largest leopard skins and the most beautiful for making saddles. ... the sea of Zanj ends with the land of Sofala and the Waqwaq, which produces gold and many other wonderful things. ... There are many wild elephants ... The Zanj rush upon them armed with very long spears, and kill them for their ivory. It is from this country that come tusks weighing fifty pounds or more. They usually go to Oman, and from there are sent to China and India. This is the chief trade route, and if it were not so, ivory would be more common in Muslim lands' (Freeman-Grenville 1962: 14–15).

'Zanj' referred to 'people of Africa' (not 'black people' or the colour 'black', as commonly claimed) (Tolmacheva 1986). Arabic writers identified various categories of Zanj that shifted, expanded and contracted over time. The word was also sometimes used as a placename. The 'land of the Zanj' in al-Mas'udi's account was most likely equivalent to modern Tanzania and part of Kenya, so it was a more restricted country than Greco-Roman Azania. Moreover, there is 'no evidence of a direct connection' between the Greek use of 'Azania' and the Arabic use of 'Zanj' (Tolmacheva 1986: 106).

Kanbalu is commonly linked to Pemba island off the northern Tanzanian coast (Wood et al. 2012: 72). Al-Mas'udi recorded that its mixed population of Muslims and the unconverted spoke the 'Zanjee' language, presumably a form of Swahili. An elite family ruled Kanbalu. Al-Mas'udi's text suggests the family was descendant from Arabians who established an emirate at Kanbalu around 750 (Sprenger 1841: 232–233; Freeman-Grenville 1962: 17). This political development was likely a response to the trade wealth. Al-Mas'udi's information on Sofala is limited but we have archaeological evidence.

#### **Chibuene in Sofala and beyond**

Chibuene in southern Sofala is situated on the coast a few kilometres south of modern Vilankulo (Fig. 1). Excavations there recovered nearly 3 000 glass beads plus imported pottery similar to that found at early Swahili sites such as Kilwa, Manda and Shanga. Most of the glass beads are of the Zhizo type. They are made from glass that was probably produced east of the Euphrates River. The actual beads seem likely to have been made in the Persian Gulf region, possibly by specialists from the Indian subcontinent (Wood et al. 2012; Wood et al. 2017: 898).

Scattered Zhizo beads have been found on numerous sites in the southern African interior in deposits dating from the 700s to the 900s. They dominate the bead assemblage at Schroda. Zhizo beads are rare at more northerly sites on the coast, so the trade system that served southern Africa at this time seems to have largely passed by the East African ports. Chibuene's role as a port in this trade ended around 950, possibly because of raids by Indonesian pirates on ports along the Sofalan and Zanj coastlines (Wood et al. 2012).

Trade must have soon started again at unknown Sofalan ports because new Indo-Pacific bead types reached the central Limpopo valley between the late 900s and mid-1200s. They dominate the bead assemblage at K2. Indo-Pacific beads were probably made on the Indian subcontinent, or possibly in Malayo-Indonesia. They point to shifts in trading patterns into southern Africa around the turn of the millennia (Wood et al. 2012).

Farther south and to the east of the Drakensberg, three other sites dating to between 600 and 1 000

have yielded good quantities of ivory. The sites are the remains of settlements established by farming communities in the uThukela (Wosi and Ndondondwane) and uMngeni (Kwa-Gandaganda) valleys. Their ivory took the form of carved items such as bangles and pendants, a whole tusk on Kwa-Gandaganda and abundant ivory chips and shavings (Fig. 2).

For several reasons, these three sites seem to have been political centres; chief's places, in other words. Ivory is one element in this interpretation, because evidence from the past 200 years indicates that ivory was a resource associated with chieftains who controlled its accumulation and distribution. Because of the antiquity of the ivory trade, we might consider whether the association between chieftaincy and ivory was a product of the trade. I don't think so.

I think the association between political status and ivory must have ancient roots because elephants are (or were) a potent creation symbol in sub-Saharan Africa (Cosentino 1992). Elephants can transform into humans and humans, after death, live on as elephants. In some myths, all life emerges from the body of an elephant, just as it does from the origin pools in other myths. Examples include Zulu and Kongo folktales, respectively summarised by Krige (1962: 349) and Cosentino (1992: 87). The animal itself is female in character but the tusks represent virile potency, as do reeds in pools. An elephant is the universe *in toto*.

The association between chieftaincy and elephants and their tusks follows logically from these beliefs, because chiefs were responsible for ensuring the

fertility of their land, the rain that activated that fertility and the success of their followers. We can thus see that some ivory items, in some cultural circumstances, must have represented the life-giving (virile) potency of men of status.

Since recovery, the ivory artefacts from the uThukela and uMngeni valleys have rested in museum storage. In the mid-2010s, Ashley Coutu, then a post-doctoral scholar based at the University of Cape Town, revisited them. She and her team applied isotopic and biomolecular analytical techniques to the ivory to discern its character (Coutu et al. 2016).

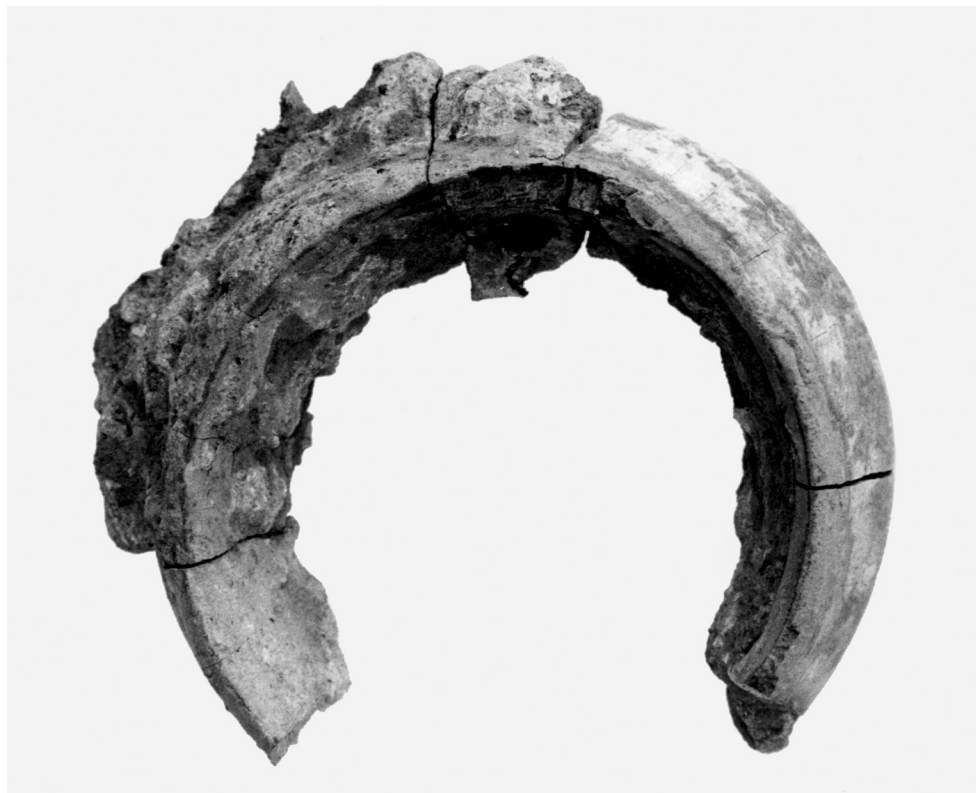


Fig. 2. Ivory from KwaGandaganda, c. 800–950. Top: tusk, length along curve = 80 cm. Foot: bangle with teardrop cross-section and encrusted dung; width = 46 mm, diameter = 85 mm.

## Analysis and results

The first challenge was to determine the source of the ivory. Several animals grow ivory, which is a specialised kind of tooth. They include warthogs, bushpigs and hippopotamuses. Since bones of these animals occur among the remains from the sites, they might also have contributed to the ivory samples.

Ashley used a technique called ZooMS, which is an abbreviation for zooarchaeology by mass spectrometry. ZooMS analysis is based on slight differences in peptide sequences in collagen in different species of animals. Peptides are short chains of amino acids, while collagen is a structural protein in the body. ZooMS provides an identification tool in the case of fragmented bone or bone modified to produce artefacts. An analysis of 26 pieces of ivory showed that they all came from elephants. Several of these pieces had been visually identified as possibly being hippo ivory (Coutu et al. 2016).

Next, the team considered diet and environment as reflected in carbon and nitrogen isotope ratios in the ivory. Both chemical elements have two stable isotopes (carbon has a third, unstable isotope, carbon-14, on which radiocarbon dating depends). The stable isotopes of carbon are carbon-12 and carbon-13, while for nitrogen they are nitrogen-14 and nitrogen-15. For both elements, the heavier isotope has one additional neutron in its nucleus, making it slightly heavier and slower to undergo chemical reactions.

Animals incorporate the isotope ratios of the food they eat into their tissues, including bone and teeth. For carbon (in most African environments), the main difference is between trees and shrubs (which use the C3 photosynthetic pathway) compared with grasses (which use the C4 pathway). Measurement of  $^{13}\text{C}/^{12}\text{C}$  ratios in ivory therefore tells us about the relative importance of browse and graze in the diets of elephants at the time the ivory was forming. Variations in nitrogen isotope ratios are more difficult to interpret because of the complexity of nitrogen cycles on Earth. Nevertheless, animals that live in more arid environments tend to have more of the heavier  $^{15}\text{N}$  in their bodies than animals that live in humid environments (Coutu et al. 2016).

The results of the analysis indicate that browse dominated the diets of the elephants killed for their ivory, although C4 grasses also contributed, especially to the elephants whose remains lay at Wosi in the uThukela valley. Hunting for Wosi might have focused on drier, savanna landscapes. Overall, however, the ranges in the stable isotope values are so great that they suggest hunting from heavily forested areas to open country, from humid water-rich conditions to arid zones. KwaGandaganda in the uMngeni valley alone showed greater variation in their nitrogen isotope composition than comes from elephants in the Kruger

National Park, an area of nearly 20 000 km<sup>2</sup> that covers rainfall regimes from 400 mm to 700 mm per annum (Coutu et al. 2016).

Also of interest is that the stable isotope values indicate significant differences between the samples from the three sites. These differences suggest no overlap in the hunting zones for the three sites. We would expect this result for KwaGandaganda in the uMngeni valley, but the Wosi and Ndondondwane distinction is striking. Although on opposite banks of the uThukela, the sites are only 1 km apart and the river is easily crossed at a ford at Ndondondwane as well as others upstream (Coutu et al. 2016).

