THE DIGGING STICK

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GENDER AND NORTHERN EASTERN CAPE SAN ROCK ART

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In rock art and excavation archaeology, the importance of gender for understanding more about how past people thought and acted is undervalued (Stevenson 1995: xiii; Olivier 2004: v). My research explores the reasons for San artists gendering humans and sexing animals in the rock paintings of the northern Eastern Cape (Fig. 1) to understand more about identity and personhood (Green 2020). For the past 20 years I have surveyed the painted rock shelters in the Drakensberg and lower-lying areas of the northern Eastern Cape and agree with other rock art researchers that many of these paintings are related to ritual specialists and their experiences. However, this understanding should not encourage us to create a caricature of the San as people dancing and trancing, sharing and caring across this and many other landscapes. Who were they really and can this question be answered?

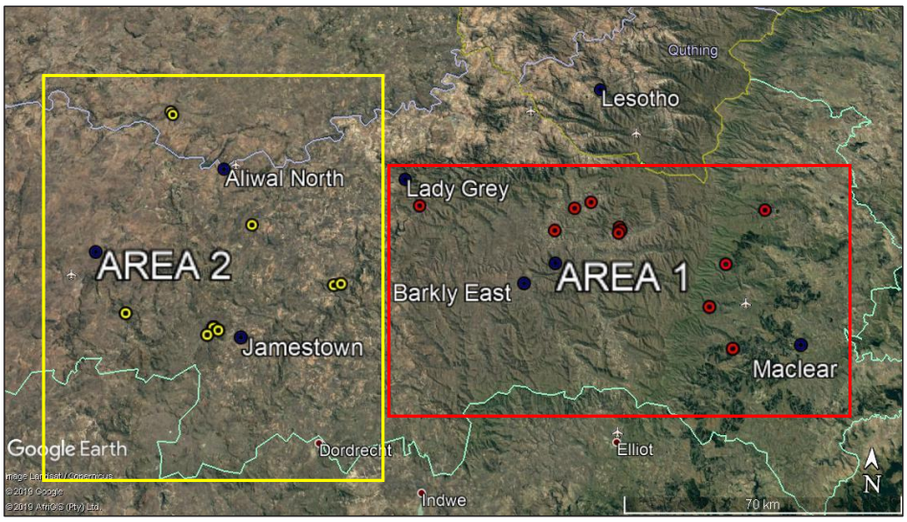

Fig.1: Google map with site locations in Area 1 red, and site locations in Area 2 yellow (Landsat/Copernicus ©2019 Google, ©2019 AfriGIS (Pty) Ltd)

Theory and method

To explore these issues, I used a new combination of theories – standpoint feminism (Crasnow et al. 2015) and entanglement (Hodder 2012), with a different combination of quantitative and qualitative methods. I chose two study areas to cross-check and compare results. Of the known sites, I randomly chose 11 sites from Area 1 (Barkly East, Maclear and Ugie) and 10 from Area 2 (Aliwal North, Burgersdorp and Jamestown). I recorded every painted image I could identify in each site, totalling 2 852. Of these, 1 676 are paintings of humans. I recorded how humans are represented: their gender, what clothing and/or body decoration they have, what they are carrying or

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Fig. 2: Indeterminate figures tall and thin carrying arrows and bows (Area 1 left, Area 2 right)

touching and what is painted around them. From these results, I identified seven categories of paintings of people: indeterminate figures – tall and thin (Fig. 2); indeterminate figures – large buttocks (Fig. 3); figures with penises (Figs 4 and 5); figures with breasts (Fig. 6); therianthropes (figures that are part human/part animal), therianthropes with penises; and seated figures clapping (with and without breasts) (Fig. 7).

Due to word limitations, I do not present my results for therianthropes. To test these categories, I did a detailed site comparison of all paintings in one medium-sized site from each area. This comparison showed there may also be an ungendered category. I use 'naked' as an analytical category to signify 'without clothes' but recognise that for the San scent and body decoration may have been understood as 'clothing' (Viestad 2018) or that the figures are indiscernibly clothed. I especially emphasise the respect I have and apply in focusing on paintings of people's body parts, and stress that this in no way is meant to diminish the people I study.

Approaching an explanation of the patterns

Gender

To obtain some understanding of this patterning and to enable some comprehension of what gender and gendered relationships were for the San of these areas, I examined the southern San ethnography recorded in the late 1800s (for justification of the use of the ethnography, see Lewis-Williams and Biesele 1978; Lewis-Williams 1984; Deacon 1986; Barnard 1992; Low 2014). I focus primarily on the |xam narratives, acknowledging their spatial distance from the research area (around 600 km) and that they were an engraving rather than painting people. Wherever possible, I used evidence from the much smaller Maloti San ethnography, geographically proximal to my Areas 1 and 2 (around 120 km away; Orpen 1874). I used northern San ethnography (Marshall Thomas 1959; Marshall 1976; Lee 1979, 1984; Shostak 1981; Katz 1982; Keeney 2003) for a more detailed understanding of the experiences of ritual specialists. This ethnography is a heuristic and the rock paintings are the primary source of evidence.

This ethnography shows that the southern San associated biological sex with gender and that age and initiated status were important to these identities (Orpen 1874: 6, 8, 10; Lewis-Williams 1981: 41–53, 57–67; Hewitt 1986: 17–18, 20, 21, 40, 196). Furthermore, as McGranaghan (2012) has argued, 'nice' behaviours were a central element of these identities (see also Lewis-Williams 1981; Hewitt 1986: 108; Low 2014). Nice behaviours were especially important for children and young men and women because of the effect their behaviour had on people and animals and sustaining lifeways (Lewis-Williams 1981; McGranaghan 2012: 190–192). Central of nice behaviours were those expected of men hunters and women at menarche (McGranaghan 2012: 190–191).

I propose the young women are most critical because of the effect they could have on the rain and men (Hewitt 1986: 106; Green 2020: 87). Thus, every element of a young woman's life was controlled so that she was conditioned to behave in a manner into adulthood that ensured food resources and relationships between people and people, and people and animals. However, there may have been potential for women to acquire more independence and another, perhaps different, identity through training to become ritual specialists. Men and women ritual specialists and preeminent ritual specialists of both genders were recognised (L. VIII. 20: 7756rev., 7757–7762, 7768–7774; Orpen 1874: 10; Lewis-

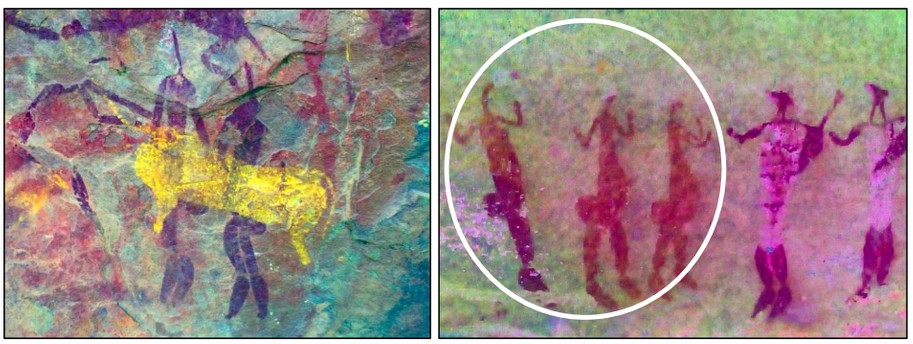

Fig. 3: Indeterminate figures with large buttocks (Area 2)

Fig. 3: Indeterminate figures with large buttocks (Area 2)

Williams 1981: 77). /kaggen, the |xam trickster deity and ritual specialist, is ambiguous because he is a man with feminine characteristics and behaves nicely and foolishly (Hewitt 1986: 134–136; Lewis-Williams 1996). His role in the narratives appears to ensure that people behave nicely (Hewitt 1986: 109; Lewis-Williams 1996). I suggest this role is similar to ritual specialists because they had to deal with and work through the problems created by people not following customary practices – a lack of rain, shortage of game, and psychological and physical disorders. Men and women ritual specialists would have encouraged people to follow customary procedures because their correct behaviour would make the specialists' work easier (e.g. L. VIII. 23: 8018–8029; B. XXVII: 2558–2559; L. V. 20: 5537–5556). This may mean that ritual specialists had complex gendered identities that included their biological sex and the nice behaviour expected of them as men and women of the community, but they could transcend these identities in their roles as ritual specialists where gender, age and initiated status may not have been important to their identities.

Clothing, body decoration and equipment

In addition to gender, I examined the ethnography to understand depictions of clothing, body decoration and equipment better (Bleek & Lloyd; Orpen 1874; Viestad 2018). When recording paintings of people wearing clothing, I noticed that these were always karosses [cloaks], eared caps and girls'/ womens' front and back aprons. In her reading of the |xam narratives, Viestad (2018: 140) shows that in the stories about sorcerers or ritual specialists, the items of clothing most frequently mentioned were karosses and eared caps. There may be a similar pattern evident in the stories told by Qing (Orpen 1874: 6–8). In addition, Eastwood (2006: 36) has shown that men ritual specialists wore women's aprons during the trance dance. In other words, everyday dress was eschewed in favour of painted clothing known to be of ritual significance.

Viestad (2018: 140) also presents stories that pertain to hunting, medicinal and rain/water rituals that usually include references to modifications of the body, such as cuts, tattoos, body paint and fragrances. These elements may be present in the paintings by the addition of bands, antelope spoor, stripes, flecks and other painted decorations on the bodies of figures and could well emphasise the supernatural contexts of the depicted figures. This means that the selective choice of depicted clothing and body decoration suggests a focus on ritual and supernatural contexts.

Paintings of equipment are similar. Most frequently painted are sticks with and without bored stones and bows, arrows and quivers (also Pager 1971: 334; Vinnicombe 1976: 363; Lewis-Williams 1981: 134). Sticks depicted with bored stones are only painted with figures with breasts and indeterminate figures with large buttocks. Bows, arrows and quivers are only depicted with figures with penises

Fig. 4: Figures with penises: Area 1, left, holding arrow; Area 2, right, Dstretch YBK, holding bow. Note the different depictions of penises in right.

and with indeterminate figures that are tall and thin. These items are all associated with men's and women's hunting (L II. 36: 3296rev., 3297rev.; Lewis-Williams 1981: 55–68; Hewitt 1986: 21–22; McGranaghan 2012: 175) and appear gendered.

