

FIGHTING AND FLEEING IN THE ARCHAEOLOGICAL RECORD OF THE SOUTHWESTERN CAPE

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Two events

Over the past few decades, among several projects, we have been involved either directly or peripherally in investigations at two small rock-shelter sites in the Western Cape either side of the Olifants River Valley and separated by only 50 km of fynbos landscape. This distance, we note, is less than the average distance between the birth-places of adult !Kung marriage partners, as recorded in the Kalahari by the 20th century ethnographer Harpending 1976: 161, and not far off the average of 40 km for hunter-gatherers given according to MacDonald and Hewlett 1999: 505.

These Olifants River Valley sites, one with and one without paintings, one without and one with depositional-occupation debris, are thus, in hunter-gatherer terms, not far apart. The painted site is known to archaeologists and locals as Veg 'n' Vlug (henceforward VV) or Fight and Flight in the Agter Pakhuis, while the domestic site (henceforward FK) is situated on a rocky ridge known historically and mapped as Faraoskop. It lies immediately west of Graafwater on the edge of the Sandveld (Fig. 1). In this article we indulge in speculation as regards the connections that might be drawn between the two. One of us (JP) has presented these ideas in

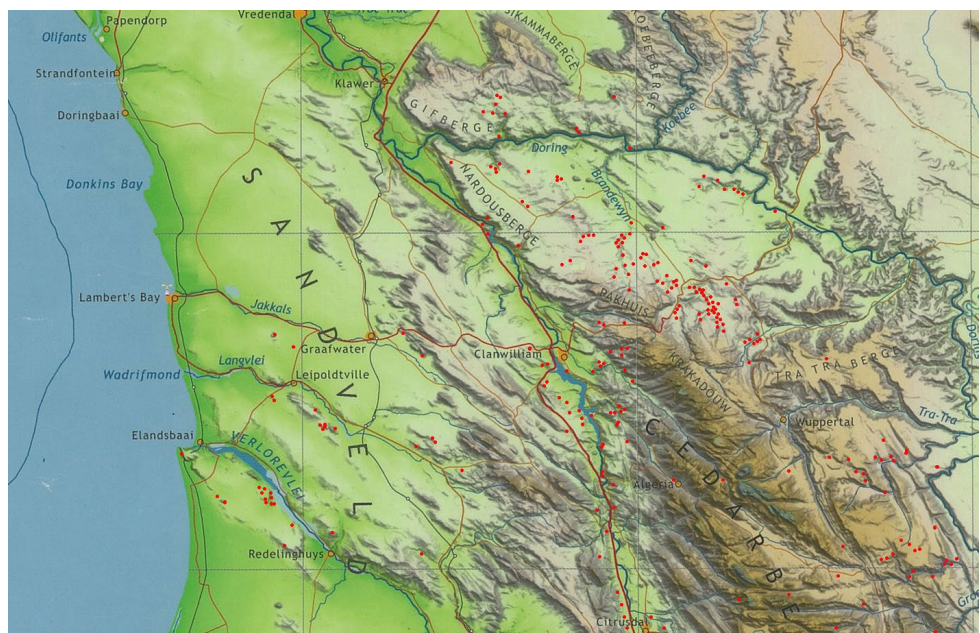


Fig. 1: Map of the region in which the Veg 'n' Vlug and Faraoskop rock paintings are situated

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Fig. 2: VV, central part of the imagery, showing the cave outlined to the right, white 'arrows of misfortune' clearly visible

lecture form for some time, the other (CP) started the speculation in a conversation some years ago. First, the painted site VV, frequently discussed and its meaning debated (Yates, Parkington and Manhire 1990: 52; Skotnes 1994: 322; Lewis-Williams and Dowson 1990: 7; Yates, Golson and Hall 1985; Johnson and Maggs 1979) lies in an extremely secluded location along the Brandewyn stream and is dominated by a set of images that appear distinctly interrelated and unconnected to other faint traces at the site. Imagery 'reflects' fighting and fleeing, organised within and around a small indentation in the low roof to which the painter has drawn attention by adding paint (Fig. 2). We read the indentation as 'cave'. Interpretations vary as to whether the painting represents a 'real' fight in a real 'scene', the position we take here, or whether the painter was driven by metaphor and visions (Lewis-Williams and Dowson 1990). We argue that the level of detail included makes it difficult not to acknowledge conflict between adversaries that are clearly distinguished by their positioning, their bodily depictions, their equipment and their painted intent. This painting has clear narrative form and content, whatever else was in the mind of the artist. Significantly, it is undated, although its clarity and the preservation of key white detail may suggest a relatively recent age. We return to this and other details later.

FK is no less remarkable. Disturbed in the late 1980s by the landowner's curiosity-driven unsystematic removal of near-surface human remains, it was formally excavated by Tony Manhire, Lita Webley and others in the late 1980s (Manhire 1993). Modest radiocarbon dating at the time revealed that the small cave, slightly larger with more living space than VV, was occupied episodically for 20 000 years, albeit that the depositional sequence was complex and difficult to reconstruct after a series of disturbances. The landowner's un-documented intervention is one of these, but the deposit is also riddled with mole-rat burrowing and is heavily impacted by a unique event that is particularly relevant to our objective here. Some 2 000 years ago, 12 bodies were dumped, apparently hastily as the remains are inextricably entangled, in what Manhire refers to as a 'burial hollow', resulting in a substantial disruption of the upper part of the stratigraphy. We reinvestigated this complex entanglement and have dated and analysed the persons that were apparently buried without accompanying care (Manhire 1993, Parkington et al. 2025). The increased number of near-identical radiocarbon dates, like the heavily entangled remains (Fig. 3), are best treated as a single event and one accompanied by and probably caused by a good deal of violence that left its mark as perimortem injuries on several individuals (Dlamini and Morris 2025).

Connecting archaeological observations

Conventionally, as readers will know, there is a tendency among archaeologists to assemble in sub-disciplines and report from these in more or less isolated silos. Our objective here is to draw attention to two sets of observations that have different manifestations yet may be complementary and mutually informative. We are not arguing that the one (VV) is an illustration of the other (FK), although we do support the idea that both relate to actual events and that there may be a common underlying historical context. We look at observations from VV and FK in terms of categories that may help to assess any connectivity or overarching interpretation. These are *conflict, weaponry and injuries, flight, identities and social context*.

Conflict: In our view, evidence for conflict is overwhelming in both cases. At VV, where we argue that the orientations and body stances are realistic and can safely be taken literally, drawn, red single-curved or self-bows are held ready for use by both the people inside as well as the people approaching the cave. There are also short, red-painted lines persuasively depicting arrows flying in both directions, although this is difficult to determine exactly in the absence of arrow detail. At least one human figure in the 'attacking' group menacingly holds a long red painted line, while another long red line is ambiguously placed between them and the 'defenders'; arguably these are the 'assegais' mentioned frequently in early colonial records. More difficult to imagine and even to see in some light conditions are about 15 white lines that all strike the bodies of the attackers in the central focus of the painting. These are all forked, we would say nocked, at the delivery end and carry small red dots of paint next to the nocked fork (Fig. 2). There has been debate about whether these are real arrows or the kinds of 'arrows of misfortune' that Kalahari San speak of (Deacon 1992; Biesele, pers. Comm. On a visit to the site in 1987). However, this question is resolved, these 'arrows' add to the conflictual tone of these images.

At FK, four of the adults interred have credible perimortem injuries to the skull or mandible, which

means that in at least these cases, but likely in all, conflict immediately preceded their interment (Dlamini and Morris 2025). Given the abundance of deep sand suitable for grave digging downslope from the cave and the steep slope up to the cave, it is hard to avoid the conclusion that the conflict took place inside this small cave, where victims were subsequently buried, with haste and without any grave goods. The excavation record indicates that the recovery of individuals separately was impossible, so great was the entanglement (Manhire 1993, and excavation notes) (Fig. 3). This points to a brief, violent conflict in which at least 12 casualties were interred together shortly afterwards.

Weaponry and injuries: In the painting at VV weaponry is depicted whereas at FK weaponry can only be presumed from the nature of the injuries on the surviving skeletal remains. The bows and arrows,



Fig. 3: FK site during excavations by Tony Manhire, with sequentially recovered individuals clearly entangled in a small area

the latter often poisoned for use in hunting among San people and here deployed from both within and without the cave, does not necessarily cause instant death and may of course leave little trace on skeletal parts. We have established from rock art surveys that violence between human individuals, always males, is far more common than between human and animal species: depictions of human violence are more common than those of hunting. The cranial damages on victims at FK were not probably inflicted by arrows but by hand-held or blunt, hand-thrown objects that caused bone fracture (Dlamini and Morris 2025), possibly wooden weapons. These might also have been the kinds of weapons wielded at VV. Although one elderly FK victim suffered a serious blow to the chin, most of the victims at that site,

including two young children, were killed in ways that cannot be detected, although the contemporaneity of their deaths is certain from the radiocarbon results (Parkington et al. 2025). The combined evidence at VV and FK then, points to the use of at least two kinds of weaponry, alongside intimate physical violence.

Flight: The organisation of the VV imagery, especially the figures to the right of and therefore 'behind' the demarcated cave, allows us to suggest safely the flight of individuals from the scene of the conflict. Although the pairs of parallel red lines along which each of the individuals flee appear suspiciously to be paths away from danger, this rather simple interpretation is rendered difficult by other very similar red lines elsewhere in the VV composition. In the central part the attackers appear to move toward the cave along a pair of parallel red lines, but these continue from the front figure into the bow and bowstring of one of those attacked and on to another individual inside the cave. This is not consistent with simple representation and must include clues, difficult for outsiders to interpret.

Adjacent to and within a few centimetres of this imagery is a set of figures that, whilst not connected physically to the conflict, is arguably contemporary with and related and crucial to the overall intention. Here there is a prone, clearly male, individual connected by another closely spaced pair of red parallel lines to a seated human figure, who appears to be reeling in the lines and can thus arguably be presumed dead. Notably, there is no pairing of red lines to separate, individual legs or feet. In the cases of lying or fleeing individuals both lines connect with a single foot, which discourages a literal interpretation of paths and bipedal foot movements. Despite this, it is difficult to avoid the compositional and attitudinal realities: four human figures, one possibly female, are moving away from the cave and the direction from which the attackers are approaching. This conveyed to the original recorders (Johnson, Rabinowitz and Sieff 1959; Johnson and Maggs 1979) and to us (Yates, Parkington and Manhire 1990) the notion of 'vlug' or flight, a neat contrast to the 'veg' or fight that can be attributed to the other figures.

