



A CRITICAL LOOK AT THE UNDERSTANDING OF ROCK ART IN SOUTH AFRICA

Victor Biggs

In South Africa, thousands of painted rock art shelters are scattered throughout the land. Each site tells a different story and collectively they are like a big library full of books. If someone who cannot read goes into the library, all the books there will mean nothing to him or her. They may open a book and see a picture and make their own interpretation of the picture. Sadly this is what is happening to our rock art. Public understanding of rock art in South Africa is way off the mark, but can you blame ordinary South Africans for this? Where can they learn about rock art?



A painting of British soldiers on the Bushy Park farm near Cathcart

Our rock art researchers, who are the authors of most of the books and literature on the art, appear to have no indigenous knowledge and try to interpret rock art through a so-called ethnography of people who never had any tradition of rock art and who, living in a drier climate than the painters, developed different beliefs. Trying to interpret rock art through the Kalahari Bushmen is like trying to learn Christianity through the Hindu faith. Some aspects may be the same, but most are very different. As they cannot match up the ethnography with what is painted on the rocks, they end up confusing themselves and everyone else.

If you show a picture of a horse to someone who has never seen or heard of a horse before and ask him what it is, and he says it is a dog because it has a head, legs and a tail, would you believe him? Our rock art researchers would. If they can believe what Wilhelm Bleek's informants, who had never seen or had any knowledge of rock art, said about the copies

of paintings shown to them, then they will believe anything. Because these people came from a dryer climate and said the strange animal depictions were rain animals, all mythical animals and snakes are now

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We acknowledge with thanks the colour sponsorship by Prof. Francis Thackeray, Evolutionary Studies Institute, University of the Witwatersrand.

Victor Biggs is a retired farmer now living in Gonubie, East London. He spent many years looking for and recording rock art, first in the Matatiele area and then in the rugged Kei River valley. He has found the many sites copied by George Stow (1867) and Brother Otto Mader (1912) of the Kei Lands Mission in the Kei valley. victor.biggs@ymail.com.

seen as rain animals and all Bushman lives are considered to revolve around making rain for Black farmers.

Why go to the ethnography when you can speak to the Nguni people, especially the Southern Nguni who came into southern Africa, slowly mixed with the abaTwa Bushmen, intermarried and learned their healing skills, customs and beliefs. These Zulu sangomas and Xhosa gqirhas are practising those very same beliefs that are painted on the rocks all around us today. They acknowledge this and say that very little has changed over the years. Researchers must learn to communicate with these people about their beliefs and speak to them about the water divinities, their power animals (*izilo*) and other mythical creatures. Acquiring this knowledge will provide a better understanding of rock art. There are many depictions, especially of water divinities, on the rocks that have been completely misinterpreted by rock art researchers.

Black South Africans have been totally ignored and alienated by our rock art researchers. Rock art has been so misrepresented that they do not recognise that the rock art is also part of their own culture and heritage. As a result they have no respect for rock art and it is being destroyed without conscience all around us. This is a major tragedy for South African rock art.

A good example of this alienation is the Joseph Orpen/Qing saga. This was a very historic moment and the only recorded time a Bushman actually explained to someone what rock art was about. Unfortunately, because of a lack of indigenous knowledge, this event has been totally misconstrued by researchers. When Orpen and Qing were standing in a shelter looking at a depiction of some long kaross-clad figures with antelope heads and feet, Orpen asked Qing what they were. Qing replied that 'these were men who had died and now lived in rivers'. One need not go any further than this sentence, which has been completely ignored by researchers.

Qing was referring to a very important belief among black south Africans that they learned from the Bushmen. He was referring to the 'water divinities' or 'abantu bomlambo', the 'people of the rivers'. When a person dies his spirit joins those of his ancestor in a land under the water. These are the spirit guides the Bushmen and black people appeal to for guidance and protection. In other words, Qing said that these were people of the spirit world and not transforming shamans as some rock art researchers would like us to believe. There is no such thing as a transforming shaman. The so-called 'rain snakes and rain animals' all form part of this underwater world and have nothing to do with rain.

If rock art researchers understood the lore of the water divinities they would have understood what Qing was referring to when he said that a depiction of two quadruped animals was a snake. He was referring to 'mamlambo', a mythical creature living under the

water that can manifest itself into many forms, but mostly a snake. It is inconceivable that rock art researchers tell us that when a shaman goes into a trance during a trance dance he goes on a journey to the spirit world, yet they cannot perceive or recognise spirit world depictions. If you travel in a space ship to another planet you will expect to see different creatures to what we have here. The same applies when you go on a spiritual journey. Why do the creatures you meet in the spirit realm when painted on rock walls have to be modelled on creatures from this earth?

Do people ever ponder why the Bushmen painted and of what practical use these paintings were to them? The painted sites were power spots for the Bushmen healers where they came to meditate and perform certain rituals while communicating with their spirit guides. A power spot is a place that emits real but invisible energy. The painted pictures on the walls are of their power animals, previous encounters with the spirit world, dreams, important people and other worldly experiences, such as ritual and group dances. The painted pictures helped them with their meditations. A very powerful power spot could be used by several generations, each newcomer adding his own paintings, which resulted in much over-painting.

I am going to use two examples from different shelters in the Eastern Cape, where by studying the rock art depictions I have found more than just 'Bushman paintings', but history on the rocks. I will also try and fathom out why they would have painted these historic events.

The British soldiers

Many years ago I was taken by Jonathan and Fiona Amos-Brown to see some 'Bushman paintings' on their farm Bushy Park, which is situated in the mountains west of Cathcart. The site lies in the upper reaches of the Waqu river, which goes past Goshen Mission and then on to join the Black Kei River. Access to the shelter is by vehicle along a farm track, followed by a fairly long walk down a steep incline and a rough walk next to the cliff face. You then suddenly come to the hidden shelter, which has a very strong spring below it.

As we entered the shelter the first paintings we saw were of two beautiful Nguni cattle. To the right there were other interesting paintings and then in the middle of the shelter, at about head height, there was a row of 12 British soldiers with rifles to their shoulders and an officer with a large red and white feather adorning his cap standing next to them. I was absolutely floored by what I saw. Jonathan and Fiona were surprised at my reaction. They had been there many times before and had only seen 'Bushman paintings'.

I was sure that this scene represented some historical event from the past and I was determined to try and find out what this was. My first action was to phone

Johan Binneman at the Albany Museum in Grahams-town. He came out a few weeks later, but being more interested in stone tools than Bushman paintings, he did not share my enthusiasm and I never heard anything more of the British soldiers from him. Over the next few years I tried in vain to identify the uniforms and see if there was a historical event linked to the depiction. While on a visit to England I went to the Imperial War Museum in London to see if I could get help. At the reception desk I was asked if I had an appointment. When I said no, I was told I would have to make an appointment and that it would take about six weeks to see someone. My explanation that I had come from the other side of the world was to no avail. Then they had the audacity to ask me to give them the laminated photograph I had of the depiction.

Meanwhile I had donated to the Cathcart museum a collection of laminated photographs of the major rock art depictions from shelters in the Cathcart area for an exhibition hall. It included a copy of the British soldiers. A few weeks later I received a phone call from an elderly lady, a Mrs Nisbet living in Cathcart, who asked for a copy of the British soldiers. I cannot remember whether she told me why she wanted it. Anyway, a few years later Mrs Nisbet passed away and her grandson Huen Nisbet, who lived in England, came out to settle her estate. I received a phone call from him asking if I would take him to the shelter to see the depiction of the British soldiers. His grandmother had sent my photo to him and he was sure that it was his great, great grandfather, Andrew Geddes Bain, who was depicted there. When he saw the depiction he told me the following very interesting story that had been passed down the generations of his family.

Andrew Geddes Bain was hunting elephants in what is now Botswana and the Griqua drivers of his wagons stole some of Mzilikazi's cattle. Mzilikazi sent a Matabele impi after them and attacked his camp. He was lucky to get away with his life. He ran and jumped on his horse and fled. His escape was so close that an assegai was embedded in his horse. He lost everything: wagons, guns and equipment. This was a great financial blow for him and he returned to his home town of Graaff-Reinet at the outbreak of the Sixth Frontier War (1834 to 1835). After the war he was given a commission as an ensign in the Beaufort levies, a Hottentot corps with white officers. This corps was stationed at Fort Thomson on the Tyumie River and was tasked with following up on stock theft cases.