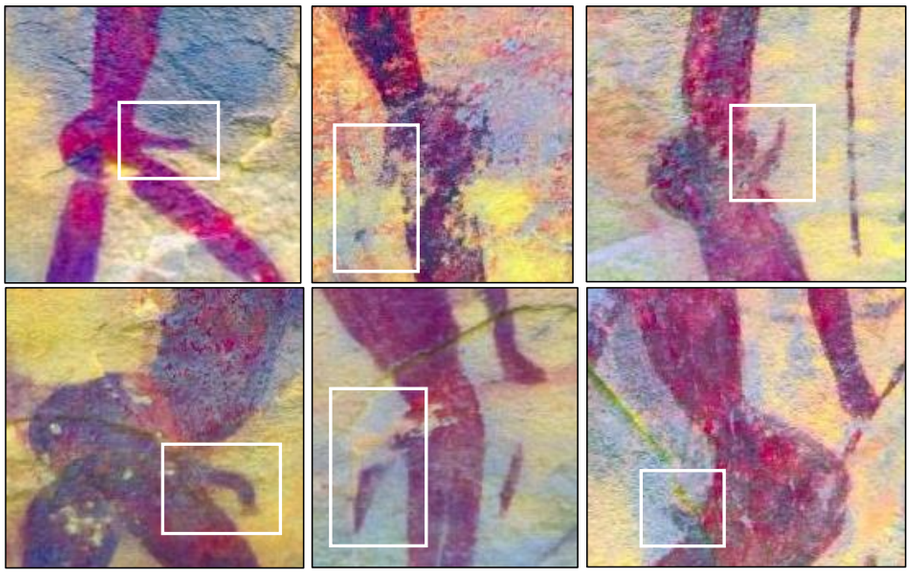

Fig. 5: Detail of differently depicted penises in one group of men from Area 1 (all Dstretch LDS)

However, I did not find any instances where these figures are depicted using this equipment for hunting (Lewis-Williams 1981). Indeed, figures with penises and indeterminates that are tall and thin are often depicted with only bows or arrows or quivers, making actual hunting impossible. Equally, I did not find any paintings of figures with breasts digging or in association with plants (for the one that has been recorded in the central Drakensberg, see Vinnicombe 1976: 280). Thus, I suggest paintings of figures with hunting equipment emphasise their status as men and women hunters and not the physical act of hunting.

In addition, there are the symbolic associations of this equipment with ritual specialists using supernatural potency, hunting rituals, healing and rain calling. Sticks with and without bored stones are associated with experienced ritual specialists to provide for good hunting and call the rain (L V. 22: 5755–5760; L. XI: 9235–9236; L. V. 10: 4778, 4795, 4868; L. VIII. 26: 8289–8292; L. VIII. 8: 6725rev.; L. II. 25: 2318 rev.; L. VIII. 23: 8008rev.; L. IV. 3: 3701; Orpen 1874: 5; Goodwin 1938: 250–251; Vinnicombe 1976; Lewis-Williams 1981; Wadley 1988; Ouzman 1997: 89). Arrows, bows and quivers are similar: they have magical properties and are used in healing rituals and the transference of supernatural potency (L. VIII. 14: 7287, 7288; 15: 7289–7295; L. VIII. 14: 7287, 7288; 15: 7289–7295; L. II. 4: 519–529, 5: 530–546; L. II. 37: 3335rev.–3336rev.; Orpen 1874: 8; Lewis-Williams 1981; Lewis-Williams and Dowson 1989: 116–117; Katz 1982: 46; see also Keeney 2003).

This patterned gendered hunter identity may transcend that of ordinary men and women hunters because these figures are not portrayed in ordinary circumstances (hunting), which means that they may not be implicated in the same observances as ordinary men and women. Thus, the patterning in the depicted clothing, body decoration and equipment may identify these figures as women and men hunters and ritual specialists. I describe three broad categories (also Pager 1971; Vinnicombe 1976; Lewis-Williams 1981).

Paintings of men ritual specialists

Most of the figures are depicted without any sexual features that allow them to be gendered but they are most similar to figures with penises. The figures are sometimes depicted carrying bows, arrows and quivers – men's hunting equipment – and sticks, identifying them as men hunters and ritual specialists. They are sometimes also depicted wearing karosses and have detailed body decorations that emphasise their ritual specialist identity. Sometimes, the figures are depicted without any equipment that would allow them to be gendered by association. For these reasons I propose that all indeterminate tall and thin figures are men, all figures depicted with equipment may be ordinary ritual specialists, and figures depicted without equip-

Fig. 6: Figures with breasts (Area 1, left) holding sticks with bored stones, (Area 2 right) holding a stick

ment may be novice ritual specialists.

Most of the figures with penises are holding and carrying hunting equipment, or sticks, and are bent forward, standing or walking. I argue that these figures represent experienced and accomplished men ritual specialists (Dowson 1994; Blundell 2004; George 2011) and that in some cases individuals are known to the community since the penises are sometimes depicted differently in a single group (Fig. 5). Furthermore, I propose that paintings of penis, infibulation, usually depicted as a bar or bars across the penis, sometimes with an adornment attached, identify preeminent ritual specialists (Fig. 8; compare with Vinnicombe 1976: 257–258).

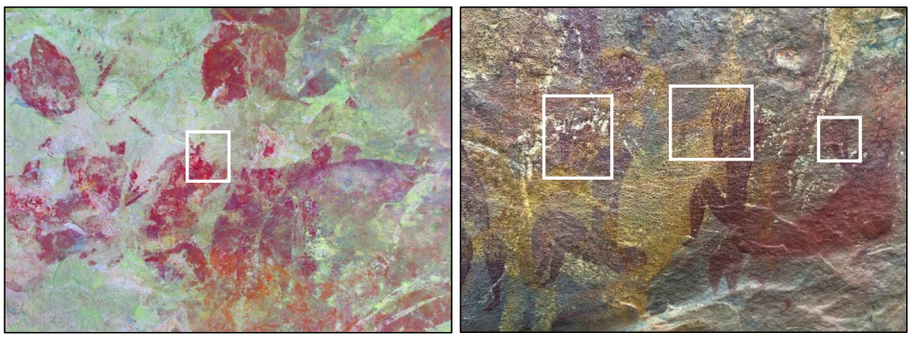

Fig. 7: Examples of figures seated clapping, Area 1 (left; Dstretch LRE), Area 2 (right)

Paintings of women ritual specialists

Most of the paintings of figures with breasts were recorded in Area 2. When figures with breasts are painted with equipment, it is either with sticks or sticks with bored stones. None of these figures with sticks are painted with plants or are in a posture that is reminiscent of digging. With the overwhelming evidence from the ethnography that links sticks to ritual specialists, hunting and rain, I argue that these paintings of figures with breasts represent women ritual specialists. Further support for my argument is the specific clothing and body decoration recorded. Women ritual specialists, like figures with large buttocks, have the least amount of discernible body decoration, although the bands that are depicted are identical to those of men ritual specialists. At times, they wear karosses and front aprons. The significance of the former has already been shown. Of import is the latter, because it is very unusual for women to be without aprons, especially back aprons. Women's buttocks were often considered to be highly erotic and associated with sex (Lewis-Williams 1981: 44). This implies that, like their male counterparts, these are not ordinary women. They transcend the norms of such women. Like paintings of men ritual specialists with penises, these women with breasts may identify specific experienced and preeminent women ritual specialists in the community.

Paintings of indeterminate figures with large buttocks were only recorded in Area 2. They have the same large buttocks, thicker thighs and at times protruding stomachs as women painted with breasts. They are predominantly painted with their arms in trance performance poses (Lewis-Williams and Dowson 1989: 40–43) and with bent forward figures, men holding sticks, figures wearing karosses, women holding sticks with bored stones, eland, rhebok and felines, contexts similar to paintings of women ritual specialists (Green 2020: 108–109). They are not painted clapping. They are not tall and thin like paintings of men, with and without penises. The repeated patterning suggests these are paintings of women ritual specialists. I propose that like their male counterparts, men ritual specialists without penises, these are paintings of ordinary women ritual specialists and novices.

Paintings of supportive acoustic groups

Figures seated clapping are depicted as sitting with their knees up, clapping their hands together, sometimes with splayed fingers and attenuated necks. At times, breasts are depicted. During the trance dance, groups of women and men sing and clap, which helps to activate and regulate supernatural potency (L. VIII. 1: 6108–6127; Katz 1982: 61; Lewis-Williams and Dowson 1989: 42). I propose the gender of these groups is not as important as the actions in supporting the activation and regulation of supernatural potency (see Katz 1982: 122–127

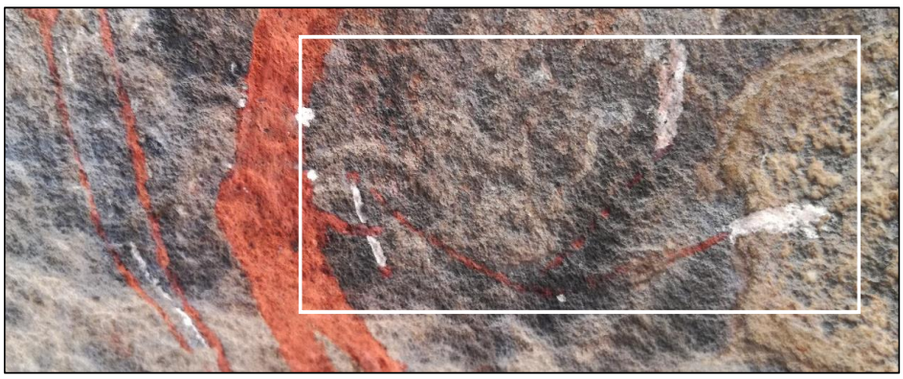

Fig. 8: Detail of penis infibulation (Area 1)

for the critical role of song in helping ritual specialists to acquire and regulate supernatural potency). The paintings may also refer to specific groups that support preeminent ritual specialists recorded in the Kalahari (Katz 1982: 223). They put on a dance specifically to release the supernatural potency of such a specialist. The paintings of people seated clapping may well identify the ritual specialists they are painted with.

An ungendered or gender-assumed category

A category not identified by my initial research is that of deep trance non-gender. A detailed comparative site analysis suggests that when ritual specialists are in deep trance, their identity is focused on their actions and rituals and not on their identities as wo/man and hunter. No extreme bent forward ritual specialists (Green 2020: Fig. 75) were recorded with breasts or penises, or with gendered equipment.

Differences in paintings of men and women

There are significant differences in the way men and women ritual specialists are depicted. Women are never depicted with bows, arrows and quivers, or in association with such equipment. When they do hold equipment, it is sticks or sticks with bored stones. In contrast, men are shown carrying and holding bows, arrows and quivers, as well as sticks without bored stones. The hunter status of men and women is emphasised by this equipment. I did not find any depictions of women with painted flecks or spoor on their bodies since this only occurs in paintings of men, who are given greater detailing in body decoration than women. Men are also recorded wearing women's aprons.

The paintings of wo/men ritual specialists demonstrate the individual and collective identities, with gender playing a central role. These gendered identities are not homogenous, with the most marked difference between the areas studied being the few paintings of women ritual specialists in Area 1. The evidence of finer and more complex detailing in men and their equipment suggests that they may have had an enhanced status.

The rock paintings are not mere reflections of gendered identities but rather a site where the identities were created, contested and contextualised (Stevenson 1995). They may also indicate that the artists were men or perpetuated a masculine allegiance to present an 'ideal' in behaviour for ritual specialists and ordinary people.

When I refer to status in this article, I do not mean hierarchical positions of power but rather the differential treatment given to certain people because of their labour (Dowson 1994, 1998; Lewis-Williams 1996: 139; Sweely 1999: 3). This differential treatment is evident in the rock paintings of the research areas that appear to show that men's labour was regarded as more important than women's, and that women ritual specialists' power may have been contained and constrained.

We must consider that women may have been powerful ritual specialists but that their roles and status were controlled in the paintings, just as women's behaviour was controlled by the ethnographically captured narratives of the recent past. The paintings may demonstrate the tensions existing between men and women, 'the interplay between contesting interests' (Sweely 1999: 3) and the strategies certain men used to control.

Engendering the rock paintings of the northern Eastern Cape

The categories I identified of ungendered, preeminent and experienced, ordinary and novice wo/men ritual specialists, and supportive acoustic groups need further research and testing, especially the sexually indeterminate ritual specialist group. My detailed site comparison indicated that there may be an ungendered category where ritual specialists are depicted without sexual features or gendered equipment and that these images may well describe a loss of self and changes in understandings of personhood. This may establish a case for a 'third or fourth gender' (Lenssen-Erz 1997; Ouzman 1997) but may also show that the gender of these figures is assumed or irrelevant.