At FK, of course, the flight is more conjectural than depicted. Of the 12 individuals identified 'there is not a single adolescent (15 to 20 years old), nor a pre-adolescent (7 to 14 years old) in the group' (Dlamini and Morris 2025:8). Although other interpretations cannot be excluded, a comparison with the age spectrum of Kalahari resident groups allows the speculation that those old enough, athletic enough and not likely to stay close to another, fled the scene and escaped. There are two children under the age of seven years, and seven of the nine adults whose age at death can reasonably be estimated are likely to be over 35; active young adults are under-represented. Although such negative evidence is fragile, the argument that

some fled this 'event' has some support.

Identities: The positing of identities, in the sense of different co-resident or neighbouring communities engaged in conflict, is dangerous but attractive. At VV the evidence is depictional, at FK genetic. In the generation of images of 'fight and flight' we can see several kinds of detail that indicate an interest on the part of the painter(s) in contrasting the attackers and the defenders, although authorities differ on what such differences may mean. Frequently mentioned by observers, the broad contrast between the 'normal' of the defenders and fleers and the 'grotesque' of the attackers is hard to miss. What this implies is that those defending the cave and those running away are shaped and drawn as are many other human figures of the region, whereas those attacking are given unusual (often termed grotesque) features of the head and body (including tusk- or horn-like attributes). This apparent but subtle contrast is repeated in that between the prone (normal, Fig. 4A) and reeling ('grotesque', Fig. 4C) figures, seemingly implying that the contrast is repeated across the event depicted. Although we omit some details here, we mean to imply an intentional depiction of difference.

There may be some support in the distribution of equipment across these contrasting human figures. The cave defenders predominantly use bows and arrows whereas the only clearly drawn and attributed assegai is wielded by an attacker. All white arrows (of misfortune?) with associated red-painted 'harm' strike attackers, whereas red arrows fly through the air without guarantee of hitting anything. (More arrows of misfortune, very hard to see, also strike an ambiguous figure attached to the head of the 'reeler' by single, joining lines). In relation to imagery flooded with unconstrained detail, we suggest that a normal group of people, stranded in their cave and in some cases running away from it (Fig. 4B), have been surprised by a different group that attacks them. Intentionally placed immediately adjacent to this and using the same or similar painting conventions, a single normal male person (Fig. 4A), likely deceased because of his orientation to parallel red lines, is shown being 'reeled in' by a seated 'grotesque'. From their bodily representations, their equipment and their association with a cave overhang, we have little hesitation in identifying the 'normals' as local hunting and gathering San. But who are the 'grotesques'? Different, yes, but spirits, the dead, imaginary enemies, creatures of another world? We speculate later.

Identities at FK depend on quite different arguments. Here we use the word 'inter' rather than 'bury' because we see from excavation field notes (Manhire nd.; Manhire 1993, quoted in Parkington et al. 2025) that individuals were not put into the ground separately or with any obvious rituals. We have

to start with interesting questions: how much time elapsed between death and interment, who interred the dead and who were inter? Although these are difficult questions, we suggest there are some likely answers. Those who fled returned to inter dead relatives, although depending on the time interval between death and interment, as well as other issues of identity recognition, distinctions between victims and perpetrators may have been extremely difficult to make. Genetics-based differences will undoubtedly emerge more clearly, if indeed they exist, as analyses move from predominantly mitochondrial to whole genome studies. Suffice it to say that one FK individual, an adult man identified as FK 1, UCT 385 (Morris et al. 2025: 11), belongs to the mitochondrial female lineage L0f and may be the only such individual in all measured living or archaeological people so far examined from southern Africa. All 11 others from FK, along with other excavated and analysed human remains from recent archaeological sites south of the Zambesi, belong to the L0d lineages.

Social context: In terms of the social context of the events, perhaps most potent are the radiocarbon dates we have and do not have for the FK and VV archives respectively, and the implications of their relationship to the formal features listed above. We took a great deal of care to date all FK individuals as the plausible contemporaneity of 12 entangled interments is a key part of our belief in a single FK event (Parkington et al. 2025). An even greater stimulus to that endeavour was the recognition that the shared age, about 2 000 years ago or a little before as demonstrated by Manhire (1993), implied a possible link to the earliest appearance of pastoralists, pastoralism and already domesticated sheep in the southwestern Cape (Coutou et al. 2021).

In the light of a very prolonged discussion among archaeologists as to the timing, mechanisms and impacts of the transition from a hunter-gatherer- dominated landscape into one where pastoralism was involved, we regard FK as an indication of a 'significant moment in the history of foraging in the Western Cape, South Africa' (Parkington et al. 2025). The L0f individual among the entangled FK remains is of particular importance as it reflects a signal in a male of a female mitochondrial lineage unknown in contemporary southern Africa



Fig. 4A: Presumed to be dead male at VV



Fig. 4B: A male fleeing the cave along a pair of parallel red lines



Fig. 4C: The grotesque figure reeling in the pair of parallel red lines connected to the dead male

but common in east Africa, the supposed source of a pastoralist incursion. Vicente and colleagues (2021: 1) claim that a 'male-biased migration from East Africa introduced pastoralism into southern Africa', noting that the most likely route, based on genetic and lactose tolerance observations as well as the earliest-dated sheep remains (Coutou et al. 2021) was through Namaqualand south toward the Cape.

Our colleagues (Morris et al. 2025) report that 'very little has been written about the L0f clade except to note that it is a deep basal branch divergence that is presently centred in Uganda and Tanzania (Rito et al. 2013) and has been identified in an ancient individual at Fingura in Malawi (Lipson et al. 2022). The presence of an L0f1 individual at Faraoskop is therefore certainly of interest and at face value raises the question of how this haplotype is present amongst a group of L0d individuals in South Africa. Rito et al. (2013) have looked at the modern distribution of L0f1 and note that it is found in some southern African Bantu speakers and when found in East Africa it is at the southern edge of the range for the haplotype. They suggest that L0f1 might actually have had a southern origin but that this has been lost in Khoesan populations due to drift'.

Matching speculation with speculation, we wonder whether the man who stands out, excuse the pun, among FK neighbours might not be a (then) recent arrival bringing with him traces of a mitochondrial clade that was not indigenous and was soon to disappear locally? However, this speculation has no effect on the overall conclusion that the FK event relates to conflict between hunter gatherers and sheep herders over access to 'owned' domestic stock in comparison to wild animals 'under custodianship'?

We do know that such hunter-gatherer groups, referred to as Soaqua by uninformed colonials, were regularly termed robbers by their pastoralist contemporaries. Summarising the evidence for perimortem interpersonal violence, Susan Pfeiffer has noted that 'all of these instances of interpersonal violence date from a narrow time period, with uncalibrated dates ranging from 2200 to 2600 BP' (Pfeiffer 2013: 145). This period may cause us to ponder about whether the Spoeg Rivier sheep was indeed 'the earliest' and whether violence resulting from conflicting values of ownership may not extend back further than our current thinking allows?

Could the VV event also be, we hesitate to say, an illustration of pastoralist/hunter-gatherer conflict? Could the 'grotesques' be pastoralists distorted by animosity? Could the white 'arrows of misfortune', solely aimed at and striking the 'grotesques', be illustrations of mental malice? Careful survey of early colonial documents on increasingly impacted local communities shows that the bow and arrow is clearly the weapon of choice associated with hunter-gatherer groups living without domestic stock, whereas those

mentioned as having stock are frequently associated with having assegais. This is a very strong correlation in early colonial literature, but this has not, to our knowledge, been statistically tested yet. We cannot and do not deny the unreal or currently obscure components of the VV imagery. Nor have we yet recovered the genetic potential of the FK people. No doubt too, the long search for an understanding of the context of pastoralist penetration into the Cape will continue on several fronts: genetic, linguistic and archaeological. Our guess is that the focus will shift toward the half millennium before 2000 BP when people with and people without domesticated animals came into contact, not always non-violently.

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DISCOVERY OF A 7 000-YEAR-OLD MULTI-COMPONENT ARROW POISON IN SOUTH AFRICA

Justin Bradfield

In 2024, a group of scientists from the University of Johannesburg discovered what is arguably the oldest multi-component arrow poison in the world – a complex recipe combining at least three toxic plant ingredients (Bradfield et al. 2024).

The poison was discovered inside a 7 000-year-old bovid femur (see figure) that was excavated from Kruger Cave in the western Magaliesberg in 1983 (Mason 1988). X-rays undertaken at the time had revealed that there were three modified bone arrowheads inserted into the marrow cavity. The femur had lain hidden in the University of the Witwatersrand Archaeology storerooms until 2022 when renewed archaeological investigations of the cave and its previously uncovered treasures brought it to light again.

Because the X-ray images taken in the 1980s were of relatively poor quality, we decided to re-image the femur using micro-CT. The results revealed that the sediment-like matrix filling the marrow cavity into which the arrowheads had been placed was foreign matter and not regular archaeological sediment. A small sample of the material was taken and its chemical constituents analysed using a dual approach combining gas chromatography and ultra-high-performance liquid chromatography tandem-mass spectrometry.

The chemistry results revealed the presence of two toxic cardiac glycosides (digitoxin and strophanthidin), both associated with hunting poisons, and ricinoleic acid, which can occur as a result of the oxidative breakdown of the toxic lectin ricin. These organic compounds, and others identified, do not occur in the same plants and thus indicate that several plant ingredients must have been combined to create this poisonous recipe.

Cognitive capacities

The ability to mix together complex recipes, whether for poison, adhesive or medicinal purposes, speaks directly to the cognitive capacities and traditional pharmacological knowledge of their makers (Wadley 2013). Neanderthals used complex recipes and production procedures 200 000 years ago to make glue (Mazza et al. 2006). In southern Africa, adhesives made with conifer resin, ochre and fat mixtures date to at least 60 000 years ago (Charrié-Duhaut



The bovid femur on the left with the digitally segmented microCT scan on the right showing the three bone arrowheads embedded in a clump of poisons, all of them all contained within the femur. Segmentation courtesy of Aliénor Duhamel.

et al. 2013). Knowledge of the medicinal properties of plants has a similar antiquity in southern Africa (Wadley et al. 2011), although the oldest confirmed medicine that combines more than one ingredient is only 500 years old (Bradfield et al. 2023).