## Implications

First, it is possible that elephant hunting (and most other aspects of life) was restricted to territories claimed by chiefs (Coutu et al. 2016). Such territories probably had boundaries that ranged from hard, where competition for resources with other chiefdoms was greatest, to extremely soft where there was no competition.

Second, the wide ranges of the stable isotope values indicate that ivory was harvested from various ecological contexts, which suggests that elephant hunters ranged widely across the landscape (Coutu et al. 2016). Interaction between early farming communities and hunter-gatherers in the KwaZulu-Natal region seems to have been built around hunting. It seems possible then that much of the killing of elephants for ivory was done by hunter-gatherer groups allied to particular chiefs. Ivory-harvesting zones would therefore reflect a combination of hunter-gatherer territories and land claimed by farmer chiefs. It is worth exploring this scenario archaeologically.

Third, the ivory at all three sites no doubt enhanced the status of their residing chiefs. But the quantity of remains and the scale of acquisition raises the possibility that much of it was intended for export into the Indian Ocean trade system. If so, then Ndondondwane, Wosi and KwaGandaganda mark the most southerly extent of the ivory trade identified so far. They would also be early physical evidence of the trade, for most of the ivory artefacts come from deposits dating between 600 and 800 (Coutu et al. 2016).

Glass beads did not reach the KwaZulu-Natal region till later. I think it likely that ivory would have been moved via short-distance exchanges through networks based on marriage alliances to reach the port of export, possibly Chibuene 1 000 km away. At this early stage, chieftains based at Wosi and KwaGandaganda may have received local items for their ivory. There was perhaps a lag before awareness of exotic items and the items themselves filtered south through alliance networks. Whatever the case, ivory export from the uMngeni and uThukela sites is

consistent with dates in the 600s at Chibuene and al-Mas'udi's limited comments on the wonders of Sofala.

## Elephants

Most of the carved ivory products at the Limpopo and KwaZulu-Natal sites are bangles. Some might well have been made for export, as brides in India desired bangles of soft African ivory for their wedding ceremonies (Coutu et al. 2016). Exported ivory was also shaped into combs, dagger handles, curved sword scabbards and especially chess and backgammon pieces. In China, the elite demanded long straight tusks as support for their litters and burned ivory as incense (Freeman-Grenville 1962: 16). Much later, factory workers transformed tusks into cutlery handles, piano keys, billiard balls, combs and hairbrushes – more trivia for human glamour and glorification.

The impact of all this killing on elephants before 1600 is hard to determine. It cannot have been good, but small human populations, the nature of hunting weapons and the slow pace of the trade meant that elephants survived. Specialists estimate that about 100 000 elephants lived in what is now South Africa in 1650. By 1890 there were hardly any. Heavily challenged conservation measures allowed the South African population to grow to perhaps 140 by 1920 (Carruthers et al. 2008).

In 2006 South Africa's elephants numbered possibly 18 500, but the land available to them is severely restricted. South Africa now exports elephants (Carruthers et al. 2008). This seems like a feel-good story, but human aggrandisement has grown with human population and African elephant communities are under pressure like never before.

## Acknowledgements

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## HERE LIES A BONE COLLECTOR

In the December 1993 issue of the *South African Archaeological Bulletin* (p. 78), Janette Deacon recorded an epitaph that had been written by AJH Goodwin on the back of a cigarette box. It had also been documented by Ray Inskeep (without attribution) in the Editorial for the April 1968 issue of the Bulletin. Here it is again. It is applicable to both palaeontologists and archaeologists.

Here lies old Jones,  
Who all his life collected bones,  
Till death, that grim and bony spectre,  
That all-amassing bone collector,  
Boned old Jones, so neat and tidy.  
Here he lies all bona fide.

The intrepid researcher Francis Thackeray has discovered that the poem referred to a certain William Jones. The original form of the epitaph was published in an anthology entitled *Gleanings in Graveyards: A collection of curious epitaphs collated, compiled and edited by Horatio Edward Norfolk* (1866). It was adapted by Arthur Wentworth Hamilton Eaton (1849–1937), himself a poet and priest whose book entitled *Funny Epitaphs* is accessible online at <https://www.gutenberg.org/ebooks/42634>.

## The South African Archaeological Society

### APPLICATIONS FOR RESEARCH GRANTS: KENT & WARD FUND

The **Kent and Ward Fund** was established as a result of two generous bequests from long-term members of the SA Archaeological Society (ArchSoc). The first, in 1992, was from the late Dr Leslie Kent, a geologist in Johannesburg, and the second, in 2019, was from the late Valerie O'Hagan Ward, who organised the Society's branch in Pietermaritzburg for many years. The interest received from the invested funds is distributed from time to time at the discretion of the ArchSoc Council to contribute towards:

1. Raising the public profile of archaeology in South Africa.
2. Financing of field work.
3. Funding research projects.
4. Analysing of archaeological material.
5. Publishing/supporting the publication of the results of research.

The Society invites applications each year for awards in all categories. A maximum amount of R20 000 is currently available from the fund a year. The following guidelines will apply.

- The work must be conducted in southern Africa.
- Preference will be given to researchers domiciled in southern Africa.
- Preference will be given to researchers who are starting a career in archaeology.
- Projects may include archaeological work of any kind that enhances our knowledge of the lifestyle of humankind in southern Africa, such as excavation, rock art recording, site recording, artefact or faunal analysis, identification of plant or animal remains, dating, surveying, physical anthropology, analysis of archaeological collections in museums, experimental archaeology and archival or bibliographic work.
- Proposals may also include publication of the results of research that popularise archaeology for public education and community awareness.
- The fund is not intended for and will not support university registration fees, per diem payments nor living expenses during the writing of reports or publications.
- The fund will not support fieldwork costs involved in preparing archaeological or other heritage impact assessments.
- The fund will not contribute to the purchase of expensive equipment such as cameras, microscopes or laptops for the analysis of results.
- Successful applicants will be required to submit a short report outlining the results and budget spent

to the Council on completion of their project.

- Successful applicants will be required to provide a digital copy of a full report on work completed, or submit a paper for publication to the *South African Archaeological Bulletin* or an article in *The Digging Stick*.

Application forms are available from the ArchSoc website, [www.archaeology.org.za/grants\\_and\\_awards/kent\\_ward\\_bequest](http://www.archaeology.org.za/grants_and_awards/kent_ward_bequest), or from [secretary@archaeology.org.za](mailto:secretary@archaeology.org.za). Completed applications must be submitted **before 31 July of each year**. All applications will be refereed by specialists. The successful applicant/s will be notified by 15 September of each year.

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### THANK YOU!

The **SA Archaeological Society** would like to thank the following donors for their generous contributions towards ArchSoc's activities:

- One of our Western Cape Branch members, Mr Ross Foxtton of Cape Town, who has been a previous donor on multiple occasions, donated R5 000 for the maintenance and improvement of phone and electronic data facilities and social media communications.
- Mr Ozzy Yerlikaya, owner of Travel Designer (<https://www.traveldesigner.com/>), also from Cape Town, made a very large donation of R55 000 to the Eastern Cederberg Rock Art Group (eCRAG) via ArchSoc for the ongoing surveys of rock paintings in the region.

The Society is enormously grateful to both donors for their contributions.

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### CORRECTION

In the article headed "'Hominin space flight' questioned by the South African Archaeological Society', *The Digging Stick* 40(3), December 2023, Prof. Lyn Wadley, a long-standing member of ArchSoc, is quoted as saying to the *Daily Maverick* (p. 9, col. 1, para. 2): 'I am ashamed of my country, of Sahara and of the heritage practitioners ...' 'Sahara' should of course have read 'SAHRA', the South African Heritage Resources Agency. My apologies for this editing slip up – Reinoud Boers, editor.

## CANTEEN KOPJE, BARKLY WEST: A CASE FOR CONSERVATION, WITH SOME LESSONS LEARNT FROM LAW

David Morris

**Canteen Kopje** on the north bank of the Vaal River at Barkly West, near Kimberley, has been known as an archaeological site for more than a century. As a formally protected 'reserve' from 1948, a focus of research in recent decades and a site of contestation between heritage and mining interests, its continued existence has been subject to court proceedings spanning the past eight years. I give an overview of the site's history to sketch the case for Canteen Kopje's conservation, before turning to the consequences of mining that began there on 18 March 2016. An urgent interdict halted the damage a day and a half after mining commenced, with a judicial review application launched soon after. A 2019 ruling on the latter has been appealed twice.

Lessons have been learnt. Some of the issues raised in court were a reminder that an understanding of basic archaeological principles and methods, and the nature of archaeological evidence, is critical to distinguish mining from the work and objectives of archaeology, a matter not always obvious to those outside the field. I highlight the importance of public awareness, in addition to any formal legal protection, and point to the crucial role that the SAArchaeological Society must continue to play to safeguard our archaeological heritage.

### Diamonds and handaxes

Canteen Kopje would not have become a site of such contestation were it not for the fact that the sediments contained diamonds in addition to the celebrated profusion of Earlier Stone Age artefacts that led to its being set aside as a protected site in 1948. Known in the region since 1866, diamonds were found in the diggings of prospectors at present-day Barkly West in 1870, spurring the 'rush' to the 'Diamond Fields' that heralded the country's mineral revolution and the advent of modernity. Amongst individuals early on the scene were Mary Elizabeth Barber and her brother Colonel Henry Bowker, who both recognised and wrote about stone tools they had seen coming out of diggings in river-bank gravels (Cohen 1999).

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Fig. 1: Illegal mining at Canteen Kopje, March 2016, showing the western half of the pit

Canteen Kopje is a low sandy rise situated upslope from the Vaal River, with a capping of Hutton sands overlying some 10 m of alluvial gravels. Diamond diggers (working there until the 1940s) dug into it, leaving numerous pits (called paddocks) to penetrate through the sand to the diamond-bearing gravels below. From these pits, they tunnelled outwards into galleries for retrieving diamondiferous sediment. The resultant gravel dumps and exposed sections contained stone artefacts in abundance and attracted interested visitors, notably C van Riet Lowe, the Abbé Henri Breuil and J Desmond Clark. Breuil, here in 1929 and again in the 1940s, promoted the idea of the site's protection. Local mining commissioner Gideon Retief surveyed and fenced an area where mining was to be stopped. Defined as Portion 9, which was 8,9 ha in extent, it was proclaimed as the 'Canteen Kopje Nature Reserve' by the Historical Monuments Commission in 1948. An open-air display of stone tools was created at the site.

