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WHAT HAPPENED TO THE INDIGENOUS KNOWLEDGE OF FOSSILIFEROUS CAVES IN SOUTHERN AFRICA?

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The area known as the Fossil Hominid Sites of South Africa (FHSSA, UNESCO World Heritage Site) is globally renowned for its Plio-Pleistocene fossil record that documents the hominin evolutionary journey in exquisite detail. Caves in this area are among the most productive in sub-Saharan Africa and have delivered a unique collection of textbook-changing fossils (Thackeray 2016). The hominin fossils are accompanied by a rich fauna that includes hundreds, if not thousands of bovid bones and teeth (Fig. 1). Southern Africa is also noted for countless rock shelters and cave deposits that supplement this history outside South Africa (e.g. Pickford 1990; Pickford et al. 1994; Pickford and Senut 2002).

Since the very origin of anatomically modern *Homo sapiens*, southern Africa has been inhabited by people whose folklore includes manually transported fossils and rocks (manuports) and geomyths (geological-item-related myths) that are indicative of an awareness of their geological environment (Benoit et al. 2022). Additionally, 'narrations from [South] African traditional elders show that community members have always been able to identify fossil remains' (Vilakazi 2021). As such, it is expected that an indigenous knowledge of the fossiliferous caves of southern Africa exists or has existed and would have left a trace.

African indigenous populations, including southern African ones, are noted for their awareness of the palaeontological items around them, and published reports are available to back this up (see Helm et al. 2019 for a review). In southern Africa, for example, the oldest evidence of fossil-bone collection may be as old as 3 000 years and the oldest manuported fossils may date from the Middle Stone Age. This testifies to the antiquity and deep cultural roots of the indigenous knowledge of fossils in the area (Helm et al. 2019).

Fig. 1: Bones in breccia as observed at the Kromdraai cave deposit (FHSSA, UNESCO World Heritage Site, South Africa). Arrows point to the most conspicuous, medium-to-large-sized bones. Photo by J Benoit.

Fossils in southern African caves are also so conspicuous that in the FHSSA alone there is a long

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history of bones and teeth being collected by untrained people, such as lime workers and schoolboys, e.g. the fifteen-year-old Gert Terblanche in 1938 and the nine-year-old Matthew Berger in 2008 (Thackeray 2016). Moreover, these caves have provided shade and shelter to local inhabitants for centuries and still play a crucial role in ritual and spiritual practices (Cross 2010). Thus, the apparent absence of an indigenous knowledge of fossiliferous cave systems in southern Africa, and the FHSSA in particular, is not only challenging to account for but is in fact paradoxical.

Vilakazi (2021) attempted to account for this paradox by pointing out possible failure to report indigenous palaeontological discoveries in Western literature. Though colonial and post-colonial circumstances coupled with the mostly oral traditions of many African cultures undeniably played a role in the loss of some indigenous knowledge of fossil bones and teeth, we here argue that such knowledge still exists in the form of creation myths about the emergence of humans and/or animals out of a large hole in the ground or a cave (hereafter referred to as cave emergence myths).

Cave emergence myths

Myths about humans and/or animals emerging from the underground (out of reeds, termite mounds, a tree or the ground, for example) are widespread globally but their origin can be traced back to an ancestral emergence myth (or population of myths) in Africa, and more precisely in southern Africa, and would be at least as old as the 'Out of Africa' event (Le Quellec 2015; 2022). Although this ancestral myth is lost, modern African creation myths are well-documented and many of them match the description of cave emergence myths (i.e. they specifically involve a hole in the ground or a cave). Studying a large collection of African creation myths (Parrinder 1967; Miller 1979; Alcock 2014; Belcher 2005; Berezkin 2015; Lynch 2010; Kanu and Ndubisi 2021), we highlight the following five lines of evidence supporting the hypothesis that cave emergence myths may in fact be considered geomyths (geology related myths) referring to fossiliferous, bone-bearing caves in southern Africa.

1. Physical evidence: Actual caves are revered as the holes from which life emerged for the first time. Their location is documented and some of them even feature rock engravings of animal- and human-like footprints, which demonstrate that i) local populations are and have long been aware of the presence of these caves (though the engravings were not necessarily made by the people who revere the caves nowadays) and ii) these caves are evidently attached to geomyths (Wilman 1919; Dart 1931; Walker 1997; Van der Ryst et al. 2004; Alcock 2014; Le Quellec 2015).

2. Description of the cave: About a quarter of the Khoekhoen and San versions of the myth not only describe humans and/or animals emerging from a cave, but also specifically locate this cave under a tree. This accurately describes a typical cave in the southern African dry environment, as the moisture of sinkholes often feeds large olive trees, stinkwoods and fig trees that conspicuously stick out in the landscape. This suggests that the caves in question were not just imagined. The motif of the tree was subsequently lost in many Nguni versions of the myth, possibly because they were immigrants.

3. Taxonomic specificity: The cave emergence myths do not account for the origin of all life forms but are always limited to humans and other mammals. Many African creation myths include the origin of plants, reptiles and birds (e.g. the Kuba, Bushoong and Makoni myths), whereas cave emergence myths never directly refer to these taxa. Accordingly, when engravings are present (as mentioned above), it appears that they consistently depict mammalian or human footprints (Wilman 1919; Dart 1931; Walker 1997; Van der Ryst 2004; Alcock 2014). Why would cave-related myths be so tightly associated with humans and other mammals only? There are admittedly many possible explanations (Le Quellec 2022); one of them is that southern African fossiliferous caves have famously produced a vast collection of large-sized, conspicuous mammalian fossils (Fig. 1). Caves are not unique to southern Africa and, as such,

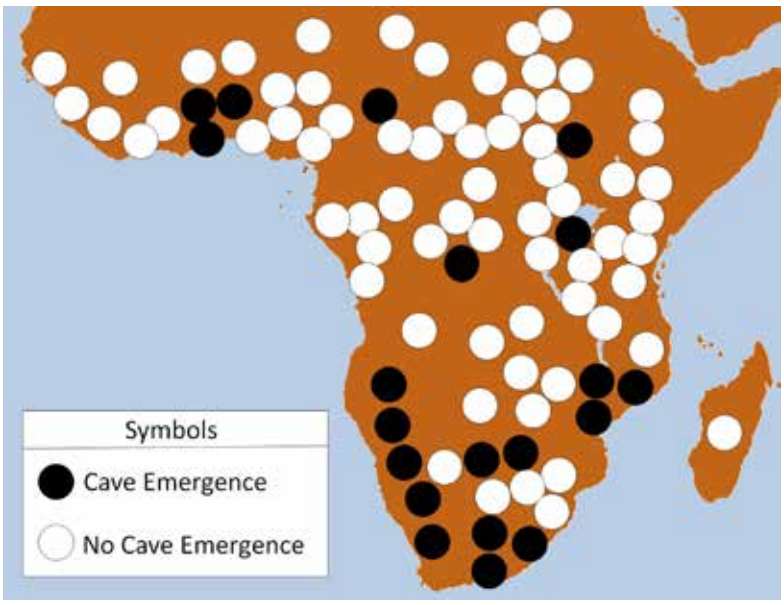

Fig. 2: Distribution of African creation myths. Black circles are cultures in which at least one cave emergence myth is reported; white circles are cultures in which none of the creation myths are a cave emergence myth. Note the abundance of cave emergence myths in southern Africa.

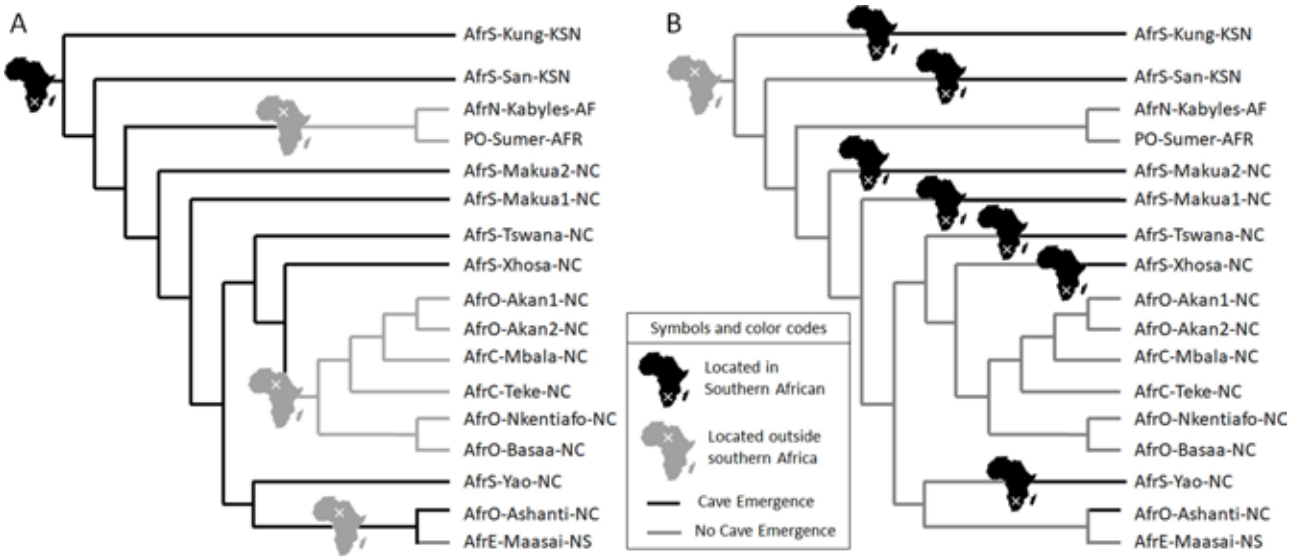

Fig. 3: The phylogenetic tree of African emergence myths (redrawn after Le Quellec 2015). A, the most parsimonious hypothesis; B, the least parsimonious hypothesis. Language family abbreviations: AF – Afrasian; AfrN – northern Africa; AfrO – western Africa; AfrE – eastern Africa; AfrC – central Africa; AfrS – southern Africa; KSN – khoesan; NC – niger-congo; NS – nilo-saharan.

an origin of emergence myths here supports the hypothesis that the caves in this part of the continent may have provided something striking (most likely, their wealth of fossils) that sparked the imagination of the Middle Stone Age people and inspired and/or helped maintain cave emergence myths.

4. Non-random geographic distribution: It has long been established that there are comparatively more emergence myths in southern Africa than elsewhere on the continent (Le Quellec 2015). Our review of the literature supports this conclusion (Fig. 2). Cave emergence myths represent 37 per cent of creation myths in geographical southern Africa (countries including and south of Namibia, Zambia, Malawi and Mozambique), whereas they represent only 12 per cent of creation myths in the rest of the continent. In South Africa and its enclaves (Eswatini and Lesotho) alone, 40 per cent of all creation myths are or include cave emergence myths. This suggests that southern Africa possesses the lion's share of such myths on the African continent. The dominance of these myths in the southern African cultural landscape may have been favoured and fed by an indigenous knowledge of the numerous fossiliferous caves in the area, including (but not limited to) the FHSSA. Other factors at play include population migrations, the possible horizontal transfer of myths between neighbouring cultures and other cultural components.