Further research may also enable a deeper understanding of ordinary ritual specialists, who can be categorised further into paintings of novices and youths. Age may be a central defining factor in the identities of these people. Detailed studies of the equipment that is portrayed with the figures may also provide further information on their identities.

My identification of individually portrayed penises that may identify specific ritual specialists is significant because finding evidence for individual agency is rare (Dowson 1994, 1998; Blundell 2004). Equally is my argument that penis infibulation is a visual device to emphasise the preeminence of a ritual specialist. To test the hypothesis, there needs to be a focus on figures with this feature to establish in what contexts they are painted and how the actual infibulation is depicted. This information may allow us to identify specific groups of preeminent ritual specialists in the paintings. Of further interest would be whether a similar painted convention was used to identify preeminent women ritual specialists. Such analyses may give more information about how gender was valued and 'the circumstantial nature of power' (Sweely 1999: 12).

Conclusion

I conclude that paintings of men and women ritual specialists recorded in the research areas are

dominantly active in three aspects of socialisation: the visioning and rituals undertaken by wo/men ritual specialists, the conditioning of novices and communities, and gendered identity marking. It is important to begin to test patterning in the paintings in and between adjacent areas to explore these ideas further (Laue 2017). Boundaries may not have been static – people may not have been limited to geographic areas and had spatially complex networks of relations – but they also may have created and developed area-specific identities. Identities and personhood that were used and manipulated differently in different areas.

Acknowledgements

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LETTER TO THE EDITOR

Curious wall at Tati, Botswana

I noted the article 'A buried village in New Zealand' in *The Digging Stick* of December 2019, which prompted me to think that I might be allowed to stretch your publishing guidelines and squeeze in a request from Botswana. Here goes.

Tati Town, on the Tati River in north-east Botswana, was a mining settlement established in 1868 and is claimed to be the site of the first goldrush in southern Africa. By 1871 the settlement was virtually abandoned when gold was found near Francistown. Some of the pits at Tati remained in use or were reopened in the 20th century (details are hazy) of which the New Zealand mine is probably the best known. In addition

to evidence of the pre-historic gold mines and ore processing, abandoned modern mines, the remains of the settlement itself, the graves of a number of Jesuit priests and ruins from the Zimbabwe culture stone walling tradition, there is a curious and beautifully constructed stonewall that stands over 3 m tall on a hillside some kilometres from the old settlement.

Those of us with such interests have been unable to establish the purpose and use of the wall. I wonder if something could appear in *The Digging Stick* so as to excite the interest of readers, possibly leading to a better understanding of what this structure is. So far as I am aware, no proper research has been carried out in this regard. I had some pictures published in an on-line mining journal, but they elicited no response.

We are pretty certain that the structure is associated with mining (probably gold mining) in some way, but how? Surely there are other walls like this elsewhere? The wall is about 3m tall and 4 m long. It tapers to the top, being about 1,5m wide at the base and perhaps 0,9m at the top. The stonework is exceptional and appears to be without plaster or cement. It is unquestionably of modern, probably 20th century construction. The ground immediately below the wall on the down-slope side has been excavated, creating a total 'drop' from the top of the wall of perhaps 9m to 10m, to a width similar to the length of the wall. Taking into account the natural (and quite steep slope) of the hill, this creates a sort of 'cheese wedge' excavation immediately below the wall. Piles of white quartzite are found near the wall and there is no evidence of access to the top of the wall. There is nothing attached to or resting on top of the wall. It is a beautifully made bare and even wall. What could it have been used for?

More details or photographs can be provided. **Mike Main**, mmain@info.bw; tel. +267 397 5433.

WORLD ARCHAEOLOGY

Carbon dating is getting a major reboot

For the first time in seven years, radiocarbon dating is being recalibrated using new data from around the world. The work combines thousands of data points from tree rings, lake and ocean sediments, corals and stalagmites, amongst others. The recalibration will extend the time frame for radiocarbon dating back to 55 000 years ago – 5 000 years further than the last calibration update. Because of variability in the distribution of carbon-14 around the world, three new curves will be published, one each for the northern hemisphere (IntCal20), the southern hemisphere (SHCal20) and marine samples (MarineCal20). IntCal20 is based on 12 904 data points, nearly double the size of the 2013 data set, and the results are far more satisfying. For a known, brief magnetic field reversal 40 000 years ago, for example, the 2013 curve's carbon-14 peak was too low and too old by 500 years – a discrepancy fixed by the new curve. The new calibrations will change interpretations of archaeological data. For example, the oldest *H. sapiens* fossil found in Eurasia, Ust'-Ishim from Siberia, is almost 1 000 years younger than previously thought.

Nicola Jones, Nature, 19/05/20

A PRE-COLONIAL TOWN BETWEEN JOHANNESBURG AND THE VAAL RIVER

Karim Sadr

At the turn of the 19th century, the Governor of the Cape Colony launched the Truter-Somerville expedition to obtain cattle from beyond the colony's northern frontier. In late 1801 the expedition reached Leetakoo (also Litaku and other variants, near today's Dithakong), a Batswana (*Bechuana*) settlement that was as large as Cape Town in those days. Other such towns were visited by subsequent expeditions. Then in the 1820s many of them were sacked in the civil wars known as the *Difeqane.*

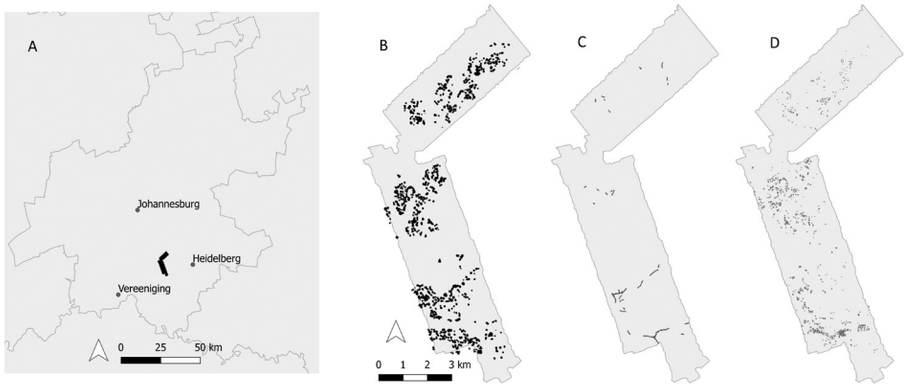

Fig. 1: A) The location of the LiDAR transect shown in relation to the boundaries of Gauteng Province and three of its cities. B) Distribution of stone walled compounds within the LiDAR transect. C) Distribution of 'cattle drives'. D) Distribution of ash heaps.

Travellers' such as William Sommerville, William Burchell, John Campbell and others indicated that these towns were the capitals of independent polities, each with a central government headed by a sovereign ruler who managed an administrative hierarchy made up of wards, homesteads and households. Essentially, these were capitals of city states. From ethnographic accounts of such city states in Botswana, we know that three or more social classes resided in the polity: the royals, the commoners, the immigrants and sometimes slaves. Cattle were widely dispersed under various forms of patronage, and the accumulation of a large herd provided the opportunity to form alliances, whereby wealth in cattle could be transformed into wealth in people by lending the animals and putting others in a debt relationship.

European explorers and missionaries had not penetrated as far as the Witwatersrand when the *Difeqane* broke out. Consequently, a large town along the western foothills of the Suikerbosrand massif was never documented in writing, and its oral history seems to have gone unrecorded. Although an unusual density of pre-colonial ruins has long been known to exist in this area, it is Light Detection and Ranging (LiDAR) that saw through the vegetation cover and revealed the scale and complexity of an urban settlement that had previously gone unnoticed.

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What was thought to be a series of separate homesteads, hamlets and villages turns out to have been an enormous capital, or perhaps even a sequence of three successive capitals strung out from north to south (Fig. 1). In size, it is larger than the other known pre-colonial Batswana capitals in South Africa. It may also have a longer sequence of occupation than the others. The diversity of architectural styles indicate that the pre-colonial occupation of this area began in the 15th or 16th centuries and lasted until the second half of the 1800s, but the 'classic' period of this city state probably only began in the early or mid-18th century. It collapsed in the early days of the *Difeqane*.

The few relevant oral histories that are available indicate that the southern half of today's Gauteng Province was settled by Setswana-speaking people during the last 500 or so years. According to the ethnographer Paul Breutz, oral histories indicate that in an early period of fission, the Batswana in what is today Gauteng split up and the branch that stayed in the landscape between today's Johannesburg and the Vaal River was known as the Bakwena Baphogole polity. In a later episode of fission, the Suikerbosrand massif and its environs may have been occupied by the Bakhudu, an offshoot from the Baphogole polity. Although the political boundaries of that time are hard to ascertain now, the ruined town in the western foothills of the Suikerbosrand probably can be attributed to one or other branch of the Bakwena. The Baphogole community of Gauteng proposed that the site should be named Kweneng, the place of the *Kwena*, the crocodile.

As the historian Kent Rasmussen has revealed, the *Difeqane* reached this area in the early 1820s. During the late 1820s and early 1830s the Matabele (Ndebele) seem to have pursued a scorched earth policy in the landscape from the Magaliesberg to the Vaal River to form a buffer zone to protect themselves from southern attacks. The first trekkers made incursions into this zone in the mid-1830s and by 1840 they were issuing land titles for farms established on the southern side of the Suikerbosrand. They ignored the ruins and it is possible that a decade after its destruction, Kweneng, covered by vegetation, was as unrecognisable as it is now. Below, some of the archaeological features of Kweneng are briefly described to give a clearer impression of its scale and complexity.

The compounds of Kweneng

The building block of Kweneng is the stone-walled compound (Fig. 2), the household of an extended family. Small compounds may have held four or five houses, while the largest compounds could have accommodated 30 or more. Within the footprint of the LiDAR survey, a total of 667 compounds have been identified. They all follow the central cattle kraal pattern of spatial organisation, with the central zone of each compound composed of various stone-walled kraals. This central zone was originally surrounded by the residents' mud-walled and thatch-roofed houses. The residential belt of houses was enclosed within a perimeter stone wall that defined the outer limit of the compound.

Three of the compounds in the western foothills of the Suikerbosrand were excavated in the 1970s and 1980s by Mike Taylor, Tom Huffman and Revil Mason.

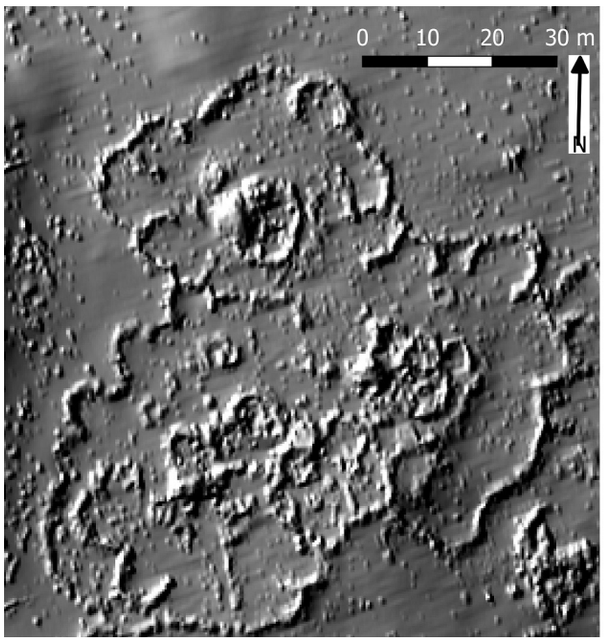

Fig. 2: A stone-walled compound in Kweneng Central as seen on LiDAR imagery

The finds from two of these are now being analysed by Christopher Hodgson for his Master's dissertation. All three excavated compounds showed that the houses had been burnt down and the inhabitants had left in a hurry. They never returned to salvage their property. The precise date of abandonment cannot be established with radiocarbon dating but historical records from neighbouring areas hint that Kweneng was sacked in 1823.