The application of poison to weapons signals an evolutionary advancement in the development of hunting technology. Ethno-historical records demonstrate that in most parts of the world hunters relied on toxic compounds derived from plants and animals to increase the effectiveness of their weapons (Neuwinger 1996). In southern Africa, a great variety of plants and animals are known to have been used by different groups of hunters to tip their arrows. These poisons were often combined in complex recipes using a variety of preparatory procedures (Bradfield et al. 2015).

Oldest evidence for poison

The application of poison to hunting weapons is thought to have originated about 60 000 to 70 000

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years ago, concomitant with the invention of projectile technology in Africa (Lombard 2020). However, the evidence for poison at this period is tentative at best and is yet to be verified chemically. The earliest molecular evidence for poison comes from a 24 000-year-old wooden spatula at Border Cave where traces of ricinoleic acid were found (d'Errico et al. 2012). This example is, however, probably a single-component poison and not a complex recipe as is commonly seen in the ethno-historic period.

Putative arrow poison has been found on bone arrowheads reported at Kuumbi Cave, Zanzibar, from 13 000-year-old deposits (Langley et al. 2016), although no chemical or other scientific tests were undertaken to verify this interpretation. Similarly, the presence of Diodontidae dermal spines in contemporaneous deposits at Mindoro in the Philippines has been used to argue for the early processing of poisons, if not its active use in hunting (Boulanger et al. 2023).

Finally, poison from a 1 000-year-old arrow from Kruger Cave was recently analysed and the oxidative by-products of cardiac glycosides were positively identified (Issakson et al. 2023). This specimen was significantly more degraded than the older femur container, which leads us to think that the bone container helped to protect the poison from the worst effects of biodegradation. It is only in the comparatively recent period that we find verifiable evidence of complex hunting poisons, the oldest example coming from arrows found at Naga ed Der in Egypt, dating from 2481 to 2005 BC (Clark et al. 1974).

Most of the organic compounds detected in the 7 000-year-old sample from Kruger Cave occur naturally in the waxy cuticles and oils from a wide range of plants. However, the two cardiac glycosides and lectin derivative must necessarily have all come from different plants, as these compounds are not found in the same species. None of the plant species that contain digitoxin and strophanthadin occur naturally in the region of Kruger Cave, nor have the remains of these plants been detected in the archaeobotanical studies of the excavated deposit. This suggests that either people were travelling long distances to acquire their ingredients or that there was an established trade in these floral commodities.

The presence of ricinoleic acid is not in itself toxic, nor does it necessarily indicate the presence of a toxin. However, given the context of 1) its association with two cardiac glycosides in a container that holds arrowheads, 2) the occurrence of the castor bean plant in the vicinity of Kruger Cave and 3) the earlier identification of the acid on a wooden spatula at Border Cave that closely resembles ethnographic poison applicators, it is not unreasonable to suppose

that what we have here is the oxidative byproduct of ricin.

These results suggest that the substance in the Kruger Cave femur quiver is a multi-component plant-based arrow poison. Although by no means the oldest use of poison, this is the oldest confirmed use of a mixture comprising two or more plant toxins specifically applied to arrowheads. It adds to our understanding of the complexity of early traditional pharmacological knowledge systems.

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WORLD ARCHAEOLOGY

Cultural exchange between *Neanderthal* and *Homo sapiens*?

Research on Tinshemet Cave in central Israel reveals that *Neanderthals* and *Homo sapiens* in the Middle Palaeolithic not only coexisted but actively interacted, sharing technology, lifestyles and burial customs. These interactions fostered cultural exchange, social complexity and behavioural innovations, such as formal burial practices and the symbolic use of ochre for decoration. The findings suggest that human connection, rather than isolation, were key drivers of technological and cultural advancement.



Tinshemet Cave is remarkable for its wealth of archaeological and anthropological findings, having revealed several human burials. Its excavation, led by Prof. Yossi Zaidner of the Hebrew University of Jerusalem, together with Dr Marion Prévost from the same university and Prof. Israel Hershkovitz of Tel Aviv University, has been ongoing since 2017. A primary goal of the research is to determine the nature of *Homo sapiens-Neanderthal* relationships. By integrating data from four key fields - stone tool production, hunting strategies, symbolic behaviour and social complexity - the study argues that different human groups, including *Neanderthals*, *pre-Neanderthals* and *Homo sapiens*, engaged in meaningful interactions. These exchanges facilitated knowledge transmission and led to the gradual cultural homogenisation of populations. These interactions spurred social complexity and behavioural innovations. For instance, formal burial customs began to appear around 110 000 years ago in Israel.

A striking discovery at Tinshemet Cave is the extensive use of mineral pigments, particularly ochre. As body decoration it could have served to define social identities and distinctions among groups. The clustering of human burials at Tinshemet raises intriguing questions about its role in Middle Palaeolithic society. Could the site have functioned as a dedicated burial ground or even a cemetery? If so, this would suggest the presence of shared rituals and strong communal bonds. The placing of significant artifacts, such as stone tools, animal bones and ochre chunks, within the burial pits may indicate early beliefs in the afterlife.

Nature Human Behaviour, 25/03/2025

Oldest-known picture story is 51 000 years old

The world's oldest known rock art is a painting found at Leang Karampuang cave on the east Indonesian island of Sulawesi by researchers from Australia, according to the journal *Nature*. The painting is of three therianthropes and a wild pig. It is almost 5 500 years older than the previous find of a life-size picture of a wild pig believed to be created at least 45 500 years ago at Leang Tedongnge in Indonesia.

Adhi Agus Oktaviana, the lead author and a PhD student at Griffith University, said the finding was 'very surprising [...] none of the famous European ice-age art is anywhere near as old as this with the exception of some controversial finds in Spain'. Spanish scientists have previously claimed art at three sites in Cantabria, Andalusia and Extremadura was more than 64 000 years old. However, according to Dr Tristen Jones, a rock art expert at the University of Sydney, those findings were 'largely rejected by the international science community'. Jones said it was unclear if the Spanish researchers dated limestone that had formed on top of the art or if the limestone had formed elsewhere. The findings were also controversial because the researchers argued Neanderthals made the art.

The researchers at Leang Karampuang used uranium series dating to date the layers of calcium carbonate that had formed on top of the art. It involved extracting limestone samples that were then vaporised with a laser. The age of the sample was calculated by measuring the ratio of thorium to uranium. This method allows the layers to be dated more accurately by ensuring younger and older materials are not mixed.

Adam Brumm, a professor from Griffith University, who jointly led the study, said that in the hundreds of excavations he had conducted in the region, there were frequent depictions of the warty pig. 'They were clearly economically important to these elite people. We can see they were also important to them symbolically and perhaps even spiritually. However, the events taking place in the artwork were difficult to interpret and it was unclear what animals inspired the human-animal hybrids as they were drawn as essentially stick figures. For whatever reason [...] early humans [...] are rarely depicted in a form that could be reasonably interpreted as a human, whereas animals were often drawn with incredible anatomical fidelity. He said the researchers were fairly certain that one of the hybrids was a human with the head of a bird while another had a tail, believed to be that of a civet.

Charlotte Thou, 04/07/2024

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:

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

The Society invites applications each year for awards in all categories. The maximum amount available from the fund per year is R25 000. 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 at www.archaeology.org.za/grants_and_awards/kent_ward_bequest, or via email request to secretary@archaeology.org.za. 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.

ARCHAEOLOGY IN SOUTH AFRICA

Ancient Khoekhoen artefact found

An ancient Khoekhoen pot, thought to be between 500 to 2 000 years old, has been discovered at Kagga Kamma Nature Reserve in the Cederberg mountains. The earthenware vessel is remarkably intact with only a minor hole and some cracks. According to Prof. Vuyiswa Lupuwana from the University of Cape Town, the pot exhibits a classic stylistic affiliation with lugged pots and since the body tapers towards the bottom, the pot is very likely a Khoekhoen lugged pot that had rope or string fed through the lugs to facilitate transportation. The red ochre clay and patches of scorching suggests the pot was used for cooking over an open flame, with the pot placed directly into the coals of a fire.

Past archaeological studies in the Cederberg have established that the age of artefacts range from 500 to 8 000 years old, placing them within the Later Stone Age (LSA) period. This pot is likely no older than 2 000 years since studies indicate that the first Khoekhoe herders arrived in the Cape around that time, introducing both livestock and pottery. The pot was discovered by visitors overnighing at one of Kagga Kamma's off-grid camp sites. They had the foresight to leave the pot in situ and inform the reserve management of their find. Numerous scatters of stone tools, ostrich eggshell fragments and collapsed roof spore surrounded the pot, pointing to an overlap between the hunter-gatherer and pastoralist people who coexisted here towards the end of the LSA. Intriguingly, faded rock art galleries showing handprints were found meters away in an overhang. Examples of additional rock paintings have also since been found.

Heritage Western Cape, 01/05/2024

WHAT IDEAS FROM THE PALEOLITHIC ARE STILL WITH US IN THE MODERN WORLD?

Jan Ritch-Frel

Is the order of the modern alphabet connected to how our shared ancestors counted the phases of the moon and its effect on tides 50 000 years ago? Did the first stirrings of government and bureaucracy emerge from the efforts of early astronomers to reconcile solar and lunar calendars? These are the kinds of questions that have kept economic historian Michael Hudson up at night.

On the surface, learning about the origins of the methods people use to bring order to their lives, such as time, weights and measures and our financial systems, seems like just another history lesson. One ancient practice leading to another, resulting in guesswork of what people did before the last Ice Age. But it goes beyond interesting. It is very useful. The more we can parse out and extrapolate the beliefs and attitudes of previous eras, the more we might be able to step out of present behaviour patterns and perceive social problems we keep creating because we thought we had to.

A deeper reach into human history is now possible thanks to a growing body of archaeological and scholarly research collected in recent decades. Many experts in related fields have speculated that this research will have a large social impact as it percolates through centres of influence, and we become accustomed to relying on a wider, global human historical-evidence base as a reference. Society will greatly benefit from minds that are trained to think in deeper timescales than a millennium or two; archaeology and biological sciences increasingly permit useful insights and pattern observations into humanities at a historical depth spanning millions of years.