5. The origin of the myth: The phylogenetic analysis of the motives that compose creation myths was used to reconstruct their evolutionary history (Le Quellec 2015; 2022). Fig. 3 illustrates how, on Le Quellec's phylogenetic tree of emergence myths, a southern African origin requires only three dispersal events out of southern Africa (Fig. 3A), whereas an origin from a locality outside southern Africa would imply a much less parsimonious scenario involving seven independent dispersal events of the myths towards southern Africa (Fig. 3B). Similarly, the hole in the ground (or cave) motif is better reconstructed as ancestral to all subsequent versions of the myth according to Le Quellec's tree because it is a more parsimonious hypothesis. If ancestral, this motif would be lost three times (Fig. 3A) whereas, if not, it would have to be acquired eight times independently (Fig. 3B).

Conclusion

Interpreting the cave emergence myths as geomyths (or as being derived from geomyths) related to the richly fossiliferous caves in southern Africa would provide a parsimonious solution to the above-stated paradox. If correctly interpreted as geomyths, cave emergence myths may be regarded as evidence for an indigenous knowledge of the bone-bearing caves in the FHSSA.

Acknowledgements

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SAN PAINTINGS OF *BOOPHONE DISTICHA* IN THE CEDERBERG AND DE HOOP NATURE RESERVE

Andrew Paterson

Boophone disticha, also known as the Bushman Poison Bulb, is a psychoactive plant used for healing wounds and making poison arrows, and in male initiation ceremonies. It grows as a large bulb, partially above ground, with countless papery bulb scales and a distinctive fan-shaped crown of leaves. The pink flowers are borne in a typical round cluster and are usually produced before the leaves. The plant originated in southern Africa, where it occurs throughout (Van Wyk and Gericke 2000) (Fig. 1), but also has a very widespread distribution in Africa. It is commonly called the century plant or tumbleweed. *B. disticha* was first collected in South Africa in 1781 by Swedish botanist Carl Peter Thunberg and described by Carl Linnaeus as *Amaryllis disticha*.

The first identification of *B. disticha* in the engraved rock art of South Africa was proposed in 1933 by Maria Wilman, geologist and curator of the McGregor Museum in Kimberley. Three engraved depictions of *B. disticha* (Fig. 2a) were identified in her book (Wilman 1933): Plate 58 features two rocks, both preserved at the museum, representing the *B. disticha* bulb (Pasquali 2021; Samorini 2019). The first depiction of *B. disticha* in a rock painting appears to be in a rock shelter on Thaba Bosiu in Lesotho (Fig. 2b). Dated to historical times, it was first identified by Loubser and Zietsman (1994) as the *Brunsvigia radulosa* herb, another Amaryllidaceous plant with alleged psychoactive properties. More recently it has been proposed to be a depiction of *B. disticha* (Mitchell and Hudson 2004).

The four additional rock art sites in the Western Cape with paintings of *B. disticha*, discussed in this article, can be regarded as significant new discoveries that contribute to our understanding of the use of the *B. disticha* plant by the San peoples.

Properties and use of the *B disticha* bulb

For the plant`s properties I have drawn on Van Wyk and Gericke (2000), who give a detailed account of the unique properties of the *B. disticha* bulb. The plant's names are listed as Bushman Poison Bulb; *boophone disticha (amarylliddacae)*: *leshoma* (Southern Sotho, Tswana); *incwadi* (Xhosa); *incotha* (Zulu); *muwandwe* (Shona); *gifbol* (Afrikaans).

This plant has a reputation of being a powerful hallucinogen and was also used as an arrow poison in former times. The plant is still used as a hallucinogen in male adolescent initiation rites. Since a small overdose can be fatal, meticulous care has to be taken when preparing the remedy. Dry bulb scales are applied topically as an anaesthetic, pain-relieving dressing and to painful joints, swellings, bruises, sores, rashes, burns and septic wounds. Many deaths have been documented from the use of *B. disticha* in South Africa and Zimbabwe (Van Wyk and Gericke 2000). Preparations were used as the main arrow poison in southern Africa. The bulbs were transversely cut at the time the leaves were sprouting from the bulb and the thick fluid that exuded was dried in the sun until it reached a gum-like consistency. After

Fig. 1a: Location of the sites at Citrusdal, Katbakkies, Sevilla Trail and De Hoop. Fig. 1b: B. disticha *in flower. Fig. 1c: Large bulb with distinctive fan of leaves.*

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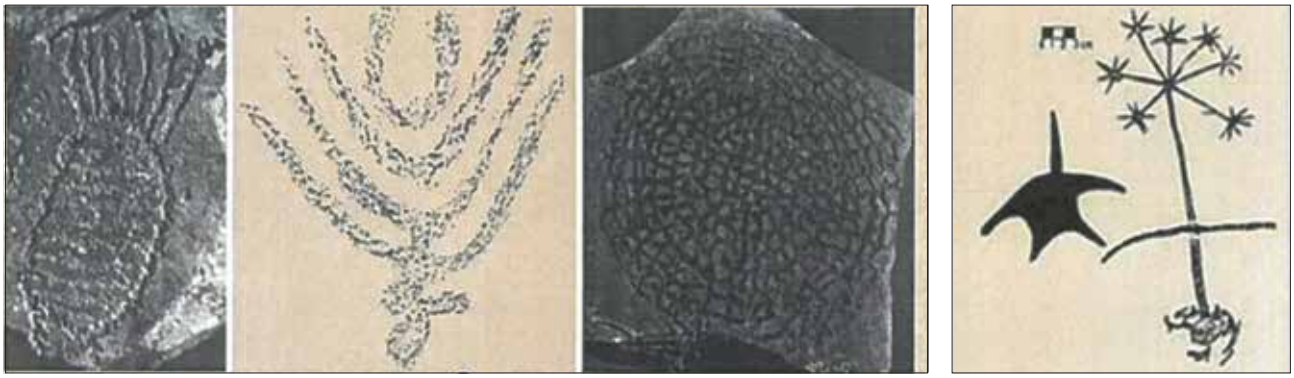


2a 2b

Fig. 2a: Rock engravings with possible depictions of the B disticha*. The image on the right is a rendition of the large spherical seed commonly called tumbleweed. Fig. 2b: Tracing of the painting at Thaba Bosiu depicting the plant identified first as* Brunsvigia *radulosa and later as* Boophone disticha.

animals had been wounded by the poisoned arrow, they reportedly ran for quite a distance, sometimes only being found by the hunters the following day (Van Wyk and Gericke 2000).

According to Van Wyk and Gericke (2000), the *B. disticha* bulb is still used today as a hallucinogen in male adolescent initiation rites across many ethnicities in southern Africa and there are strong indications that the San today still use it during their trance dances and ceremonies. They studied the trance rituals of the Khoisan to determine whether hallucinogenic plants were used. Many people believe the trance dances of the Kalahari Bushmen, for example, were and are induced solely by rhythmic chanting and dancing. 'To me', 'Van Wyk writes, there are strong indications of the use of *B. disticha'*. He continues that the Khoisan, past and present, have always shared their knowledge of healing plants, but when it comes to *B. disticha,* they go quiet. They will not discuss its powers or even go near the bulb when they see it growing in the wild (Van Wyk and Gericke 2000).

For the use of the *B. disticha* bulb by the San and Sotho people and their mutual cultural connections in the past and present, I have drawn on the excellent reference article by Mitchell and Hudson (2004). The authors suggest that the consumption of psychoactive plants by southern African hunter-gatherers and their employment in ritual contexts to facilitate access to altered states of consciousness was more widespread than has previously been thought.

First-hand accounts from several Kalahari Bushman healers, according to Mitchell and Hudson, strengthen the case for the consumption of medicinal plants playing an important part in the attainment of altered states of consciousness among southern African hunter-gatherers. An extraordinary first-hand account from a Kalahari Bushman healer on learning how to trance describes the feelings involved: ‘The strength of the medicine is that it teaches you to see the light. This light brings about very special things. I become so tall that I see people as small, as if they were standing far below me. It‘s like I am flying over them. Although I am physically blind, I can see everything in this light. This is when I truly see' (Keeney 1999).

The hallucinogenic properties of *B disticha* are also well attested to by the role it plays in South Sotho male initiation rites. In Lesotho and the Free State, where it is called *leshoma*, Laydevant (1932) records its use to produce a state of intoxication that could sometimes result in loss of consciousness. He comments that its ingestion, mixed with several other ingredients was believed to imbue initiates with the qualities of their ancestors. More specifically, Ashton (1952) reports how, in the aftermath of being circumcised, initiates were given a large bowl of medicine consisting of roasted butterfat mixed with a powerful narcotic made of *leshoma* bulb. Each initiate ate a handful and within a few minutes fell into a profound stupor, which lasted for a day or more and effectively deadened all pain. Of special relevance to this article, is one of the earliest discussions of the topic by Ellenberger and MacGregor (1912) in which they cite Basotho initiation songs as evidence for attributing their practice of circumcision to a cultural borrowing from Bushmen. Binneman (1999) also refers to mummification as another use of the bulb.

B. disticha sites in the Western Cape

The sites described in this article give a rare glimpse into the San's use of the bulb over the last 2 000 to 5 000 years. Considering the importance of this plant to the San, one should not be surprised to find paintings of *B. disticha* in the rock art of the Western Cape. Four such sites have now been found. The first painting was identified near Citrusdal in 2010*;* the second near Katbakkies Pass in 2014; the third on the Sevilla Trail in 2023; and the fourth painting on the De Hoop Nature Reserve in 2022. The total distance between these sites is over 350 km (Fig. 1).

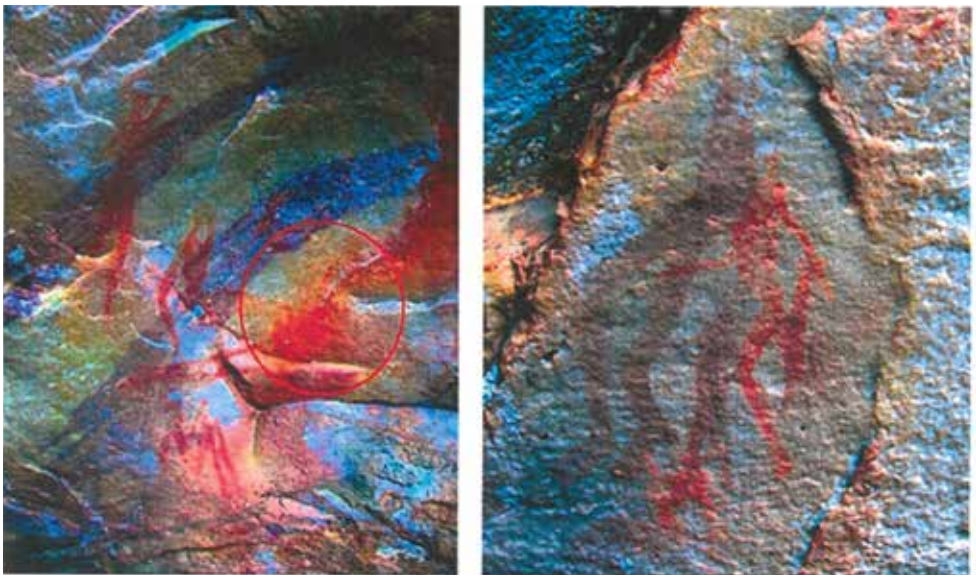
Site 1.0: Citrusdal: This is a remarkable and unique San ritual site considering the importance of the content of the painting. The small site is less than 4 m wide and 2 m high (see Fig. 3 for an image of and Fig. 4 for a tracing of the painting). The painting is a composition of two panels. The left-hand panel (Figs 3a and 4a) features five San males, all facing to the right towards an unusual organic-shaped object on the ground in front of them. The standing first figure has both arms raised in the air and is possibly singing. The second figure in front of this standing figure is seated on the ground with the feet of his outstretched legs touching the organic shape in front of him. This figure has his left hand up near his face and is holding a white bow resting on the ground with his right hand. Above and to the right of these two figures is a third, foreshortened figure lying on the ground, facing the front, leaning back on his elbows and knees pulled up towards his body. Below the seated figure is a fourth figure lying totally stretched out on the ground, in what appears to be an unconscious state. This figure has no head and its feet are almost touching the organic shape. Finally, a fifth figure is sitting on the ground with knees pulled up tightly, one arm in the air and one hand on the ground, as if in the process of getting up. The degree of accuracy with which the artist has been able to render the body movements and human gestures is quite remarkable.