Goshen Mission, situated near what is now Cathcart, started as a Bushman mission and when the Tembu had started to invade the area around the Klipplaat River in the early 1830s they also harassed the Bushmen. Andrew Geddes Bain and his Hottentot levies were also tasked with the protection of these Bushmen. The route that Geddes Bain would have taken from Fort Thomson to Goshen Mission would



Close-up of part of the soldier painting

have passed right next to the site with the depiction of the British soldiers. No doubt they would have stopped for a drink of water at the fountain below the shelter.

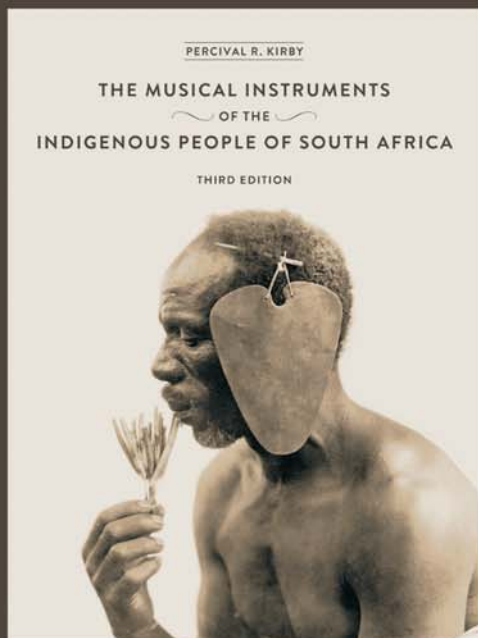
Margaret Lister, Andrew Geddes Bain's daughter, published the *Journals of Andrew Geddes Bain*. In them she does not mention the Goshen mission by name because it only became known by that name in 1850 after the annexation of that area by the British and its conversion to a mission for black people. However, she does mention that her father was in the vicinity of the nearby Klipplaat River. Geddes Bain was described as a big man and if you look at the depiction of the officer he can be seen towering over his troops. The Scottish hackle on his cap links the officer to Scotland, the land of Geddes Bain's birth. There is no doubt about the identity of the officer. He is indeed Andrew Geddes Bain and his men are the Beaufort Levies. History on the rocks, painted by an unknown Bushman artist somewhere around 1835.

Andrew Geddes Bain did not stay long in this post. After an unhappy incident where he was court martialled but exonerated, he left the army and concentrated on his road-building career, for which he and his son Thomas Bain became famous. If we can positively identify who is depicted here, how many of the paintings on the rock art are of famous Bushmen, and the depictions of community ceremonies and other rituals real events.

But why would the Bushmen have painted these British soldiers? What practical use would this depiction have had in this shelter? What practical use did any painting on the walls of a shelter have for the Bushmen? The paintings were done by the Bushmen healers and this is where they came to meditate and perform certain rituals. The paintings helped them communicate with their spirit guides. In the case of the British soldiers, the aura of having paintings of people that they perceived as protecting them may have helped when communicating with their spirit guides in very difficult times.

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The Victorian lady

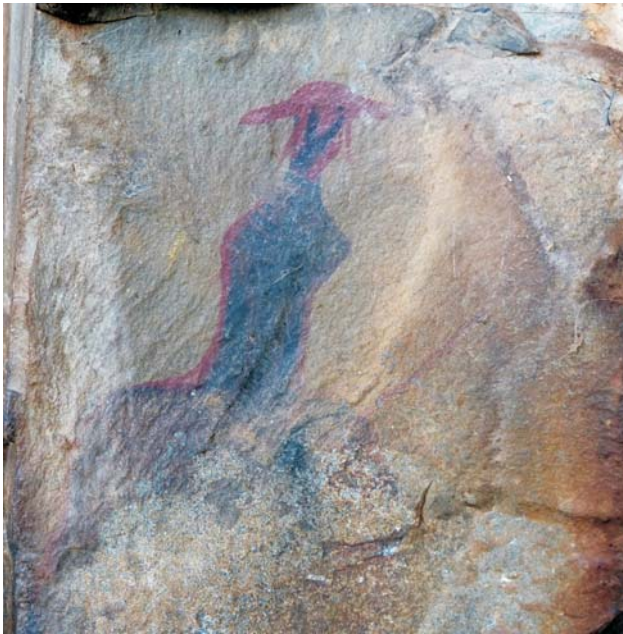
In about 1990 I was given a book of George Stow's copies of rock art titled *Cave Artists of South Africa*, published by Eric Rosenthal. What intrigued me was that many of the sites were in the nearby vicinity of the Kei River and I set myself the task of finding as many of the Stow sites as possible.

The first site I went to look for was titled 'Xolobe, Tsomo, Transkei', numbers 44 and 45. Trying to locate the site in the vast Xolobe area was like looking for a needle in a haystack. Riding around on extremely bad roads, I unsuccessfully asked many people if they knew of any *abaTwa* paintings in the area, but eventually met a hunter with a pack of dogs who said that there were some paintings like that near his home. So off we went to his home in a very secluded valley. From his house we walked down a very steep path and then along a narrow ledge that eventually opened up into a very big cave. My guide was very proud of the fact that he sheltered his goats in this cave.

And there they were. The first of many George Stow sites I have found over the years. Stow had copied almost all the paintings in the shelter. In spite of the goats, they were still in a surprisingly good condition and easily recognisable from his copies made in 1867 when this was still wild and hostile country.

As I was studying the depictions I came across a drawing of a Victorian lady that Stow had not copied. It was fairly large and Stow could not have missed it, and he had actually copied a row of dancing human figures just above it. My conclusion was that the Victorian lady had been painted after Stow's visit to the shelter. The thought that went through my mind was what white woman known to a Bushman would have been in this very rugged and isolated area, and for what reason would he have painted her on the rocks in this barely accessible cave. I examined the painting very carefully to make sure that it was a white woman and not a black or Bush women in a Victorian dress, but it was definitely a white Victorian lady.

A few days later I showed the photographs to my mother and told her of my adventures. My aunt, who was visiting, became very excited and told me the following story as told to her by her father, my grandfather. My grandfather Robert Acton had started the trading station at Kuze as a young man. Kuze is situated at the bottom of the Xolobe River valley. The Xolobe cave is many kilometres of rough and physical climbing away at the top of the valley. Whether he was aware of the white women living up there or not, my aunt was not sure. One day some black men arrived at his trading store and wanted to know what they must do about the white woman who was running around naked. The children were throwing stones at her. They told him that she was a missionary and had been living there for many years. My grandfather contacted the mission in Emgwali and they eventually fetched her.



Depiction of the Victorian lady

My aunt was convinced there was a book written about this lady missionary but could not remember the title or the name of the lady. It was many months before I was able to get the title of the book from a friend of hers. The title of the book, written by WF Livingston, was *Christina Forsyth of Fingoland: the story of the loneliest women in Africa*. The next time I visited East London I went to the museum library and found the book there. What an amazing story of a remarkable woman who chose to live on her own, a recluse for 30 years, in the most isolated part of Africa, to do her missionary work. In the end, old age and the hard living caught up with her and she became ill. But she was taken back to Scotland, where she recovered and lived a few more years. Christina Forsyth lived close to the Xolobe site and wandered all around the mountains and valleys of the area doing her missionary work. She preached to the Mfengu people and no doubt to Bushmen groups as well. She also established a school in the area.

I am certain that the depiction of the Victorian lady in Xolobe cave can only be that of Christina Forsyth, or, as she was known by the local people, 'Smoyana'. She came to the area after Stow and was there from 1886 to 1915. What a tribute to this grand old lady that an *umTwa* Bushman would have painted her on the rock wall of his cave. There must have been a Bushman painter around after Stow's visit who wanted the aura of the white lady with her perceived links to God to adorn the walls of his power spot, when he was communicating with his spirit guides. Even today there are still some descendants of the Bushmen in that area who are proud of their *abaTwa* ancestry.

Sadly the goats have taken a toll on the paintings over the years from when I first saw them and some have since disappeared. But thanks to George Stow we

have a full record of what was originally in the Xolobe cave.

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ARCHAEOLOGY IN AFRICA

'Ardi' skull reveals links to human lineage

One of the most hotly debated issues in current human origins research focuses on how the 4,4 million-year-old African species *Ardipithecus ramidus* is related to the human lineage. 'Ardi' was an unusual primate. Though it possessed a tiny brain and a grasping big toe, it had small, humanlike canine teeth and an upper pelvis modified for bipedal walking. Was Ardi an ape with a few humanlike features retained from an ancestor near in time to the split between the chimpanzee and human lines? Or was it a true relative of the human line that had yet to shed many signs of its tree-dwelling ancestry?