The three sectors of Kweneng

Two large stream valleys separate the three sectors of Kweneng. The northern sector has the largest diversity of architectural styles, with the oldest being in the so-called Type N (or Group I, to use Mike Taylor's terminology instead of Tim Maggs'). A late 15th century village here may have formed the nucleus of Kweneng. The central sector is architecturally more uniform and has more complex features than the northern sector. Kweneng South has the most impressive and complex architectural features and may represent the youngest district of the city. It is possible that all three sectors were occupied during the classic phase of this site. At the other extreme of possibilities, each sector may have been abandoned before the next was occupied, with Kweneng representing a sequence of three consecutive capitals from north to south.

Unfortunately, radiocarbon dates cannot help to resolve this matter owing to the large-scale burning of fossil fuels during the last three or four centuries, which disrupted the balance of carbon isotopes in the atmosphere and so make it impossible to obtain precise radiocarbon dates from this period. If all the compounds in all three sectors of Kweneng were occupied concurrently, the population of this capital might have been around six to twelve thousand souls. This is, however, a very rough estimate; Saireeni Naidu's doctoral research is grappling with the difficulties of estimating population size at archaeological sites such as these.

Large ash heaps and middens

Kweneng hosts an unusual large number of ash heaps, which are easily visible on aerial imagery as lighter-coloured patches (Fig. 3). On LiDAR imagery, the ash heaps show up as mounds. Revil Mason commented that the ash heaps at the foot of the Suikerbosrand were the largest he had ever encountered. More than 800 ash heaps have been counted in the footprint of Kweneng's LiDAR image. They appear to be composed of burnt cattle dung, soil and a great deal of broken pottery and discarded animal bones. Mason excavated one such ash heap in Kweneng South; cattle bones formed an overwhelming proportion of its faunal remains.

The largest ash heaps are found in and around

the central and southern sectors of Kweneng; there are few in the northern sector and these are relatively small. Usually, the largest ash heaps are situated at the main entrances to large compounds and it was obviously intended that visitors should walk over the heaps. Paidamoyo Chingono is completing her doctoral research on these ash heaps and her survey on the meaning and uses of cattle dung ash in southern Africa indicates that the heaps were not seen as rubbish tips but as a deposit of very potent and beneficial substance.

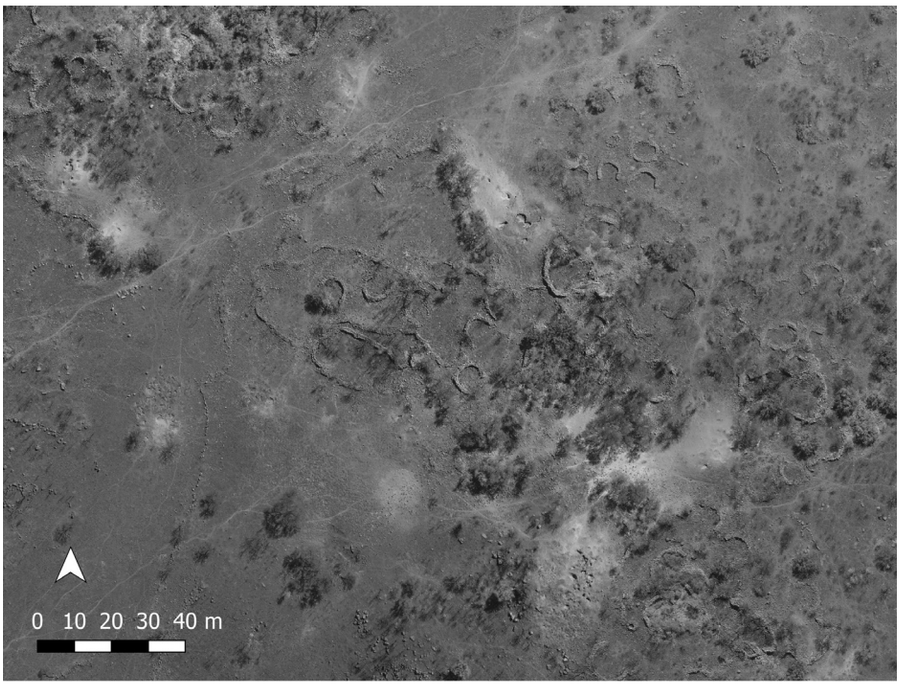

Fig. 3: The lighter coloured patches of ground on this high-resolution aerial photo indicate ash heaps

Rare cattle drives

In several locations across Kweneng, two parallel alignments of rocks mark passageways, some of which lead into a homestead. Other passageways are longer and have no clear termini. Revil Mason called these features cattle drives. These passageways are not readily visible on aerial photos and satellite imagery but they stand out clearly on LiDAR images (Fig. 4). A total of about 4 km of cattle drives can be identified on the imagery.

Cattle drives are rare at other pre-colonial Batswana settlements. Revil mapped only one short cattle drive at Olifantspoort near Rustenburg and none have been reported from the other capitals. Similarly constructed passageways are much more common in the Late Iron Age Bokoni towns in Mpumalanga Province, about 200 km to the east of Kweneng. William Sommerville and John Campbell recounted how the early evening return of cattle herds from their pastures provided a daily spectacle and festive occasion for the inhabitants of the pre-colonial Batswana towns. In this light, it can be supposed that the cattle drives at Kweneng were designed as processional routes to display the wealth of the nation. Takudzwa Pasipanodya has started his doctoral research on this topic.

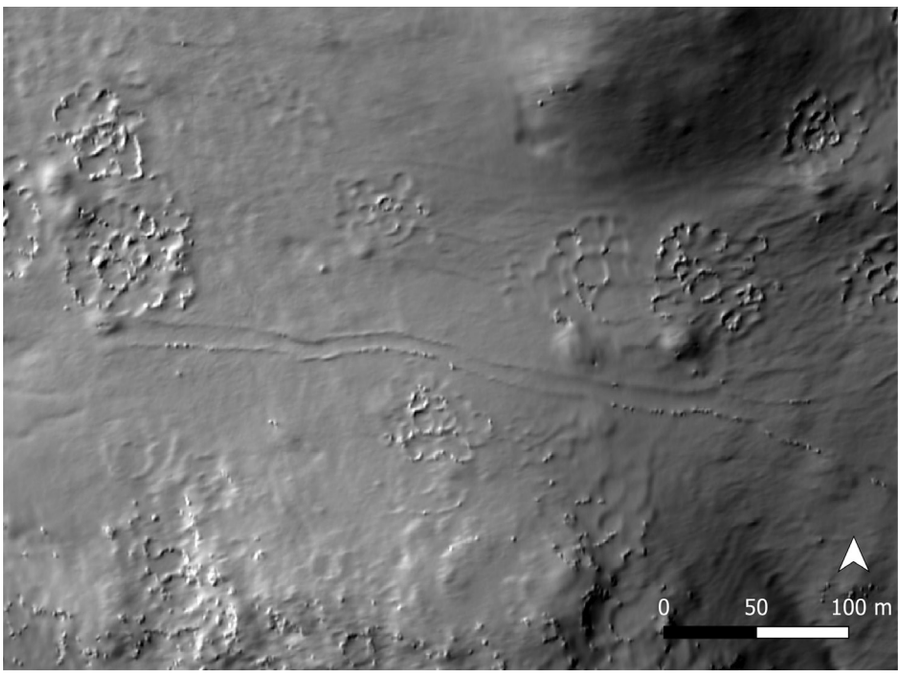

Fig. 4: The linear feature in the middle of this LiDAR image is a stone lined passageway, or cattle drive. The small-mounded features visible here and there are ash heaps

Fascinating stone towers

Numerous stone towers have been recorded in Kweneng Central and South (Fig. 5). The largest known tower lies in Kweneng South and even though it is in an advanced state of collapse, its highest

Fig. 5: Christopher Hodgson is standing in front of one of the better-preserved towers in Kweneng South

point is still over 4 m above the lowest part of its base. The quotidian function of the Kweneng towers remains unknown. Mike Taylor and Tom Huffman considered them to have been bases for grain bins. This interpretation is plausible but other hypotheses such as watchtowers, grave markers or purely symbolic structures can also be entertained. The architect James Walton recorded similar stone towers on the Zimbabwean plateau and the oral traditions of the Rozvi mentioned by Friedrich Posselt recount attempts to build a tower to pull down the moon.

The Kweneng stone towers are carefully constructed of large, dry laid boulders on the exterior and are filled with smaller cobbles. Well-preserved examples show flat tops, but no sign of any clay structure has been noted on the towers. Kathryn Croll closely examined a sample of 52 such towers in a 100 ha focus area in the central sector of Kweneng for her Master's dissertation. Their heights range from 1,8 to 2,5 m and their average basal width is about 5,5 m. The towers are distributed throughout nine homesteads, with the largest homestead having 10 towers and the smallest only one. The towers are always found at the intersection of the stone walls of central enclosures. Croll has argued that whatever their day-to-day function was, the structures were meant to be seen as monuments and that their size and frequency symbolised the wealth and power of the homestead. There is indeed a positive correlation between the size and frequency of the towers and the size of homesteads, and even with the size of nearby ash heaps. Similar stone towers have not been reported from other Batswana towns or from the Bokoni area. It seems unlikely that their similarity to the towers in Zimbabwe is coincidental.

Corbelled huts – a unique variant

Corbelled stone huts in the Highveld have attracted the attention of many scholars. As Tim Maggs showed, these structures are more numerous in the southern Highveld but many examples are

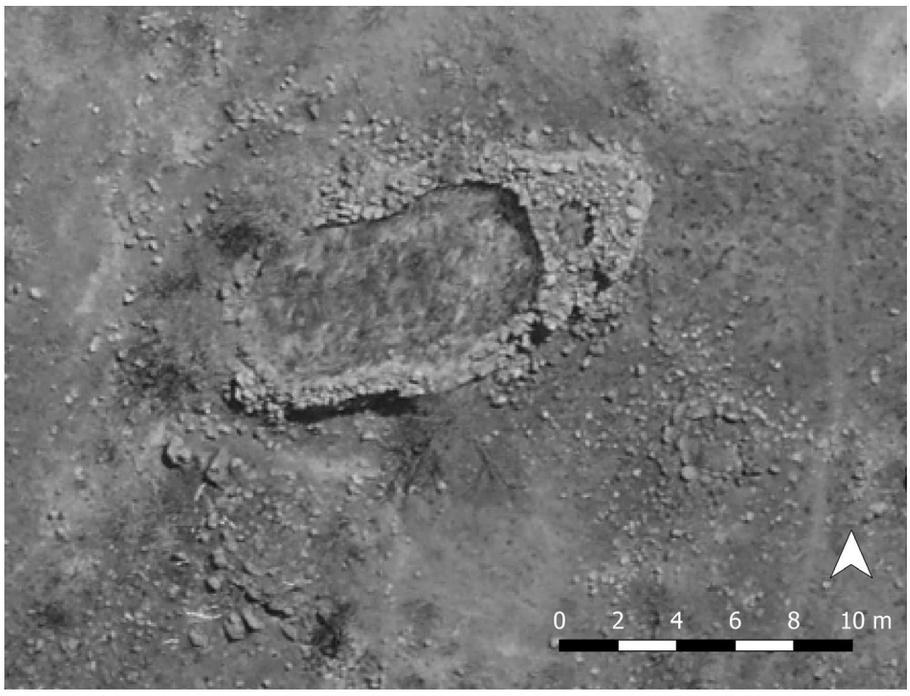

Fig. 6: An aerial view of a vaulted tower attached to the eastern side of a stone-walled enclosure. The roof of the vault has collapsed, exposing the hollow in the tower's centre. The entrance into the corbelled vault was from inside the enclosure.

found in the compounds of Kweneng Central and South as well. They are always dispersed singly in the residential belt of the compound and are close to a tower. Most of the corbelled huts at Kweneng have collapsed but the few well-preserved examples show a tiny lintelled doorway through which an adult would hardly be able to crawl and an internal space too small to hold an adult in any degree of comfort. Apart from this, anyone crouching inside would have no view of the outside world and would not stay dry in a downpour.