The organic focal point has the appearance of being a *B. disticha* bulb with leaves fanning out to the right. Judging by their behaviour, I believe the five men have been painted in the process of partaking in an all-male ritual that incorporates the use of the *B. disticha* psychoactive plant. The figures are in the state of transcending in and out of the San`s First and Second Creations (Paterson 2022), which can also be regarded as transcending from the San's outer world to their inner world. I have used the verb 'transcending' as the San believed that they were going beyond the limits of the real world. The presence of the white bow is also significant. This could be a newly made 'unused bow', with the bark recently removed, hence the white colour. No quiver or arrows are shown in the painting.

The right-hand panel (Figs 3b and 4b) is equally interesting. In this panel there are three San males facing left, i.e. the first panel containing the figures around the organic bulb shape. All three figures are upright, either standing, falling backwards or running. The standing figure is very small, while the falling-backwards figure has large heavy feet and a torso but no head. The running figure has been drawn sprinting at maximum speed. The realism of this running figure confirms the artist's extraordinary ability to draw accurately and express his intent in conveying a message, storing and passing on knowledge. Again, I believe that these three figures are in a state of transcending back and forth between the San's First and Second Creations. The four figures with 'no heads' in both panels have, I believe, been painted in a totally altered state of consciousness.

I suggest that the two panels shown in Figs 3a and 3b are a single composition and that the artist has shown what the San men outwardly 'look like' and how they 'feel internally' when going through the various stages of transcendence during the ritual. The painting illustrates the effects of this psychoactive plant on the human body and mind, namely inducing an altered state of consciousness, with the accompanying sensations of swirling changes, extreme speed and the feeling of being very large, heavy or small.

I believe that the painting of the *B. disticha* with new leaves coming out to one side of the bulb, which is a distinctive characteristic of this extraordinary plant (Figs 1 & 3), in addition to the inclusion of the white bow in the painting, pulls together the elements of this plant's unique healing powers over wounds that hunters might incur, the plant's ability to poison and kill the eland prey, the excitement of the chase and the extreme exhaustion often endured while running down the prey. The San themselves have likened the



3a 3b

Fig. 3: The Citrusdal site. 3a: Left panel with five transcending figures and B. disticha *plant in the red circle. 3b: Right panel with 3 transcending figures.*

4a 4b

Fig. 4: Citrusdal site. 4a: Left panel of Fig. 3 displaying the B. disticha *bulb with new leaves coming out on one side. 4b: Right panel with transcending figures.*

actual hunt to a 'great dance'. In fact, it is possible to imagine that during each hunt the hunters see themselves transcending the boundaries between the First and Second Creation in the same way that they transcend these boundaries during their initiation ceremonies, when they are also exposed to extreme physical conditions, cold and exhaustion (Marshall 1999; and Paterson 2019). The power of the *B. disticha* bulb could be regarded as enhancing the powers and ability of the San to survive by tracking and hunting.

Site 2.0 – Katbakkies Pass: The *B. disticha* painting at Katbakkies (Fig. 5) is different to the Citrusdal painting (Fig. 3) in that there are no San figures interacting with the plant. The artist in this instance appears to have focused specifically on the uniquely diagnostic fan shaped arrangement of the leaves of the plant and its powerful psychoactive properties by painting intense zig-zag lines radiating out and away from the plants.

Site 3.0 – Sevilla Trail, Cederberg: The painting at Sevilla is very interesting (Fig. 6) as it appears to be depicting the *B. disticha* inflorescence at the end of its reproduction cycle when it is referred to as a 'tumble weed'. The inflorescence forms from one to three seeds in the flower cavities. At the end of flowering, the inflorescence dislodges itself from the mother plant and gets blown away by the wind. In the 'bouncing' movement, the seeds are dispersed.

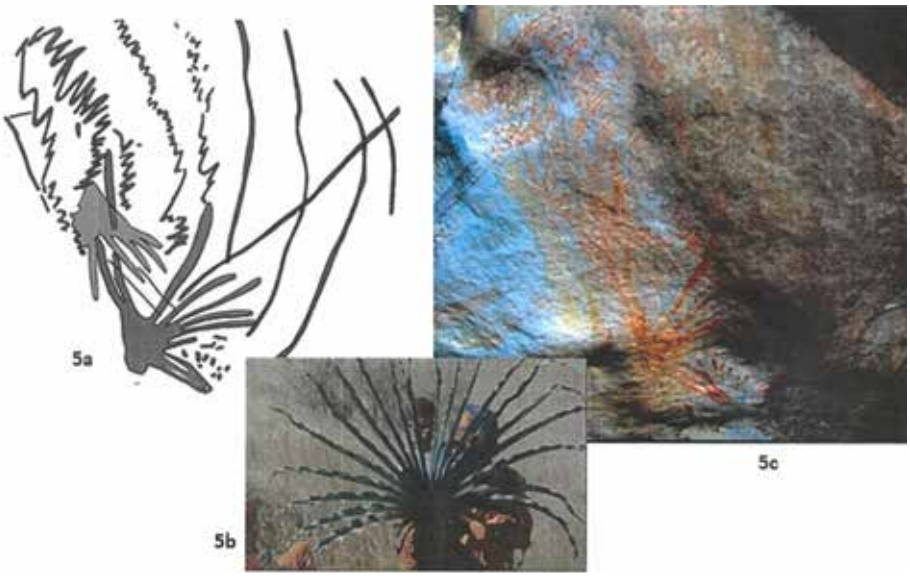
The *B. disticha* growing in the Western Cape winter-rainfall areas are dormant in summer and flower from February to April after early winter rains. This suggests that these plants could all have been painted in the early part of the year, at the start of the winter rainfalls.

Site 4.0 – De Hoop Nature Reserve: As elsewhere, the artist at De Hoop appears to have focused on the arrangement of the leaves and the flowers produced by the *B. disticha* bulb. An interesting addition to the psychoactive lines included in the De Hoop painting (Fig. 7a), is the presence of vertical red lines that have been interpreted as rain symbols elsewhere in the Cederberg (Paterson 2018).

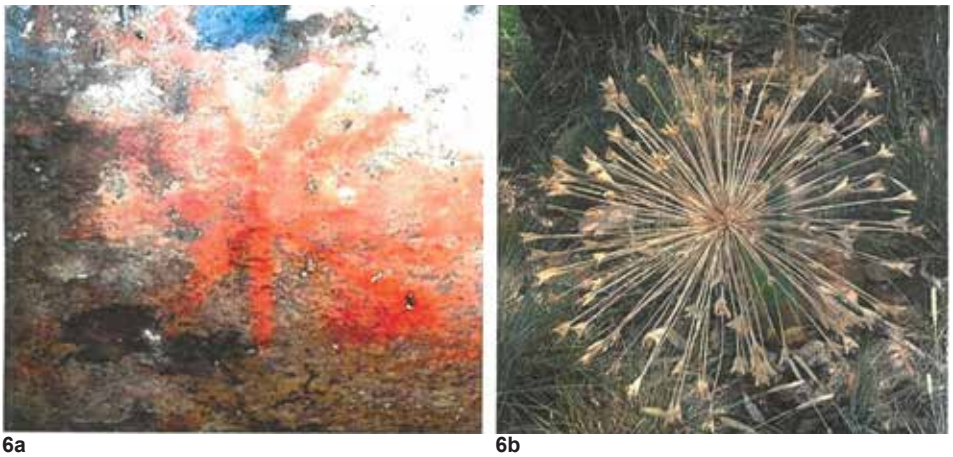
San male initiation sites

Over the past few years, I have published four articles in *The Digging Stick* (Paterson 2018; 2019; 2020; 2022) dealing with San male initiation ceremonies painted in the rock art of the Cederberg. Six male initiation sites have been found to date but there is one site that I believe to be specifically relevant to the subject of *B. disticha*. This site, shown in Figs 8a and 8b, is situated on the banks of the Olifants River some 20 km north and downstream from the Citrusdal *B. disticha* Site 1.0 (Fig. 3).

This shallow ritual site has one of the most complete and comprehensive paintings of a San male *tshoma* ceremony in the Cederberg (Fig. 8). The importance of this site and its relevance to this article is that 10 of the figures illustrated in the painting have been portrayed as a group of males lying scattered on the ground in front of another group of 13 standing male figures (Fig. 8a). The 10 scattered figures (Paterson 2019), highlighted in red, I believe to be a group of adolescents partaking in their coming-of-age *tshoma* ceremony. The 13 standing figures are



Figs 5a & 5b: Katbakkies tracing and painting with lines of n|om. Fig. 5c: B. disticha *bulb with distinctive fan of leaves.*



6a 6b

Fig. 6a: Sevilla Trail painting of a B. disticha tumble weed. Fig. 6b: B.disticha tumble weed.

adults and mentors who are also participating in the initiation ceremony. All 23 figures in the ceremony are connected by a set of thin red parallel lines. I believe that these red lines are the artist's rendition of air that these figures are breathing. The fact that the thin red lines are connected to every figure in the painting shows that the figures 'lying down' are in fact still breathing and are alive, in spite of being in a profound stupor which could last for a day or more (Mitchell and Hudson 2004). I suggest that this is a painting of a *B. disticha*-induced stupor or an altered state of consciousness that is regarded by the San to represent the 'dying' of boyhood and re-emergence as man in the Second Creation (Paterson 2020; 2022). This painting thus illustrates a San male rite of passage ceremony.

Fig. 8b comes from an article by Megan Biesele (Biesele 1978) captioned: Central Kalahari dancers fall into trance. This photo shows three San males lying on the ground in a profound stupor in exactly the same way that the scattered figures are lying in the paintings at the Olifants River site (Fig. 8a). An important question at this point is whether or not these scattered figures in Figs 8a and 8b could have achieved this altered state of consciousness through singing and dancing alone. According to ethnographic research, learning to achieve transcendence requires years of training and practice (Barnard 1992). Based on this, I propose that the 10 initiates in Fig. 8a, who according to the ethnographic records (Marshall 1999) probably ranged in age from 14 to 20 years, would not have been able to simultaneously reach this altered state of consciousness at their initiation ceremony without all of them consuming a very small amount of a psychoactive plant such as *B. disticha* under the supervision of their mentors. In my view, the two figures standing amongst the randomly scattered figures in Fig. 8a are the San mentors. The six elephanthropes or elephant-headed mythical figures in this painting are regarded as being a symbolic confirmation of the San initiates transcending into the 'First Creation when elephants were people' (Bleek and Lloyd 1870 – 1879). The two eland torsos at the foot are symbolic of hunting and procreation for the initiates (Marshall 1999).