New research led by Arizona State University paleo-anthropologist William Kimbel, director of the ASU Institute of Human Origins, confirms Ardi's close evolutionary relationship to humans. Kimbel turned to the underside of a beautifully preserved partial cranium of Ardi. The study, published in *Proceedings of the National Academy of Sciences*, revealed a pattern of similarity that links Ardi to *Australopithecus* and modern humans, but not to apes. Among Kimbel's co-authors are Tim White (University of California), whose field-research team has been recovering Ardi fossil remains in Ethiopia's Middle Awash area since the 1990s.

Ardi's cranial base shows the distinguishing features that separate humans and *Australopithecus* from apes. Kimbel's earlier research showed that these human peculiarities were present in 3,4 million-year-old *Australopithecus* skulls. The new work expands the catalogue of anatomical similarities linking humans, *Australopithecus* and *Ardipithecus* on the tree of life, and shows that the human cranial base pattern is at least a million years older than Lucy's species, *A. Afarensis*. Arizona State University, 06/01/2014

HUMAN DNA AND STONE AGE ARCHAEOLOGY

Marlize Lombard

In the previous issue of *The Digging Stick*, Alan Morris (2014) deliberated on how a recent genetic study (Pickrell et al. 2014) toppled the uneasy consensus that a 'diffusion of ideas rather than people' gave rise to herding Khoe communities in southern Africa. The study indicated the presence of 'west Eurasian' ancestry in Khoe-San populations. The authors estimate the admixture to have happened between 1800 and 900 years ago, and argue that the people who brought this ancestry to southern Africa were an already-admixed group from Ethiopia, perhaps speaking an Ethiosemitic language of south Arabian origin. Morris sees this evidence as going 'full circle', linking it to the 19th century notion of a 'Hamitic' origin for the herding communities encountered by Europeans at the Cape of Good Hope (Fig. 1). But why am I repeating this? Because several other pieces have already been added to this puzzle, creating an increasingly nuanced understanding of how a herding way of life entered southern Africa.



Fig. 1: Korah Khoekhoe dismantling their huts in preparation for moving to new pastures (illustrated in 1805 by Samuel Daniell, appointed artist for a British expedition into the Cape interior in 1801)

A few years ago, two geneticists, Carina Schlebusch and Himla Soodyall, and I, a Stone Age archaeologist, came together with the common long-term goal of bridging the two disciplines to gain a more robust insight into the histories of the Stone Age peoples of southern Africa. The group has since grown, as has the scope of our projects. Our most recent collaborative work speaks directly to the origins of herders in southern Africa (Breton et al. 2014). The key outcome was that an allele (labelled -14010G>C) associated with specific East African pastoralist populations was

prevalent in the Nama Khoe (>20 per cent). (An allele is one of a number of alternative forms of the same gene or same genetic locus; a genetic locus or region is the specific location or position of a gene or DNA sequence on a chromosome.)

This allele is directly associated with lactase persistence (LP), which is the ability to digest milk into adulthood. The presence of an LP-associated allele is thus a good indicator of a population's enduring pastoralist way of life. The Nama belong to the Khoekhoe linguistic division and they are considered to have been a loosely structured conglomerate of herding communities. Many Nama still practise herding to some extent. Most of them now live in Namibia, but their ancestors roamed the south-westerly regions of southern Africa until the last few centuries, when pressure from Bantu-speaking farmers and European colonists shrank their territories.

The specific LP allele frequency in the Nama is significantly greater than in the San or the south-eastern and south-western Bantu speakers included in our study (Fig. 2). A relatively high frequency of the allele was also observed in some coloured communities, probably because of their Khoe ancestry (Schlebusch et al. 2012). The coloured groups furthermore displayed the highest frequencies of another LP allele (-13910C>T) that is typically associated with Europeans (Fig. 2). This reflects fragments of their more recent genetic heritage subsequent to Europeans arriving in southern Africa.

The East African LP allele variant was originally identified in populations from Kenya and Tanzania, and high frequencies (58 per cent) were reported for the Maasai (for references see Breton et al. 2014). Our results demonstrate that this LP allele variant was almost certainly introduced by gene flow between East Africans and the southern San to form what is now known as the Nama population. It subsequently entered other San, Khoe and current coloured populations, all of whom generally show lower frequencies of the allele variant (Fig. 2). We only found evidence of the East African LP mutation and none for the Middle Eastern LP mutation (-13915T>G). It is therefore doubtful that a dispersal of Middle Eastern Semitic peoples to southern Africa took place through East Africa (e.g. Pickrell et al. 2014). If that had been the case we would expect to have seen at least some representation of the Middle Eastern LP mutation in our sample (Carina Schlebusch, pers. comm. June 2014).

In addition to the LP data, genome-wide data from various African populations further support admixture

Marlize Lombard is Associate Professor in the Department of Anthropology and Development Studies at the University of Johannesburg. mlombard@uj.ac.za.

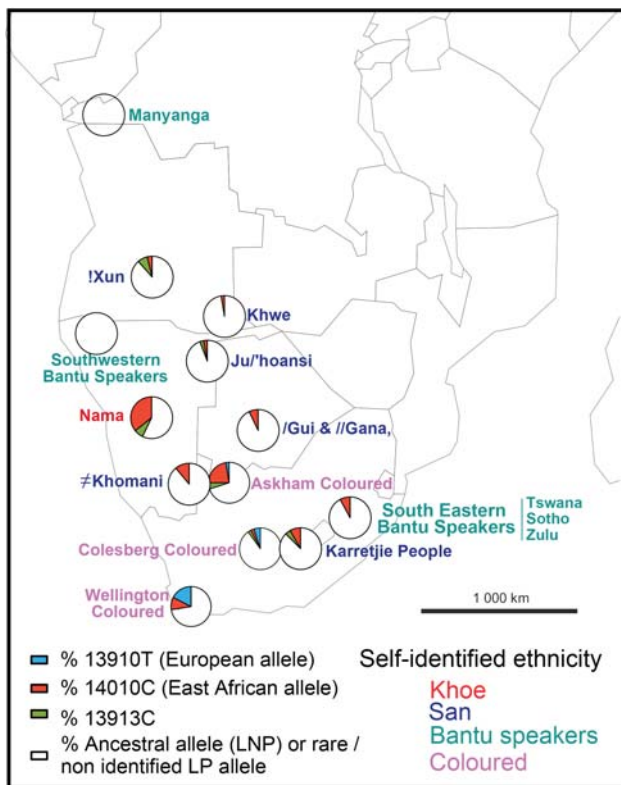


Fig. 2: The locations of groups who contributed DNA data towards the lactase persistence study, with pie charts that display the frequencies of the three most prevalent LP-associated allele variants (from Breton et al. 2014)

of the Nama (13 per cent) with an East African, Afro-Asiatic linguistic group. The remaining part of their genomes are from San hunter-gatherers, clustering with current populations who originally belonged to the Tuu linguistic grouping or the southern San (Schlebusch et al. 2012, 2013). The Ju/'hoansi San are the least admixed of all the current Khoe-San groups. Using them to represent the San, and various East African groups as parental populations, we confirmed a specific East African admixture component in the Nama. This component is distinct from potential Bantu-speaking and European contributions, and points to a widespread East African admixture into Khoe-San groups. It also explains the presence of the East African LP allele variant in all Khoe-San groups, which is particularly high in the Nama (Breton et al. 2014).

Several African groups with specific geographical ranges stand out as having distinct genetic ancestry. These include the southern African Khoe-San, the central African Pygmies, Niger-Congo groups with West African ancestry, a probable Ethiopian-specific component, and two interlocked components associated with Afro-Asiatic and Nilo-Saharan groups (for references see Breton et al. 2014). The three East African-specific components are present in several Khoe-San groups and are the largest in the Nama. Of these, the Afro-Asiatic component is largest in the

Nama (11 per cent), while other components contribute less (1,1 per cent each). The East African ancestry does not exceed six per cent in any of the other southern African groups (Fig. 2).