Hudson's research has already made inroads into modern life. Many contemporary economists rely on his understanding of financial history in the ancient Near East. His collaboration with the late anthropologist and activist David Graeber inspired his launch of the debt-cancellation movement during Occupy Wall Street [2011]. Graeber's book, *Debt: The first 5 000 years* is a popularised adaption of Hudson's research on the early financial systems of the Near East, encouraging Graeber to follow up and coauthor the bestselling book *The Dawn of Everything*, an overview of new interpretations in archaeology and

anthropology about the many paths society can take.

I approached Hudson for a conversation on these topics, starting with his reflections on what drew him into prehistory in the early 1970s and his collaborations with Harvard prehistorian Alex Marshack.

Jan Ritch-Frel (R-F): Alex Marshack was well-known for his idea that many of the social institutions we live by today are derived in large part from the 'thought matrix of the Palaeolithic', the ideas and attitudes, social systems and means of recording and transmitting information developed over thousands of millennia until the most recent Ice Age. How did you two find each other?

Michael Hudson (MH): I had read in the *New York Times* about Alex Marshack's analysis of carvings on a bone found in France, made about 35 000 years ago with markings that he viewed as tracing the lunar month, not mere decorations. Marshack was working from the Palaeolithic forward to see how it shaped the Neolithic and Near Eastern Bronze Age. My approach was to study the Bronze Age because my study was about the origins of money and debt and its cancellation. And then to work *back* in time to see how these practices began.

Marshack was most focused on how the measurement of time began before there was any arithmetic. Counting began with a calendrical point of reference. Marshack showed that lunar months initially were pre-mathematical, indicating symbolic literacy proliferated in the Palaeolithic. He developed the idea that a motive was to arrange meetings, groups separated by distance tracking the passage of time to convene at pre-agreed locations. I was interested in the calendar as an organising principle of archaic society: its division into tribes and as providing a model of the cosmos that guided the structuring of social organisation.

I had been writing on ancient debt cancellations, and the idea of economic renewal on a periodic basis. We both had this basic question: how did this awareness of time turn into actual counting and provide a basis for the ordering of other systems, from social organisation to music? Marshack showed what I had been writing to the head of the Peabody Museum at Harvard University, who invited me up for a meeting, and soon enough I was a research fellow there too.

I began my work on how order was created by trying to think about how the calendar became the basic

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organising principle certainly for the entire Bronze Age and no doubt leading up to it.

R-F: The words 'month', 'measure' and 'menstruation' are all derived from the word moon in Proto-Indo-European 'mehns', according to scholars of the early Bronze Age language, which is ancestral to many of Eurasia's major languages spoken today. Going back to Marshack's research direction of looking at the thought matrix of the Palaeolithic, what answers was he looking for with the evidence from the past?

MH: Marshack saw the centrality of social and prosocial behaviour as a driver among separate groups. Today's humans thrive on the interaction between groups. The management of that, diplomatically and administratively through a calendar process had to be a key basis for survival across time; it had an ordering function. There was a need for dispersed populations to come together for trade and intermarriage.

Marshack believed that Palaeolithic leaders would have understood that a lunar calendar and the notations associated with it were technologies of chieftains, of governance. Oftentimes, leadership comes down to organising meetings and the rules these meetings have. The lunar calendar was the basis for figuring out when separate groups were all going to meet together at some annual interval and maybe there were meetings at the monthly or seasonal interval, such as the equinoxes or solstices. And it was probably based on a new moon.

Here is a case of the thought matrix of the Palaeolithic-shaping societies that we call ancestral. Marshack and I came to interpret that the key meeting date would be a new moon. Time was thought of as a baby, the moon grows and becomes older. This goes right down to the Roman calendar. The new year was the shortest day of the year. When the year is born, it is the smallest before it grows. The idea of a life course of a year, with weather, people and animals travelling along with it was at the heart of the Palaeolithic-thought matrix. Marshack, for example, studied the amount of attention and care Palaeolithic cave painters of Europe put into drawing animals to indicate a particular time of year. If there was a painting of a fish, it would have the long jaw that fish developed in the mating season. You could look at whether the animals were moulting or not. Palaeolithic artists across the world were always careful to note that.

To show how the year's 12 lunar months were a format often adopted for organising other social structures, let us consider the social models we see in the Near East and the Mediterranean that are recorded in the Bronze Age. As populations settled into increasingly sedentary communities, a typical form of association was the amphictyony [neighbouring states associating for their common interest], divided into 12, four or

six 'tribes' or regions. These tribal divisions enabled the rotation of chiefs by the month or season so that all members of the amphictyony would be equal. 'Foreign relations' were standardised carefully to provide equality.

R-F: I am mindful that when people elect to use an ordering system for some part of life, it is based on good reputation and there being a convention that connects the shares of social groups. If people decide to organise society into groups using the logic of a 12-month lunar calendar, it is a measure of its latency in the wider human culture and is still with us today. This Palaeolithic tradition organises the backgammon board we play on today, designed by Sassanid Persians, which is rooted in the lunar calendar logic of 12. We do not pay much attention to ordering systems once they are in place, as long as they work.

MH: Certainly, by the Neolithic, people began to count everything. Even if they did not have systems of mathematics, they were counting and trying to find correlations and associations with natural phenomena around them, from weather to the behaviour of animals. For instance, an archaic cosmologist might count the teeth of a horse and attempt to correlate that with something that shared the same number. The assumption was that maybe we could control things by taking some proxy that shared the same number or some other cosmological characteristic with another and we could have a ritual on earth that would somehow manipulate the heavens and our environment in the way that we wanted to.

We might call that pseudoscience, confusing similarity with true correlation, confusing correlation with causation. While many of us might make a living in science using higher-grade scientific standards, there is quite a lot of that still going on today in conversations with family and friends, in sports and its statistics. Fortune telling is an industry that is still going strong.

R-F: We can regard this general instinct as leading to know-how and in some cases part of science, as the process gets refined.

MH: Think of it as experimentation: let's see if we can do this and see what works. They were experimenting but the logic was to think in terms of a system. I think that is what made the Bronze Age societies work.

The key to archaic science was to think in terms of a cosmos in which everything was interrelated. The so-called Astrological Diaries of Babylonia correlated grain prices, the level of the Euphrates and other economic phenomena, including royal disturbances and behaviour, much as modern astrology seeks to do. They were seeking order and they started by correlating everything they could, including the movements of the planets.

Today, we think in the decimal system. But it is not automatic to assume 10 fingers as the basis for how hunter-gatherers are going to count, even in cases of using the body as a memory device. Some Indonesian societies, for example, counted across the span of their outstretched arms, with 28 spots. That would be a measure of using the body to follow the phases of the moon. I have also noted that these tended to track with a range in the number of letters in the alphabet that we see in many languages today, in the mid-20s and 30s. It seems that before numbers, something like the alphabet was used to name the moon's phases.

The number of letters in many early alphabets that we know of corresponded with the lunar months. And the most important characteristic of the alphabet is its *sequential order*. We do not say AMD, we say ABC. They are always in the same order. Does that contain an older pattern? The key is the fixed sequence, a pre-mathematical organisational system. We know that many Palaeolithic communities across Eurasia and the Americas were following the phases of the moon. And we know from Neolithic structures such as Stonehenge that people were also focusing on the key solar intervals, especially the solstices that were turning points for the birth of the year on the shortest day and equinoxes that were the turning points.

There was a permanent need to combine a lunar calendar that governed local social life with a solar calendar that told the story of the seasons, separated by solstices and equinoxes. And, of course, that was a big problem because imagine the frustration that they had when they realised that the lunar and solar months do not correspond exactly: a lunar year has 354 days and a solar one has 365. The mathematics of the form of solstices and equinoxes, and the time gap between the 354-day lunar year and the 365-day solar year (as well as the leap year) could lead to divergences in cosmology and social ritual using the calendar as a basic organising principle. The solstices and the seasons, often highly social events with important rites and traditions, would be more complicated to schedule and would be pushed to different dates as the years went by.

Marshack thought that once arithmetic was developed, some priest-like individuals or chiefs began counting everything, looking for a pattern, an explanation. 'Let's see what works.' I became curious about how Mesopotamia and others blended their cosmological calendars and kept their traditions on schedule and societies harmonised. We know that many of the lunar years remained the basis for many religions all the way from Mesopotamian to Jewish practices, down to today, and yet there was also the solar year.

R-F: As Near Eastern societies became more complex in the 3rd and 4th millenniums BC, how did they reconcile all this? And how did the calendrical

system become imbued into an arithmetic basis of weights and measures and rations?

MH: The early Sumerian cities like Uruk or Lagash frequently experienced the upheavals of warfare and disease. That meant there were large numbers of widows, orphans and slaves in these cities. The place they found for them was basically in large weaving workshops around the temples. A large, exploited workforce producing textiles required an administrative system to feed the labour pool over the course of the year; a new calendar system. Leaders worked with their astronomers and cosmologists to develop this administrative calendar to feed this workforce. It seems that the convention of 12-months-per-year borne out of the lunar calendar was assumed, the question came down to how many days are there in that month. Neither the 354-day lunar or 365-day solar calendar worked for reasons of variability in length, their need to be corrected to follow the seasons or the inconvenience of the way the numbers could not be divided by 12. There could not be oversights in the administrative calendar that missed a day; mistakes made in provisioning food for people are quickly noticed.

It seems natural that they would want to land on a day that both served the administrative needs and could be correlated with the 354-day lunar calendar and the 365-day solar calendar. After trial and error, 30 rations per month, 12 months per year produced a social logic of 360, pretty close to the two ancient cosmologies.

The standard ancient daily ration in these early Mesopotamian cities for the workers and enslaved people was two cups of grain per day per person. Using the administrative 30-day calendar, 60 cups of grain was one month's ration. This became a rule of thumb for the city leaders and managers. One month's rations, 60 cups, is a unit of weight, a bushel. That key weight organised by the number 60 has a forcing effect on how grain is often exchanged for silver. It led to silver being organised in weight units of 60, called a mena, so that the trades for weights of grain and silver could correspond easily.