The San name for *B. disticha*

To date, researchers do not appear to have been able to confirm the San name for the *B. disticha* bulb, in spite of the San's intimate relationship with the bulb over thousands of years. The primary reason for this is that the *B. disticha* bulb and its use in initiation ceremonies are kept a strict secret. Whatever aspect San men chose not to talk about remained their secret (Marshall 1999). Lorna Marshall and Megan Biesele shared information on the San *tshoma* initiation ceremony, but neither knew of any eyewitness account in the anthropological literature of the performance of the actual rite. Hans-Joachim Heinz (Heinz and Lee 1979) was taken into a *tshoma* by the !Ko and describes some of the preliminary procedures, but he kept the vow of secrecy about the rite itself (Marshall 1999).

The most common popular name for the *B. disticha* bulb in South Africa today is *leshoma*, the name of the Sotho ethnic group (Van Wyk and Gericke 2000;

7a 7b

Fig. 7a: De Hoop painting with thin red lines of n|um and rain. Fig. 7b: Large B. disticha bulb with distinctive flowers and leaves.

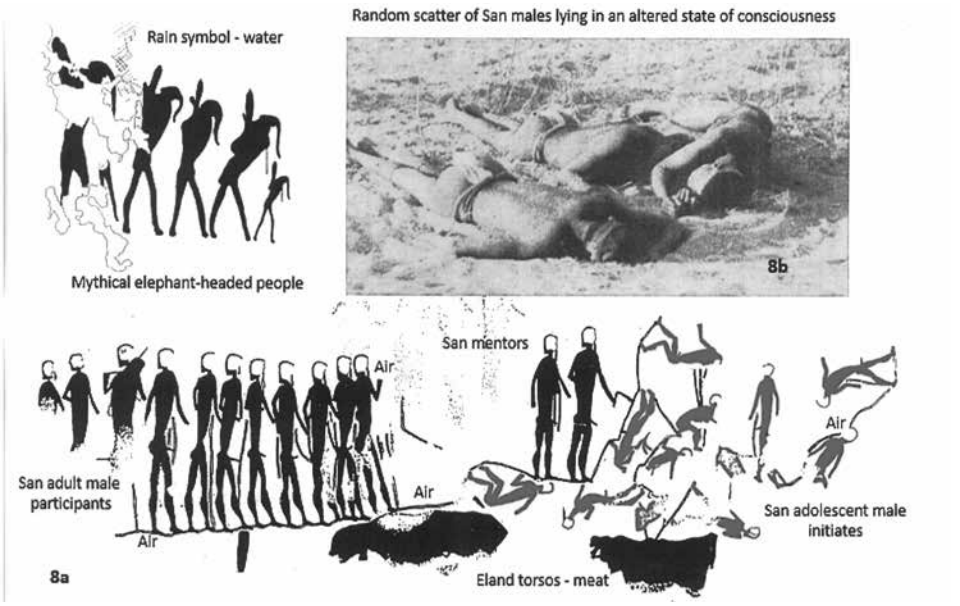


Fig. 8a: The random scatter of figures at the San male initiation site painting on the banks of the Olifants river. Fig. 8b: Photo of three San men in Botswana lying in a random scatter arrangement and altered state of consciousness.

Pasquali 2021). As mentioned, there exists a crucial connection between the Sotho and San male initiation practices owing to their common usage of the *leshoma B. disticha* bulb and their shared initiation songs and dances (Ellenberger and MacGregor (1912), while Marshall (1999) stated that the San *tshoma* initiation brings the boys into manhood and the *Tshxai !Go* (Men's dance) is in every way the most important part of the '*tshoma* rite of passage'. Barnard (1992) stated that the *tsoma* has unique music and dance steps and that for the !Xo the male initiation dance and associated ceremonies are perhaps the most elaborate rituals recorded among the Khoisan peoples.

I sense that it is therefore quite possible that the San name for the *B. disticha* bulb is somehow linked to the names *tshoma, tsoma* and *leshoma.*

Conclusion

This article discusses the existence of four paintings featuring the *B. disticha* bulb in the Western Cape and the importance of this particular bulb to the San people.

Based on these paintings, we now have iconographic evidence that the Cederberg San did use *B. disticha* bulbs in their ceremonies. We have San artists' illustrations that show us what physically happened to initiates after they had consumed *B. disticha,* and proof that their experience was the same as that of San and Sotho initiates today. This understanding allows us to interpret other paintings in the Cederberg (Fig. 8a), where *B. disticha* bulbs are not present in the painting and conclude that San men lying scattered randomly on the ground are under the psychoactive influence of *B. disticha*.

This has given us a rare insight into the San's secret *tshoma* male initiation ceremony, which has been the single most important ritual in the life cycle of San hunters for thousands of years.

Acknowledgements

To eCRAG for arranging the rock-art field trips; to Rory Allardice and Adam Mason for bringing my attention to the paintings at De Hoop; And to Prof. Peter Mitchell for his expertise, guidance and comments on this article.

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INDIGENOUS KNOWLEDGE OF FOSSILIFEROUS CAVES

Continued from page 3

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Biochronological ages for South African *Australopithecus* and a Plio-Pleistocene African hominin lineage (1,5 – 3,5 Ma)?

Francis Thackeray and Sue Dykes

Granger et al. (2022) have obtained cosmogenic nuclide isochron ($^{10}Be/^{26}Al$) ages for Plio-Pleistocene australopithecine fossils from Member 4 at the Sterkfontein Caves. Their dates of between about 3,4 and 3,7 million years ago (Ma) have suggested that East African *Australopithecus afarensis* and South African *A. africanus* were pene-contemporaneous. Challenging these ages, Frost et al. (2022) used a biochronological approach based on cercopithecid primates to suggest that the dates for australopithecines represented in Sterkfontein's Member 4 span a period between 2,0 and 2,6 Ma. The two sets of results are mutually exclusive. In our study, a biochronological approach based on hominin teeth is explored to address the debate. We consider the possibility of a hominin lineage without clear boundaries between species or genera.

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Biochronology

For reference purposes, an equation can be generated initially whereby the ratio of mesiodistal (MD) and buccolingual (BL) diameters of East African hominin lower first molars (M_1) is related to radiometric dates for a sample of specimens attributed to *A. afarensis, H. habilis, H. rudolfensis* and *H. erectus,* ranging in age from 0,9 to 3,8 Ma. The following relationship (excluding *Paranthropus,* which is not part of the *Australopithecus-Homo* transition) is based on an East African data set compiled by Dykes (2014).

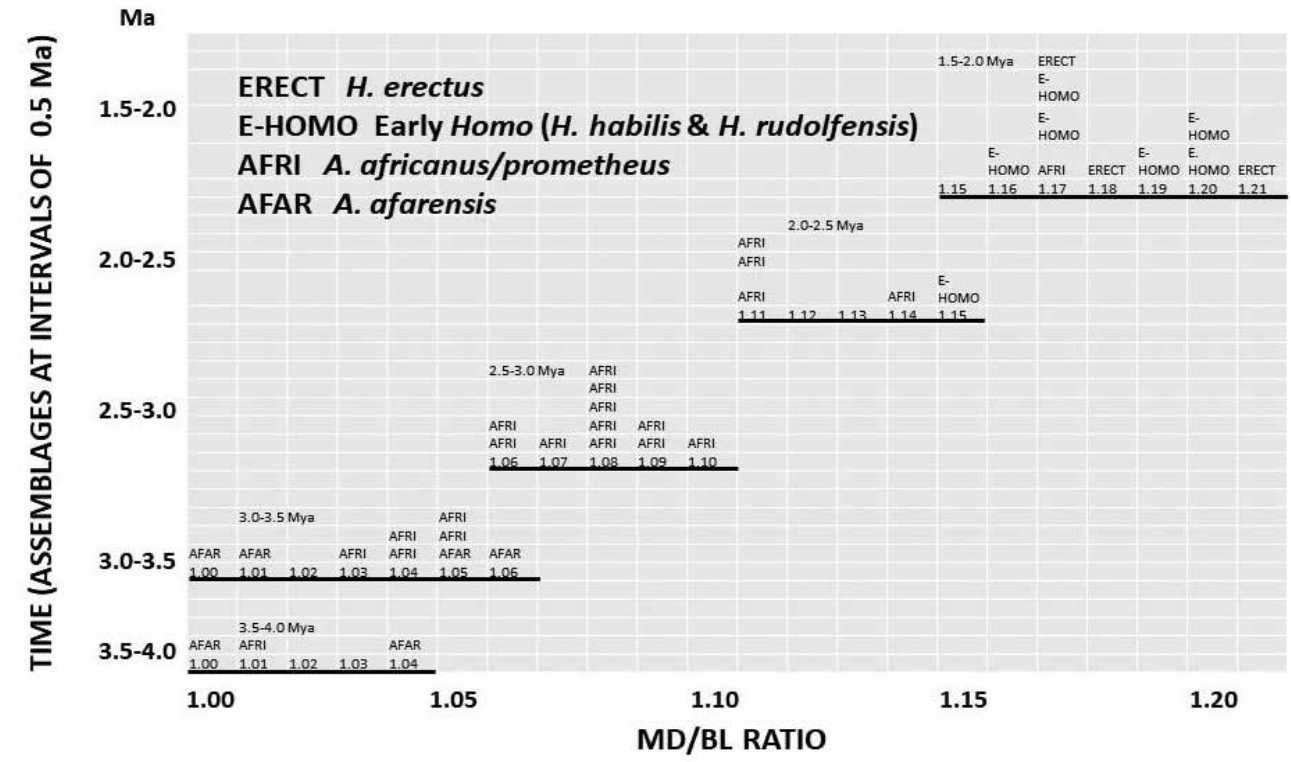

Fig. 1: Temporal variability in MD/BL molar ratios for samples of hominins at intervals of 0,5 Ma. Histograms are shown for five assemblages in which the following taxa are represented: A. afarensis (AFAR), A. africanus or A. prometheus (AFRI), Early Homo (E-HOMO: H. habilis and H. rudolfensis) and H. erectus (ERECT).

Geological Age (Ma) = -10,407 (MD/BL) + 13,990 (r^2 = 0,85): Equation 1.

The correlation coefficient is essentially identical to that which was obtained by Frost et al. (2022) for a *Theropithecus* (gelada baboon) lineage in East Africa (r^2 ~0,83). Equation 1 is applied here to individual hominin teeth from Sterkfontein, Taung and Makapansgat in South Africa, measured by Jacopo Moggi-Cecchi (personal communication to JFT).

The debate regarding dates for *Australopithecus* in

South Africa is addressed in this study in the sense that our mean estimated age for 19 specimens attributed to this genus at Sterkfontein is 2,76 ± 0,40 Ma, which is associated with a wide range extending between 1,83 and 3,50 Ma, corresponding closely to the lower limit set by Frost et al. (2022) and the upper limit set by Granger et al (2022) for Member 4. Our estimate for the age of the Taung holotype of *A. africanus* is 2,58 Ma, corresponding very closely to the mean of our biochronological dates for Sterkfontein australopithecine specimens (2,76 Ma). The estimates for MLD 2 and MLD 40 from Makapansgat (attributed to *A. prometheus* or *A. africanus*) are 3,07 and 3,00 Ma respectively. A Sterkfontein specimen attributed to early *Homo* (Stw 151), the identity of which has been questioned by Zanolli et al. (2022), has an estimated age of 1,82 Ma. Sts 9 from the same site, identified by Zanolli et al. (2022) as *Homo,* but otherwise regarded as *A. africanus*, has an estimated date of 2,03 Ma.