Canteen Kopje also became known, through an article in *Nature* in 1929, for human skull fragments that were believed to be 'archaic' and were, recovered by a miner in 1925. Information as to their exact provenance was lost. Assembled in plaster and published by Robert Broom (1929), the fragments were argued to be 'pre-Bushman' or 'Boskopoid'. The reconstructed skull was exhibited for many years in the old McGregor Memorial Museum in Kimberley.

Recently re-examined, the skull is now regarded as being most likely from the sands overlying the gravels. In fact, lacking archaic features, it falls within the range of variation of Holocene Later Stone Age Khoe-San crania (Smith et al. 2012).

### Research: from pessimism to renewal

Canteen Kopje remained a phenomenon, but scientific engagement with it waned after the middle of the 20th century. This was largely on account of reservations concerning the integrity of the Vaal River terraces and attempted palaeoclimatic correlations (Butzer et al 1973). Archaeological deposits, widespread as they are in the Vaal gravels, are seldom in primary context. Even so, David Helgren (1979) worked at establishing a revised stratigraphic framework and palaeoenvironmental interpretation for the lower Vaal River sites.

Renewed archaeological interest at Canteen Kopje was spurred by an unanticipated threat. In the late 1990s the de-proclamation of the site was mooted to allow diamond digging and empowerment of small-scale miners. McGregor Museum archaeologist Peter Beaumont was ordered off the site. Prompt intervention by the then National Monuments Council regional office led to an out-of-court settlement and a compromise that provided for mining in areas surrounding Portion 9/Canteen Kopje. That permit was revoked, however, after mining encroached within a 10 m buffer zone. Through intensive consultation, the McGregor Museum gained community support for research and conservation, which also resulted in new open-air displays and a heritage walk, while a museum for Barkly West was created in a nearby historic tollhouse restored for the purpose (Turkington 2000).

Peter Beaumont (1990), having begun the first systematic archaeological work at Canteen Kopje a few years previously, carried out major fieldwork in response to the mining threat and confirmed Canteen Kopje as an extraordinarily rich, if geologically complex site having not only its famed Acheulean sequence, which so enthralled Breuil and others, but also overlying Fauresmith and, in the Hutton sands, Middle Stone Age and Later Stone Age units. In the 21st century the site attracted the attention of research teams from, inter alia, the universities of the Witwatersrand and Toronto, with Kathy Kuman and Michael Chazan and their respective post-graduate students and colleagues.

Numerous publications and theses have appeared (e.g. Beaumont 1990; Sharon and Beaumont 2006; De Wit et al. 2008; Forssman et al. 2010; McNabb and Beaumont 2011; Chazan et al. 2013; Leader 2014; Lotter et al. 2016; Li et al. 2017; Shadrach 2018; Kuman et al. 2020) reporting on studies and findings on new dating applications and site

formation processes, and defining the different cultural-stratigraphic units through the sequence. The Victoria West stone tool technology in the Acheulean, well represented at Canteen Kopje, is shown to reflect origins of prepared core technology and an emergence of complex cognitive abilities with a 'deep root in the Early Acheulean' at this site (Li et al. 2017: 11). Near the surface are Tswana ceramics and related materials from proto-colonial and contact-era histories (Chazan et al 2022), while the very evident traces and legacy of diamond mining from the late 19th to 20th centuries top – and burrow into – the sequence.



Fig. 2: Disturbed artefacts at Canteen Kopje

All these studies into multiple facets of Canteen Kopje have affirmed the site's importance, buttressing the case for its preservation. Site and museum displays, together with a museum website and Wikipedia presence, as well as occasional site excursions for interested members of the public, gave some of the research a public face.

### Mining begins

It came to our attention in December 2014 that the Department of Mineral Resources (DMR) had issued a mining licence that would allow diamond mining *within* the declared site of Canteen Kopje (under the 1999 heritage legislation, a Grade 2 Provincial Heritage site). The South African Heritage Resources Agency (SAHRA) moved to prevent mining by issuing a cease-works order. In a letter in May 2015, SAHRA confirmed to the applicant that no mining could take place without a heritage permit and, besides, Canteen Kopje was formally protected. It was the opinion of SAHRA that mining would 'have a negative impact on the future research and conservation status of the site'.

Yet, over 18 and 19 March 2016 mining took place. While an actual heritage permit had not been issued, the SAHRA cease-works order had, inexplicably, been withdrawn. An enormous pit, some 5 000 m<sup>3</sup> in



size, was dug directly in the middle of the protected site.

The damage was discovered on the evening of 18 March, a Friday at the beginning of the Human Rights Day long weekend. Nearly half of that night was spent pressing the case at the Barkly West Police Station while communicating with our support network; and the remainder of the night on the phone and on a laptop composing an affidavit to seek an urgent interdict. The law firm Norton Rose Fulbright had stepped up late that night to act pro bono for the McGregor Museum and would generously attend to the case for the duration.

By sunrise, a founding affidavit had been before a Commissioner of Oaths and by mid-afternoon on 19 March it was before a Judge of the Northern Cape High Court. The interim interdict granted against the mining company Jackie M Wesi Mining (Pty) Ltd gave temporary protection and was made final a month later.

In tandem, a review application was launched jointly by the McGregor Museum, Sol Plaatje University (Kimberley) and the University of the Witwatersrand to review the decisions by the DMR and SAHRA. It would seek to understand how the provisions of minerals and heritage legislation had failed to protect the declared site in the first place. Lara Granville, a director of Norton Rose Fulbright explained that the review application was 'aimed at securing the protection of such cultural and historical sites into the future and ensuring that administrative agencies abide by the legislative requirements to protect our heritage'.

### **Haste and hearsay**

The respondents sought to set aside the case on technicalities when the review application was heard in 2019, raising at the outset our haste in resorting to the court versus pursuing and exhausting internal remedies. Given the voracious speed of mining, begun soon after the cease-works order was withdrawn (note the destruction caused in just a day and a half) the latter option would have delivered a finding far too late to save the site.

Important letters of support from archaeological specialists, local and international, vouching for the



*Fig. 3: Students with artefacts from Canteen Kopje*

site's significance, stood to be 'dismissed as hearsay' since they had not been 'confirmed in affidavits by the authors thereof' and were therefore 'not properly before [the] Court'. Much was made in the review hearing and in the subsequent appeal of May 2023 of what was 'purportedly a map' included in the founding affidavit as a key to a narrative outlining the history of mining impacts. The respondents complained that it was not stated who had marked up areas on the Google Earth image and what qualification that person had that 'qualifies him/her to do so', and on this basis stated that both the map and the narrative it elucidated 'should be disregarded'.

As it turned out, Wesi Mining had misrepresented the area of proposed mining in their licence application by referring to Portion 5 Barkly West, which does not exist. Canteen Kopje is Portion 9. (Evidently the '9' on the map used was partly obliterated by a paper fold and was read as '5'; many other maps exist that define the area as Portion 9). The DMR had issued a licence for Portion 5, and this prior to receiving a heritage impact assessment. Wesi Mining had also declared that no archaeological resources had been identified on the site, even though L Sonnenberg, a partner in Wesi Mining, should have known both the location of Canteen Kopje, since he had been one of the miners involved there in the late 1990s, and its archaeological significance, explained in correspondence at the time.

### **Artefacts versus contexts and conservation**

Wesi Mining's challenge to the founding affidavit

misunderstood the distinction between the mere survival of artefacts after mining versus their contexts and archaeology's desire to preserve the heritage of unique sites. 'It seems,' Wesi's argument went, 'that the artefacts which the archaeologists were able to inspect occurred at the mining areas after mining activities had taken place, which means that the mining activities did not destroy the artefacts'. Mining on a site containing 'nothing more than Stone Age tools, of which tens of thousands had already been procured, would not impact negatively on the artefacts.' It was added that 'the famed French historian Abbé Breuil' (sic) and others had 'collected tools from the dumps of the diamond miners', again showing that 'mining did not destroy the artefacts'.

Earlier, prior to commencement of mining in 2016, Wesi Mining and officials from the DMR had approached SAHRA proposing that archaeologists and miners should work together at Canteen Kopje. Mr J Hayes, employed by Wesi Mining as a heritage advisor, observed that the archaeologists' work with trowels and brushes was painfully slow and that mining could greatly assist in retrieving the archaeological wealth from the site in a fraction of the time. The archaeologists rejected the proposal.

In her judgment of September 2019, Judge Potterill addressed the essential incompatibility of mining and archaeology, concluding that 'Artefacts that are not destroyed by earth-moving equipment can never provide the level of information that can be derived from archaeological excavation. Even if stone tools are preserved, the context would be irretrievably destroyed.'

### Decisions set aside

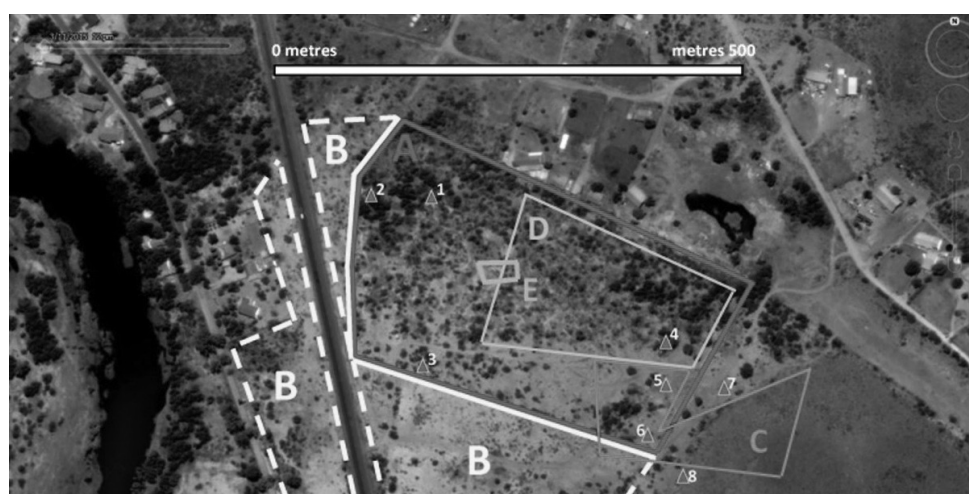
The 2019 judgment took into consideration a provision of the Mineral and Petroleum Resources Development Act, which seeks to favour historically disadvantaged women such as Ms Wesi by promoting, where possible, their active participation in mining. But this did not exempt Wesi Mining from other requirements. No Heritage Impact Assessment had been furnished and, further, mining in a protected site, the judge pointed out, 'is prohibited by law'. It was ordered that because of non-compliance, the

DMR decision to issue a mining permit was set aside. SAHRA had provided no reason for the lifting of the cease-works order, which had followed within 24 hours of a prompting from DMR, and hence this decision was also set aside.