The palace calendar became the administrative ration-calendar model, the 12-month, 30-day calendar. They saw correspondence in the rations with the units they used for weights and measures and for calculating loans and mercantile trade. Naturally, if silver and grain are organised on the basis of 60, it was convenient for minds trained to calculate on the basis of 60 to use it as the numbering structure for interest rates. You can see how units of measure, once they become convention, have an easy time traveling across categories of activity. To hammer it home, the time units for payment plan structures on early Mesopotamian debt were derived from Palaeolithic time units: monthly, borrowing from

the lunar calendar; quarterly, borrowing from the four annual seasons divided by solstice and equinox; or annually using the solar calendar.

That annual part is the next phase of this to discuss, since the 360-day calendar is a social artifice that needed a process every year to correctly align with 354- and 365-day calendars. The incompatibility between these calendar years was treated as a time of anarchy, which required harmonisation, long before the administrative one was invented. The process of bringing order to chaos was also brought over from the Palaeolithic: it was as familiar a convention as the 12-lunar-month calendar. The resumption of a new solar year was treated as an occasion for setting affairs back in order and clearing up old dues: not just getting the calendar to align but the social imbalances and unresolved appeals to justice inside groups and among them. The cleaning of the slates, which listed debts and obligations in increasingly large settlements would have drawn their justification from this Palaeolithic process.

The importance of recording grain supplies and the related mercantile trades and the lending system around them, the palace administrative calendar and forecasting lunar and solar cycles to find concordance dates for future calendar years put pressure on the astronomers and cosmologists of the Bronze and Iron ages to develop fuller arithmetic, quadratic equations and even analogue computers with gears to determine the movement of the sun and the moon and other heavenly bodies that served as useful fixed points for their calculations.

R-F: The process is important here, and so is this example for understanding how existing human social conventions like the Palaeolithic lunar calendar form the basis for future ones. How did Bronze Age rulers adapt Neolithic and earlier traditions of resetting the annual calendar, old debts and unresolved justice?

MH: Archaic societies knew well that social order required active intervention to restore order. Unlike the calendar, realignment in the social economy was not achieved automatically. The birth of a new year was a tool and natural marker to clean up debts and obligations from the year before. This became especially important with the spread of interest-bearing debt in trade and agriculture: it was necessary to prevent an oligarchy.

Cosmology is a system. And calendrical cosmology is a system with an inherent source of disorder: the gap between the solar and lunar years. Certainly, both in Mesopotamia and Egypt, the idea that the gap between the lunar and solar years was a time out of time, when repair of social inequality and imbalance could be addressed.

Debt cancellations were normal practice throughout the Bronze Age in the form of royal proclamations

of clean slates. Not only were debts wiped out but bondservants were free to return to their own families and lands that had been lost through debt or other misfortune were returned to their former holders. The logic of the statements in the proclamations follows a thought line of, as above, so below; on earth as it is in heaven. It is useful to cloak the ancient calendar convention of the Palaeolithic chaos-into-order period into the social-economic principles that the new agricultural society lived by. And while you're dealing with this cosmology trying to create order and restore order in terms of time, how do you prevent the disorder from the increase in wealth that occurs as technology and population grow and societies become more and more productive and wealthy? That was a big challenge to civilisation. The Asian and Middle Eastern societies met it very well.

They had a system that was able to keep time and generally prevent or remedy social polarisation. They wanted to have a system that maintained order on a continuous basis without creating disorder. And that's what led me to work with David Graeber and other people trying to work out how is it that you had some very archaic societies that very often lasted a lot longer than the ones we have today? And as Graeber points out in *The Dawn of Everything*, there are many Mesoamerican and Native American communities that had a very careful standardisation of social poles. You did not want there to be wealthy people, it creates egotism, it tends to be abusive to other people.

Graeber's basic aim was to show how some societies had avoided polarisation and inequality as social wealth developed. How do we explain the origins of inequality and how do we prevent it? We had talked originally about economic historian Karl Polanyi and his circle's attempt to go beyond the economic orthodoxy that social organisation began with individuals bartering and lending money based on its rate of return. He took the viewpoint that there was a wider society in motion that was shaping our economic structures, not just merchants and customers. Western civilisation never developed the means of cancelling debts in the way that the Near East and other parts of Asia did, while in the Bronze Age, the Neolithic that preceded it and the Palaeolithic before it the evidence overwhelmingly points to a default: mutual aid and common wealth.

R-F: What have you gathered as you have followed the evolution of social insurance and mutual aid systems into government administration, modern banking and finance? Did you spot paths not taken that lead to more humanistic outcomes?

MH: In my opinion, the key driver of Western economic history is the shifting and unstable political relationships that grew out of the financial dynamic of debts growing at compound interest faster than the economies can pay. Casting the net wider, we

can see that it was a tenet of Chinese, Indian Middle Eastern law to prevent an independent financial oligarchy from developing.

In the West we lost that through a series of historical events rooted in what we call the Classical Era in the Mediterranean. When Phoenician and neighbouring sea traders expanded their trading posts into the Mediterranean and mixed with various colonies, they enforced the concept of charging interest on debts. The chieftains of city-states and colonies adopted this policy without the debt cancellation cure that rulers adopted across the Near East. The traders just wanted their silver and were not terribly bothered by

upheavals in the social order that occur when debt is not cancelled. The economies of Greece and Rome and their political heirs in Western Europe were all about creating a financial oligarchy and sanctifying debts instead of sanctifying the cancellation of debt.

By explaining the Mesopotamian and other Near Eastern royal proclamations that cancelled debts and reestablished order, it is possible to show another path, one that has worked for thousands of years and emerged out of the Palaeolithic thought matrix. What we call Western civilisation and progress is a detour from the direction that human civilisation had been traveling for a much longer time.

DNA FROM OAKHURST SHEDS LIGHT ON 10 000 YEARS

Archaeologists first started excavating the Oakhurst rock shelter near George in the 1930s. What makes the site special is the record of its 12 000 years of human occupation. Not only have rock art, stone tools and ceramic fragments been found there, but also the remains of 46 people. That is rare: most very old burials from the last 40 000 years in South Africa have been of single individuals. New technology is making it possible to keep learning more from previously discovered archaeological material. For our own research team (Prof. Victoria Gibbon, Division of Clinical Anatomy and Biological Anthropology, University of Cape Town, and Joscha Gretzinger, postdoctoral researcher, Genetic History Group, and Stephan Schiffels, Group Leader Population Genetics, Max Planck Institute for Evolutionary Anthropology), Oakhurst offered an opportunity to reconstruct the genomes of the site's inhabitants through time and to assess their genetic relationships to people living in the region today.

The researchers were able to generate 13 ancient genomes from skeletal human remains at Oakhurst. They included the oldest ancient DNA from the region to date. The findings show that the population history of southernmost Africa is different from other regions of the world. People did not arrive here in waves, replace other populations and mix with them. Rather, there was long-lasting genetic continuity throughout the entire span of individuals. Unlike in Asia and Europe, where archaeogenetics has revealed much about human history, there has been less success in Africa. The reason is environmental conditions since ancient DNA does not preserve well when average temperatures are high. So far, fewer than two dozen genomes from South Africa, Botswana and Zambia have been published. But Africa is interesting as it is the continent with the greatest human genetic diversity. All of the remaining world's human genetic

diversity is just a subset of Africa's. So, human history cannot be understood without understanding African history.

The Oakhurst study started in 2017, with a team of biological anthropologists, archaeologists and archaeogeneticists. Of the 13 individuals sampled, two samples were 9 000 to 10 000 years old, four were 5 000 to 6 000, five 4 000 to 5 000 and two 1 000 to 1 500 years old. Their ages were established by radiocarbon dating. All individuals were adults, five were women and eight were men. The genetics work required several attempts owing to technical challenges resulting from poor DNA preservation.

We extracted DNA from powdered skeletal material and performed a series of laboratory steps to extract DNA molecules and multiply them often enough so that they could be sequenced. All of the genomes turned out to be relatively similar to those of contemporary San and Khoekhoe people, who live in the region today, including the #Khomani San. We could show that between 10 000 and 1 300 years ago, no ancestry from outside present-day South Africa arrived at Oakhurst rock shelter. Such genetic continuity over a long time is remarkable compared to Europe and Asia.

But it is not as if there was no change in southern Africa. The team saw that these people had cultural innovations over time. Several stone technological shifts are preserved at Oakhurst, similar to those found across archaeological sites in South Africa. Around 2 000 years ago, newcomers arrived, introducing herding, farming and new languages. They began interacting with local hunter-gatherer groups. Still, even the youngest individual we studied was genetically similar to the older genomes.

The Conversation, 02/10/2024

ARTS, MEANINGS AND (OVER-)INTERPRETATIONS

Anne Solomon

John Wright, in the December 2024 issue of *The Digging Stick*, shared his impressions of David Witelson's work on rock art as 'performance', endorsing the author's view that 'It is time for scholars of rock art to move on from the search for "meaning" in rock paintings, which has dominated the field for half a century, and to focus more on the relatively neglected social practices and processes in which paintings were made and viewed.' As a historian, Wright apparently shares the scepticism about seeking 'meaning' and is especially interested in changing social relationships underpinned by relations with neighbouring agro-pastoralists.

Insofar as all rock art research deals with interpretation, it is always about 'meaning', or rather 'meanings', and demands basic semiotic analysis. Scholars in different disciplines emphasise different kinds of meaning. Anthropologically oriented researchers inevitably focus on ethnographic accounts of 'San' religious belief to interpret subject matter. Art historians are concerned with the ways that meaning resides in visibility. In the 'historical turn' in rock art research, the focus is on changing meanings and putative cultural influences and borrowings between different groups.

From the earliest days of rock art research, studies have explored social and ritual contexts of rock art production. Stow (1905) imagined a ritual production context. Vinnicombe (1976), above all, explored the relation of the art to religious practices such as healing and rainmaking. Lewis-Williams (1982) built on Vinnicombe's work to consider the 'social and economic context' of rock art ('context' in the singular). My own early work considered gender and intra-group social relationships as a dimension of meaning (eg Solomon 1992). There can be no separation of meaning from social practices and relationships and these have been far from 'neglected'.