Assuming that admixture occurred with a single East African group and that contemporary groups roughly represent those of the past, the best match signals three Ethiopian groups: the Afar, Amhara and Tigray. These populations, who now live in northern Ethiopia, speak Afro-Asiatic languages from the Cushitic and Semitic divisions and the Afar are traditionally pastoralists. It is therefore our best-fit interpretation that southern African San, of the southern Tuu-speaking groups, admixed with a group related to or ancestral to Afro-Asiatic speakers from East Africa. The findings are consistent with an admixture event involving San and an East African group resulting in the Nama Khoe, and subsequent gene flow between the Nama and other San and Khoe-San groups, which gave rise to groups such as the current ≠Khomani San and the Askham coloured population, both groups having diluted East African genetic components (see Breton et al. 2014).

If we use the Afar, Amhara and Tigray data with that of the Ju/'hoansi, admixture between San and East African groups dates to 1 255 years ago (Breton et al. 2014). It is expected that small amounts of Bantu-speaker admixture into the Nama and/or the East African parental population/s will reduce the estimated time-depth of admixture, and that continuous East African gene flow (after the initial event) into the Nama would also yield an underestimation of the admixture date. Thus, the true timing of admixture is almost certainly more than 1 300 years ago, in line with the estimations of Pickrell and colleagues (2014), and with archaeological evidence of herding communities on the southern African landscape that starts to appear after about 2 000 years ago.

The results of two additional studies confirm the East African LP mutation in southern African populations (Macholt et al. 2014; Ranciaro et al. 2014). Thus, we now know that Khoe herders were the descendants of San hunter-gatherers of southern Africa who admixed with non-Bantu-speaking pastoralist immigrants who arrived from East Africa more than 1 300 years ago.

The significance of genetic research

Human DNA research is not only changing how we understand the peoples and archaeology of recent millennia, but is increasingly also modifying what we know about our deep human ancestry. For example, there is evidence within the Khoe-San genetic structure for a split between northern Ju-speaking groups such as the !Xun and Ju/'hoansi, and the descendants of southern Tuu-speaking groups, such as the Karretjie and ≠Khomani peoples at about 35 000 years ago (Schlebusch et al. 2013; Fig. 3). This age estimate coincides with the archaeological

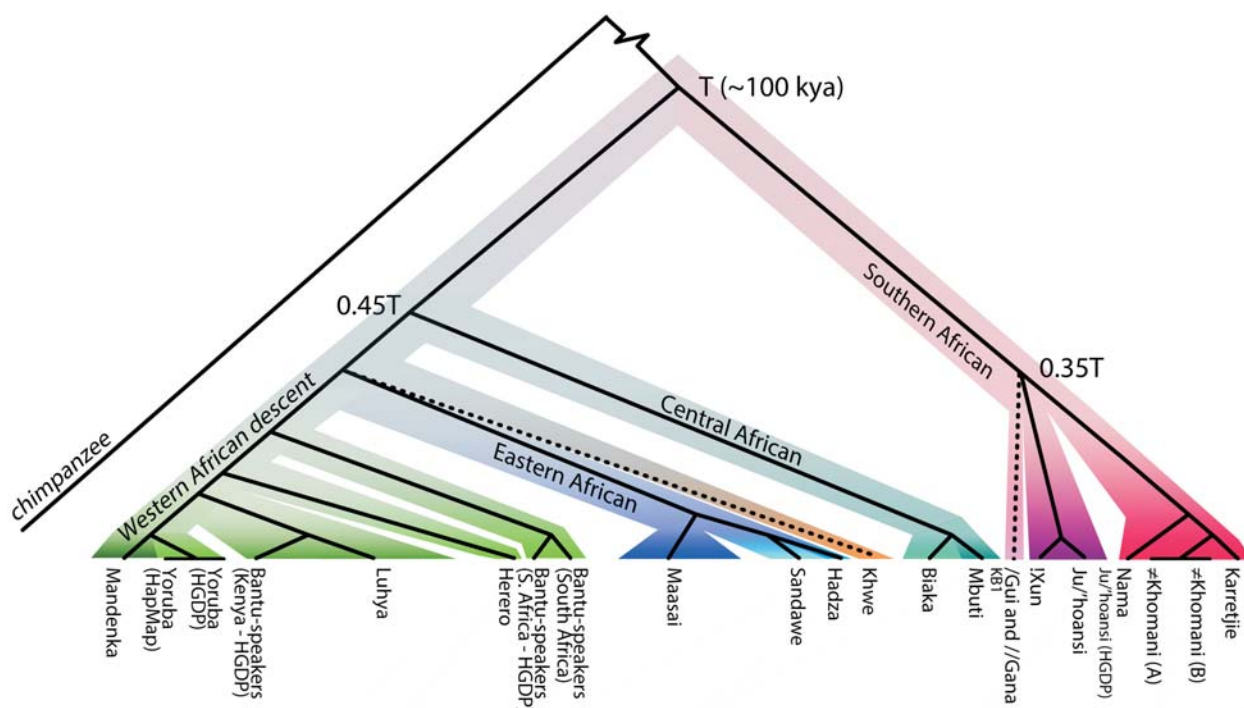


Fig. 3: Rooted population tree showing the genetic relationships of some sub-Saharan African populations, the genetic divergence time of current southern Khoe-San from other groups at more than 100 000 years ago, and the split between northern Ju-speaking groups such as the !Xun and Ju/'hoansi, and the descendants of southern Tuu-speaking groups such as the Karretjie and #Khomani peoples at about 35 000 years ago (modified from Schlebusch et al 2012)

Record that indicates it as the approximate transition from the Middle to the Later Stone Age. But our main focus points here lie even deeper in time.

Genetic research played a central role in establishing what is now considered common knowledge, namely that *Homo sapiens* came into existence during the Middle Stone Age (MSA) in sub-Saharan Africa sometime between 200 000 and 100 000 years ago, and that the current Khoe-San populations of southern Africa represent some of the most divergent genetic material associated with our species (e.g. Schlebusch et al 2012, 2013 and references therein; Fig. 3). Fossil remains, dated close to the estimate of genetic divergence times of current Khoe-San from other groups, could possibly be linked to the common ancestral *H. sapiens* population.

For example, some of the earliest modern *H. sapiens* fossil material is reported from South African contexts between about 130 000 and 80 000 years ago from sites such as Sea Harvest, Witkrans, Blombos, Klasies River, Blind River and Border Cave (see Dusseldorp et al. 2013; Lombard et al. 2013). Based on morphological characteristics, these fossils are mainly accepted as *H. sapiens*, but some exhibit morphology that is not yet consistent with that of more recent Khoe-San. It therefore seems that the process of gracilisation (reduction of prominence of facial features) was not yet completed. This process is expected to be accompanied by several morphological changes, possibly as a result of gene inter-

actions under the influence of selective forces.

Genetic studies have revealed evolutionary processes that potentially influenced the shaping of genomic variation in humans more than 100 000 years ago. Some genomic regions with signatures for strong selective pressure in humans contain genes that are medically associated with skeletal development and may have contributed to gracilisation. For example, positive signals for selection were obtained in a genome region (immediately upstream of *ROR2*) that is involved in the regulation of bone and cartilage development, and the region that regulates cartilage development (containing *SULF2*), as well as a region involved in fontanel closure tempo and facial morphology, including the jaw, brow, nasal bridge and palate (containing *RUNX2*). Variations in the latter region have been linked to observable differences between *H. sapiens* and archaic humans, such as frontal bossing (the bulging of the frontal skull bones and the enlargement of the brow ridge), clavicle morphology, a bell-shaped ribcage and regulation of the closure of the fontanel, which is critical for post-natal brain expansion (see references in Lombard et al. 2013).

Perhaps also relevant is that a fixed difference between the DNA of archaic and modern humans occurs in the genomic region *EVC2*, which when mutated in modern humans, causes the Ellis-van Creveld syndrome. One of its symptoms is taurodontism, an enlargement of the dental pulp cavity and fusion of tooth roots. This feature is a common trait in

the teeth of *H. neanderthalensis* and other archaic humans. For example, a Denisovan molar also has an enlarged pulp cavity, but lacks fused roots (see references in Lombard et al. 2013). These observations suggest that mutations in certain regions and/or genes within the human genome might have caused a change in the dental morphology of early *H. sapiens*. Since gracile *H. sapiens* morphology appeared fairly abruptly, selection involving a few morphology genes such as those mentioned here could have been involved in the anatomical emergence of our species.