Leave to appeal the 2019 judgment by Wesi Mining was initially dismissed in 2020, but then granted by the Supreme Court of Appeal to be heard in May 2023. Brought before a full bench, reserved judgment handed down in July dismissed the appellants' case yet again.

### Concepts and terminology

In a rhetorical introduction to the July 2023 ruling, Judges C J van der Westhuizen, P Mabuse and H Kooverjie asked what the difference was between a



*Fig. 4: Mining outside the declared site at Canteen Kopje (refer to area 'A') took place from 1998-9 in the areas marked 'B'. Permits were suspended when mining encroached through the 10 m buffer around the declared site. The mining licence issued by the DMR in 2014 covered areas 'C' and 'D', while the polygon 'E' in the middle of the declared site is where illegal mining took place in 2016.*

miner and an archaeologist since 'both dig for booty', both use a 'pick and shovel in some or other form'. Yet logic dictated that they could not overlap, their aims differing 'to a large extent'.

It is true that an historically ambiguous relationship has sometimes existed between mining and archaeology. At Canteen Kopje mining had brought the site to notice at the start, yet mining's destructive threats had led to its conservation in 1948. Perhaps some of the early collectors scrambled after handaxes as prize specimens but this not at all characterises archaeology today.

The popular stereotype of archaeology being principally about digging or excavation, couched in often obsessive quest-narratives, is a misrepresentation. It ignores archaeology's research and interpretative objectives, its goals of managing and conserving heritage resources and, in fact, of minimising excavation, indeed often of *not* digging.

Concepts and terminology matter. And the way our discipline is projected 'out there' has consequences.

Thus, at a public meeting in Barkly West, archaeology, seen as a form of resource exploitation by outsiders, was perceived as an obstacle to local economic freedom (see also Deacon 2020). Yet there is little to suggest that diamond mining at Canteen Kopje – a site that was substantially worked out in the early 20th century – would be of particular local economic benefit. Whereas the heritage is a resource of potential long-term educational and tourism benefit, alluvial digging in the wider district has generated little more than levelled lunar landscapes and communities still living at the margins, physically and figuratively.

Advocating archaeological activism in the present, Larry Zimmerman et al. (2010) argue that archaeology can speak to these kinds of current issues. What are the material realities at Barkly West today? What are the benefits derived from mining in the gravels where yields are hard to predict and community diggers often live at or below the poverty line (Terlien & Miller 2000)? Road-side sellers of bags of river-rounded stones, by-products of alluvial diamond diggings that are sold on at profit in cities for the decoration of suburban gardens, suggest limited opportunities for mining-related economic activity for a majority in settlements dotted along the river.

### Role of the Archaeological Society

A critical role for the South African Archaeological Society is to communicate about our field, making clear the objectives and methods of archaeology as well as its findings. This is not a new observation but one prompted again by the recent events at Canteen Kopje.

The Trans-!Garib branch of ArchSoc hosted an open day at the site in the aftermath of mining in 2016, attracting both members of the society and interested persons from Barkly West and Kimberley. The outing helped to indicate how mining could destroy important heritage and why conservation, management and the development of public outreach must be of paramount concern.

The question of relevance is an important and difficult one. Drawing on Geoff Bailey's (2007) conception of a 'durational present', one might think of projecting an understanding not so much of 'deep pasts', whose relevance may be remote for many people, but of framing it in terms of giving 'depth to the present'. Bailey addresses how a deeper sense of the present (including an appreciation of past processes and consequences) helps us to see how things have come to be as they are today, and by extension how present actions and behaviours might impact on the future.

Ultimately, ArchSoc needs to help cultivate an ethics of care that is relevant to local situations and the often fragile traces of pasts of which we are the inheritors.

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## ARCHAEOLOGY IN AFRICA

### DNA confirms origin story of the Swahili people

Analysis of medieval DNA has revealed that around the turn of the first millennium, Swahili ancestors from Africa and Asia began intermingling, giving rise to a Swahili civilization with a multiracial identity, at least among its elites. The discovery matches local stories passed down through generations that were previously dismissed as myth by outside researchers. Members of the medieval and early modern Swahili culture shared the Kiswahili language and largely practiced the religion of Islam. The research, published in *Nature*, sheds light on how this culture formed.

The research team, made up of 44 scholars, including 17 from Africa, worked with locals to excavate cemeteries along the Swahili coast. They gathered DNA samples from 80 people who lived between 1250 to 1800 and compared that data with saliva samples from modern-day coastal Swahili-speaking people, as well as individuals living in the Middle East, Africa and other areas of the world. About half of the DNA from the medieval individuals came from African women, while the other half primarily came

from Asian men. Of the Asian DNA, about 80 per cent to 90 per cent revealed Persian ancestry, while about 10 per cent was linked to India. The genetic material from modern-day individuals supported this ancestry.

The traditional Swahili society is strongly matriarchal and because of this, medieval children retained their language and culture, while certain outside influences like architecture, fashion and art were absorbed into their predominantly African traditions. Essentially, the paper reveals a timeline of intermarriage that matches a narrative told by the Swahili people called the Kilwa Chronicle, which tells a story of mixed Asian and African ancestry, suggesting that an influx of Persian sultans helped give rise to the Swahili culture.

In addition to the DNA analyses, the team consulted oral traditions, used systematic surveys and excavated material. Still, the research has a notable caveat: the team only took samples from people buried in elite Muslim cemeteries that may not be representative of everyday citizens in the Swahili civilization.

31 March 2023

### *The Cape Gallery, 60 Church Street, Cape Town*

*seeks to expose fine art that  
is rooted in the South African  
tradition: work which carries  
the unique cultural stamp  
of our continent.*

*Rotating exhibitions add to the  
diverse and often eclectic mix of  
work on show.*

#### THE CAPE GALLERY



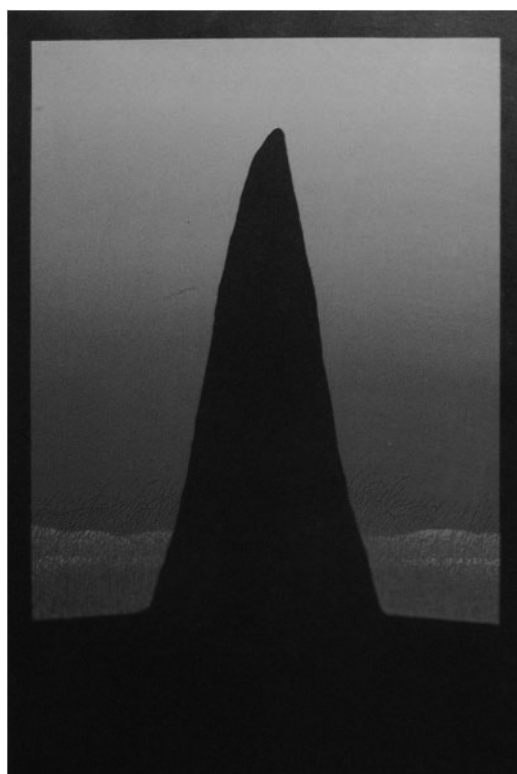
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### *Untitled AP 1979*

*by Jules van der  
Vijver*

*Media: Serigraph*

*51 cm x 37 cm*

*This artwork features in 'Talk, Talk', the Cape Gallery's exhibition for the national elections of 29 May. It aims to solicit empathy for the current conditions in the diverse communities to accommodate in part the independent vision of individual artists who could influence the way South Africans perceive themselves in the future. Van der Vijver's artwork could be considering 'The Soul of the White Ant' by Eugene Marais.*

## CONTRASTING MEMOIRS: FROM MELANESIA TO THE KALAHARI

JD Lewis-Williams

Today the ethnography of small-scale societies, long a staple in social anthropology, is almost a thing of the past. But not entirely.

In 2023 many who are interested in southern Africa's past and present welcomed the publication of Megan Bieseles long-awaited memoir *Once Upon a Time is Now*. The contrast between it and an earlier 'memoir', the field diaries of the famous anthropologist Bronislaw Malinowski, is striking. Both writers set about their tasks in similar ways and produced comparable

results – accounts of the people's life-ways and beliefs. But the differences between the two writers tell us much about the ways in which we think about the past, how it transformed into what we see as the present and how we relate to people of different cultures.

When I was a student at the University of Cape Town in 1952, our Social Anthropology I class was taught in part by Prof. Monica Wilson. Some years before her time at UCT, she had attended seminars that were conducted by Malinowski himself at the London School of Economics (LSE). It was he, we learned, who led anthropology from the armchair to the people themselves in the field. High on his list of essentials for an anthropologist was learning the language of the people being studied and living for extended periods with them. This way of doing research became known as participant observation and became *de rigueur* for budding anthropologists. But Malinowski did not invent and practise it by choice.

The outbreak of World War I caused him to be marooned in Australia. At that time, he held a post at LSE and was studying the Australian Aboriginal people, largely via early ethnographic records. Coming from a part of Poland that was associated



Megan Bieseles interviewing people about the Jul'hoan healing dance, /Kae/kae, Botswana, 1972 (Oma !Oma for the Kalahari Peoples Fund)

with the German side in the war, he was deemed an alien in the United Kingdom and could not return. More importantly than being in Australia, as it turned out, he moved to the remote Trobriand Islands of the south-western Pacific. There he lived with the people, learned their language and eventually wrote the seminal anthropological work *Argonauts of the Western Pacific* (1922).

It was this book, recommended by Professor Wilson, that opened our student eyes to the complexity of thought and ritual that went into the making of the large canoes that the Trobriand people used to travel between their scattered islands and thus maintain complicated exchange systems. Malinowski found that what may appear to an outsider to be a straightforward practical task, like building a canoe, was in fact steeped in ritual and symbolism. We students came to see that apparently simple people are not at all 'simple'.