Fig. 1 shows temporal variability in MD/BL molar ratios for samples of South African and East African hominins at intervals of 0,5 Ma. As the 'AH hypothesis', we propose that this represents a lineage without clear boundaries between species, and without a clear boundary between *Australopithecus* and *Homo*. In terms of this Plio-Pleistocene African hominin lineage (1,5 – 3,5 Ma), we suggest the following:

A. *A. afarensis* and *A. africanus* were contemporary within the period between 3,0 and 3,5 Ma.
B. Gene flow occurred episodically between *A. afarensis* and *A. africanus* in response to the episodic opening and closing of miombo woodland in regions of Zimbabwe, Zambia and Malawi. This woodland was an intermittent barrier, responding to climatic variability such that warm and wet intervals corresponded with expansion of woodland, contrasting with cooler and drier periods during which savanna grassland expanded, facilitating the migration of fauna such as *alcelaphines* (e.g. *Connochaetes* – wildebeest and Alcelaphus – hartebeest), gelada baboons *(Theropithecus)* and hominins *(A. afarensis and A. africanus).*
C. *A. africanus* and *A. prometheus* were contemporary in southern Africa within the period between 2,5 to 3,5 Ma.
D. There was no clear boundary between *A. africanus* and early *Homo* within the period between 1,8 to 2,2 Ma. Gene flow occurred episodically between populations of *A. africanus* in southern Africa and *H. habilis* in East Africa in response to the episodic opening and closing of miombo woodland in regions of Zimbabwe, Zambia and Malawi.

We suggest that the hominin lineage proposed on the basis of Fig. 1 is analogous to the lineage presented by Frost et al. (2022) in the context of molars of *Theropithecus.*

This exploratory study is based on small samples but can be tested using larger numbers of specimens and a larger number of dimensions per tooth. Recognising the great challenges of dating fossils from Sterkfontein with its complex stratigraphy and talus cones (associated with episodic deposition and erosion), and given the fact that Robert Broom used dynamite to discover many australopithecines from the site (such that context was lost forever), it would be remarkable if it is indeed possible to obtain reliable ages directly from molars of hominin individuals represented at sites in the Cradle of Humankind.

Acknowledgements
We thank Jacopo Moggi-Cecchi for providing data for South African specimens curated at the Evolutionary Studies Institute at Wits University and at the Ditsong National Museum of Natural History. We are grateful to curators of East African fossils for access to specimens in their care, notably Emma Mbua, Mary Muungu and Rose Nyaboke (Kenya National Museum), Eliwasa Maro, Mawazo Ramadhani and Amandus Kweka (National Museums of Dar es Salaam) and Jackson Njau (National Museum in Arusha). We thank Steve Frost and Chris Gilbert for comments. This study is based to some extent on a Masters' degree obtained (cum laude) by Sue Dykes, who died after obtaining her PhD through Wits University.

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THE STORY OF BOSKOP*

Alan G Morris

The Boskop skull and mandible from Péringuey et al. 2017

Great anthropological debates were not an issue in the mind of Piet Botha in October 1913 as he dug a drainage ditch on his farm Koloniesplaats, a few kilometres from the village of Boskop in what was then the Transvaal Province. The shovels hit some darkly stained bones encased in a soil matrix at about 1,3 m deep in the trench about 80 m from the bank of the Mooi River (Haughton, Thomson and Péringuey 1917). At the time of the trench excavation, Mr Botha was being visited by JL Groenewald, an old friend from Adelaide in the eastern part of the Cape Province. Botha was going to throw the bones away, but Groenewald asked if he could take them with him when he went home to get an opinion from the nearby Port Elizabeth Museum. Mr Botha did not object. Later that year Groenewald took the skull cap with him to show Frederick FitzSimons, the director of the museum in Port Elizabeth. FitzSimons immediately recognised that the skull cap was human and that it was very old and therefore very important. In his opinion it would be worth exploring further with an excavation at the site. Groenewald wrote to Botha in Dutch, requesting permission and Botha consented by telegram, also agreeing to the donation of the bones to the Port Elizabeth Museum. FitzSimons visited Boskop, met with Botha and excavated at the site, recovering a few more fragments and some soil-encrusted post-cranial remains. FitzSimons told Botha that he would like to come back and dig again once the site was drained, and Botha agreed.

At this point, an unknown person (presumably Mr Botha himself) contacted the Transvaal Museum about the site. The museum in Pretoria wrote to FitzSimons telling him that Mr Botha had actually intended to give the skull to them. The Port Elizabeth Museum board conferred with Groenewald about the original donation, satisfying themselves that the events of discovery did not support Pretoria's story. Some quick negotiation between FitzSimons and Louis Péringuey of the South African Museum resulted in an agreement that Péringuey's team in Cape Town would analyse the skull and help to fund further excavations at the site. FitzSimons would accession all the remains in Port Elizabeth.

In the meantime, Piet Botha had become very difficult to deal with. Botha demanded financial compensation for any further work to be done on the farm. In a letter to Péringuey, FitzSimons said: 'These Boer peasants are very cunning and Botha would no doubt have surmised the find was more important than I am giving him to believe'. At one point Botha asked for £500, but FitzSimons rejected that outright. In the end, they agreed to a single payment of £50. To get an idea of the magnitude of this cost, data from the first decade of the 20th century indicate that the monthly wage of a European labourer was about £9 and a skilled European craftsman perhaps about double that (De Zwart 2011). Botha drove a hard bargain.

Sidney Haughton, a young geologist from the South

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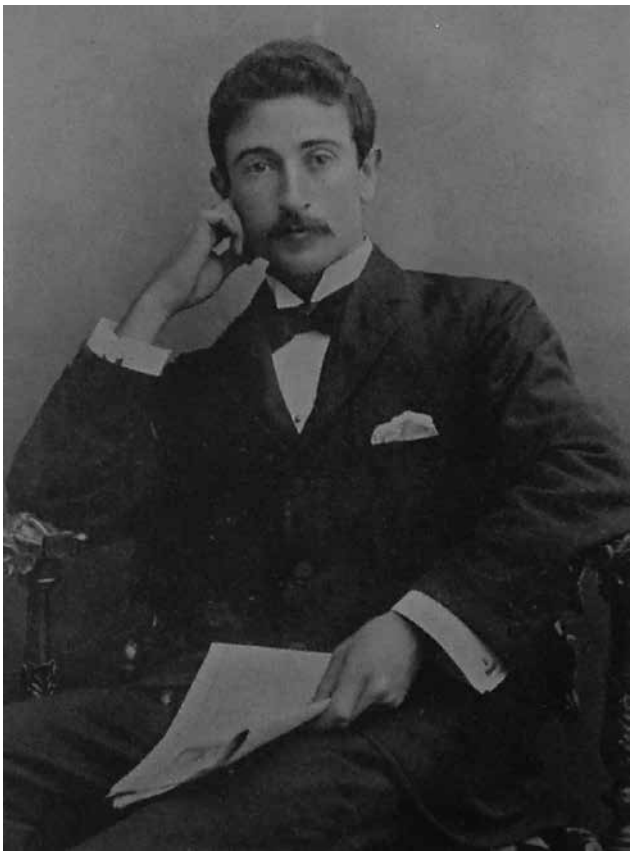


FW FitzSimons of the Port Elizabeth Museum in 1911

African Museum was sent to Boskop to re-excavate the site. In the meantime, Botha had completed the drain and Haughton was able to do a thorough survey. He was very disappointed as he could find no other evidence. He noted that this was the fourth excavation on site, as a team from the Transvaal Museum had dug as well, unknown to Péringuey and FitzSimons.

The analysis of the skeletal remains continued for about a year after Haughton's return from the site. An endocranial cast of the brain was sent overseas for analysis by the anatomist Grafton Elliot Smith, then in Manchester, but the account of the geology, archaeology and osteology were done by local researchers. FitzSimons, based on his first assessment of the cranial vault shortly after the discovery, concluded that the skull was 'Mousterian and very closely allied to the original Neanderthal, if not the same race'. The published report by Haughton, Thomson and Péringuey (1917) did not agree. Their decision was that although the remains did show some primitive characters overall, they were similar to modern humans of the Cro-Magnon type. All the terminology used by Péringuey and FitzSimons was drawn directly from the European literature in the belief that the South African archaeology was reflecting the same evolutionary transition from primitive (Neanderthal anatomy and Mousterian technology) to advanced (Cro-Magnon anatomy and Aurignacian technology).

Much of the first publicity on the Boskop skull is found in the newspapers. This was because FitzSimons' strength was in public engagement. He frequently made public appearances and wrote frequently to the press and in popular magazines on scientific topics. Although he had no formal scientific training, FitzSimons identified himself as an expert and was accepted by the public as such, but in fact anthropology was not one of his subjects of knowledge. The discovery of the Boskop skull opened up an entirely new field to FitzSimons. The brief experience of digging for more bones in Botha's trench was enough for him to begin to explore cave sites in the Tsitsikamma coastal region from 1915 onwards. Péringuey had sent James Drury, his own excavator at the museum, to the caves nearer to George in 1911, but Drury's careful excavation with detailed records and careful storage of excavated material did not look a bit like FitzSimons' work. FitzSimons' excavation techniques were extremely primitive and it is still unclear exactly which sites were dug and how many skeletons were unearthed (Deacon 1979).

Péringuey, working with Haughton and Thomson, had been very slow and careful in his analysis. Their 1917 paper showed that the European Cro-Magnons could also be found at the southern tip of Africa but, more importantly, that humans had a presence in the region deep in antiquity. But the understated conclusions were overwhelmed by Robert Broom who submitted his own publication as soon as the first description came out. Broom (1918) disagreed with Haughton's cranial capacity estimation, raising it to 1 960 cm^3uge volume in the light that the average human male has a brain volume of only about 1 330 cm^3. Palaeoanthropology at the beginning of the 20^{th} century was convinced that it was the brain, especially its size, that defined humanity. Even though these researchers were aware that a large brain did not necessarily result in a clever man, they were convinced that the exceptionally large size estimates for the Boskop brain must have had a real meaning in terms of mental function.