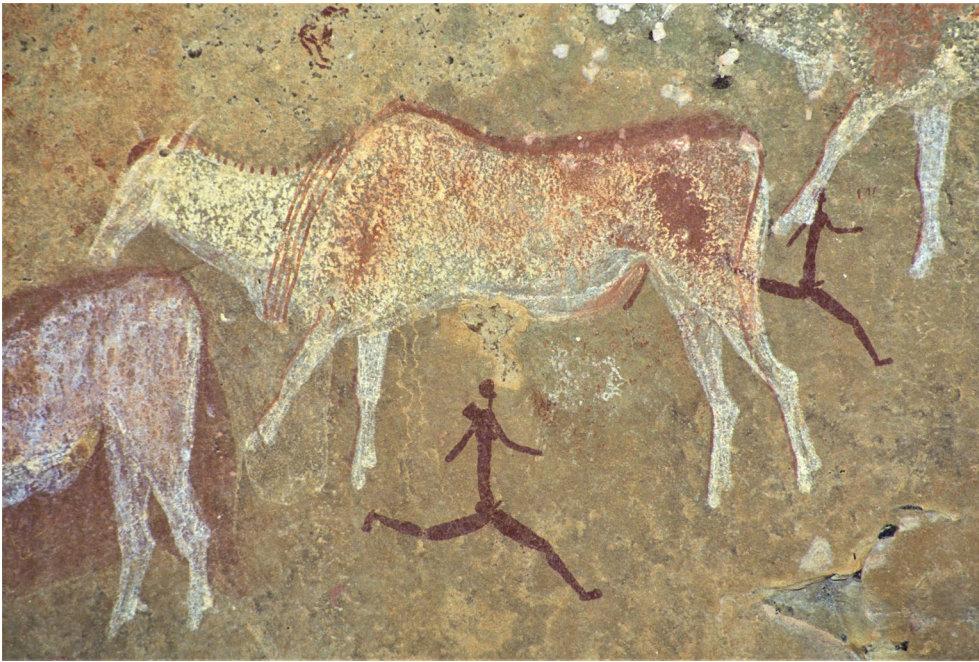
The problem is not the quest for 'meaning' but the separation of the different dimensions of meaning. For example, Ego (2015) argues for the irreducible primacy of visual meaning. But it is impossible to separate the visibility (or 'form') of an image from its subject in this way (Solomon in press). Efforts to historicise rock art research, which focus on changing meanings, depend on the false notion that the 'original' or pre-existing meaning has already been correctly identified. However, it is simply not possible to identify changes in meaning without knowing what it changed from. For example, various accounts claiming to identify meaning shifts resulting from 'interactions' fail to consider that the elements

in question were common to both agriculturalist and hunter-gatherer religious thought prior to any recent 'contact' and are not necessarily a consequence of intergroup relationships in the last few centuries (Solomon 2023).

It is not, as Wright suggests, that 'many scholars of rock paintings are not particularly comfortable in discussing change over time'. As he indeed recognises, with few dates, this is almost impossible to investigate adequately, except speculatively. The best that can be done is to consider regional differences, as critics of the ahistorical shamanistic model have emphasised. Differentiation over space is a proxy, albeit weak and indirect, for changes in 'meanings' over time. Given their diversity, we should refer to rock arts, plural (eg Solomon 2017).

For Wright, 'meaning' is an ahistorical notion that a focus on social relationships resolves, but this is a false dichotomy. Social relationships are of course dimensions of 'meaning'. But which social relationships? As even those who place 'shamans' always at the centre surely concede, 'San' religion, myth and art primarily deal with relations with the spirits (and allied denizens of other worlds), who were believed to be real, living beings – a social relationship by any definition. There is no evidence that relationships with farmer neighbours altered this significantly.

Wright suggests that the innovation of performance theory is a focus on 'explaining the act of performing (in this case, the *making* of paintings) rather than describing its outcome (the paintings themselves). From this perspective, the making of rock paintings was not simply a matter of arranging pigments of different colour on the rock face to produce pieces of "art". But who has argued this? For many years I have sought to integrate art historical and anthropological perspectives by emphasising 'making' (eg Solomon 2008, which is entitled 'Myths, making and consciousness ...'). I have, for example, considered the importance of materials (pigments, eg Solomon 2000), making as 'instrumental action' (Solomon 2008; cf. Gell 1998): ie the act of painting (in certain instances, especially rain rites) as a strategy to influence the spirits. This is not the making of art in the Western sense, nor a documentary record of shamanic visions for pedagogical or 'revelatory' purposes. Indeed, as Lenssen Erz (2008: 78) commented: I envisaged painting as a 'performative act'.



*Fig. 1: Shaded polychrome eland, KwaZulu-Natal. Weathering or intentional technique?
Photo by the author.*

resemblances and imaginative renditions of otherwise invisible mythical beings were part of the 'magic' of making; perhaps enhancing the power of the art to influence the spirits.

In this regard, shaded polychrome eland are often cited as the pinnacle of San artistic skill. However, it is probable that the shading is a weathering and preservational effect, because red paint was applied over white, with weak bonding between the layers (Fig. 1; Solomon 2021). The effect is

Performance theory, as deployed by Witelson, amounts to little more than saying that painting was a shamanic ritual (cf. Solomon 2020), with all the same problems of ahistoricity for which the shamanistic model has long been criticised. (The term 'ritual' is itself overdue for 'unpacking' (Solomon and Bahn 2023; Lahaye 2023). Establishing specific contexts for specific paintings is, in most cases, simply impossible. There is also no evidence that paintings were made for members of the group to view, and they may have been considered 'expired' after making (Solomon 2008). This might explain why painters often had no qualms about superimposing new paintings over old.

Rock art is indeed 'art'. Objections to calling it 'art' are rooted in Western notions of a distinction between art and craft and ignore the fact that, historically, Western religious art was produced for other/more than aesthetic reasons. In fact, all painting shares some common features, from making paints and materials to representing 3D objects in 2D, and more besides. Rock art research has always concerned understanding the different ways that images can function and are deployed in different cultural and historical contexts.

Consider the controversial recent conceptual artwork by Cattelan, entitled 'Comedian', which consists of a banana stuck to a wall with duct tape. If anything demonstrates that 'art' need not pivot on aesthetics and the sensory pleasure induced in the viewer, this is it! It is not about dismissing aesthetics but exploring what indigenous aesthetics might have been. Skill and imagination are also relevant. The virtuosity of some rock art suggests specialist artists who honed their skills. It is possible that the skilful creation of



Fig. 2: Fulton's Rock, KwaZulu-Natal. Female initiation or shamanic healing? The images closely match ethnographic accounts of girls at puberty, who are covered with a kaross and secluded in a special hut. The figure with erect penis (lower left) cannot be explained in terms of shamanism but accords with the themes of sexuality and seclusion. Photo by the author.

probably a product of the technique – strategies of making – not aesthetic choices as such.

What Wright and Witelson call ‘meaning’ is really ‘subject matter’. Rock art is replete with enigmatic images that we will never be able to interpret. Some are more amenable to understanding, but that is almost entirely owing to ethnographic sources (such as those describing rain animals). Even then, their significance is contested. Fulton’s Rock (Fig. 2) is a good example. Is the subject female initiation (e.g. Solomon 1992)? Or does it depict shamanic healing (Lewis-Williams and Dowson 1992)? If the former (as I maintain), how can interactions with farmer neighbours be relevant? It is not possible to ‘move on’ from subject matter to consider making and social relationships without prior assumptions about what the subject matter is. They are not separable.

There is a tendency in some rock art research to over-interpret the materials and venture far beyond what the evidence supports, especially when basic questions about subject matter remain hypothetical. New ideas are of course always welcome but immodest claims to truth are another matter. Images are always ambiguous. However important it is to try to attend to history and change, the ‘historical turn’ in rock art research is built on particularly shaky evidential foundations, and applying performance theory cannot ultimately address historical specificities.

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ARCHAEOLOGY IN BRIEF

Vast colonial-era African artefacts at Cambridge

Research at the University of Cambridge’s eight museums has detailed around 350 000 African artefacts. The new figures come from an ‘African Collections Futures’ report that explores the African artefacts, stresses the need for provenance research, ethical returns and collaboration with African communities. The peer-reviewed report was written by Dr Eva Namusoke, Senior Curator of African Collections Futures at The Fitzwilliam Museum, and is supported by a 12-member Advisory Group representing the university museums, archaeology and heritage specialists and individuals from the National Museums of Kenya, Iziko Museums of South Africa and the Cambridge African Network.

The report calls the university’s African collections

broadly colonial by the period and labels African contributions to the collections in the form of creative, intellectual and physical labour ‘largely hidden or overlooked’. Among the objects noted are nearly 200 000 manuscript fragments found in Egypt, an estimated 110 000 archaeological artefacts and 27 300 anthropological items.

The modern countries with the greatest representation in terms of numbers, visibility and research exposure in the collections include Egypt, Nigeria, Ghana, Uganda, South Africa and Kenya. It is recommended that the university should ‘pursue, as much as possible, collaborations with African researchers and communities of origin, and enable opportunities for African people to engage directly with the collections.’

03/12/2024

THE ENH HYPOTHESIS THAT *HOMO NALEDI* FROM RISING STAR IS CONSIDERABLY OLDER THAN 300 000 YEARS

Francis Thackeray

Ten years ago, Berger et al. (2015) announced an astonishing discovery of a new hominin species from the site of Rising Star near Swartkrans in the Cradle of Humankind. It was described as *Homo naledi*. No ages were presented by Dirks et al. (2015). Two years later Dirks et al. (2017) published dates based on various techniques, including Uranium-Thorium (U-Th) analysis of flowstones, as well as primate teeth (one representing a baboon and three *H. naledi* teeth). OSL (optically stimulated luminescence) and US-ESR (uranium series – electron-spin resonance) dates were obtained. A palaeomagnetic signal was determined. Dirks et al. concluded: ‘Considering all age results presented here the most parsimonious age estimate for the *H. naledi* fossils is sometime between 236 ka and 335 ka [ka: thousands of years ago]. More work will be needed in future to constrain these ages further ...’ They were specific about the following: ‘It is clear from these results that the *H. naledi* assemblage in Unit 3 is of mid- to late-Middle Pleistocene age.’

Stimulated by an article by Pettitt and Wood (2024,

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Fig. 1), I would like to present the ‘Early Naledi Hypothesis’ (ENH) that specimens of *H. naledi* from Rising Star might be considerably older than 300 000 years. There have already been indications of this possibility. For example, Dembo et al. (2016) used Bayesian analysis of cranial data to obtain 912 000 years as the ‘most likely age for *H. naledi*’.