Then, in 1967, Malinowski's widow Valetta dropped a bombshell on the academic world (he had died suddenly in 1942): she published her late husband's personal field diaries. Admirers of his work were stunned. The picture that the world had cultivated of him living quietly in his tent in amiable harmony with the Trobriand Islanders was shattered. Should his widow have revealed intimate details of his life and thoughts? In her introduction, she says she wrestled with this dilemma. But the damage was done. It now

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*Megan Biesele and Ju|'hoansi listening to recorded healing dance music, 1971 (Oma !Oma for Kalahari Peoples Fund)*

appears that, contrary to the image we had formed of him, he heartily disliked much about the people with whom he was living. In his Introduction to a second edition of the diaries, the anthropologist Raymond Firth (1989: xvi) writes: 'Few perhaps except those as highly strung as Malinowski have cursed the people they were studying as heartily as he did. ... Other passages again may even nowadays offend or shock the reader, and some readers may be impressed as much by the revelation of elements of brutality, even degradation, which the record shows on occasion.'

This is where the contrast comes in. Following the rules of study laid down by Malinowski, Megan, a Harvard student, went to live with the Kalahari San. That was in 1970, and the group with whom she lived is the Ju|'hoansi, formerly – and more famously – known as the !Kung. She was part of the Harvard Kalahari Research Group that made the Ju|'hoansi arguably the best known and most studied hunter-gatherers in the world.

Her new memoir stands in strong contrast to Malinowski's diaries. True, it shows that it was no easy matter to get to know and be accepted by the Ju|'hoansi. Language was, as Malinowski found, a barrier. But as Megan persevered and learned the Ju|'hoan language, so different from her own English, she became more and more accepted by the people. She shared in their daily lives and rituals and recorded their myths. Unlike Malinowski, she came to love them and to care deeply about them and their fate in the modern world. It is all too easy for an anthropologist to live amongst a people, return home, write a PhD thesis and then pursue an academic career.

Megan was different. She and others founded the Kalahari People's Fund ([www.kalaharipeoples.org](http://www.kalaharipeoples.org)). She was its director until last year, when she handed the task over to her successor, Dr Jill Brown. Today,

the KPF supports the rights of San communities for health, education, livelihoods, land and language, and runs a number of social and educational projects. These include providing the Ju|'hoansi with curriculum materials in the Ju|'hoan language for the first three years of literate schooling, a bridge to the national school system of Namibia, which after Independence shifted from Afrikaans to English. Another KPF project supports borehole drilling, so that water and land rights can be established.

It was while working with Megan in the Kalahari in 1975 that I began to see that there were parallels between what we were hearing from the Ju|'hoansi and what we had both found in the Bleek and Lloyd Collection that was compiled in the 1870s from the southern !Xam people. The languages and the environments of the two groups were different but, contrary to our expectations, we found striking parallels in beliefs and rituals.

Most significantly, Megan's work differs from that of the numerous other excellent ethnographers who have worked in the Kalahari in that she is fluent in the Ju|'hoan language. Most anthropologists do not get much beyond greetings and a number of words. By contrast, she can, as I have seen, converse in relaxed and often jocular discourse with the Ju|'hoansi. In this way, she has been able to explore the San's love of wordplay and how a myth can unexpectedly segue into another tale. For Westerners who like things to be clear and precise, the San world is elusive.

Megan's earlier book *Women Like Meat: The folklore and foraging ideology of the Kalahari Ju|'hoan* (1993) sets out many of her insights and findings. Her new and engaging memoir tells us how her remarkable, indeed unique, achievements were accomplished. Here we see how a bridge can be built between the past and the present. In the phrasing of her title, once upon a time is now.

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# THE PEOPLE WHO MADE MAJOR BEQUESTS TO THE SA ARCHAEOLOGY SOCIETY

Tim Maggs and Patricia Groenewald

Over the years ArchSoc has benefitted greatly from several large bequests that have enabled the society to carry out its functions more effectively. Each of these bequests has been administered in a fund named after the benefactor, hence the Herman, Inskeep, Kent and Ward Funds that appear in our annual financial statements. At a recent Council meeting it was pointed out that many people would not know who these people were, nor what the specific functions are of each fund, so we decided to make this compilation.

## Gerhard H Herman

Oldest of the funds is the Herman bequest. Gerhard Herman, a Cape Townian, was a founder member of the Society and a keen amateur archaeologist who worked for the Public Works Department. Back in those days, when the surface collecting of archaeological specimens was permitted, he made substantial contributions to the South African Museum under Director Dr Peringuey's direction, visiting sites, especially shell middens, around the Cape Peninsula and further afield. He maintained a close interest in the Society until his death in 1949. His obituary appeared in the *South African Archaeological Bulletin* 4(14): 62).

To the Society he bequeathed a fine antique Cape bookcase full of Africana books which, along with the rest of the Society's library, was housed at the South African Museum. During the 1990s Council learnt that this collection saw very little use and therefore decided to sell the bookcase and its contents. The money thus raised was invested in the Herman Fund and has grown considerably over the years. The purpose of this fund is to support the general expenses of the society where needed. It therefore acts as a cushion against financial difficulties.

## Dr Leslie E Kent

Leslie Kent grew up in Pietermaritzburg, obtaining his undergraduate education at the Natal University and Rhodes University Colleges. He was a wellknown geologist in South Africa, working at the Geological Survey from 1936 until his



retirement in 1976. He is especially remembered for his work on mapping the geology of South Africa and on hot springs. He was a Fellow of the Royal Society of South Africa, a Fellow of the Geological Society of London, a member of the Geological Society of South Africa (the GSSA, where he served on the Council from 1955 to 1974 and as president in 1965) and a member of ArchSoc. His interest in and desire to promote research in the geology and archaeology of South Africa is evident from his bequests to both the GSSA and ArchSoc in 1992. The purpose of his bequests in both cases was to finance field work or expeditions; to fund research according to guidelines laid down by the societies; to publish or help publish the results of research; and, for the GSSA, to award prizes for research.

The funds from his bequest have been added to those of Valerie Ward to increase the size of grants that the society is able to make in support of archaeological research, hence the title Kent and Ward Fund. His obituary appeared in the *Transactions of the Royal Society of South Africa* 49(2): 259–260.

## Valerie F Ward

Val Ward grew up in Durban where she qualified as a medical technologist. She travelled widely and became intensely interested in archaeology during her residence in Hong Kong, where she joined the amateur society in their excavation programme.



Returning to Natal, she became energetically involved in local activities. She was a stalwart member of the Natal Branch of the Society, serving on its committee for many years. Her association with the Archaeology Department of the Natal Museum was also a long and fruitful one. Starting as a volunteer, her skills and energy were quickly appreciated, and she was employed by the museum from 1978 until her retirement in 1995. Actually, she never really retired but remained involved in museum and other archaeological matters until her death in 2016. She made major contributions to the archaeological productivity of the museum through excavations, rock art recording, photography, drawing, writing, editing and the general preparation of material

for publication. She also revolutionised curatorial and archival systems. The funds from her bequest have been added to those of Dr Kent to increase the size of grants the society is able to make in support of archaeological research, hence the title Kent and Ward Fund. Her obituary appeared in the *South African Archaeological Bulletin* 71(204): 189.

### Professor Raymond R Inskeep

After wartime military service and several years of teaching, Ray Inskeep studied and went on to teach archaeology at Cambridge. His first involvement with African archaeology was at Livingstone, Zambia, where under Desmond Clark he started the first research project into Iron Age farmers in that country. The research was later continued by Brian Fagan, David Phillipson and others.



Following the death of John Goodwin, Ray was appointed in 1960 as Senior Lecturer in Ethnology and Archaeology at the School of African Studies, University of Cape Town. During his time at UCT, his contribution to South and indeed southern African

archaeology can hardly be exaggerated. Within a decade he had inspired a cohort of students who largely professionalised the practice of archaeology in South Africa. By 1969 he was appointed professor and head of the first fully fledged archaeology department at a South African university.

Apart from his success in expanding archaeology at UCT, he actively promoted the field widely in South Africa, resulting in new posts at universities and museums. He was a stalwart of the society and editor of the *Bulletin*. Networking widely with other researchers, he recognised the need for improved professional standards and communication. He was key to the establishment of both the Southern African Association of Archaeologists (now ASAPA) and the Southern African Society for Quaternary Research (SASQUA). Returning to the UK in 1972, he took up a post of Curator at the Pitt Rivers Museum, Oxford, and later became a university lecturer in prehistoric archaeology. He retired in 1993 and died in 2003. His widow, Adi Inskeep, wishing to commemorate his contribution to African archaeology, particularly his teaching, made a generous donation to the society. The function of the RR Inskeep Fund is to provide support for prizes to outstanding student presentations at the biennial ASAPA conferences. His life was commemorated in the *Festschrift*, *South African Archaeological Bulletin* 48(158): 63–118, and his obituary appeared in the *South African Archaeological Bulletin* 58(178): 100–102.

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## WORLD ARCHAEOLOGY

### DNA study reveals a mysterious human ancestor

A new method for analysing modern and archaic human DNA has thrown up some fascinating results. It appears that Homo Sapiens mated early and frequently with an archaic ancestor, an extinct hominin species. Moreover, evidence has been found that the DNA of this ancestor is still part of our modern human genetic inheritance.

Scientists from leading American universities embarked upon an ambitious plan to map the flow of genes between different species of hominids. A new algorithm, known as ARGweaver-D, was created to allow researchers to develop a model of the lineages of early humans. Adam Siepel said that they were trying to build a complete model for the evolutionary history of every segment of the genome, jointly across all the analysed individuals. Researchers compared the genomes of two Neanderthals, a species that died out about 30 000 years ago, a Denisovan from a species that is only known through its DNA, and two modern Africans, whose samples were selected because they are known not to have Neanderthal nor

Denisovan genes.

Based on the ground-breaking algorithm, the researchers were able to develop an ancestral recombination graph, which included a tree that captures the relationships among all individuals at every position along the genome, and the recombination events that cause those trees to change from one position to the next. The team was able to build up a picture of the extensive interbreeding between different species of hominids and gain insights even into their migration patterns.

The researchers wrote in PLOS Genetics that they estimated that the gene flow occurred between 200 000 or 300 000 years ago. Although research had already shown that modern humans, Denisovans and Neanderthals interbred in the ancient past, the new algorithm enabled it to be shown that this interbreeding occurred much earlier than once believed. It seems likely that anatomically modern humans left Africa and migrated to Eurasia in an early wave and mated with Neanderthals before they returned to Africa or died out.

*Ed Whelan, Ancient Origins, 07/08/2020*



# PALAEOSPECTROSCOPY, SIGMA TAXONOMY AND LINEAGES IN THE CONTEXT OF HOMININ EVOLUTION: IS HOMO HABILIS AN AUSTRALOPITHECINE?