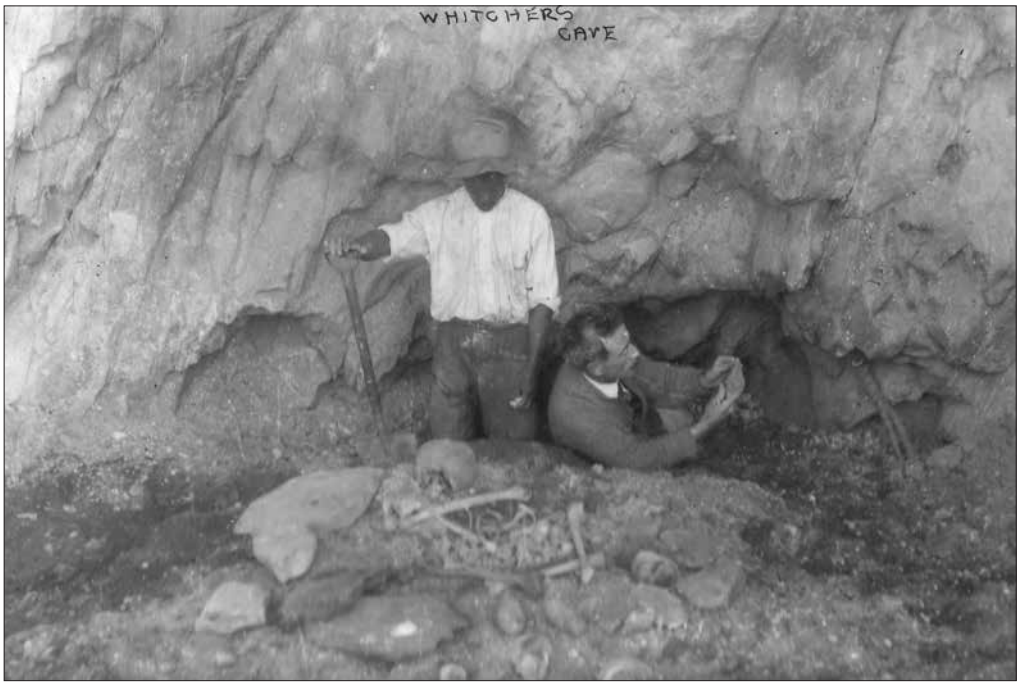
Broom remarked that the cranial shape seen in longitudinal section matched several Neanderthal specimens and that the skull is 'at least as similar to Neanderthals as it is to Cro-Magnon'. The specimen could have been ancestral to both, making it as important locally as Piltdown was in Europe at the time (Broom 1918). He emphasised this by giving the specimen a separate species name – *Homo capensis*.

In the meantime, FitzSimons had been busy disinterring human remains from cave sites along the south coast in the region of the Tsitsikamma forest. Of concern to FitzSimons was that there was a difference

between the shallower layers and the deeper layers (greater than 4,5 m). FitzSimons interpreted this as representing two separate Strandloper populations: the more recent higher in the deposits, whom he identified as 'Bushmen', and an ancient more primitive group as 'cliff-dwelling Boskop people. Ever the showman, FitzSimons used the newspapers to announce the excavations to the public.

He was certain that these earlier people were identical to the Palaeolithic people found in Europe. Their demise was due to the 'Bushmen' who penetrated the coastal regions, 'which up to that time had been exclusively the home of the cliff dwellers, and hunted the latter with their poisoned arrows, against which the primitive stone and bone weapons of the cliff men were impotent'.

FitzSimons forwarded some of the deep human remains to Raymond Dart in Johannesburg and it was he who made the formal connection between them and Boskop (Dart 1923). It says much about Dart's energy as a young researcher that he managed to get this first paper out in an entirely new field within his first year in Johannesburg, despite all his teaching and administrative duties and the complexities of setting up a home in a new city. Dart carefully reconstructed the two fragmentary individuals from the deepest level of FitzSimons' cave sites and remarked on their similarity to the original Boskop skull. He especially remarked on the extreme length and breadth of the skulls and reconstructed a cranial capacity for the larger skull at 1 750 cm^3, exceeding by far the average cranial capacity for European skulls (Dart 1923). He disagreed with Broom's assessment of a new species, but he remarked that the skulls represented 'a race once widely distributed in South Africa from the Transvaal to the remotest south-eastern corner of the continent' (Dart 1923).



FW FitzSimons 'excavating' at Whitcher's Cave, ca 1925

In the same manner as FitzSimons, Dart took to the newspapers to herald his discoveries. In an interview in *The Star* of Johannesburg, Dart not only identified the Tsitsikamma remains as the same race as Boskop, but also linked them to the cave art. This he linked to the Cro-Magnon of Europe, acclaiming the South African peoples as highly civilised. Dart echoed FitzSimons' preconceptions. Explaining how the 'Bushmen' had replaced them, he suggested in the same newspaper article that 'it might be they had discovered the poisoned arrow or some improved form of it, and so exterminated the intellectually superior but less well-armed race'. All of this assumed that the large brain case carried a brain that was functionally better than any other native group, putting these extinct people on a par with the ancient Europeans.

In the meantime, international approval for the Boskop type had come from William Pycraft at the British Museum in London. In a long and detailed paper, Pycraft (1925) compared the Boskop remains to early Europeans. He argued that it would be incorrect to call Boskop either Neanderthal or Cro-Magnon, but that it was (in opposition to Broom) a divergent branch of the species *H. sapiens*. Although the pre-frontal area of the brain of Boskop was larger than that of a Neanderthal, it was smaller than that of the Cro-Magnon race. This last point is critical because at the time it matched the belief that the size of brain structures was directly linked to brain function, and it implied that this large-brained African was not as intelligent as their European cousins.

Saul Dubow (1995) has noted the racial overtones in the discussion of Boskop. One of the themes that appeared at the time was that the notion of the 'Bushman' as a degenerate form of human, who could not have produced the wide range of beautiful rock art

present in South Africa. Instead, the art was attributed to the Boskop people because of their larger brain capacity. This was consistent with the belief at the time that modern Europeans were superior to other races.

To Dart, his students and a growing number of his colleagues, the Boskop type was a new race comparable to other living races of South Africa. The extension of an extinct race into the present was completed when Dart identified the presence of Boskop ancestry in a group of San from the northern borders of the Cape Province in the Kalahari Gemsbok Park (Dart 1937). Dart measured each individual, with special reference to cranial size and shape, and assessed each individual according to his or her percentage 'Bushman' or Boskop ancestry, calculated by their similarity to the Boskop cranial features. Features that fitted neither of these preconceptions were said to be signs of intermixture from Bantu-speaking, Mediterranean (Hamitic), Armenoid or Mongoloid peoples (Morris 2012). Boskop had now been transformed from an interesting and possibly ancient skeleton from the old Transvaal into a major racial line of humanity inhabiting South Africa in the distant past, but still contributing genetic lines into the present.

The final brick in the construction of the Boskop edifice was Dart's colleague Alexander Galloway's identification of the Iron Age burials from Mapungubwe and Bambanyanalo, in what is now Limpopo Province, as being direct descendants of the Boskop race. The Mapungubwe individuals were buried with a rich assortment of gold, iron and ivory grave goods on a hilltop site surrounded by stone walls. The significance of his argument should not be understated, as Galloway was saying that the wonderful Iron Age stone-walled sites, with their rich elaborate burials, could not be attributed to the ancestors of the living Bantu-speaking peoples of southern Africa (Hall and Morris 1983; Dubow 1995). Galloway stated, 'deliberately and with a full comprehension of its significance that there is not a single specifically negro feature in any skull hitherto recovered at Bambandyanalo' (Galloway 1959). Perhaps Galloway did not perceive this as an explicitly racist argument, but in hindsight we can clearly see the denial of cultural achievement in its historic context. This was no better than the argument made that the San were degenerate people who had lost a more glorious past.

The Boskop race survived the 1930s and 1940s but was becoming more difficult to define as new archaeological specimens were recovered in the 1950s. The individuals lumped into the archaeological definition of Boskop were so diverse that it was nearly impossible to justify any unity that could be defined as a single type. Boskop became less of a population than a typological essence that could be identified by features rather than individuals. Matthew Drennan (1931) had suggested that Khoesan people and their Boskop predecessors maintained childlike features in adults. This would explain the relatively small face and strongly bossed cranial vault (which gave the skull a pentagonoid shape when seen from above). Drennan called this 'pedomorphosis', a term drawn from the work of the Dutch anatomist Louis Bolk, who talked about the retention of juvenile anatomy in the adult as a mechanism of human evolution. Phillip Tobias (1955) tried valiantly to untangle this knot of genetic strains among the people of southern Africa by including the giganto-pedomorphic Boskop as one of the hybridising lines, but what he produced was confusing and difficult to understand because he himself had not yet grasped the changes that were already happening in the analytical methods of the subject (Morris 2012).

What Tobias could not grasp was taken in both hands by his Cape Town colleague Ronald Singer. Singer (1958) looked at the range of variation in the individuals in the sample, rather than the presence of preconceived morphological types. In the case of Boskop, he showed that the Boskopoid skulls were simply a group of individuals at one edge of the total range of variation seen in Khoesan populations. Nearly all individuals accepted as Boskop were large, robust males and their special range of morphological variation could be comfortably explained in terms of Khoe, San and Negro variation. What struck him was the general African nature of all these skulls. He did not see the Khoesan as a separate race, but as one of the regional variants of African populations.

Both Tobias and Singer were part of the wave of the 'new physical anthropology', which began in the 1950s. Central to this shift in interpretation was the focus on the process of change, rather than the classification of types. Phillip Rightmire produced the first of these new-style analyses for South African archaeological skeletons in 1970. In his analysis, the Mapungubwe and Bambandyanalo crania fell comfortably into the range of Bantu-speaking peoples. The new studies demonstrated that the Boskop range of variation was only a small part of the total variation in Khoesan and South African Negro populations. The Boskop type represented large individuals at the edge of variation and did not represent a distinct human population. We now know that there was a diminution of body build between 4 000 and 2 000 years ago (Sealy and Pfeiffer 2000). It is certainly possible that large, more robust individuals were more common in the earlier coastal populations, but they represented the extreme of the range of variation, rather than the most common.

The publication of Singer's 1958 paper marks the

Continued on page 23

A PAINTED ROCK SHELTER IN THE ROGGEVELD

Jayson Orton

This contribution places on record a rock shelter located near the foot of the Great Escarpment in the Western Cape's south-western Roggeveld Mountains (Fig. 1). The site was first recorded as KDB045 by Katie Smuts in 2018 during fieldwork for an impact assessment and was revisited by me in the company of John Almond and Madelon Tusenius in 2020 to obtain a more detailed record. It lies on the farm Oliviers Berg 159, Ceres Registration Division.

A long, gently curving and east-southeast-facing cliff at the head of a valley has eroded to form an overhang about 80 m long. A deeper section, extending 7 m behind the dripline, lies at the southern end of this cliff. The floor in this section comprises dung and small rocks and slabs, and it is evident that there is dung beneath the surface as well. The dung will certainly be historical and recent and probably caps a Later Stone Age deposit. Another shallower shelter lies at the northern end of the cliff at the head of the valley, but its floor is only of scree. In times of rainfall, a stream runs over it and down the back wall. The intervening area is mostly just an overhanging rock wall.