The MSA of sub-Saharan Africa is not only the context in which our ancestors evolved anatomically, but also marks the foundation of ways of thinking that make us uniquely human. For example, from at least 300 000 years ago we observe increased levels of flexibility in stone-tool knapping strategies and the invention of hafted technologies such as stone-tipped spears and axes (Fig. 4). Such technologies signal development towards advanced technological, behavioural and cognitive plasticity, opening the way towards the expansion of our ancestors' problem-solving skills. For example, Ambrose (2010) argues that composite tools, such as hafted hunting weapons, place greater demands on integrating working memory with prospective memory and ultimately constructive memory. These faculties are associated with the anterior frontal lobe of the human brain, and with Broca's area, which facilitates processes involved with grammatical language and manual hierarchical assembly (also see Barham 2013). Early *H. sapiens* were, however, not the only hominins to produce hafted tools, probably sharing the associated cognitive traits with *H. neanderthalensis* and *H. heidelbergensis*.

From about 100 000 years ago there is a florescence in so-called symbolically mediated behaviours. Evidence of such behaviours include engraved ochre nodules, some with complex geometric patterns (Henshilwood & Dubreuil 2011), and liquefied ochre-rich mixtures that were perhaps used as skin decoration (Henshilwood et al. 2011). In southern Africa, the treatment of rocks with heat to improve their knapping quality, the use of ochre in compound adhesives, the sourcing of meat with snares and the use of toxic plant material to repel insects date to at

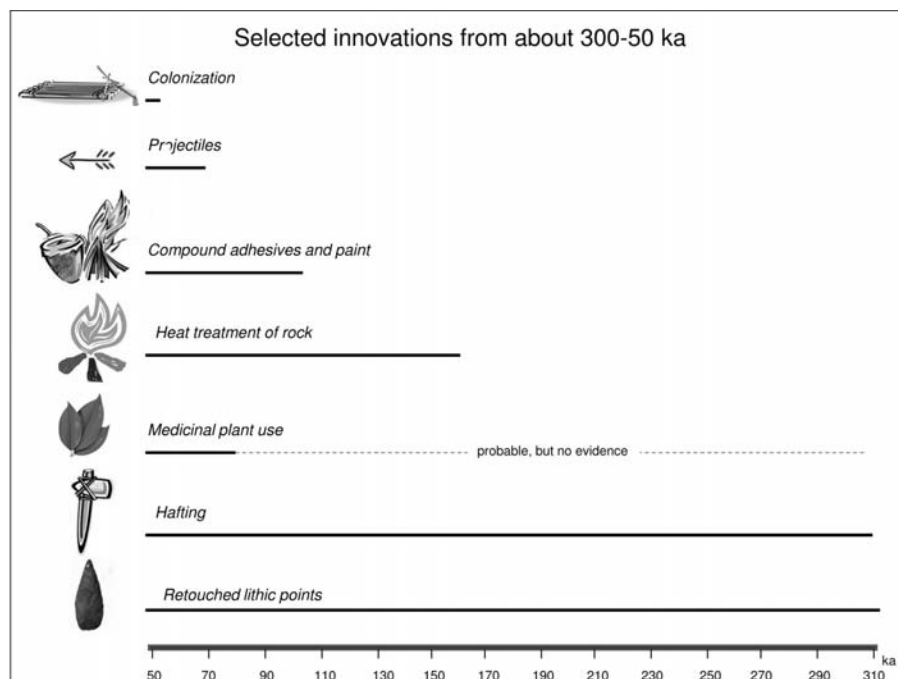


Fig. 4: Some innovations that occurred between about 300 000 and 50 000 years ago in several parts of the world and that probably reflect leaps in human cognition (reproduced with Lyn Wadley's permission, first published by her in 2013)

least about 75 000 years ago (see Wadley 2013 and references therein; Wadley & Prinsloo 2014) (Fig. 4). Finding evidence for these technologies and behaviours in well-dated and well-stratified archaeological deposits of such antiquity provides fascinating insight into the thought processes of these ancient peoples. Lyn Wadley (2013) argues that aspects of cognitive complexity associated with such technologies and behaviours includes the capacity for abstract and innovative thought, analogical reasoning, cognitive fluidity, complex goal-directed actions, flexibility in problem-solving, multi-tasking, task switching, response inhibition and planning over long distances and/or time. These are all functions that we expect of healthy human minds today.

Some of these cognitive trends can potentially also be explored through genetic research. By using what is known from medical science and comparing the DNA of contemporary humans with that of archaic humans (e.g. Neanderthals and Denisovans), researchers are finding tentative links with certain genetic variants involved in cognitive function that might be exclusive to *H. sapiens*. When compared with Neanderthals, several genes involved in cognitive development show strong evidence for selection in early *H. sapiens*. These include genes that, when things go wrong with them, are medically associated with cognitive impairment (*DYRK1A*), schizophrenia (*NRG3*) and autism (*CADPS2* and *AUTS2*). Other genes linked with neuronal function have also shown a strong positive selection in early humans. These include those medically associated with neurodevelopmental disorder (*SDCCAG8*), Alzheimer's disease

(*LRAT*) and distorted brain development (*SULF2*). One of the gene regions previously mentioned in relation to skeletal development (*ROR2*) is advanced by the well-known *FOXP2*, the only gene currently known to be involved with speech and language disorders with Mendelian inheritance (see Lombard et al. 2013 and references therein).

The abovementioned medical associations with genes are mere pointers to some of the functions of the gene/genomic region. Most of these functional associations and their evolutionary consequences are still poorly understood. With further research, particularly when linked with gene expression studies, we should be able to learn more about the developmental processes that distinguish ways of thinking in our species from that of our ancestors.

Recent genetic studies are thus making increasingly meaningful contributions to how we understand the population and behavioural histories of the Stone Age peoples of southern Africa. In the case of early herding communities, this year has seen a dramatic turnaround in what we know about Khoe origins. Resolution is becoming increasingly fine-grained and the next step is to realign our understanding of the archaeological record of the last 2 000 years with what we now know about the genetic heritage of the Khoe-San. On much less secure footing, but equally exciting, are suggestions about the contributions of DNA research to understanding our morphological and cognitive evolution during the MSA.

Acknowledgements

Space restrictions do not allow for extensive referencing, but all relative references are included in the lists of those listed below. Current collaborators on the Stone Age archaeology/human DNA project are Carina Schlebusch and Mattias Jakobsson (Department of Evolutionary Biology, Evolutionary Biology Centre and Science for Life Laboratory, Uppsala University, Sweden), and Himla Soodyall (Division of Human Genetics, School of Pathology, Faculty of Health Sciences, University of the Witwatersrand, and National Health Laboratory Service, South Africa). Gwenna Breton and Per Sjödin worked with us on the LP publication.

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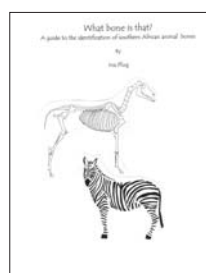
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What bone is that?

A guide to the identification of southern African animal bones

by Ina Plug

This very comprehensive 518-page work consists of explanatory scientific text and (mainly life-size) drawings of most of the postcranial bones of southern African mammals.

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GRAFFITI ON THE FARMS GESTOPTEFONTEIN AND DRIEKUIL, NORTH WEST PROVINCE

Jeremy C Hollmann

The wonderstone hills on the farms Gestoptefontein and Driekuul near Ottosdal, in the North West province (Fig. 1), were the focus of ceremonial activities by pre-colonial Khoe-San peoples. These included the production of rock marking (Hollmann 2011, 2013). Gestoptefontein in particular is renowned for its engravings (Hübner 1871; Wilman 1931; Battiss 1948; Willcox 1961, 1965; Fock & Fock 1984: 121; Želízko 1925), some of which were removed and placed in various museums in South Africa and Europe (Želízko 1925). People covered extensive areas of the hills with motifs of clothing, decorative items and animals. They also engaged with the wonderstone in more physical ways, smoothing the rock with their bodies and making expressive markings such as grooves and pits (Hollmann 2011, 2013).

Wonderstone is an excellent medium to scratch, carve and sculpt. When crushed it becomes an unctuous and grit-free mineral powder that is ideal for smearing onto skin. It dries to a light grey-white colour. I have suggested that Khoe-San (and other) people used wonderstone as body paint (Hollmann 2013). Comprising pyrophyllite, a mineral as soft as talc (1.0 on the Mohs scale of hardness), artisans at one time fashioned headstones, vases and pots from it. These items, which are fragile because they often contain hidden flaws, are now African.

I spent several years from 2006 to 2009 documenting the rock markings on the two farms (Hollmann 2011). In the process I also came across markings that did not belong in the pre-colonial indigenous tradition; they were clearly much more recent, ranging between the late 19th century and the present. They were graffiti – unsolicited markings made by individuals in an open (public) space. The motivations for making the graffiti are diverse. ‘Proclamations’ in the form of names, initials and signatures are most common, but there are also expressions of boredom and homesickness, as well as anger and spite.