Francis Thackeray

An article by Davies et al. (2024) has recently been published in the highly respected journal *Nature*, demonstrating from studies of the enamel-dentine junction (EDJ) in hominin teeth that certain East African specimens attributed to *Homo habilis* (about 1,8 million years old) have affinities with *Australopithecus*, a genus first described by Dart (1925) on the basis of a skull from Taung in South Africa, estimated to be 2,58 million years old (Thackeray 2023). In the years since 1964, when Louis Leakey, Phillip Tobias and John Napier first described *H habilis* on the basis of hominin fossils from Olduvai Gorge in Tanzania (Leakey et al. 1964), there has been a question as to whether fossils such as OH 7 (the type specimen of *H habilis*) could be better placed in *Australopithecus*.

Sixty years ago, the South African palaeoanthropologist John Robinson (1965) thought that OH 7 might represent an australopithecine to the extent that it could instead be regarded as *A africanus*. However, he went on to consider the possible existence of *H africanus*, applicable even to fossils such as Mrs Ples from Sterkfontein! He had arguments with Phillip Tobias in the pages of *Nature*. The late Bob Brain (a 'gentleman scientist') told me that the two were not on speaking terms, even when he tried to mediate between them at a meeting he had arranged for them at the Transvaal Museum (now the Ditsong National Museum of Natural History). They sat for an hour glaring at each other in silence in the hominin fossil chamber.

A partial skull from Sterkfontein (StW 53) was described as a South African representative of *H. habilis* (Hughes and Tobias 1977) but this specimen has subsequently been regarded by Clarke (2008) as *Australopithecus*. On the basis of studies of the EDJ of teeth, Zanolli et al. (2022) have indicated that specimens attributed to Early *Homo* in South Africa

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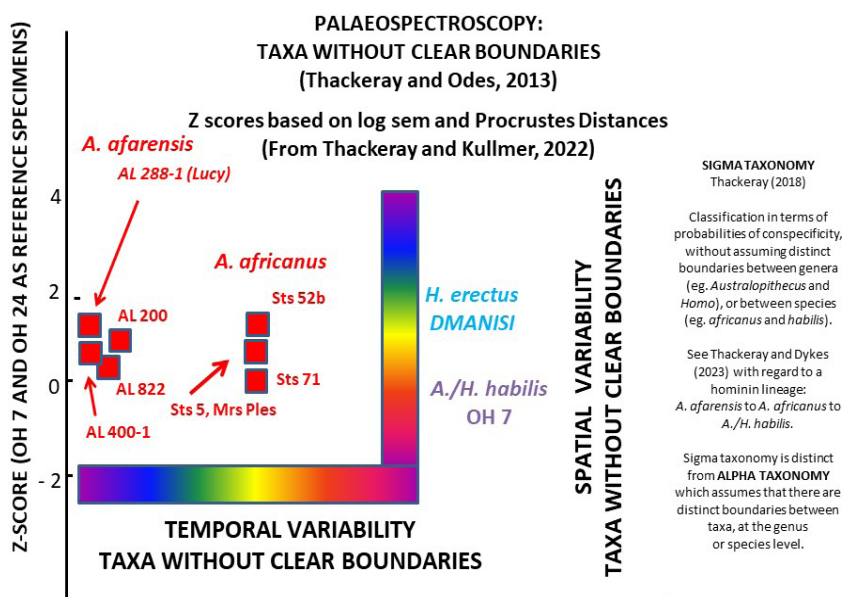


Fig. 1: A schematic graph to visualise the concepts of palaeospectroscopy and sigma taxonomy in the context of Plio-Pleistocene hominins from South Africa and East Africa. Based on Thackeray and Kullmer (2022).

are rarer than previously thought.

Tobias (1991) described the Olduvai hominin fossils at length. Similarly, in great detail, Bernard Wood (1991) described specimens of Early *Homo* from East Turkana in Kenya. But the conundrum about the nature of *H habilis* continues. Wood and Collard (1999) went so far as to suggest that specimens attributed to this taxon could instead be regarded as *Australopithecus habilis* (as opposed to Robinson's *Homo africanus*). Thackeray and Kullmer (2022) noted from statistical 'Z-scores' and 'Procrustes Distances' that certain Sterkfontein specimens representing *A. africanus* are morphometrically similar to Olduvai hominins representing Early *Homo*. The question arises as to whether a clear boundary exists between *Australopithecus* and *Homo*.

## Alpha and sigma taxonomy

'Alpha taxonomy' assumes clear boundaries between species. By contrast, 'palaeospectroscopy' is a term coined by Thackeray and Odes (2013a & b) that is related to 'sigma taxonomy' where sigma is  $\Sigma$ , the Greek letter S standing for a spectrum of variability through geographical space and evolutionary time. A definition of sigma taxonomy is 'The classification of taxa in terms of probabilities of conspecificity, without

assuming distinct boundaries between species' (Thackeray, 2018).

Fig. 1 might potentially help (conceptually) to address taxonomic challenges in specific cases where there are no clear boundaries between hominin taxa at the level of a genus (e.g. *Australopithecus* or *Homo*) or species (e.g. *habilis* or *africanus*). In general, as noted by Alfred Russel Wallace in the 19th century, there may often be 'fuzzy boundaries' between species. Indeed, hybridisation is more common than previously thought (Thackeray and Schrein 2017).

My view is that we need to assess hominin taxonomy in probabilistic terms (eg Thackeray 1997). One way to approach this is to use a 'log sem' statistic associated with the log of the standard error of the m-coefficient in equations of the form  $y=mx+c$  in regression analysis of measurements of pairs of specimens, using skulls or teeth as examples (Thackeray 2022; Thackeray and Dykes 2016). A mean log sem value of  $-1,61 \pm 0,1$  has been confirmed as a reflection of a typical degree of morphological variability within hominoid species, including *H sapiens*, *Pan troglodytes* (common chimpanzee), *Pan paniscus* (bonobo), *Gorilla gorilla*, *A africanus*, *A afarensis*, *Paranthropus robustus* and *P boisei*. As such it constitutes a morphometric definition of a species applicable in palaeoanthropological contexts (Thackeray 2022) related to sigma taxonomy. Applied to hominins, it would seem that the degree of variability in particular fossils attributed to *A africanus* and *H habilis* is compatible with the view that they represent one species as part of a *transition* (Thackeray 2018).

### Chronospecies and lineages

I have suggested that the transition from *A africanus* to *H habilis* represents a chronospecies without a clear boundary (Thackeray 2015). Thackeray and Dykes (2023) questioned the existence of a lineage from *A afarensis* to *A africanus* to *H habilis*. Indeed, Martin et al. (2024) have recently emphasised the need for a 'lineage perspective on hominin taxonomy and evolution'. They refer to 'lineage segments' as if they are taxonomic units but at present it is unknown how these might be quantified morphometrically.

The ideas expressed in this article can be assessed in the context of dates for individual specimens (e.g. Thackeray 2023). They can also be considered in the context of morphometric analyses (e.g. Spoor et al. 2015; Davies et al. 2024; Thackeray and Odes 2013a & b; Thackeray and Dykes 2016 and 2023; Thackeray and Kullmer 2022, Zanolli et al. 2022), recognising 'fuzzy boundaries' (Thackeray and Schrein 2017) that relate to palaeospectroscopy and sigma taxonomy.

### Acknowledgements

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# ELEPHANTS IN THE ROCK PAINTINGS OF NORTH-EASTERN MPUMALANGA AND ESWATINI

Mduduzi Maseko, Simon Attwood and Jeremy Hollmann

Rock art research in Mpumalanga and eSwatini (Fig. 1) is relatively underdeveloped (but see Steyn 1994, 1995; Maggs 1995; Hampson et al. 2002; Smith and Zubieta 2007; Rowe 2009; Masson 2011; Forssmann and Louw 2018; Pearce et al. 2019; Maseko 2020; Attwood 2022). We report here on images of elephants and elephant-like creatures at seven rock art sites<sup>1</sup> in these regions. Using a thematic approach to describing the rock art, our findings suggest that there is potential for in-depth comparative studies on elephants in southern African rock art.

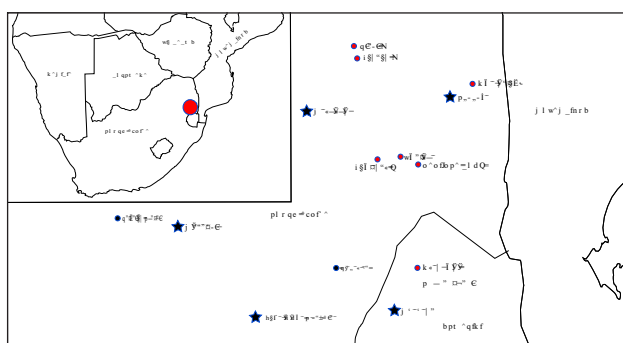


Fig. 1: The location of the study sites in southern Africa

Our fieldwork results suggest that elephant paintings are infrequent in Mpumalanga, occurring at eight (five of which we visited and three others of which we are aware) out of around 300 known sites. In eSwatini, Nsangwini Shelter is the only recorded site that depicts elephant. Despite this small number of sites in our sample, several themes are evident at the sites we describe here. These include: (i) disproportionately large elephants; (ii) elephants and people in explicit and implicit association; (iii) elephant behaviour/elephants as people; (iv) elephants and therianthropes; and (v) elephant-like creatures (images of elephant features

<sup>1</sup>Three sites in Mpumalanga with elephant paintings were not visited by the authors, namely Telperion, Zwelisha and another site near Tjakastad. The Telperion and Tjakastad sites are outside our study area but may be useful for future comparative studies. We were not successful in finding the Zwelisha site, the image of which was obtained from Conraad de Rosner's unpublished records.

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conflated with other beings). All these themes except one have been discussed in the southern African rock art literature on elephants (e.g. Garlake 1989; Yates et al. 1990; Eastwood 1999; Parkington and Paterson 2017; Thackeray 2019; Parkington and Alfors 2022). However, our findings suggest that recent explanations of elephant images in regions such as the Western Cape (e.g. Parkington and Paterson 2017; Paterson and Parkington 2016) may not apply to Mpumalanga and eSwatini.