Their function is certainly debatable and may have varied from place to place but these huts were certainly special structures. Building them requires more skill than constructing a simple stone wall. It also requires a not insignificant number of large and long boulders. Such a shape and size of boulder is not common in this landscape and each hut would have required a considerable investment in time and energy to obtain the right rocks. A unique feature of such a structure is that it provides a fire-proof shelter in an environment prone to rapidly spreading and dangerous veld fires, but whether that was a factor in the mind of the builders cannot now be ascertained. It is possible that the huts played a role in ritual activities.

In Kweneng South there is a unique variant of the corbelled hut. This is a stone tower with a vaulted chamber (Fig. 7). The three or four examples of such vaulted towers recorded so far are all attached to a small stone walled enclosure. The vaulted Kweneng tower has a tiny lintelled entrance, similar to those found in the corbelled huts. In all the known cases, the entrance to the vaulted towers is from inside the stone walled enclosure. To my knowledge, such structures have not been previously reported from any archaeological sites in southern Africa.

Concluding thoughts

The fact that this large capital had remained unknown is probably owing to the absence of written or oral history. At ground level or on conventional aerial photographs, the extent, density and complexity of this built environment is not self-evident. It is only with the aid of LiDAR imagery, funded by the National Research Foundation, that it has been possible to see through the vegetation cover and obtain an overview of this rich and complex site. Much work remains to be done at Kweneng to fully record its architectural wealth. The Baphogole community consider the old ruins in Gauteng to be the burial grounds of their ancestors and no excavations are thus planned at Kweneng. The research will proceed with detailed mapping and analysis of the spatial organisation of the site using the masses of data available in the LiDAR imagery. For anyone interested in finding out more about Kweneng, additional information can be found at https://sites.google.com/view/southern-gautengsws/home.

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ARCHAEOLOGY IN AFRICA

Managing pandemics in ancient African societies
Research at the AD1000 to AD1200 urban settlement of K2 at Mapungubwe has thrown significant light on ancient pandemics. The inhabitants of the city thrived on crop agriculture, cattle raising, metallurgy, hunting and collecting food from the forest. They had well-developed local and regional economies that fed into international networks of exchange with the Indian Ocean rim. Swahili towns of East Africa acted as conduits. Archaeological work at K2 has uncovered an unusually high number of burials (94), 76 of which belonged to infants in the 0–4 age category. This translates into a mortality rate of five per cent. Evidence shows that the settlement was abruptly abandoned around the same time as these burials, indicating that a pandemic prompted the decision to shift to another settlement.

Looking at another region of Africa, archaeological work at early urban settlements in central and southern Ghana have identified the impact of pandemics at places such Akrokrowa (AD950–1300) and Asikuma-Odoben-Brakwa in the central district. These settlements, like others in the Birim Valley of southern Ghana, were bounded by intricate systems of trenches and banks of earth. Evidence shows that after a couple of centuries of continuous and stable occupation, settlements were abruptly abandoned. The period of abandonment appears to coincide with the devastation of the Black Death in Europe. Post-pandemic, houses were not rebuilt, nor did any rubbish accumulate from daily activities. Because there are no signs of long-term effects, in the form of long periods of hardship, death or drastic socio-economic or political change, archaeologists believe that these communities were able to manage and adapt to the pandemic.

Analysis of archaeological evidence shows that these ancient communities adopted various strategies to manage pandemics. These included burning settlements as a disinfectant. African indigenous knowledge systems make it clear that burning settlements or forests was an established way of managing disease. The layout of settlements was also important. In areas such as Zimbabwe and parts of Mozambique, for instance, settlements were dispersed, housing one or two families in a space. This allowed people to stay at a distance from each other, but not too far apart to engage in daily care, support and cooperation. While social coherence was the glue that held society together, social distancing was inbuilt, in a supportive way. These behaviours were also augmented by diversified diets that included fruits, roots, etc., which provided nutrients and strengthened the immune system.

There were multiple long-term implications of pandemics in these communities. Perhaps the most important was that people organised themselves in ways that made it easier to live with diseases, managing them and at the same time sticking to the basics such as good hygiene, sanitation and environmental control. Life did not stop because of pandemics: populations made decisions and choices to live with them. *Shadreck Chirikure, 14 May 2020*

Thirty-four mummies found in Egyptian tomb
Archaeologists from Egypt and Italy have discovered 34 mummies in the southern Egyptian city of Aswan. The remains date back to the late Pharaonic and Greco-Roman period, between the 6th century BC and the 4th century AD. Alongside the mummies were found pottery, painted funerary masks and wooden statuettes. Vases of bitumen, used in mummification, as well as a stretcher likely used to carry the bodies into the tomb, were also discovered. An intact hieroglyphic text indicates that the tomb, hidden under sand, was owned by a trade leader named Tjt. Some of the vases still contained food, while two statuettes depict Ba, the Egyptian bird god, who represented an aspect of the soul.

Patrizia Piacentini, a professor of Egyptology at the University of Milan, was invited to conduct the excavation. She directed the excavations alongside Abdelmanaem Said of the ministry of antiquities, while engineer Gabriele Bitelli located the tomb and subsequently created 3D reconstructions of the items found within. Steps led down from the surface to the tomb, which comprised two burial chambers sealed off by a wall. The archaeologists found about 30 mummified bodies of men, women and children in the primary chamber and an estimated four in a side chamber. The tomb was discovered as part of a broader excavation mission, during which archaeologists mapped some 300 tombs in the region. *CNN, April 2019 (photo: university of Milan)*

ERRATA

The Southern African Archaeological Student Council article in the August 2019 issue of *The Digging Stick* 37(2) gave the incorrect affiliation for Matt Lotter. He is with the Palaeo-Research Institute at the University of Johannesburg. Also, on page 13, under members of council, Tim Forssman's name is misspelt.

RECIPIENTS OF THE SOUTH AFRICAN ARCHAEOLOGICAL SOCIETY STUDENT MEMBERSHIP PRIZE 2020

Patricia Groenewald

The South African Archaeological Society was founded in 1945 to provide a platform for professional archaeologists and members of the public to engage with each other. At present, the society has more than 750 individual and institutional members in 20 countries. Branches of the society in the Western Cape, the north of the country, KwaZulu-Natal and the Trans-!Gariep region arrange activities such as lectures and outings to archaeological sites, both in South Africa and abroad.

To celebrate its 75th year, ArchSoc created a prize to award a one-year free membership to southern African students who are recognised by their university departments as the most enthusiastic archaeological students of the year. Congratulations to the following students on being nominated by their universities to receive the South African Archaeological Society Student Membership Prize for 2020.

Hannah Munro

BA majoring in Archaeology and Anthropology

University of the Witwatersrand

'Being an archaeologist is like being the Sherlock Holmes of human history.'

Rosinah Oaitse Ramarumo

BA majoring in Media Studies and Archaeology

University of Botswana

'Archaeology gives me insight to learn about the past societies, which is something very close to my heart, and I have always wanted to be an archaeologist.

Gemma Dimitra Poretti

BA in English, Archaeology, and Environmental and Geographical Science

University of Cape Town

'I enjoy archaeology because it is part puzzle, part storytelling. More than anything, it forces me to consider how people, places and things are rarely given and stable. This repeatedly unsettles my perceptions of the past, of identity and of the making of South Africa as I know it today, which is at once challenging and riveting.'

Polite Dzvairo

BA in Archaeology, Cultural Heritage and Museum Studies

Midlands State University, Zimbabwe

'I love archaeology because the intangible evidence of our history fascinates me. The ability to sift through layers of time in the form of soil and discover pieces of our past long since forgotten is a unique experience that greatly expands our knowledge of human culture and history.'

Imogen Grantham

BA majoring in Archaeology and Anthropology

University of South Africa

'I like archaeology because it can give a voice to those unheard.'

Lucy Richards

BA in Archaeology, Heritage and History

Sol Plaatjie University, Kimberley

'I love archaeology because I feel I am part of the indigenous people, and my people's history and their lifestyle are worth commemorating.'

REMINISCING ON AN EXPLORATORY STUDY

Relationships between cranial capacity and body size estimates in human evolution

J Francis Thackeray

Fifty years ago, just out of school in Pretoria, I had a wonderful gap year at the Transvaal Museum (as it was then known), having been appointed by director Bob Brain as a laboratory assistant. At the time, I had already developed a strong interest in palaeoanthropology, inspired by John Robinson on a memorable visit with him to Sterkfontein Caves in 1964, the year in which Phillip Tobias, Louis Leakey and John Napier reported the discovery of the first *Homo habilis* fossils (OH 7) at Tanzania's Olduvai Gorge. Robinson had been Robert Broom's assistant when Mrs Ples and other specimens of *Australopithecus africanus* were found during lime-mining operations at Sterkfontein. What a pleasure it was for me as a young schoolboy to collect fossils from the hominin-rich miner's dumps under the supervision of Robinson, and then again as a teenager with Bob Brain at Swartkrans.

My duties at the Transvaal Museum in 1971, before attending the University of Cape Town, included the preparation of fossil antelopes for Elisabeth Vrba, who was embarking on her PhD on the bovids from Sterkfontein, Swartkrans and Kromdraai. I also assisted Liz Voigt in the Archaeozoology Department with the numbering of skeletal elements of a diversity of mammals, thereby picking up a knowledge of comparative vertebrate anatomy. Towards the end of 1971, I pursued an original project, focussing on relationships between cranial capacity and estimates of body size in the context of human evolution. Bob Brain generously entrusted me with original fossils, such as Mrs Ples from Sterkfontein, SK 48 (*Paranthropus robustus)* from Swartkrans and casts of such fossils as OH 7 and OH 5 (*P boisei* or '*Zinjanthropus*') discovered by the Leakeys at Olduvai Gorge. Bob introduced me to Phillip Tobias, who gave me access to collections of human skulls and skeletons at the Wits Medical School (Anatomy Department), where I was thrilled to meet Raymond Dart with his twinkling eyes.