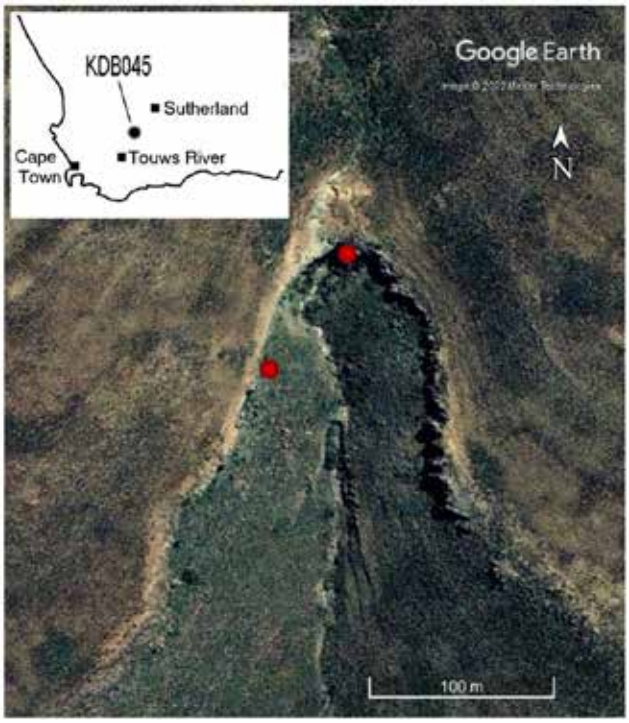


Fig. 1: Insert – Map showing the location of the site. Main – Aerial view of the kloof with dots showing the ends of the overhang.

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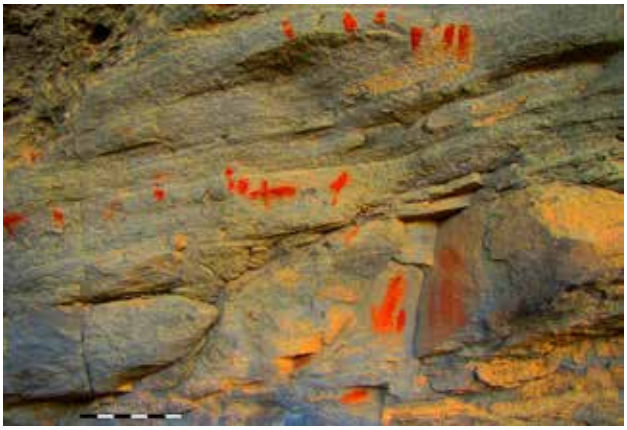

Fig. 2: Panel of finger-painted rock art with colours manipulated to emphasise the art. Scale in 2 cm intervals.

The main shelter has many red finger-smeared paintings. The preservation state of the rock art suggests two phases of painting. The older and more poorly preserved paintings include a few finger smears and two rayed circles. The better preserved and presumably more recent art includes many finger smears that are mostly vertical lines, but there are also some horizontal lines and occasional crosses. It is also possible that the preservation relates to the quality of the paint mix. Some finger smears have been carefully placed onto small flat faces under tiny overhangs on the rock surface (Fig. 2). There are a few small patches of ochre paint midway along the wall, including one image that may be the remains of a rayed circle, but these are all very poorly preserved. Also among the poorly preserved art are what appear to be two right-hand prints (Fig. 3). There does not appear to be any fine line imagery in the site, although Smuts (2018) suggested that two horizontal smears could be remnants of eland torsos. All the art in the site is otherwise ascribable to the geometric tradition. Geometric tradition paintings were first properly described by Smith and Ouzman (2004) with Eastwood and Smith (2005) expanding on the descriptions and providing a typology of imagery that they found in the Limpopo River Basin. While this typology includes all the general types of motifs seen in western South Africa, it is clear that there is some minor variation (Orton 2012, 2013). One of these is evident at KDB045. While vertical finger smears occur as Eastwood and Smith's (2005) Type C1, they list 'crosses' in their Category H (Other geometrics) but do not illustrate the typical cross found in central South Africa, including in KDB045. These crosses are very simple motifs consisting of vertical and horizontal finger smears placed over each other, which might be better included in their Category C rather than in

Category H. To the best of the my knowledge, these always occur in the + format in this region and never as an x and are generally uncommon.

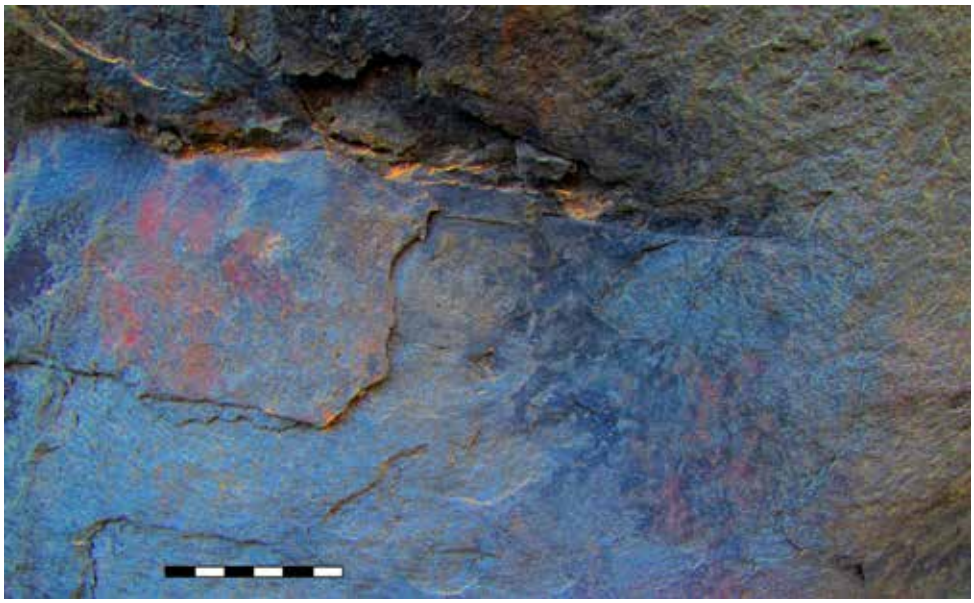

Fig. 3: The two right handprints with colours manipulated to emphasise the art. Scale in 2 cm intervals.

The floor of the main shelter in the south bears plenty of bone fragments (some large shaft fragments, tortoise bones and various other bones) and ostrich eggshell fragments. Some of these are burnt. Flaked stone artefacts seen on the floor are made from hornfels, crypto-crystalline silica (chert) and other rocks. Four formal tools, three adzes and one thumbnail scraper, were seen. One whole lower grindstone of 26 cm by 20 cm, along with a lower grindstone fragment measuring 18 cm by 17 cm and bearing ochre traces, occur. A broken, grooved stone made from a soft yellow sandstone was seen (Fig. 4). It had five, or possibly six, grooves. Two further pieces of the same type of stone were seen but they were unmodified. Fragments of ochre were also found. Some pottery was present, including a large neck sherd with wall thickness measuring between 5mm and 6mm (Fig. 4). The external surface of this sherd was entirely ochred, while the inner surface was ochred as far down as the turn (i.e. only the inside of the flare is ochred). One of the most interesting finds was a string of five Nassarius kraussianus beads that seem to have a sinew as well as thin grass string joining them (Fig. 4). These shellfish live in river estuaries and their presence here indicates contact with the coast that lies a minimum of 175 km away. Whether this was through trade or travel cannot be known.

Fig. 4: Top – Grooved stone. Middle – red-painted potsherd. Bottom – strung Nassarius beads.

A boulder on the southern edge of the cave floor is covered with a hard glossy patina. It has some ochre on its upper surface, as well as a composition of smears on an equally patinated edge facing into the site. There is graffiti scratched into the glossy patina including 'H. Winterbach' and some other largely illegible names. No full dates are discernible but '24 Sept' was evident beneath a name that reads 'J. Hutor'. Another inscription has what might be an underlined date ending in '26' beneath it.

KDB045 likely contains a good deposit although its depth could not be ascertained. In conjunction with the rock art, it would provide a good opportunity to research the precolonial occupation of the south-western Roggeveld.

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BEGINNING OF A ROCK ART JOURNEY

Recording paintings in the uKhahlamba-Drakensberg, 1979–1980

Aron Mazel

I got lucky early on in my career! Fresh out of university, I obtained a job to locate and record rock paintings, surface archaeological remains and sites with potential archaeological deposits in the uKhahlamba-Drakensberg Mountains (Fig. 1). I moved from Cape Town, where I had grown up and attended university, to Pietermaritzburg, 1 600 km away, in the northeast of the country. This involved receiving a lift halfway and then hitchhiking the rest of the way, arriving on a Sunday night early in January 1979. The next day, I started my professional career at the Natal Museum, now the KwaZulu-Natal Museum, where the post was based. This was the beginning of a rock art journey that is still ongoing.

Fig. 1: View up the Injasuthi River and the high uKhahlamba-Drakensberg Mountains from Copulation Rock, February 1980

I was tasked to do Phase 2 of a project that was funded by the Department of Forestry, which controlled most of the mountains at the time. It lasted between January 1979 and March 1981. Phase 1 had been undertaken by Val Ward who had focused on collating known site records and initiating the fieldwork programme. The information collected during the project was mostly intended for management planning, based on the idea that effective planning required detailed, consistent and accurate information. It was the first rock art project of its kind in South Africa. My final report entitled, 'Up and down the little berg: archaeological resource management in the Natal Drakensberg', also served as my MA dissertation for the University of Cape Town (1981). The project involved 14 fieldtrips, 13 for recording rock art and another to do trial excavations at four rock shelters. The trips were generally three weeks long. Mostly they were solo trips although I was occasionally joined by students, friends and colleagues. Altogether, I recorded 333 painted sites, containing 18 867 paintings, and 55 non-painted sites with surface artefacts. Many sites and paintings were being recorded for the first time; for example, 3 748 of the paintings recorded, or 20 per cent of the total, were from previously unrecorded sites. The sites were typically at the base of sandstone cliffs, although there were also paintings on large, dislodged boulders. In 1980, I took paint samples for an AMS radiocarbon dating project at Never-ending Shelter, Cyprus 3 and Bundoran 1. Unfortunately, none of these samples yielded dates, but significantly the project did produce the first ever AMS radiocarbon date in the world on a rock painting from the south-western Cape (Van der Merwe et al. 1987).

Paintings were recorded through detailed written descriptions, supplemented by colour transparencies and monochrome photography. As far as possible, the photographic recording followed the same sequence as the written descriptions, i.e. working from left to right and top to bottom. About 16 000 black and white images and colour transparences were taken. (I often wonder how many images would have been taken had this been during the digital age!) A Management

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Fig. 2: Forest guards in Gxalingenwa Cave, Cobham. From left: Sixtus Dlamini, Petrus Ndlovu, Albert Ntuli and Martin Gumede, August 1980

Data Questionnaire was also completed at each site. All these records are housed at the KwaZulu-Natal Museum. Another feature of the site recording was to systematically glue a stainless steel Dymo tape strip, with the national site numbers punched onto it, at the bottom left of each site, which identified it as recorded. In total, 341 strips were adhered. In hindsight, these strips were not the most effective conservation practice, especially as the epoxy glue has tended to discolour over the years rendering many numbers unreadable. It must be remembered though that the project occurred well before the advent of GPS and we wanted, as best we could, to ensure that people knew which sites had been recorded to prevent duplication, a problem that had occurred up until then.

Fieldtrips involved setting up base camps and working out from them on a daily basis. Base camps included private homes, lodgings for inspection officers and researchers, caravans and rock shelters deep in the mountains, where Forest and Game guards skilfully guided horses with my provisions and equipment in panier bags (Figs 2 and 3). Living in rock shelters made for some interesting experiences. One day I thought I might have to spend the night with a troupe of baboons. After recording Clarke's Shelter, I returned to Eland Cave, my base camp, in the late afternoon to find a troupe close to and in the site, which meant they were planning to overnight there. It was cold with snow on the mountains (Fig. 4). I did not want to sleep outside and risk hyperthermia, especially as my trousers were already sodden from walking through long wet grass. Moreover, all my food was in the shelter and the nearest access point was too far away to risk walking out in the dark. Deciding to risk sharing the place with the baboons, I kept walking towards them with my walking stick and a firm gait. The closer I got, the louder and more intense the baboons barked. When I was about 50 m away, the baboons begrudgingly moved off, leaving me to enjoy a restful and warm night in the place that was my home for that week.