Names and signatures

By far the most numerous graffiti comprise names and signatures, some dating back to 1877, although certain undated signatures are probably older. Of the

names that can still be linked to known persons, most are those of past owners of Gestoptefontein, and their relatives. Three names have been scratched by more recent mine employees.



Fig. 1: The farms Gestoptefontein and Driekuul lie just north of Ottosdal, North West Province

The most prominent location for the graffiti is on Slide Rock on Gestoptefontein Hill, a massive slab of red wonderstone tilted at about 45°. There is an 8 m to 10 m long slide running from the top to the bottom of the rock. The slide may have been part of Khoe-San girls' initiation rites (Hollmann 2011, 2013). An area at the bottom of the rock is covered with names and some scratched drawings. Within the pecked outline of a hartebeest there is the name 'Hendrik' crudely scratched with uneven-sized letters clumsily spaced and the letter 'd' reversed (Fig. 2a). Possibly this identifies the renowned Hendrik Mattijs van Zijl, a well-known elephant hunter and prominent individual (but probably with little formal schooling) who built a fortified, 21-bedroomed residence on Gestoptefontein in 1864, perhaps the largest house in the Transvaal at that time (De Jager 2008: 42).

Also present are the names of CSC, and Sydney Attwell, dated 6 May 1903, family, one presumes, of Charles Lennon Stratin Attwell who hosted medical doctor and collector, Dr Emil Holub, on his visit to Gestoptefontein in 1884. Attwell gave Holub a 'free hand' to remove 140 engravings on the two Gestoptefontein hills; indeed, Holub praises Attwell for not yielding 'to the pressure which was generally exerted in 1884 to permanently prevent the removal and export of Bushman carvings' (Želízko 1925: 13–14; see Hollmann 2013: 148 for a translation of the original German). The 'carvings' were donated to the Austro-Hungarian emperor and most of them are now in the Kunst Historisches Museum in Vienna, Austria,

Jeremy Hollmann has worked as a rock art researcher at the Rock Art Research Institute, University of Witwatersrand, and at the KwaZulu-Natal Museum. In 2011 he completed a doctorate on the Gestoptefontein-Driekuul complex of rock markings. He is currently a post-doctoral researcher in the School of Geography, Archaeology and Environmental Sciences, Wits University. jeremy.hollmann@gmail.com.



Fig. 2: Father and son? a. Hendrik is a popular name, but it is possible that this is the legendary Hendrik Van Zijl of Gestoptefontein. If so, his hand shows that he probably had little schooling. He made sure, however, that his sons were well educated. b. The rather more elegant and sophisticated signature 'M.S. Van Zijl' could be that of one of the sons, Marthinus.

and the Naprtsek Museum in Prague, Czech Republic.

There is a much smaller outcrop within 100 m of the now-destroyed Van Zijl farmhouse that has several signature stones. Here is the name MS Van Zijl, probably Marthinus, son of Hendrik the elephant hunter (De Jager 2008: 38). The son's signature (Fig. 2b) is elegant and schooled, unlike what could be his father's cruder script on Slide Rock. Hendrik, who befriended Sir Bartle Frere on a sea journey, ensured that some of his children were educated in Cape Town (De Jager 2008: 32).

The Zeederberg coach stone

On the same outcrop near the former Van Zijl house is a detailed, scratched drawing of a passenger coach (Fig. 3). Only the coach itself is depicted – passengers and horses are not represented. In the late 19th century coach routes connected southern African cities, villages and towns (De Jager 2008: 78). The Van Zijl's house, which was no longer owned by Van Zijl at the time, was an overnight stop on the route between Klerksdorp and Mahikeng (De Jager 2008:



78). It was operated by the Zeederberg coach company, which had a monopoly on the routes in the area. According to De Jager (2008: 78) there were two sizes of coach: one that carried up to 20 passengers on the main routes, drawn by teams of 12 to 14 mules (or horses), and another that carried nine passengers, drawn by ten animals. Stops to refresh the animals and carry out maintenance checks were made at stations every 13 km to 16 km, with longer breaks or overnight

stops every 80 km.

Fig. 3 shows details of what is probably the smaller coach. The back wheels are larger than the front wheels. The box on which the driver and assistant would sit is depicted. The drawing also shows the luggage section at the back of the coach with what looks like a net to contain the load. The sides of the coach may be covered with canvas flaps that hang down over the windows. On the roof of the coach are two arcs, which may depict additional luggage.

The watcher on the hill

The height of the tallest of the wonderstone hills (Fig. 4) is estimated at between 55 m (Nel et al. 1937: 6) and 'below 80 m' (Želízko 1925: 13). It commanded an extensive view over the surrounding countryside and during the Anglo-Boer War the British used it as an observation post from 1901 to 1902 (Van der Merwe 1972: 4; see Ouzman [1999] for rock art of the Boer War) while pursuing general De La Rey's Boer forces in the area. The British had a base on Driekuul under the leadership of Walter Kitchener, and a post on Gestoptefontein (De Jager 2008: 116–117). After the war, a young man wandering on the hilltop picked up a piece of wonderstone on which an English sentry had scratched his name, rank, unit, regiment, the date and his address in England (Van der Merwe 1972: 4). Not considering its heritage value at the time, the

Fig. 3: Scratched drawing of a Zeederberg coach, 85 mm long, on a small wonderstone outcrop close to a late 19th century overnight stop on the route between Potchefstroom and Maheking

young Thys van der Merwe threw it aside and was unable to relocate it. Now that the hill itself has been destroyed (Fig. 4), without any archaeological mitigation, the chances of recovering this item are negligible.



Fig. 4: a. British forces during the Anglo-Boer War had a lookout post on top of the large hill at the left. This hill together with the smaller one to its right are known as Tlogo Pitsane (horse's/quagga's head). b. The large hill has subsequently been mined (photographed c. 2009).

The Maans Lemmer stone

I have left the most scurrilous and possibly the most interesting graffiti till last. During a Wits University field school visit to Gestoptefontein in 2006, we came across a remarkable diatribe (undated) scratched in flowing copybook script onto the flat surface of a piece of wonderstone that has apparently had been cut by a wire saw (Fig. 5). This is what is written:

*Ou Maans Lemmer is een van
De grooste (sic) schellems en vaggebonde
Die hier en dezen Dist Lichten
Burg woon en Schender bek
Lieg en Bedrieg daar
Leef hy van
Zoo ik waar schuw en elkke
Een om nooit HR Lemmer
Tot vriend te neem
Hy is Een schellem
En legenaar
U vriend Syberhand
Myn Gat*

Translated, this reads:

*Old Maans Lemmer is one of
The biggest crooks and rogues
Living here in this district of Lichtenburg and a
gossip
Who makes his living by lying and cheating
Therefore I warn everyone
Never to take HR Lemmer
As a friend
He is a crook*

*And liar
Your friend Syberhand
Mine pit*

The surname 'Syberhand' is probably 'Sybrand'. The 'Myn Gat' probably refers to the koppie itself: according to Pieter de Jager, Lemmer, who owned the farm at one time, hired out the right to mine the wonderstone. Makeshift huts, some equipped with lathes, were erected on the koppie and many of the old gravestones and other artefacts were manufactured here (De Jager, pers. comm. 2014). The phrase itself can also have a vulgar connotation ('my hole' – anus). The spelling that Syberhand employed is idiosyncratic – the standardisation of Afrikaans spelling had not yet been accomplished (it only became an official language in 1925).

Twenty metres downhill, I found another declaration in the same neat hand:

*Vervlakste Lemmers moch
julle vrek*

Translation:

*Confounded Lemmers may
You die*

The object of 'Syberhand's' fury, 'Ou Maans Lemmer', may well be Hermaans Richard Lemmer, member of the Volksraad of the Zuid-Afrikaansche Republiek (ZAR) and Commandant in the First Boer War of Independence. It is known that Lemmer bought a portion of Gestoptefontein and bequeathed it to his daughter (De Jager 2008: 148). Whatever the cause



Fig. 5: 'Old Maans Lemmer is one of the biggest crooks and rogues living here ...' Thus begins the harsh denouncement of a prominent member of society. The surface of the rock has been rubbed with chalk to make the elegant, copybook writing more visible.

of Lemmer's alleged offence, 'Syberhand's' response is vicious. His call for all Lemmers to 'vrek' (the word is normally only used for animals) is like a curse. He impugns what Lemmer would probably have considered his most treasured possession – his reputation.