Teeth

Dirks et al. (2017) undertook US-ESR analyses on three *H. naledi* teeth (U.W.101-1767 (an upper premolar crown), U.W.101-1788 (a lower right second molar, RM2) and U.W.101-1810 (a lower left molar or premolar). They also attempted to date a baboon tooth (U.W.101-1841).

The possibility exists that Uranium-based dates estimated from three teeth of *H. naledi* and a baboon may be under-estimates of true ages. Indeed, Dirks et al. (2015) state: ‘Considering the variable distribution of U within the tooth samples, it is possible that the same tooth records more than one U uptake event in different domains within the tooth (most notably when comparing enamel vs dentine domains) ... Since Th is immobile, each U uptake event that affects the tooth will shift pre-existing U-Th systematics to portray a younger age ... The variable U-Th disequilibrium

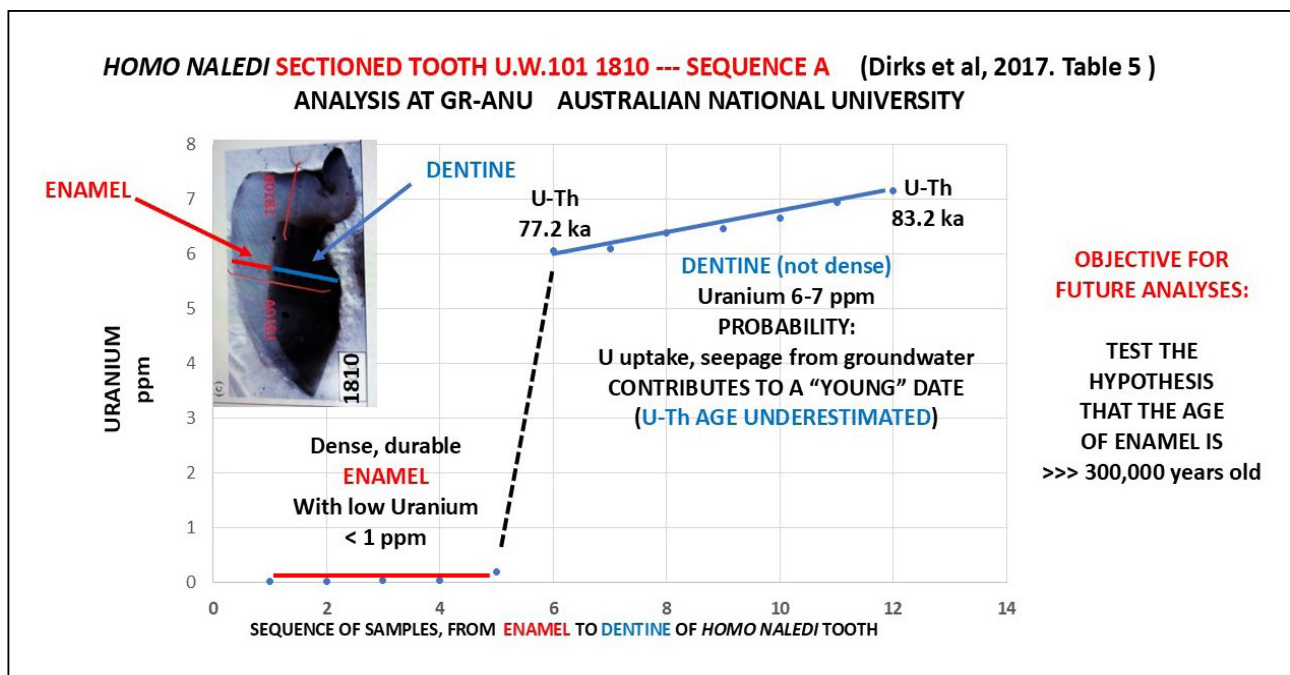


Fig. 1: Uranium concentration in enamel and dentine in U.W.101-1810. The image of the sectioned tooth (inset, upper left) shows enamel in red and dentine in blue. ka: thousands of years ago; ppm: parts per million.

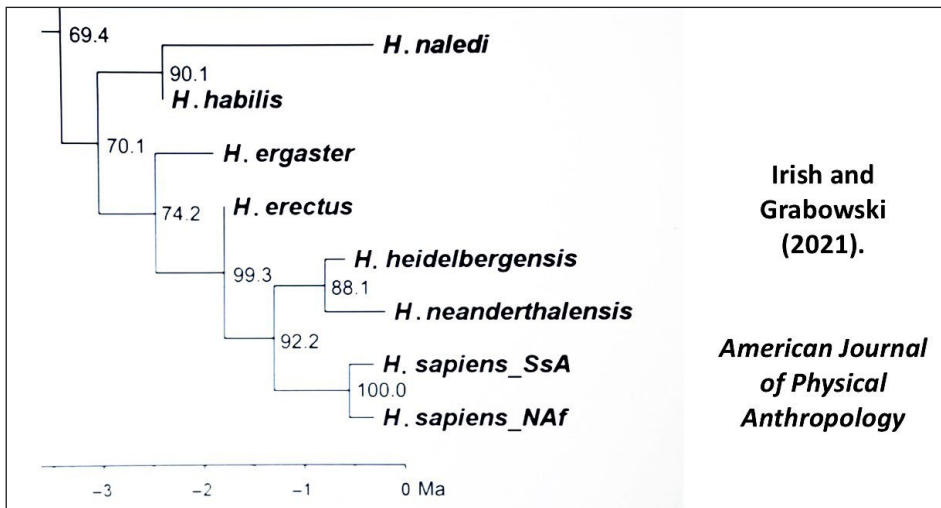


Fig. 2: Phenogram for eight hominin species based on dental analyses (Irish and Grabowski 2021). *H. naledi* and *H. habilis* group together. Time scale in millions of years ago (Ma).

ages are a clear indication that U uptake events took place and provide a *minimum age estimate* for the true age of the teeth' (emphasis added).

I have prepared a graph (Fig. 1) based on data published by Dirks et al. (2017, Table 5) for *H. naledi* specimen U.W.101-1810. The U concentration is low (less than one part per million, ppm) for enamel, which is high-density tooth bioapatite and is relatively impervious to water. By contrast the U concentration is relatively high (6 to 7 parts ppm) for (lower-density) dentine, a fact which can be interpreted in terms of U uptake associated with the episodic influx of water through the tooth. In this particular case the U-Th dates for the dentine are remarkably young (77 000 to 84 000 years).

In relation to the ENH hypothesis, I question whether the U-Th and US-ESR dates of the *Homo naledi* teeth published by Dirks et al. (2017), which focus primarily on relatively low-density dentine, may be considerable underestimates. Dentine (susceptible to U-uptake) may be unreliable for purposes of estimating accurate dates.

Flowstones

Dirks et al. (2017) published 17 U-Th disequilibrium ages for flowstones and stated: 'Although these results demonstrate high levels of precision, further evaluation of the geological meaning of the ages is required. In particular, the effects of possible post-depositional U uptake, which would result in apparent ages that are younger than the true age, can be assessed with textural analyses ...'.

Robbins et al. (2021) said: 'Periods of pervasive flowstone formation at all levels of the cave occurred at >600 ka, ~500–400 ka, ~225–190 ka and ~110–90 ka'. They considered that their new dates 'constrain the minimum age of *H. naledi* to ~241 ka'.

The question arises: how much greater than 241 000 years might the true age be?

Uranium-lead dating

Under the section 'Mineralogy and chemistry', Dirks et al. (2015) state that: 'Flowstone samples from the Dinaledi Chamber were analysed for uranium to assess the possibility of Uranium-lead (U-Pb) dating. Although analysed samples mostly contain sufficient U for this (0,3 to 0,7 ppm), a fine dusting of a detrital component derived from asso-

ciated muds is present in all tested pilot samples. This has confounded preliminary attempts at U-Pb dating because of the high and isotopically variable background of the common Pb it carries.'

Unfortunately Dirks et al. (2015) did not publish their initial U-Pb dates from flowstones. As yet it is not known whether any of their U-Pb dates on such material are anywhere close to 2 million years.

Since 2015, no efforts have been made to obtain U-Pb dates from tooth enamel that is more likely to relate to 'closed' systems, rather than flowstones that may (in some cases) relate to a greater degree to 'open' systems (metaphorically like 'sponges', susceptible to U-uptake) and may therefore provide dates that are 'too young' or are of 'minimum ages'.

Concluding comments

Morphometric analyses may be useful for indicating potential ages for hominin species. Thackeray (2015) has given an estimate of 2 million years (somewhere within 1,5 and 2,5 million years) for *H. naledi* based on the 'log sem' morphometric method using cranial or dental measurements (Thackeray and Dykes 2016; Thackeray 2024). This is of great interest in relation to results obtained by Irish and Grabowski (2021) who recognised (on the basis of dental data on which a Bayesian phenogram was prepared) that *H. naledi* and *H. habilis* were grouped together (Fig. 2). *H. habilis* predates by 1,5 million years.

The possibility that specimens of *H. naledi* from Rising Star may be considerably older than 300 000 years can be tested using U-Pb on durable tooth apatite of *H. naledi* specimens. U-Pb analysis on non-hominin tooth enamel from Swartkrans (adjacent to the Rising Star site) has already demonstrated that it is feasible to obtain U-Pb dates from enamel for specimens dated within the periods of 800 000 years and 1,8

Irish and
Grabowski
(2021).

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million years (Balter et al. 2008). Curran et al. (2025) have recently used U-Pb to date non-hominin teeth at Grăunceanu in Romania. Their abstract in *Nature Communications* states, 'high-resolution U-Pb-age estimates suggest Grăunceanu is >1.95Ma, making this site one of the best-dated early hominin localities in Europe'.

The dating of teeth of *Homo naledi* is crucial to our understanding of this extraordinary hominin species. It is strongly recommended that U-Pb dating should be undertaken on at least one tooth enamel fragment in a reconnaissance study. Plans are currently being developed to use this approach not only on *H. naledi* from Rising Star but also on material from other sites.