## Disproportionately large elephants

Disproportionately large elephants are depicted at Treur 1 (RARI-RSA ERA1) (Fig. 2) and Nsangwini (Fig. 3a). Their forms are emphasised with a thick, dark-red outline. At both sites the elephants are larger than any other figures and animals depicted, beyond the natural difference in size. In both cases the form of the elephant becomes a surface or a landscape in which people and other creatures exist. This same way of depicting elephants is used in the rock art of Zimbabwe (see Garlake 1989). The largest elephant is at Treur 1 (Fig. 2) being 1 100 mm long from the tip of the tail to the tip of its trunk, whilst the largest elephant at Nsangwini is 730 mm long (Fig 3a). Treur 1 differs in that both elephants in the composition have been infilled with a cross-hatched pattern. At Nsangwini, a local guide repainted both elephant outlines with a thick, rough line; earlier photographs of the site show a fainter outline with more nuance and features (lips, tusk cavities, etc.) (Masson 2011).

It is worth noting that a large, rough and yellow-outlined elephant is painted at Telperion Shelter, on the western boundary of Mpumalanga (see Forssman

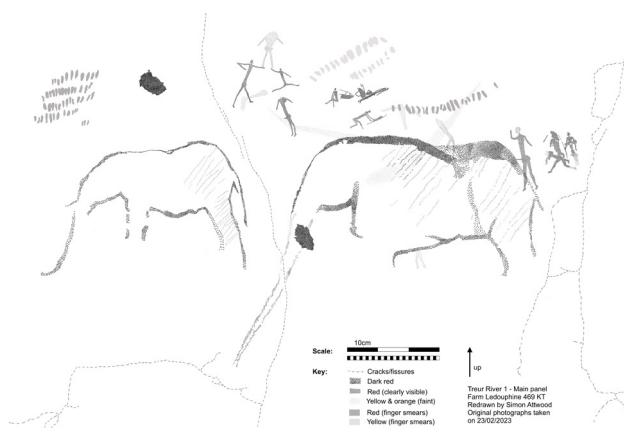


Fig. 2: Treur 1 (RARI-RSA ERA1): redrawing of the main panel, digitally traced by Simon Attwood

and Louw 2018). At the time of writing, none of the authors had visited the site, but illustrations in Forssman and Louw (2018: 195) show that finger smears and dots also occur at the site. Elephants and finger smears/dots co-occur at Treur 1 (Fig. 2), while at two other sites in the study area elephant paintings occur within 400 m of sites with finger smears/dots. Both elephants and finger dots are uncommon in north-eastern Mpumalanga and northern eSwatini.

### Elephants and people

People touching elephants is a motif that we see at two sites (Nwatindlopfu and Lowlands) in the study area (Figs 4a and 4b). Human figures are also painted over the large elephants at Nsangwini (Fig. 3a) and Treur 1 (Fig. 2), which could be interpreted as deliberate human-animal association (like touching) by the painters. Such interactions evoke ethnographic accounts of game control or 'taming magic' and people-animal ontological relations (e.g. McGranaghan and Challis 2016; Parkington and Alfors 2022). Human-animal relationships are commonly depicted in southern African rock art; we see this further north in Zimbabwe, for example. To the south, in the Maloti-Drakensberg, paintings of people touching eland and other antelope are also common (see McGranaghan and Challis 2016 for a discussion). McGranaghan and Challis argue that images of people touching eland may reference the relationship between ritual specialists and non-human entities (in this case, eland). In the case of Mpumalanga, the human figures touching elephant may be sorcerers imbued with the power to tame elephant.

At Lowlands (Fig. 4a), a disproportionately tall figure walks amongst the elephants as if leading them into the gap in the boulders to the left of the panel. At Nwatindlopfu (Fig. 4b) the only animals depicted are elephants with a single human figure interacting directly with the lead elephant on the left of the panel. This elephant stretches its trunk forwards while its front legs lean inwards under the belly. The human figure standing directly behind it has an arm stretched

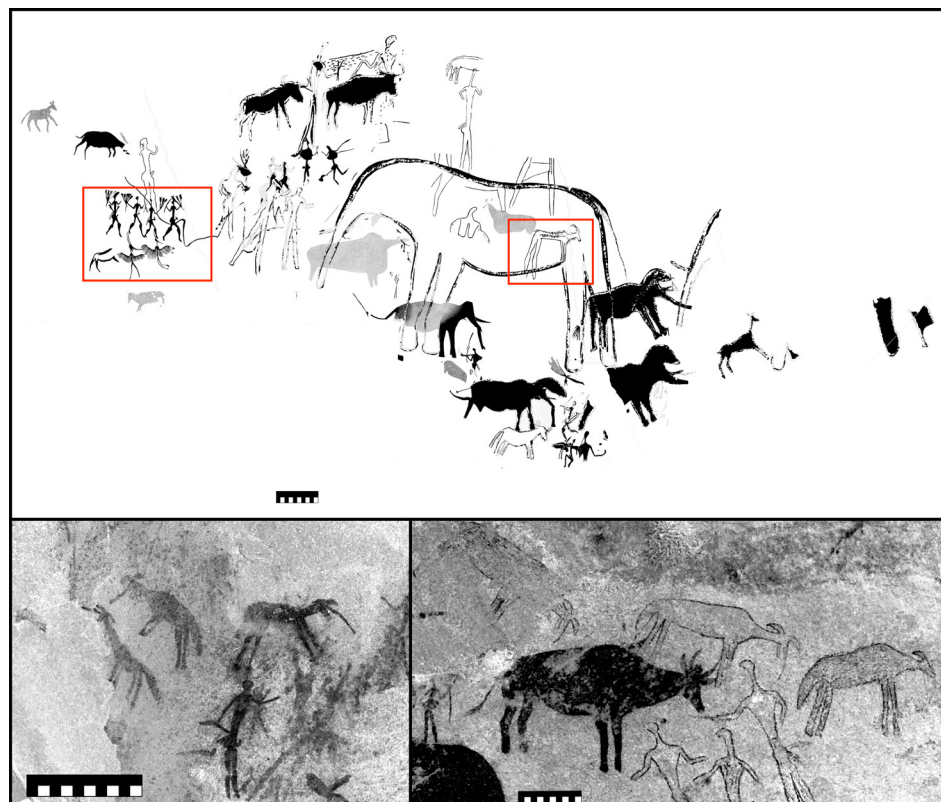


Fig. 3a: Nsangwini main panel. Note the therianthrope in the rear belly of the largest elephant and the winged figures at the left edge of the panel. Tracing by Sam Challis, courtesy of the Rock Art Research Institute Archives. Fig. 3b and 3c: photographs of the elephant-fat-tailed-sheep conflated figures. D-Stretch enhanced photographs by Simon Attwood.

out to grasp/touch the tail of the elephant. The other four visible elephants in the panel are facing in the same direction as the lead elephant and human and are following this pair (Fig. 5).

At Treur 1 (Fig. 2), a group of male human figures with quivers are depicted above the dorsal crest of the largest elephant. Other figures walk into and out of the elephant's body and appear to be using its outline as a ground upon which to walk. The dorsal line is also thicker than the rest of the animal's outline (see Eastwood 1999 for an interpretation of the dorsal line in northern South Africa and southern Zimbabwe rock art). Human figures also appear as part of the panel at Nsangwini (Fig. 3a), Makhomane (RARI-RSA BOG4) (Fig. 8b), London 1 (Fig. 8a) and Telperion but do not seem to be interacting directly with the elephant figures.

### Elephant behaviour/elephants as people

Touching is important communication behaviour between elephants, with mothers grasping the tails of calves with their trunks to guide them. Trunk touching is also used in greetings, while a trunk extension toward an approaching elephant signifies the intent to greet it (Estes 1991: 262). Fear and agitation are prevalent in scenes where people interact with the elephants. At Zwelisha, an elephant is painted in profile, standing

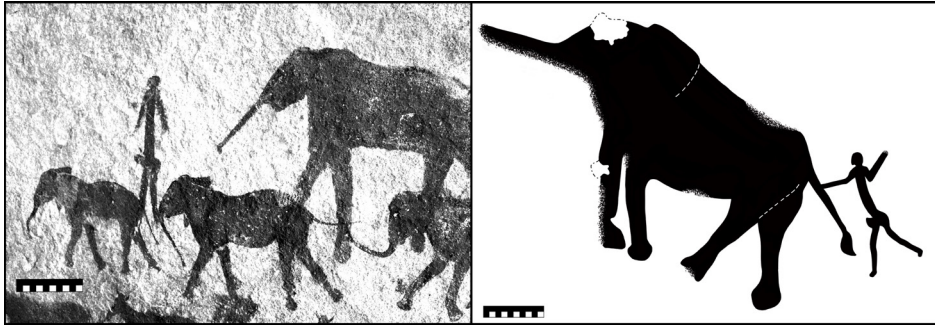


Fig. 4a: Detail of human amongst elephants at Lowlands 4. Photograph by Simon Attwood, enhanced with D-Stretch. Fig. 4b: Lead elephant and human at Nwatindlopfu 1 (RARI -RSA BOG4). Redrawn by H Frances Munro from photograph by Jeremy Hollmann.

tall, with its head lifted and trunk dangling (Fig. 6). This posture is assumed by elephants to display their size and tusks to scare off predators and adversaries. Such agonistic behaviour is also displayed in the elephant images at Nwatindlopfu (Fig. 4b) and Lowlands (Fig. 4a).

Various other behaviours are displayed in the paintings of elephants in northern eSwatini and northeastern Mpumalanga. At Nwatindlopfu both lead elephants have slightly raised tails (Fig. 5). At Lowlands, the behaviour of the elephants can be interpreted as aggressive (a group charge), although when looking at the centre cow it seems more likely a display of panic and fear (Fig. 7). The cow is running with an erect tail, lifted head and folded back ears that more closely resembles the behaviour of an agitated or fleeing animal (Estes 1991: 263).

Non-agitated behaviours (with heads lowered, trunks loose and tails hanging) are also depicted at London 1 (Fig. 8a), Makhomane (Fig. 8b), Nsangwini (Fig. 3a), Treur 1 (Fig. 2) and Nwatindlopfu (Fig. 5). At the latter site, the clearly visible elephant at the bottom right of the panel has its trunk folded into its mouth, a behaviour that is most associated with foraging and drinking. On average, elephants sleep for four hours a day and spend 16 hours feeding (Estes 1991: 262). In some cases, an elephant will fold its trunk inwards to tusk-check if it feels unsure of the situation (Estes 1991: 263). The lead elephant with a human figure touching its tail is bending its front legs inwards and has an outstretched trunk (Fig. 4b). From

these observations, it is evident that the painters were acutely aware of elephant behaviours and purposefully depicted this in their paintings (see Paterson & Parkington 2016; Thackeray 2019 on rock art and elephant behaviour; and Hollmann 2005 on behavioural postures).