My initial intention was to obtain measurements of cranial capacity (CC), orbit breadth (OB) and femur length (FL) in *Homo sapiens*. By December 1971 I had graphs that demonstrated, at least visually, that OB could be regarded as a potential proxy for body size in modern humans. By extension it was assumed that this could apply to Plio-Pleistocene hominin fossils as well. One of the most exciting graphs (plotted by hand) showed an exponential increase in brain size relative to body size (based on OBs) in a presumed lineage from *Australopithecus* through *Homo erectus* towards *H. sapiens* (shown schematically in Fig. 1).

However, humans were distinctly different in that there were disproportionately high values of brain volume relative to estimates of body size in the context of the exponential curve for the relationship between OB and CC in Plio-Pleistocene hominins. My sample sizes were small but this was just an initial exploratory study in which I detected patterning. The exponential increase in the hominins was different from the relationship between CC and OB in Pongidae (chimp, gorilla and orangutan) for which I had obtained a few measurements at the 'TM', our affectionate name for the Transvaal Museum in its heyday.

Bob encouraged me to write up the results for possible publication, but there was a problem. I needed to quantify the relationships I had detected visually and to do so it was necessary to calculate correlation coefficients (*r*) from regression analyses. In 1971 there were no pocket calculators and no personal computers. But with a sense of excitement I began to calculate *r* values manually on the basis of means and standard deviations, using pencil and paper with patience. This was tedious work and extremely time consuming, such that I was not able to complete the necessary statistical analyses before my time was up at the museum.

At the beginning of 1972, on the slow steam-train journey from Pretoria to Cape Town, where I was about to begin a BSc degree in zoology and archaeology, I frantically tried to finish the numerical work but, alas, this was not to be. As soon as I arrived at the university I was swept into intensive studies (and anti-apartheid demonstrations) that prevented me from completing my own little research project, which seemed to have potential: after all, Basil Cooke and Laurie Wells, among others, had seen my graph and had told me that I was 'onto something'.

Yet more measurements were to follow. When I returned to the Transvaal Museum for a vacation job in 1972, I saw a photograph of a Kenyan skull

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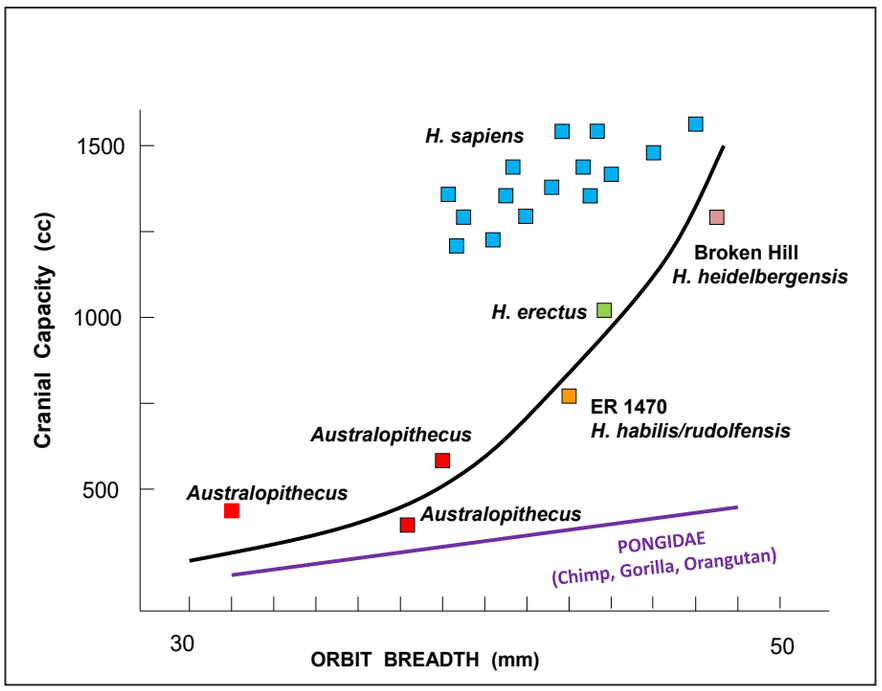
(KNM-ER 1470) that had just been discovered by Richard Leakey, and had been reconstructed by him with Alan Walker and Bernard Wood. The original cranium had been seen by Elisabeth Vrba in Nairobi. Back in Pretoria, she naughtily showed me a high quality glossy photograph even before the skull was formally published. She could tell me that this remarkable skull had a large cranial capacity (estimated at about 800 cc – an overestimate at that time) and that Leakey was going to describe it as a specimen of early *Homo*, with a date that was claimed to be 2,6 million years. By then I was merely 20 years old (later described as a 'precocious' imp). Elisabeth allowed me to take measurements of the OB of '1470', using a scale in the photograph, under the severe promise that I would not publish any of the results pending the formal announcement to be made the following year by Leakey in the leading British scientific journal, *Nature*.



Relationships between cranial capacity relative to orbit breadth as a proxy for body size. Schematic graph, based on unpublished measurements obtained by Thackeray in 1971, updated to include KNM-ER 1470 in 1972.

During those heady days, Elisabeth was most encouraging. When she saw my graph she exclaimed: 'But Francis, you are doing what Stephen Jay Gould (at Harvard) and David Pilbeam (at Yale) are doing, using fragmented postcranial fossils and teeth as estimates of body size in relation to cranial capacity for a diversity of taxa'. Indeed, Pilbeam and Gould published an article dealing with this kind of thing in 1974 in the high-impact American journal *Science*. Their exciting paper (with the advantage of detailed statistical analyses) was entitled 'Size and scaling in human evolution'.

To this day, I have never published my graph of cranial capacity estimates relative to body size through evolutionary time, but it is shown here just for historical interest. The figure is based on the hand-drawn graph I updated in 1972. KNM-ER 1470 is positioned between australopithecines and *Homo erectus*, which suggested to me (in the context of chronology) that it might not be as old as 2,6 million years. Subsequently, Basil Cooke could demonstrate (from his study of pigs as chronological indicators) that this was indeed the case. About 20 years later Bernard Wood described KNM-ER 1470 as *H. rudolfensis*, although some regarded it as *H. habilis*, and was now dated closer to about 1,9 million years.

While still in the middle of my BSc at UCT, I presented my CC, OB and FL results at a lecture on human evolution in the Zoology Department, where John Robinson was based in his early years (in fact, I used his dissection manuals). Palaeontology was not formally taught at the university at that time and zoology was the closest I could get to palaeoanthropology. Yet there was still no time to undertake the statistical analyses of measurements of the variables in which I was interested. How frustrating it was, through the BSc, which extended into an Honours degree in archaeology and then a MSc in Environmental Studies, not to be in a position to calculate those correlation coefficients (*r*), although I had tried to do so using a primitive Hewlett-Packard hand-held calculator of the kind that became popular in 1976.

In 1977, I went to Yale for a PhD and at last I was given the opportunity to use a huge 'mainframe' IBM computer (with cardboard punch cards) to calculate the statistics that I needed. I did this with the encouragement of David Pilbeam, who was on my supervisory committee. There was no need to publish my results since he and Stephen Jay Gould had already published theirs in 1974. Just for historical interest, I give below the introductory paragraph of my essay of November 1977 entitled: 'Exploratory data analysis: investigating possible relationships between cranial capacity and body size estimates in modern man and in fossil Hominidae'. This was based on what I had initially drafted in ink way back in 1971.

I wrote: 'The objectives of this paper are essentially

to investigate whether any "significant" relationships can be found to exist between cranial capacity, femoral length, and orbital breadth in a sample of modern *Homo sapiens*. The reason for doing this is related to an interest in determining relationships between cranial capacity and body size in fossil Hominidae. Of particular interest is the investigation of changes in cranial capacity relative to body size with regard to allometry. It is almost always the case in palaeontological contexts that one will not find a fossil where cranial capacity and body size can be estimated for any one individual. Complete fossils are rarely found, and there is a tendency to find cranial material more frequently than postcranial material (a fact which may be partially due to the greater durability of cranial bone). It is therefore considered an appropriate question to investigate whether any measurement on the cranium could be found to be an index of body size; if such a measurement could be found, it could be compared with a cranial capacity of the same individual, and such comparisons would be potentially valuable in interpreting changes in cranial capacity as observed in fossil Hominidae.'

In 1971 I had intuitively selected OB as a possible proxy for body size. The suggestion came to mind one late afternoon when I was alone in the hominin fossil room at the TM, reclining in a comfortable low chair where I had sometimes seen John Robinson meditate (he was something of a mystic). By 1977 at Yale I was able to test my intuition by quantifying relationships between OB and CC, as well as between OB and FL, beginning with *H. sapiens*. The correlation coefficients were strong (0,86 and 0,77 respectively). The *r* value for the relationship between FL and CC was also good (0,86). Together with my graph I was able to say the following in the conclusion of my essay:

'Orbital breadth can be regarded as an indirect, albeit crude index for body size. This is certainly useful with regard to its application in the interpretation of how body size changed relative to brain size during hominid evolution.' I went on to say: 'The figure indicates that brain size proceeded to evolve at a fast [exponential] rate relative to body size in the Hominidae. The advantage of adopting the orbital dimension is that it may allow the direct comparison between a brain-size estimate and a body-size estimate for the same fossil individual'.

That was very satisfactory in 1977, without feeling the need to publish an article, recognising that my samples were relatively small (22 adult male and 22 adult female human crania, supplemented by a few hominin fossils). But I smiled at a conference in honour of Mary Leakey in Tanzania in 1993 when Bernard Wood and Leslie Aiello came to the conclusion that orbit dimensions were strong predictor variables for body mass, using very large hominoid samples. Their results were published in an excellent article in the *American Journal of Physical Anthropology* in 1994.

I have no regrets about the fact that the results of my initial exploratory study were not published in some format 50 years ago. It was great fun. Just for historical purposes I am pleased to tell the story now, in my 'anecdotage', as Phillip Tobias would say in *his* years of retirement.

Acknowledgements

There are too many people to thank by name but there are three in particular whom I would like to mention. The first is John Robinson, who in 1964 gave me as a young schoolboy the opportunity to look for fossils in breccia in the Sterkfontein dumps, discarded by miners in the 1940s. Robinson veritably pounced on what I had found. For all I know it might have been an *Australopithecine* but he allowed me to keep a rodent femur in matrix (which I subsequently donated to the UCT museum when the National Monuments Act prohibited the personal possession of any fossil). I also want to thank Bob Brain who gave me my first job as a temporary lab assistant at the Transvaal Museum in 1971, and then gave me the opportunity to begin my first research project that led on to other exciting things. And I would like to thank my French colleague José Braga, with whom I am currently working on micro-CT scans of fossils from the Cradle of Humankind, including Kromdraai, where we are currently excavating and where we have discovered wonderful hominins.

ARCHAEOLOGY IN BRIEF

7 200-year-old cheese making found in Croatia

Analysis of fatty residue in pottery from two sites on the Dalmatian Coast of Croatia revealed evidence of fermented dairy products – soft cheeses and yogurts – from about 7 200 years ago, according to researchers. 'This pushes back cheese-making by 4 000 years,' said Sarah McClure, associate professor of anthropology. The presence of milk in pottery in this area is seen as early as 7 700 years ago, 500 years earlier than fermented products. DNA analysis of the populations in this area indicate that the adults were lactose-intolerant, but the children remained able to consume milk comfortably up to the age of ten. However, about 500 years later, the researchers see a shift not only from pure milk to fermented products but also in the style and form of pottery vessels. 'Cheese production was important enough that people were making new types of kitchenware,' said McClure, 'bringing with it a cultural shift'. According to the researchers, dairying may have opened northern European areas for farming because it reduced infant mortality and allowed for earlier weaning, decreasing the birth interval and potentially increasing population. It also supplied a storable form of nutrition for adults, because the fermentation of cheese and yogurt reduce the lactose content of milk products, making it palatable for adults as well as children.