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Prof. Robert Bolhar (School of Geosciences, Wits University) and I are exploring possibilities to undertake U-Pb analyses of tooth enamel from non-hominin and hominin specimens from sites in the Cradle of Humankind. John Hawks (copied to Lee Berger), Anthony Dosseto, Jon Woodhead and Robyn Pickering kindly corresponded in connection with the possibility of U-Pb dating. I thank the Access Committee associated with the Evolutionary Studies Institute of Wits University for comments.

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ARCHAEOLOGY IN AFRICA

Sub-Saharan Africa has 100 World Heritage Sites

In September 2023, supporters of Africa's cultural and natural heritage had cause to celebrate. At the 45th session of the World Heritage Committee, UNESCO announced five new locations had joined the list of World Heritage Sites, taking sub-Saharan Africa's total to 103. Rwanda's first two World Heritage Sites were named among 42 new entries worldwide. One, Nyungwe National Park, has a diverse topog-



Gedeo Cultural Landscape in Ethiopia with its thousands of 2 000-year-old stelae

raphy, including forests and peat bogs, and is home to the Eastern Chimpanzee, Golden Monkey and other endemic species. The other is a collection of memorialising the 1994 genocide. Ethiopia's 215 000 ha Bale Mountains National Park, which includes the continent's largest afro-alpine habitat, and Gedeo Cultural Landscape, home to 250 000 Gedeo people in the Eastern Highlands, were also inscribed on the list, along with the Forest Massif of Odzala-Kokoua in the Republic of Congo, a vital habitat for the region's forest elephants.

But the good news was tempered by the understanding that the continent still has a long way to go when it comes to recognition of its heritage. Sub-Saharan Africa contains less than 10 per cent of sites inscribed on the list. Moreover, Africa has a higher percentage of World Heritage sites in danger than any other continent and 11 countries do not have one entry among them. Of the 1 199 World Heritage sites at the time, UNESCO listed 103 sites in its Africa region, which does not feature Algeria, Egypt, Libya, Mauritania, Morocco, Sudan and Tunisia, which have a total of 42 World Heritage Sites and are included in its Arab States region. CNN, September 2023

DISCOVERING MPUMALANGA ROCK ART

Alex Schoeman and David Pearce

Rock art occurs throughout South Africa. Knowledge about that rock art, however, is much less evenly distributed. Some areas, such as the Drakensberg, are extremely well-known in both scholarly and popular circles. In other parts of the country, such as Mpumalanga Province, the rock art is barely known.

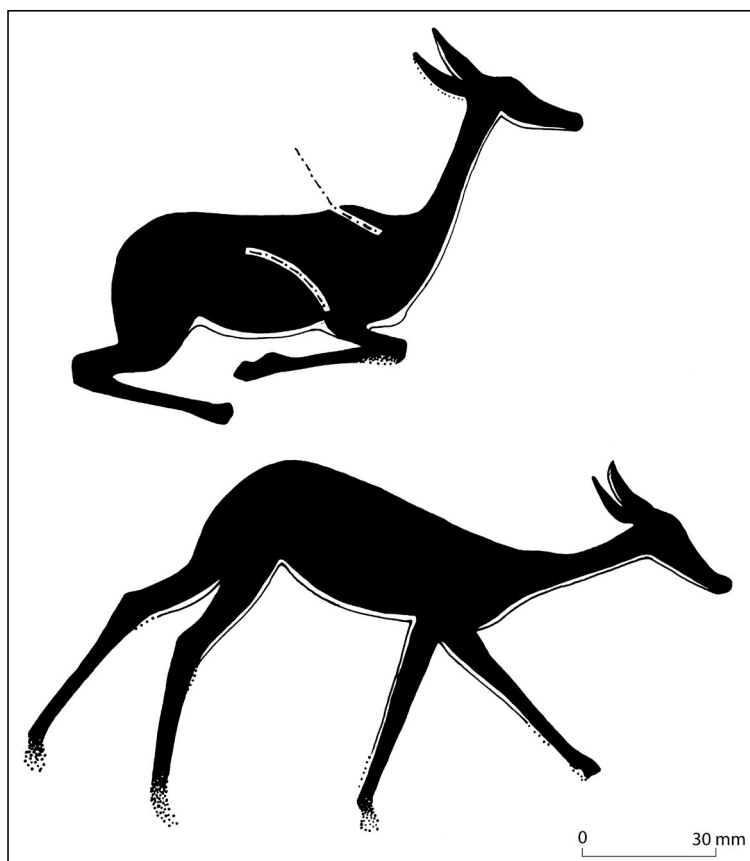


Fig. 1: Drawing of two rhebuck from a Mpumalanga highlands rock shelter

In 2007 Ben Smith and Leslie Zubieta compiled an overview of what was known at that time about the rock art in Mpumalanga. They noted small numbers of sites unevenly distributed across the province. The exception was one area in the Lowveld next to the southern part of the Kruger National Park where one survey project had recorded more than 100 sites (Hampson et al. 2002). Only a handful

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of sites were known in the Highveld regions of the province and little research had been done on them (but see Steyn 1994, 1995). To start remediating this situation, we began a project in 2011 to survey the Highveld regions of Mpumalanga. Our aim with this work was to add to the inventory of known sites and eventually link the province's rock art with its other archaeology. The rock art in the Mpumalanga Highveld falls into two distinct categories. There are a number of small painted sites linked to hunter-gatherers (eg Pearce et al. 2019) and there are large, engraved sites linked to past farming communities (eg Maggs 1995).

The painted art is typically found on cliff faces or in small overhangs that contain few paintings. Probably because of the exposed nature of many of these sites, preservation of the paintings is often poor. However, some larger shelters with more and better-preserved art do remain. Visually, the art appears to have similarities to Drakensberg painted art. This is not surprising given that the Mpumalanga escarpment is the northern extension of the Drakensberg and there were, at least in historical times, movements of people out of the Drakensberg into the Mpumalanga highlands (Prins 1999). In contrast, this art is quite different from the Lowveld art that lies geographically closer. The Lowveld art seems to relate more to the art of eastern Zimbabwe (Pearce 2009). Our work to locate rock art sites by means of survey and to record them through photography and tracing is ongoing.

Engraved art on the other hand is typically found on open hillslopes and flat plains. Sites are large, some extending over multiple hectares. The largest and best known of these is the Boomplaats engraving site near Mashishing (Lydenburg) that was declared recently as a National Heritage site. It contains hundreds of engraved rocks, most showing some variation of settlement patterns typical of Bokoni farmers, although some other forms are represented. The remains of these settlements abound in the area. Our ongoing work at this site is cataloguing the hundreds of engraved boulders. Although Boomplaats remains the largest site so-far recorded, we have documented a number of others with similar but not identical art.

Our recording and mapping of the Boomplaats engravings is not only a research activity; it underpinned the nomination of Boomplaats as a National Heritage site, a process spearheaded by JP Celliers, the curator of the Lydenburg Museum. He works closely with the Dinkwanyane Community to whom the Boomplaats farm was restored, on the management and conservation of the site. The community will shape the future directions of our work at the site.



Fig. 2: Engraved settlement patterns at the Boomplaats engraving site

Whilst our surveys of the Mpumalanga Highveld are far from complete, and we continue surveying new areas for more sites, some preliminary patterns are beginning to emerge. There are certainly fewer painted sites than in some other parts of the country. This may, in part, be geomorphological: the terrain is relatively flat with few rocky exposures where paintings could be made. It may also relate to preservation: the exposed nature of many sites is not conducive to the long-term survival of paintings. Other factors are also likely at play.

Our work on the engraved sites has clear associations with ongoing research on farmer settlements done under the auspices of the Bokoni Farmscapes project (<https://bokonifarmscape.wordpress.com>). We are now also beginning to link the painted art with insights from excavations at rock shelter sites in Bokoni and the Mpumalanga Lakes District.

Such work can only take place if the sites are not impacted by mining. In attempts to preserve this unique heritage we made presentations at the Mpumalanga government's 2007 Lake District Heritage Symposium, which helped to bring about the temporary moratorium on new prospecting in the area announced by the Minister of Mineral Resources in 2010. Despite these efforts, mining continues to impact rock art and other archaeological sites in the province heavily.

While Mpumalanga does not have the density of rock art sites that some parts of the country may have, as we uncover more of what is there interesting pictures are beginning to emerge of the relationships among the various art traditions and the diverse and changing populations of the province.

Acknowledgements

We thank the many landowners and communities who have allowed us to work on their properties, and in particular the Dinkwanyane Community, the Mpumalanga Tourism and Parks Agency and the Buffelskloof Nature Reserve. Ben Smith and Sven Uzman first took us to sites in the province and aroused our interest in this work. We are grateful to the many students who have helped us with aspects of this research during field schools and postgraduate research projects, as well as the field technicians who have assisted us with both field schools and site recording. Our special thanks to JP Celliers for his extensive help and collaboration. This work is based on research supported in part by the National Research Foundation of South Africa (grant numbers: 117696 and 136502).

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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



Gallery Hours: Mon - Fri: 09h30 - 17h00
Sat: 10h00 - 14h00
tel: +27 21 423 5309 fax: +27 21 424 9063
e-mail: cgallery@mweb.co.za
web: www.capegallery.co.za



'The Bather,'
Kalk Bay, by
Robert Koch
Oil on canvas:
94 cm x 100 cm

'My painting captures a quiet morning scene viewed from the Brass Bell restaurant, looking northeast towards Muizenberg. The horizon line created by the Kalk Bay mountain and the railway lines add depth, even though it guides the eye away from the bather. To counterbalance the shoreline and buildings, I used massed forms and focused on values to emphasise the soft interplay of early morning light through the mist. The result is a calm, serene landscape that subtly tells a story of nature and everyday life in Kalk Bay.

The Nature of Nature, an exhibition featuring paintings by Hilary Iwanski, Robert Koch and Peter van Straten opens at The Cape Gallery on 4 May and will run through May.

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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The Society produces the following publications:

- South African Archaeological Bulletin**, biannual scientific publication of current research in southern Africa.
- The Digging Stick**, the Society's general interest magazine – three issues a year.
- Goodwin Series**, an occasional publication on a specific field of archaeological interest.

Subscriptions for 2025: Ordinary Member (single), African and Overseas Ordinary – R415; Joint/Family – R460; Junior/Student – R270; South African Institutions – R790; Overseas Institutions – R2 000. SAAB shipping by courier: South Africa – R135, Overseas – R750.

The Digging Stick

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