Considering sleeping places, at Vergelegen Nature Reserve, in March 1980, I slept in my project vehicle for four nights as the area above the 'squaredawel', as these living quarters were called, had been declared a landslide zone by engineers. We agreed that I could move my provisions into the squaredawel and use it for everything except sleeping. Come bedtime, I would relocate down the hill to a safer place (Fig. 5). For a couple of nights, I did not drive the vehicle up the to the quarters as it was not a 4-wheel- drive and I feared it would slip off the muddy track and after rainy days – a dread informed by the fact I had to be pulled out of mud by 4-wheel-drive vehicles and tractors on previous trips.

My first project fieldtrip was to the Kamberg Nature Reserve with Val Ward, starting on 31 January 1979. Val introduced me to the mountains and its rock paintings and together we initiated my recording programme. Over 40 years later, I can still clearly

Fig. 3: Aron Mazel camping in Eagles Krantz Shelter, Mkhomazi, March 1980 (Photo: Andrew Schofield)

remember my trepidation at seeing the mountains for the first time. They were huge, and I now had to walk them! I was familiar with mountains as I had grown up in the shadow of Cape Town's Table Mountain, but the uKhahlamba-Drakensberg Mountains were significantly more imposing. Terrifyingly, I had the daunting task of spending much of the next two years walking up and down them unsure that I would survive! This concern was exacerbated by my lack of fitness at the time. Later, I discovered that my initial apprehension was shared by conservation management staff who I encountered at the beginning of the project, who had taken bets about how long I would last, with the favoured timeframe being less

than six weeks. Not only did I prove them wrong, but more importantly I proved myself wrong. I plotted my walk-route daily on a 1:50 000 map sheet and estimated the distance carefully. I calculated at the end of the project that I had walked a minimum of 1 681 km (671 km in 1979 and 1 010 km in 1980). I emphasise minimum because working on a map with a piece of string would not have registered all my ups and downs and side steps. Moreover, on one trip I used a pedometer, strapped to my ankle, that gave me a higher reading of some 15 per cent: 92 km on the map and 105 km on the pedometer. The pedometer was abandoned thereafter as it was uncomfortable. Although my preferred mode of travel was on foot, occasionally I was placed on a horse and did my utmost not to fall off, although this did happen shortly after the project ended.

Back to my Kamberg trip, I would love to say that the first painted site I visited was the world-renowned Game Pass Shelter 1. Instead, it was Waterfall Shelter, which is en-route to this site from the camp. I first visited Game Pass 1 six days later with Val and Tim Maggs, who had joined us for the day. We spent the afternoon examining the paintings and discussing how best to record them. I spent the next two days recording 367 paintings in the site and 42 in the adjacent site of Game Pass 2. That initial fieldtrip showed me that the sites contained a wide range and a large number of paintings: from a single eland at Pluto 3 to hundreds of paintings at Game Pass 1. The most paintings recorded at any one site in the mountains is 1 639 at Eland Cave (Pager 1971), while the most I recorded was 1 235 at Battle Cave, which resulted in 39 typed pages, including small sketches of some of the paintings (Fig. 6).

Early on during fieldwork, I also learnt that often there were many more paintings at a site than what there appeared to be at first glance! At Sigubudu 1, in Royal Natal National Park, which I recorded during my second fieldtrip in March 1979, I wrote in my daily journal: 'Initially, the paintings looked very faded and uninteresting, however, on closer inspection there were greater than 300 paintings, with some interesting paintings – especially the humans with rifles'. I recorded 315 paintings there.

At Royal Natal I also realised that areas that had not previously been comprehensively searched, were likely to have many more sites than were on record. Here, the painted sites increased from 15 to 25, while 10 sites with only surface archaeological material were added to the record. As time went on, the value of local knowledge became evident as the park's Warden, Ron Physick, after reviewing the directions to and descriptions of paintings at two recorded sites advised that they were likely to be the same site, which proved to be the case. Invariably, confusions like this were exacerbated when people provided

Fig. 4: Snow on the mountains close to Eland Cave, Cathedral Peak, September 1979

inaccurate map locations, something I suspect I was also occasionally guilty of. The biggest incorrect distance I encountered between a location provided to the museum and the actual location was 7 km, which meant that the site was outside the project area.

Throughout the fieldwork, advice from conservation staff was invaluable in locating sites. Of particular help was Bill Small, then the Forester at Cobham State Forest, whose great interest in the paintings led to him mapping many new sites for me, leading to the doubling of recorded sites at Cobham from 49 to 106. Increased site numbers of this kind answered a question that I was often asked during the project: 'But surely this area has been investigated before; is there a need to cover it again?'

Not only was local knowledge important for locating known sites and finding unrecorded sites, but also, on occasion, it was invaluable when my stuff and I were transported around the mountains. One trip I remember well, occurred in September 1979, when John Hlongwane and Sokola Mdluli, Cathedral Peak forest guards, relocated me and my panier bags – filled with clothes, food and other stuff – on horseback from Eland Cave, where I had stayed the previous week, to Zunckels Cave. Shortly after we departed Eland Cave, it started raining hard and a thick mist

Fig: 5: Aron Mazel in his project vehicle, Vergelegen, March 1980

Fig. 6: Central part of the Battle Cave fight scene, Injasuthi, February 1980

descended on us, severely limiting our visibility. It remained like this for the rest of day, but they delivered me safely to the cave! To this day, I have no idea of what route they took, although I know it involved crossing the Mhlwazini River. Dutifully, I sat on the horse all the way!

Not only was mist a problem on the trip from Eland Cave to Zunckels Cave, but it was ever-present during field work and there were several times when I would have to wait, occasionally in the shelter I was staying in, until the mist lifted before venturing out. In fact, I lost one-and-a-half of the six days I spent at Zunckels Cave to mist. Another memorable encounter I had with mist was with Albert Zondi, a forest guard at Garden Castle. In October 1980 we set out early from Garden Castle as Albert was going to guide me to Fun Cave in the upper Mzimkhulu Valley to meet up with Clem Robbins and a party he was leading, including journalist Melanie Gosling. I noted in my daily journal: 'For most of the day we couldn't see more than a couple of hundred meters ahead of us. At about 4pm we decided to find a shelter to spend the night'. Luckily, we found a small shelter and huddled into it. After an uncomfortable night, we awoke to a clear sky and realised that we were not in the upper Mzimkhulu Valley, as we thought, but in the adjacent lower Thukelana Valley and a substantial way from our destination. A long walk ensued to correct course! After meeting with Clem and the others, it was decided that we would not make it to Fun Cave by nightfall. Instead, we camped in Mayo Cave, where an onsite interview with Melanie led to my first-ever newspaper article (Gosling 1980), with the following ending, 'As he climbs aboard the four-wheel drive and bumps up the mountain road back to work, I can't help wondering how many little grey men in Durban would gladly give their monthly bus coupons to be able to swop jobs for just one day with Aron Mazel' (Fig. 7).

Notable weather events were not restricted to mist. I got caught in many heavy downpours and even hailstorms. The most frightening of these occurred on 7 February 1980 while recording Battle Cave in the Injasuthi Valley. Although lightning was common in the mountains, it was particularly fierce on that day. My tension was exacerbated by the fact that about six weeks previously, two people had been killed relatively close by in a powerful lightning storm: 'A game ranger, John Clarke and his girlfriend, Carol Richter, together with their dog, were killed by lightning during a "dry storm" on the 20th December 1979. They were standing on a ledge overlooking the Injasuthi Valley at the time, watching the storm build up' (Pelser 2019). Cognisant of this tragedy, I snuggled close to the rockface while recording, especially as Battle Cave is not a very deep site.

In the preface to the MA, I wrote (1981: i): 'Thinking about the project, and leaving aside the research results and conservation recommendations, the first thing which comes to mind is the large number of people who have assisted in one way or another to


Mountain man Aron charts rock art heritage

Fig. 7: Article by Melanie Gosling in the Natal Mercury, 28 October 1980.

ensure the successful completion of this project and the final write-up'. This sentiment, together with the immense privilege of being able to document the significant and world-renowned imagery created by the San hunter-gatherers, and perhaps also by pastoralists and Bantu-speakers, still lives on strongly within me 40 years later!

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Looting and decay in Africa during Covid-19

The Covid-19 pandemic will long be remembered for the lockdowns it imposed and the millions of lives it stole, particularly among the elderly. A recent Unesco report shows that it has also took a subtle yet large toll on Africa's world heritage properties. World heritage sites in certain regions have suffered significant economic impact as a result of the pandemic, with those in Africa bearing the biggest brunt. In 2021, 52 per cent of African world heritage properties reported Covid-related threats, including looting and insufficient materials to conserve sites. In comparison, 34 per cent of properties in Asia and the Pacific reported similar issues, and only 15 per cent of European and North American sites.

The abrupt cut-off of tourism revenue is first to blame for these impacts. Several African countries are highly dependent on the sector, with tourism accounting for 10 to 20% of GDP in Botswana, Gambia and Namibia, and over 20 per cent in Cabo Verde and the Seychelles. In 2020, international tourist arrivals dropped by 97 per cent compared to 2019, and by 2021 were still 73 per cent less than pre-pandemic levels. At its worst point in the pandemic, Africa's travel and tourism sector lost $85.9 billion and 5.8 million jobs. After global travel came to a halt, Public subsidies, which cover the bulk of expenditures incurred by the management, staffing, conservation and maintenance of the sites, took a plunge in 44 per cent of subsidised African world heritage sites. Only eight per cent saw their subsidies increase.

Adding to the pain was the increased looting of world heritage sites during lockdowns. In Mali, one of the oldest cities of the continent, Djenné-Djenno, which is known to have been inhabited from 250 BC, has been heavily affected by illegal excavations and the looting of statues and other artifacts. The risk of looting and illegal trade of cultural objects was found to have increased significantly during the pandemic. In March and April 2020, online illicit trade in looted objects spiked, according to the Antiquities Trafficking and Heritage Anthropology Research Project (ALTHAR). Insufficiently protected archaeological sites became an easy target for looting or other forms of illegal access. ALTHAR, which monitors Facebook groups that serve as marketplaces for cultural antiquities, many often looted, found that many gained hundreds of thousands of new members during the pandemic.

Beyond objects that could be looted, the Covid-19 pandemic also posed a threat to the world heritage sites themselves. For example, lockdowns brought a halt to 400-year-old social and cultural rituals for the maintenance of the Konso Cultural Landscape, which is made up of dry-stone terraces and fortified settlements in South Ethiopia's Konso Highlands that retain soil, collect and manage water and facilitate agriculture. During the pandemic, the fall in tourism and reduced security led to some of the terraces being scavenged for building supplies.

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THE STORY OF BOSKOP

Continued from page 16

end of Boskop as an important player in the history of southern African peoples, and by the 1970's Boskop and the mythical race that it had spawned were gone from the scientific literature.

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