EurekAlert!, 05/09/2018

SAN MALE INITIATION PAINTINGS IN THE ROCK ART OF THE CEDERBERG

Andrew Paterson

In this article I discuss three San painting sites in the Cederberg that I believe reflect possibly the most significant life cycle event experienced by San males, namely the Tshoma rite of passage. I have approached this analysis of San male initiation from three perspectives. Firstly, the symbolic and interpretative approach of Clifford Geertz (1973), who proposed that culture is a system of inherited concepts expressed in symbolic forms by means of which men communicate, perpetuate and develop their knowledge about and attitudes toward life.

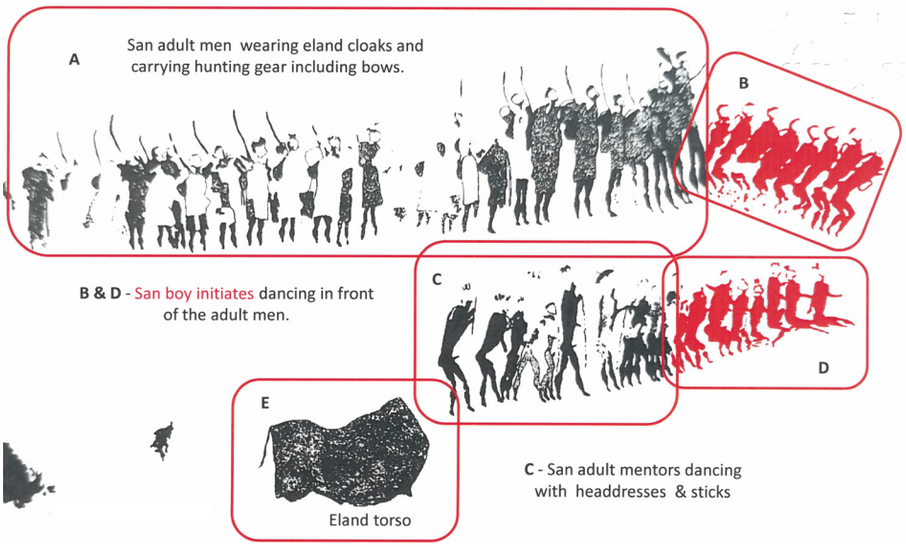


Fig. 1: Sevilla Trail painting of a San male initiation rite. Sub-adult initiates in red. One eland torso. (Illustration: Andrew Paterson.)

Second, the structural approach proposed by Claude Lévi-Strauss (1979), in which he suggests that there are universal patterns to human thought and culture that underlie all human actions and social life. He proposed that instead of looking at the things themselves, one looks at the relationships that exist between them. This will lead to the discovery that these relationships are altogether more simple and less numerous than the things themselves, and that they can give us a firmer basis for investigation.

Third, the approach of the evolutionary biologist Joseph Henrich (2017) whose influential work centres on how cultural and genetic evolution interacts. He suggests that humans exhibit social learning on a cumulative cultural level that influences their genetic evolution.

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Methodology

With these perspectives in mind, my methodology is to study a particular painting in the greatest possible detail in terms of the San figures, the animals and symbolic arrangements within the overall composition of the painting. I identify the ethnographical, behavioural, ethological, ontological and conceptual relationships that I perceive to be in the composition. I also look at the painting materials, the mediums, the drawing nuances and painting techniques used by the artist in creating the composition, and take into account the finest detail of the arrangements of the clothing, bags, bows, quivers, arrows and sticks associated with the figures. Careful attention is given to the body gestures, emotions, movement and attitudes of the figures. The relationships between the San figures themselves in terms of relative size, proportionality and negative space are considered. I trace, photograph and enhance the images with the D-Stretch computer application to expose the faintest detail in the painting.

I look for specific animal behaviours in the painting and for signs of communication, feeding, aggression and avoidance, etc., as well as for the San's behaviour in relation to the animal's behaviour, taking into account the knowledge that the San would have acquired over generations of tracking. This knowledge evolved from the San's ability to read and interpret animal behaviour by reading tracks and visualising and anticipating animal movements to ensure a successful hunt (Liebenberg 1990).

The San concept of changing

Before beginning my analysis, I must briefly discuss the fundamental concept and driving force behind the male Tshoma rite. According to Keeney & Keeney (2015), the San have a most important concept they call *n!o`an-ka|`ae,* which they describe as follows:

- *Everything alive must constantly change. This is the most important Bushman word. It is the force that is making everything move.* N!o`an-ka|`ae *is the secret of creation and transformation. This force is responsible for the creation of all things.*

This changing force is regarded as the driving force in each San person's life cycle, from birth to death. In my opinion, this changing force can be recognised in the two most important events in the life cycle of a San male, namely the initiation rite of passage and the first-kill rite, which normally occur between the ages of 10 and 15. The first, known as the Tshoma rite, requires the individual to prove that he is no longer a boy and has become a man, while the second requires a boy to prove that he is a hunter and can provide meat for his family and group.

The San male initiation rite

A detailed description of this most important rite, amongst the Nyae Nyae !Kung is found in the works of Marshall (1999). She details the ritual structure of the Tshoma rite in 17 pages, which can be summarised as follows:

- Tshoma is held at intervals of several years. She judged some of the intervals to be between five or six years. One !Kung explained to her that it takes several years to 'grow' enough boys. The group of boys to be initiated would be drawn from several neighbouring bands.
- While the rite is in progress, women must not see the Tshoma site, even from a distance.
- The time for Tshoma is signalled by the rising of the Pleiades about two hours before sunrise in mid-June, the coldest time of the year.
- The boys are strengthened by physical exercise and by the endurance of hardships. The physical exercise consists of long hours of dancing.
- The hardships that strengthen the boys are cold, fatigue and hunger. These are real hardships and they must be endured by the boys, cold especially.
- When the Tshoma owners have decided that the Tshoma should be held in a certain year, they plan among themselves at which water hole the rite will take place.
- The *Tshxai !Go* (Men's Dance) is in every way the most important part of the Tshoma rite. Every night they dance the whole night through.
- The dance in the cold winter nights is the principal factor in strengthening the boys and increasing their endurance. Furthermore, it is at the dance, as far as Marshall knows, that the boys receive the Tshoma *n/um* from their sponsors and become owners of the Tshoma songs.
- Two men picked up their karosses and wrapped themselves comfortably. Others slapped their arms around themselves in the cold. The boys stood shivering in their cluster, shifting their feet, looking very grave, even awed.
- Tshoma is of continuing importance in the men's lives. They believe that their Tshoma *n/um* continues to strengthen them and empower their hunting.

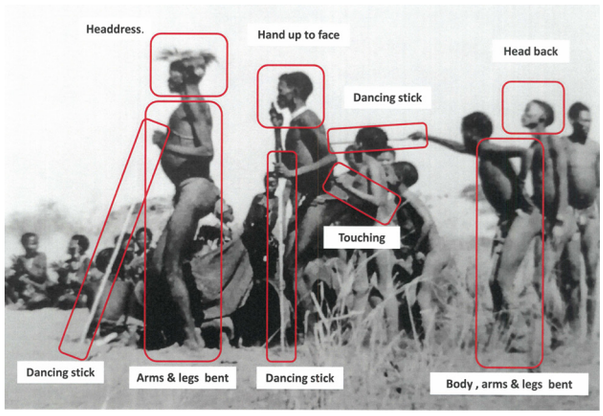

Fig. 2: Photo of a Nyae Nyae !Kung San healing dance. Illustration of present-day dancing postures and accoutrements. (Photo: John Marshall.)

The question was, could I correlate the above ethnographical descriptions by Marshall with what I see in the paintings?

The Sevilla male initiation site

The first painting I have chosen to analyse is from the Sevilla Trail area in the Cederberg, which was traced by Royden Yates. This painting (Fig.1) has recently been described and analysed by Parkington and Paterson (2020). In essence, the painting has no super-imposition of images and is considered to be a single composition. It consists of two long lines of a total of 52 San men, all facing in the same direction. I believe that the two lines could represent two different aspects or stages in the ceremony.

The two lines of men have the same structural arrangement, namely: dancing or standing men (Fig. 1A and 1C) dancing directly behind a group of tightly packed and crouching naked figures (Fig.1B and 1D). The upright figures in the upper line (Fig. 1A) are all wearing eland cloaks and are carrying San male hunting equipment. I have interpreted these as adult San hunters and consider the closely packed dancing/crouching figures (Fig. 1B,) in front of them to be the sub-adult male initiates undergoing their rite of passage (Parkington and Paterson 2020). The taller figures in the lower line (Fig. 1C) consists of naked men, some of whom are wearing headdresses and

others are carrying sticks out in front of them. I have interpreted these figures to be the adult mentors in the ceremony, while interpreting the crouching figures (Fig. 1D) to be the San boy initiates.

The climax of the ceremony occurs when the naked adult male mentors (Fig. 1C), known as the 'owners of the Tshoma *n/um'*, dance nonstop with the boys, for over 30 minutes at a time, throughout the night and then transfer their own *n|um* to the initiates (Fig. 1D) by wiping their *n/um* sweat over the boys. I believe that an important aspect of interpreting this painting as a male initiation ceremony is the fact that the adult males in the upper row (Fig. 1A) behind the initiates are all wearing eland cloaks and are carrying their hunting gear.

The cloaks, in my opinion, have a multiple meaning. The rite takes place specifically at the coldest time of the year to ensure that the hardships required to strengthen the boys are strictly imposed (Marshall 1999). The cloaks reflect the cold that is so important to the ceremony. The cloaks and hunting gear are also symbolically connected to the eland torso below (Fig. 1E) (Parkington and Paterson 2020) and the fact that the San believe that their Tshoma *n/um* continues to strengthen them and empower their hunting. Eland skin is symbolic of successful hunting, the supply of meat, marriage, warmth and survival during the cold wet winters of the Cederberg. My interpretation of the rendition of some figures with hunting gear and dancing sticks, while others are empty handed, is the portrayal of the distinction between men and boys in the painting.

The question now arises whether I can say with a degree of certainty that the men in these two lines are actually dancing. According to Marshall's (1999) description:

- *In the Tshoma Men's Dance the body position is the same as the usual position in the Healing Dances – torso slightly bent forward, knees slightly bent, arms held any way but usually at the side, bent at the elbow.*

I believe that the photo shown in Fig. 2, which comes from the cover of Marshall's book *Nyae Nyae !Kung* and shows men at a healing dance, displays all the attributes and gestures of San men dancing as described by Marshall. In my view, the lower line of men dancing in the painting shown in Fig. 3 shows the same body postures, gestures and accoutrements as are visible in the photo. The photo and the painting are probably 3 000 years apart in time but reflect the same characteristic features. This, I believe, confirms the inherited cultural concepts and webs of significance described by Geertz. In my opinion the painting in Fig. 1 is 'site specific' in that the ceremony depicted took place on the open ground, next to the outcrop and on the banks of the Brandewyn River.