Two years after the 'discovery' of the Maans Lemmer stone, I found a further possible clue to 'Syberhand's' identity only a couple of metres away. Next to a cartoon of a man with a hat, smoking a pipe (a self-portrait?), are the scratched initials in a very similar hand to that of the diatribe against Lemmer, reading 'J.S. Gestoptefontein c/o J.B.S.' J.B. 'Syberhand', whoever he was, is the likely culprit.

Very little of the graffiti I have discussed could have been understood without additional records and local knowledge. Such supporting data makes it possible to use graffiti to gain insight into the history of the Korannafontein farming community in the late 19th and early 20th century. Individuals, some of whose biographies have been recorded elsewhere (e.g. De Jager 2008), 'announced' their presence in the area by scratching their names onto the rock. Much less common, drawings like the Zeederberg coach provide graphic information that enriches our understanding of life in this time. 'Syberhand's' diatribe puts on record some of the tensions and stresses between individuals that would otherwise have sunk into oblivion.

What I find most fascinating, however, is the way in which the graffiti on the wonderstone hills link together so many disparate and seemingly unrelated events and individuals.

Acknowledgements

I thank Marthina Mössmer for help and support. Nina Mössmer made the translations and pointed out aspects of language use. Pieter De Jager's research made it possible to contextualise some of the graffiti. Thanks to Jos Joubert, general manager of Wonderstone mine, and other land owners who permitted access to property.

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WORLD ARCHAEOLOGY

Entire Neanderthal genome mapped

The results of an extensive analysis of a 50 000-year-old toe bone belonging to a Neanderthal woman by the University of California have been released by *Nature*. For the first time researchers have completely sequenced the fossil's nuclear DNA to the same extent and quality as that of genomes sequenced from present-day people. This research has revealed the following:

- There is now conclusive evidence that Neanderthals bred with *Homo sapiens*
- Ancient human species, including Neanderthals, Denisovans and *H. sapiens*, mated with each other, resulting in a very complex family tree.
- The Denisovans share up to eight per cent of their genome with a 'super achaic and totally unknown species that dates back around one million years'.
- The results conflict with the theory that modern humans arose completely from one 'out of Africa' migration more than 60 000 years ago that spread worldwide without mating with other early humans.
- About 1,5 to 2,1 per cent of the DNA of all people with European ancestry can be traced to Neanderthals.
- Proportions of Neanderthal DNA are higher among Asians and Native Americans, who also have small percentages of Denisovan DNA.
- Six per cent of the genome of Australian Aborigines and indigenous Papua New Guineans belong to the Denisovan species.
- The Han Chinese and the Dai people of southern China are related to both Neanderthals and Denisovans.
- Some indigenous people from Brazil, such as the Karitiana, are not only related to both Neanderthals and Denisovans, but they show relatively high genetic contributions from the Denisovans.
- Only 87 genes responsible for making proteins in cells are different between modern humans and Neanderthals. Intriguingly, some of the gene differences involve ones involved in both immune responses and the development of brain cells in people.
- Somewhere within these 87 genes may lie the answer to why Neanderthals and Denisovans became extinct.

December 2013

AN AMATEUR'S EXPERIENCES ON A PROFESSIONAL DIG

Richard Hayes

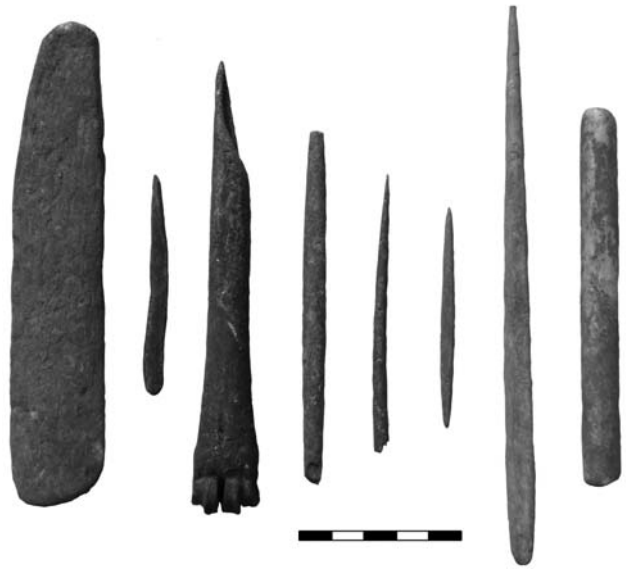
I work in the IT industry, which means that I sit in an air-conditioned office with neon lights and blinds across the windows. On a sunny, late-summer day in Cape Town I received an email from the Archaeological Society calling for volunteers to help at a dig in Betty's Bay. I took one look at the beautiful day hidden behind the blinds and hit the reply button, which is how I came to be sitting on a chair sorting 'stuff that isn't shells' from what seemed like an unending stream of buckets coming from the actual dig.

The opportunity to volunteer arose because a Betty's Bay local noticed on his walk to the beach that the soil being removed for the foundations of a new house contained shells and, on closer inspection, stone tools and pottery as well. He contacted Heritage Western Cape, who immediately stopped the work and requested a professional assessment of the site. The property owner appointed archaeologist Jayson Orton from ASHA Consulting to conduct the assessment. The site was found to be highly significant in archaeological terms and a salvage excavation was considered necessary. Because the owner has to pay for the excavation and could not afford a team consisting of professionals only, Jayson opted to call for volunteers to attend to the time-consuming sorting of the excavated material after he had done the sieving and preliminary sorting.

So, on a fine Saturday morning I found myself sitting on a chair under a shade cloth next to a partially excavated shell midden with a tray of stuff on my lap, a bucket to refill the tray and a view of the Cape fold mountains above Betty's Bay to relieve the short-focus stare. Fortunately, Betty's Bay was on its best behaviour while I was there: there were a few fluffy clouds and just enough wind to keep things cool. I am not sure I would have survived as long as I did if one of Betty's Bay notorious, howling southeasters had been blowing. For those who have never experienced a good, solid southeaster in the Cape, suffice it to say that many outdoor activities, including standing up straight, become almost impossible. Jayson and his wife Carol tell horror stories about the excavation of rock shelters in the Knersvlakte being plagued by wind, heat and mosquitoes.

The day's pleasant conditions allowed sufficient time for the bug of looking for and finding artefacts to bite and hook me so that when the next opportunity arises and I have the chance to help find stone tools or beads in a collection of broken shells, I probably will not even think about the weather before volunteering.

Richard Hayes is a student of archaeology at Unisa and a member of the Western Cape Branch of the South African Archaeological Society. 4us2ritetwo@gmail.com.

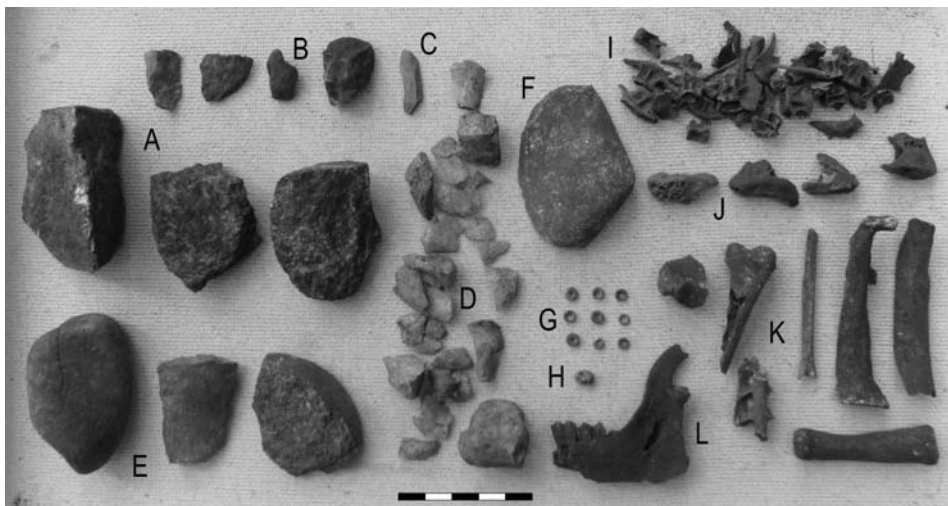


Bone points from layer 'LDS'

The soil we were working in was dirtier than I had expected. It had started out life as sea sand but then people arrived, lit fires and scattered the resulting ash and charcoal across the site. This had slowly mixed into the soil and the clean white sand of the Cape became a black to grey mix that got into everything and, in my case, adhered to my face in a collection of whisker-like smears that seriously tried the politeness of the B&B owner when I booked in after a day on the dig. She did not burst out laughing, but it was a close run thing.