It seems that the portrayal of emotion and behaviour in elephants denotes

meaning; elephants display their feelings through their bodies in the same way that people display their emotions through body language. Elephants and people share traits that are uncommon amongst mammals. They are both social in nature, with elephants living in family groups of up to 24 individuals (Estes 1991: 260). Female elephants lead these groups and females live long past the age of reproduction as leadership and teaching are important for the success of the group (Estes 1991: 261). As is the case with humans, female lifespan after passing reproductive age is similarly long. Elephants use their trunks to manipulate their environments in complex ways, as people do with their hands.

### Therianthropes and elephants

Therianthropes, zoomorphic and hybrid figures all occur at Nsangwini but at none of the other rock art sites we visited during this study. On the main Nsangwini panel a bovid-human therianthrope (possibly a sable/roan head) is painted bending forward in the rear belly of the largest elephant (Fig.



Fig. 5: Elephant herd (five visible elephants and possibly three others that are very faint) at Nwatindlopfu. Photograph by Simon Attwood, enhanced with D-Stretch.

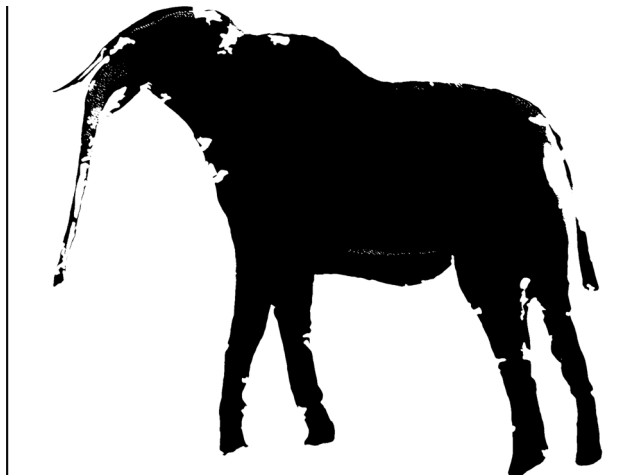


Fig. 6: Elephant standing tall at Zwelisha. Traced and redrawn by Conrad de Rosner.

3a). The torso of another zoomorphic human figure with wings has been painted over the shoulder area of the elephant. Therianthropes with wings and tusks occur to the left of the panel. Other winged figures are scattered on a separate panel below that of the elephants. To the immediate right of and slightly above the winged and tusked figures is an antelope-headed therianthrope, bending forward in an arms-back posture that is associated by researchers with shamanistic practices. It is also supported by Kalahari San ethnography as referring to the 'dying' of a shaman during the trance dance ritual (see Lewis-Williams et al. 2021: 45–46).

### Elephant-like creatures

We also observed some uncommon motifs, such as the elephant-like creatures at Nsangwini. These figures are disproportionately small for elephants when compared to the size of the other animal and human figures at the site. They bear elephant head features such as tusks, trunks and 'mop ears' (see

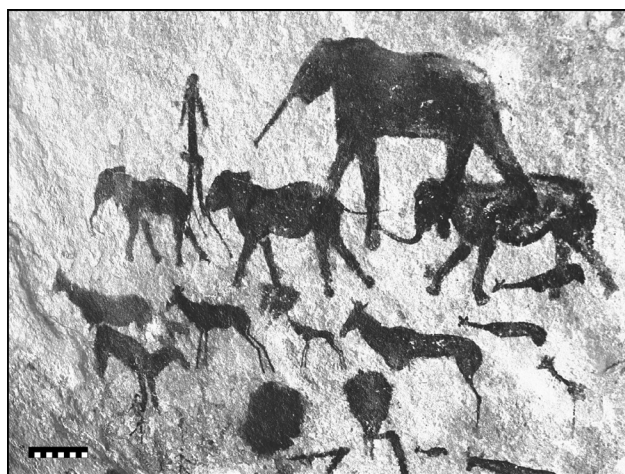


Fig. 7: Elephant herd: bull (top of panel) and three cows (below) at Lowlands 4. D-Stretch enhanced photograph by Simon Attwood.

Figs 3b and 3c). 'Mop ears' are depicted in some of Zimbabwe's elephant paintings (Garlake 1987: 57). Their bodies, on the other hand, resemble those of jackals or fat-tailed sheep with thick, bushy tails, narrow legs and a thin rectangular abdomen. The significance of these figures is unclear. There are three small, roughly 50 mm long, solid-red infill elephant-like creatures such as these painted on a small panel at the south-eastern side of the shelter (Fig. 3b). Another group of three is painted much

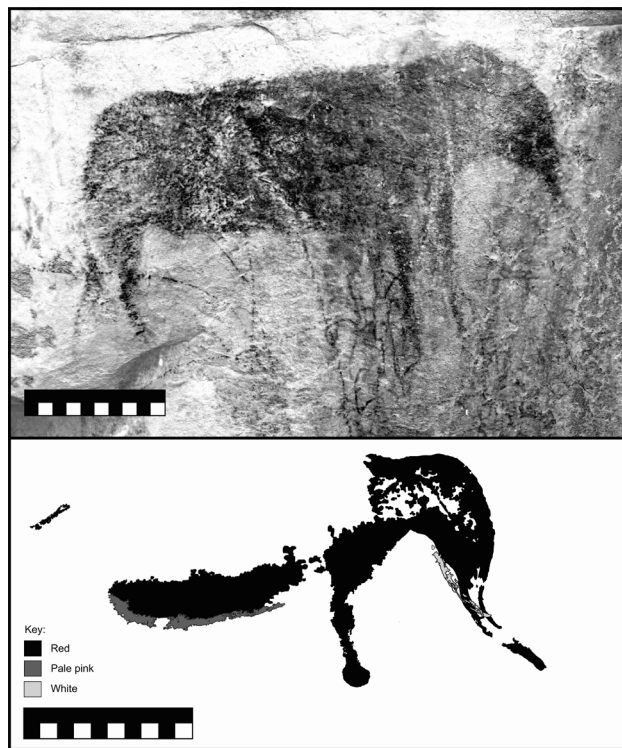


Fig. 8a (top): Elephant at London 1. Note that the condition of this painting and those at RARI RSA BOG4, Nwatindlopfu and Nsangwini mean that specific details such as trunks, tusks, feet, tails and body have become obscured, making it difficult to fully access the behaviours and associated meanings of the paintings. D-Stretch enhanced photograph by Simon Attwood.

Fig. 8b (foot): A relaxed elephant bull in bichrome at Makhomane (RARI-RSA BOG4), redrawn by Simon Attwood. Photograph courtesy of ARADA.

larger in red outline, each roughly 240 mm long. Their bodies are filled with red flecks over a white pigment infill that has oxidised to black. These are on the north-western side of the shelter above and to the right of the main elephant panel (Fig. 3c).

### Discussion and conclusion

With the themes we have focused on in this article we do not wish to suggest that elephant depictions in the rock paintings of north-eastern Mpumalanga and eSwatini are limited to these descriptions; other themes may be evident. Indeed, the themes we have discussed suggest that elephant paintings occur in diverse contexts and may reference several meanings.

We suggest that such meaning can be deduced from the ethnographic texts on San thought and beliefs (see Hollmann 2022 for /Xam ethnographic texts) and that any alternative explanations must be supported by evidence.

We believe that the images we have discussed here (and possibly others that are undiscovered) provide new insight on the way images of elephants are depicted and on the meaning behind such depictions to the people who made and viewed them. In this regard, comparative studies of different regions of southern Africa will certainly contribute to a larger perspective.

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## SOUTH AFRICAN ARCHAEOLOGY

### Little Foot clung closely to trees

A long-awaited, high-tech analysis of the upper body of the Little Foot fossil opened a window to a pivotal period when human ancestors diverged from apes, research has shown. Little Foot's shoulder assembly proved key to interpreting an early branch of the human evolutionary tree. Scientists at the Keck School of Medicine of the University of Southern California (USC) focused on its so-called pectoral girdle, which includes collarbones, shoulder blades and joints. Although other parts of Little Foot, especially its legs, show humanlike traits for upright walking, the shoulder components are clearly apelike, supporting arms surprisingly well suited for suspending from branches or shimmying up and down trees rather than throwing a projectile or dangling astride the torso.

The fossil provides the best evidence yet of how human ancestors used their arms more than 3 million years ago, said Kristian Carlson, lead author and

associate professor of clinical integrative anatomical sciences. 'Little Foot is the Rosetta stone for early human ancestors,' he said. 'When we compare the shoulder assembly with living humans and apes, it shows that Little Foot's shoulder was probably a good model of the shoulder of the common ancestor of humans and other African apes like chimpanzees and gorillas.'

The apelike characteristics will attract considerable intrigue as science teams around the world have been examining different parts of the skeleton to find clues to human origins. The USC-led study, which also involved researchers at the University of Wisconsin, the University of Liverpool and the University of the Witwatersrand, was published in the *Journal of Human Evolution*, which devoted a special issue to Little Foot analyses of a range of parts of the creature's skeleton.

The fossil is a rare specimen because it is a near-complete skeleton of an Australopithecus individual much older than most other human ancestors when it lived some 3.67 million years ago. While not as widely known as the Lucy skeleton, another Australopithecus unearthed in Ethiopia in the 1970s, Carlson said Little Foot is older and more complete. The research team zeroed in on the shoulder assemblies because Little

Foot provides the oldest and most intact example of this anatomy ever found. It used advanced CT scans and comparisons with humans, primates and other fossils to interpret Little Foot's shoulder bones.

Little Foot was adapted to living in trees because the pectoral girdle suggests a creature that climbed trees, hung below branches and used its hands overhead to support its weight. For example, the scapula or shoulder blade has a big, high ridge to attach heavy muscles similar to gorillas and chimpanzees. The shoulder joint, where the humerus connects, sits at an oblique angle, useful for stabilising the body and lessening tensile loads on shoulder ligaments when an ape hangs beneath branches.

The shoulder also has a sturdy, apelike reinforcing structure, the ventral bar. And the collarbone has a distinctive S-shaped curve commonly found in apes. Those conclusions mean that the structural similarities in the shoulder between humans and African apes are much more recent, and persisted much longer, than has been proposed, Carlson said. The scientists were able to achieve remarkably clear images of the fossils because the bones, painstakingly excavated for many years, are in good condition and uniquely complete.

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## 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.

The Society was founded in 1945 to promote archaeology through research, education and publication. It is a non-profit organization – Registration No. 024-893-NPO.

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