In summary, I consider that Marshall's ethnographic descriptions above provides us with the necessary realistic and accurate ethnographic information to allow the Sevilla painting to be interpreted as a San male initiation rite. It is worth noting that Marshall has not at all used the word 'shaman' in her description of the San Tshoma rite of passage. I do not regard the shaman model (Lewis-Williams 2019; Yates and Golson 1985) to offer a reasonable or adequate explanation of the events portrayed in this painting in this instance.

Other initiation paintings

When approaching other possible male initiation paintings, I pay attention to the same combinations of the essential elements and relationships as described earlier. I now describe two other sites.

The Stadsaal male initiation site

The Stadsaal site lies on a major tributary draining out of the Cederberg into the Doring River on the margins of the Tankwa Karoo. The painting comprises 17 San male figures arranged in three lines facing a group of six elephants. The top line (Fig. 4D) has eight naked male figures. Their arms are spread out and some are carrying short round-headed clubs. The middle line has five male figures (Fig. 4B) in eland cloaks. Of interest is the figure in the front of this row closest to the elephants. It has been deliberately painted with a distinctive 'white' cloak (Fig. 4C). The bottom line (Fig. 4A) has four distinctive cloaked males with hunting bags and quivers but, importantly, no bows. This suggests that this male initiation ceremony is not

Fig. 3: Sevilla Trail painting of a San male initiation rite. Same dancing postures and accoutrements as in Fig. 2. (Illustration: Andrew Paterson.)

about the hunting aspect of the rite but something different.

The six elephants are standing in a naturally defensive position, facing in both directions (Fig. 4E), as would be expected of a group of wild elephants. Because of the size distribution, this group of elephants has been interpreted as an elephant male bond group. By comparison, a female family unit, as painted in numerous other sites in the Cederberg, has a combination of large and small baby elephants (Paterson 2007). When not in musth, or outside the breeding season, bull elephants stay together in male bond groups in bull territories. Each bull group has a strict hierarchy, determined by the physical size, strength and fighting ability of the bulls. The dominant bull, in this Stadsaal painting, is, I believe, the largest and uppermost elephant and the only elephant with tusks. The naked San figures in the top line are standing in line and directly opposite this dominant bull elephant (Figs. 4D and 4E). I suggest that the theme in this male initiation painting is the importance of male bonding and cooperation, which is necessary for a San groups survive.

Once again, the painting suggests a structure of status amongst San males at the time of initiation, namely cloaked adult San men and naked boy initiates. It seems reasonable to suggest that the man in the white cloak, who is being scented by the elephant directly in front of him, is the 'owner of the feeling for elephants', or !xo` *n|om kxao*, leading the ceremony.

The Olifants River male initiation site

The well-known painting shown in Fig. 5, which was traced by Roydon Yates, is less than 100 m from the Olifants River, the largest permanent river draining northwards out of the Cederberg mountains. The first colonialists to visit the area in 1662 under the leadership of Jan Dankaert, led by the local Sonqua San people, were reported to have counted over 300 elephants on the banks of this river in a single day, hence the name. This site has been referred to in numerous writings over the years (Townley-Johnson 1979; Parkington 2003; Paterson 2019).

This composition of this painting follows the basic male initiation structure, I believe, sharing the same cultural relationships evidenced in the previous paintings discussed. The topmost row of six elephant-headed figures are uniquely painted elephanthropic figures (Fig. 5A) (Paterson and Parkington 2016; Paterson 2019). These elephant-headed people are regarded in San mythology as 'people of the early race when the elephants were people' at the time of the first Creation (Bleek and Lloyd 1879). Biesele (1978) confirms this view:

- *All Bushman stories are homogeneous in this important respect: all the animals in the stories were originally people and only later became animals.*

The elephanthropes have been drawn wearing cloaks and carrying bags, as well as long protruding objects on their backs, which, it has been suggested (Paterson 2019), could be stacks of water-filled ostrich eggs. Directly in front of the head of the largest elephanthrope, at the rear, is what I interpret to be the lines of a rain symbol (Paterson 2018).

The 23 figures below the elephanthropes are naked San males. The 11 standing male figures on the left (Fig. 5B) have a set of very thin parallel red lines falling from their faces, across their penises and down onto another set of red lines connecting the standing men's feet to one another and to the feet of all the other figures in the painting. One of these figures is carrying a bow and quiver. The remainder of the figures have been painted in a randomly chaotic fashion with each one still connected to the thin red line (Fig. 5D). Amongst these chaotic figures are two standing figures (Fig. 5C). Below all these figures

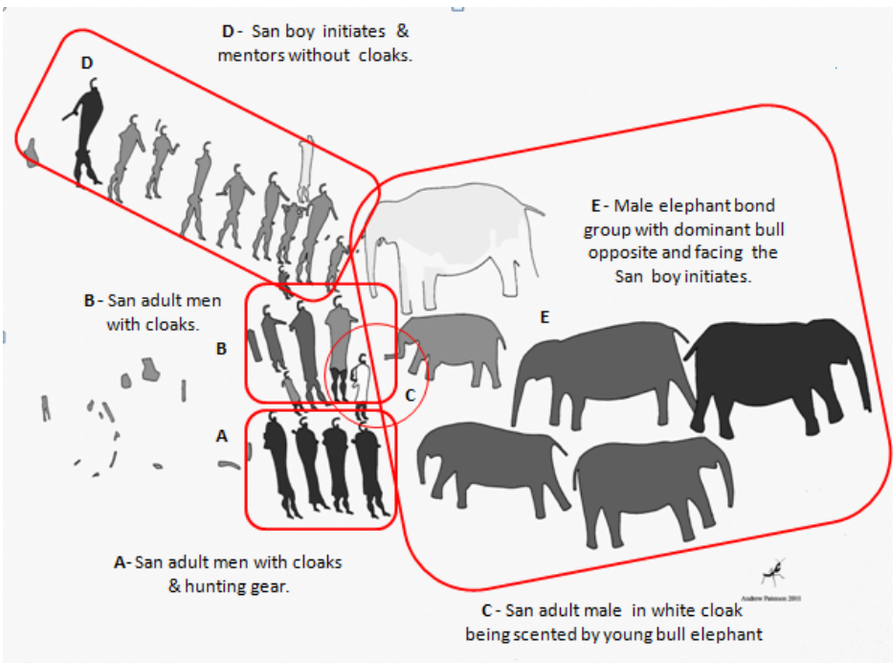

Fig. 4: Stadsaal: painting of a San male initiation rite. Sub-adult initiates in red. Six bull elephants. (Illustration: Andrew Paterson.)

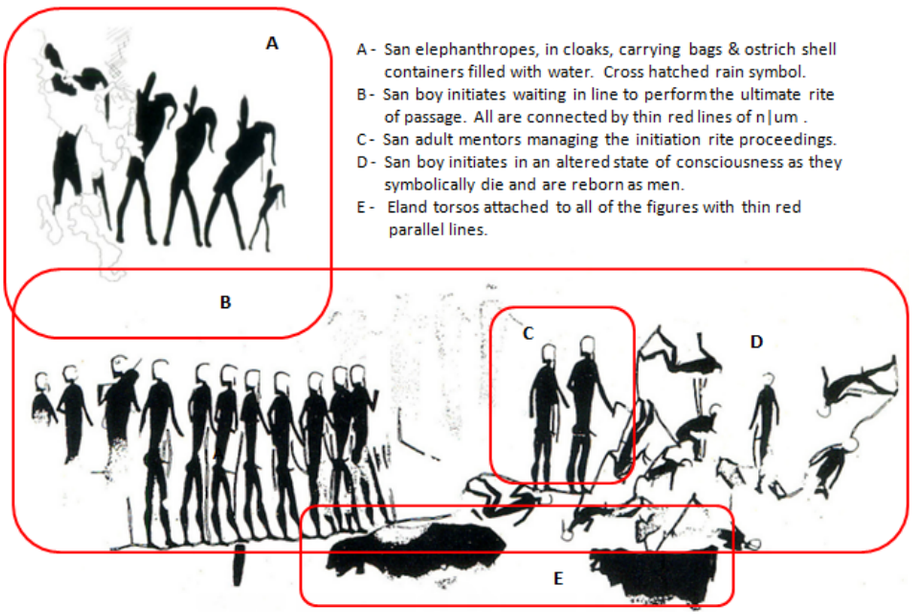

Fig. 5: Olifants River painting of a San male initiation rite. Sub-adult initiates in red. Six elephanthropes. Two eland torsos. (Illustration: Andrew Paterson.)

are two separate eland torsos (Fig. 5E) in the same relative position and symbolic context as the Sevilla painting (Fig. 1E). These torsos are also connected directly to all the San figures by the same thin red lines.

My interpretation is that this painting is another rendition of a San male initiation ceremony. I believe that the initiates lying on the ground (Fig. 5D) are in an altered state of consciousness. They are being taken through the most dangerous part of the rite of passage by their mentors (Fig. 5C); the initiates die symbolically and are reborn as fully fledged adult males.

I feel that the choice of eland and elephant is important to the interpretation of the painting. Once again, the eland torso relates to hunting, meat sharing and marriage. The elephanthropes relate to other inherited San cultural concepts regarding knowledge and San spirituality involving the first and second creations, with the symbolic crossing back and forth over the boundary between these two 'worlds' during the San initiation rite. The elephanthropes also reflect the importance of water, rain and the sharing of duties related to finding and collecting water. All of these concepts are part of the San's survival strategy (Paterson 2019). Finally, I consider that the thin red lines convey the all-important San concept of *n|om* that connects the San to their entire ecosystem.

- N|om *is the vibrant energy that animates all living things and comes directly from God the Creator (Keeney and Keeney 2015).*

Male initiation in South African rock art

There appears to have been a considerable amount of doubt cast among South African archaeologists during the past 50 years with regard to the very existence of the male initiation ceremony among the /Xam San in South Africa. This doubt continues to exist to the present day (Lewis-Williams 2019) and appears to be linked to observations made by Marshall (1999):

- *The question arises as to whether the Tshoma came originally to the Bushmen from the Bantu-speaking peoples. The fact that no record exists of the southern Bushmen having a boy's puberty rites suggests that the concept of the rite may have come to the Bushmen from the Tswana, when the Tswana became their neighbours.*
- *One element, however, does seem to come from the Bantu – the bull-roarer* (n=abbi)*. The black substance used in the Tshoma scarification is a charred bull-roarer.*

However, in my opinion, any lingering doubts caused by the use of bull-roarers in San ceremonies have now been laid to rest. A painting, situated close to the Doring River, has recently been discovered, documented and published (Rusch and Wurz 2020). It contains a fine-line painting of some eight San men swinging bull-roarers. This painting leaves no doubt that bull-roarers were used by the San long before Bantu-speaking peoples arrived in southern Africa.

Conclusion

I believe that the three remarkable paintings analysed above illustrate the San's ritual of the collective sharing of cumulative social knowledge, as they did during the San male initiation ceremony described by Marshall 1999.

I wish to refer back to the suggestion made by Patricia Vinnicombe in 1972 that one should assess the products of the San's artistic creativity:

- *The whole cycle of life is structured by inter-related factors. In attempting to solve the eternal problem of man in relation to this cycle [of life], the San artist selected articles for portrayal which symbolised his interpretation of life. By creating a feeling of cohesion and security in the face of uncertainty, by expressing and ordering social relations, the San sought to maintain the necessary balance between himself and his environment that was fundamental to survival.*

I propose that consideration be given to re-instating the original 'survival' model of Patricia Vinnicombe as an alternative to Lewis-Williams' current 'shamanistic' model.

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