I had never been to an archaeological site before, but had seen pictures of excavations, of sieves and sorting trays. However, photographs do not really give you the sense of what a site is like. It is one thing seeing pictures of a stratigraphically excavated and labelled section, but it is another standing on the edge of a trench watching someone work meticulously down through the soil, taking out the large and obvious artefacts, carefully sifting the remains, put these into a bucket and passing it onto the sorting team. And then there was the excitement of finding things that are really good in what appeared to be (and was!) a pile of broken shells: a small stone scraper, a seal tooth, a quartz crystal fashioned into a tool, bone points, some pottery.

At the foot of the excavation there was a very thick layer of shells and rocks were quite common. It was in this layer that most ostrich eggshell beads and stone artefacts of quartz were found. Above this were a few more layers of similar shells less densely packed. The upper part of the excavation revealed very densely packed and well fragmented shells in which most of



Selection of finds from layer 'Eggs' in the eastern excavation: A - quartzite flakes; B - two ochre fragments; C - silcrete bladelet; D - quartz-flaked artefacts; E - quartzite pebble grindstone and two cobble fragments used for grinding before they broke; F - Donax serra shell scraper; G - ostrich eggshell beads; H - Nassarius kraussianus shell bead; I - fish bones; J - four fish jaws; K - mammal and bird bones; and L - small bovid mandible

the pottery was found. Interestingly, the lower layers seemed to have more limpets and the upper layers more alikreukel and whelks – a change in Stone Age taste! There were hundreds of remains of small fish from the rock pools that are still within walking distance of the midden, but also some really big bones and teeth from, among others, mussel crackers. Jayson also found the jawbone of a hippo with the teeth in situ. This was the biggest creature whose bones ended up on the midden.

Pottery was found throughout the 0,8 m depth, but mostly in the lowest upper layers. The presence of pottery dates these layers to less than 2 000 years ago. From the potsherds recovered it is clear that the pots had lugs and incised rim decorations. There were few stone tools, the majority of which were scattered in lower levels. Jayson tells me that one of the really important features of the site is the large number of bone tools, in particular bone points, found scattered throughout the site, but mainly in the lower levels. The lower levels also yielded large numbers of donax scrapers made from the white sand mussel *Donax*

serra. Most of these were broken, but a few complete scrapers were found. Jayson found a broken ostrich eggshell and numerous ostrich eggshell beads were found, predominantly in the lower levels.

I worked on site until Sunday afternoon and reluctantly left to resume my normal lifestyle pushing keys on a computer keyboard. Jayson's dream was to find a complete, unbroken digging stick weight and 30 minutes after I left he did indeed find a bored stone. I felt like I had left before the main act. In all Jayson spent 10 days on the site

and removed a number of bags of sifted shells and artefacts for sorting. I spent a day at his home helping him with this and was delighted to find a cowrie shell.

When my wife arrived to fetch me, she handed me a damp face cloth. 'Wipe your face, you're not driving home like that.' I wiped away the dirt from my face, but not the joy of looking into the past. 🗝️

ARCHAEOLOGY IN BRIEF

Stone tools challenge America's arrival theory

Archaeologists have announced the discovery of stone tools in Brazil that are considered to prove that humans arrived in the Americas long before the Clovis people did so. The stone tools were found embedded in a rock shelter that has been dated to 22 000 years. The shelter lies in the Serra de Capivara National Park, a region steeped in history with thousands of rock art paintings across 945 separate sites. The tools were dated using thermo luminescence and the find adds to the growing body of research that challenges the 'Clovis-first model', which supposes that human settlers arrived in the Americas by walking over a land bridge from Siberia to Alaska around 13 000 to 15 000 years ago. Last year, for example, palaeontologists in Uruguay published findings suggesting that humans hunted giant sloths there about 30 000 years ago.

The archaeologist working at Serra de Capivara, Dr Guidon, asserted more than two decades ago that her team had found evidence in the form of charcoal from hearth fires that humans had lived in the region about 48 000 years ago. Prior to that, her team found remnants of ancient fires dating back 100 000 years. Her theory is that the first humans arrived in the Americas not overland from Asia, but by boat from Africa.

Ancient Origins, 28/03/2014



Fig. 3:
The bored
stone found
in CFS3

ROAN, IBEX AND ART IN AFRICA, SOUTHERN ARABIA AND NEAR EASTERN PREHISTORY

J Francis Thackeray

Results of recent genetic analyses of human DNA reported by Breton et al. (2014) indicate that the introduction of pastoralism in southern Africa was associated with a migration of peoples from East Africa within the last 2 000 years. More remarkable is that even earlier, populations immigrated into Africa from adjacent areas such as southern Arabia or elsewhere in western Eurasia. Pickrell et al. (2014) state that 'West Eurasian ancestry in southern Africa was likely brought by a migration of an already admixed population from Eastern Africa'. They went on to speculate that 'the ultimate source of the genes was from people speaking an Ethiosemitic language that could be southern Arabian in origin' (quoted from Morris 2014).

Interaction of such human populations is of particular interest in relation to certain animals and art within the Holocene. Here I propose an 'Ibex-Roan' hypothesis, suggesting that beliefs and rituals associated with ibex in art from the Near East (Barnett 1966) and southern Arabia (Avanzini 2005; Olsen 2013), and with roan antelope (*Hippotragus equinus*) in South Africa and elsewhere on the African continent (Thackeray 2005), have a common heritage. In other words, I am suggesting that roan and ibex were analogous animals in belief systems in prehistory. Both have long, curved horns but they have disjunct distributions: the ibex occurring in mountainous areas of the Near East, southern Arabia and Ethiopia, whereas the roan occurs in woodland savanna of East, West and South Africa. The hypothesis can be assessed in the context of genetic evidence pointing to the possibility of migrations of people speaking an Ethiosemitic language in recent millennia, and in the context of previous anthropological research on roan in Africa (Thackeray 2005; Thackeray et al. 2014).

Ibex in the Near East and southern Arabia

Barnett (1966) reported two copper-arsenic human figurines from Iran bending forward slightly, perhaps with a stick in each hand (now missing in one if not both cases). One is now curated at the Metropolitan Museum of Art in New York, while the other is part of the Guennol Collection in New York. The example shown in Fig. 1 is Proto-Elamite and thought to be from a site called Tello, which is more than 3 000 years old. Both figurines have long, curved ibex horns. The question arises as to whether they relate to hunting disguises (relating to the use of ibex horns),

hunting rituals and/or shamanism.

Ibex were evidently very important in art in the Near East in prehistory. Cylinder seals include images of ibex-headed humans with stick-like projections in their hands (Barnett 1966), and are also represented in prehistoric art from the Hadramawt in southern Arabia. This includes scenes of ibex hunting (ElMahi 2000; Olsen et al. 2013). Ingrams (1937) reported a modern 'dance of the ibex hunters in the Hadramawt' and asked, 'Is it a pagan survival?' Also in southern Arabia, Serjeant (1976) reported recent ibex hunts and rituals involving a person wearing the horns of an ibex, simulating the behaviour of an ibex and being symbolically captured (see also Radionov 1994).

Fig. 1: Human figure with ibex horns and possibly holding two sticks (missing), thought to be from Tello in Iran. Copper-arsenic alloy, about 3 000 BC.



Ibex and roan in Africa

The distributions of Ethiopian ibex and roan in Africa are shown in Fig. 2. The species of ibex in Ethiopia is called *Capra walie*, from the Amharic word for the animal, *wala*. Similar words are used to refer to ibex in parts of western Eurasia and to antelope in areas to the west of Ethiopia (as in Chad). Words for roan antelope in South Africa include *kwala* or *kwalata* (Thackeray 2005).

Rituals associated with roan horns are known in both West Africa (notably in Chi Wara rituals in Mali) and South Africa, as recorded in a photograph of a so-called 'buck-jumper' in 1934 at Logageng on the southern margin of the Kalahari (Thackeray 2005). Such rituals are reminiscent of certain examples of rock art in southern Africa, notably a painting of

Professor Francis Thackeray is with the Evolutionary Studies Institute, University of the Witwatersrand, Johannesburg. francis.thackeray@wits.ac.za.

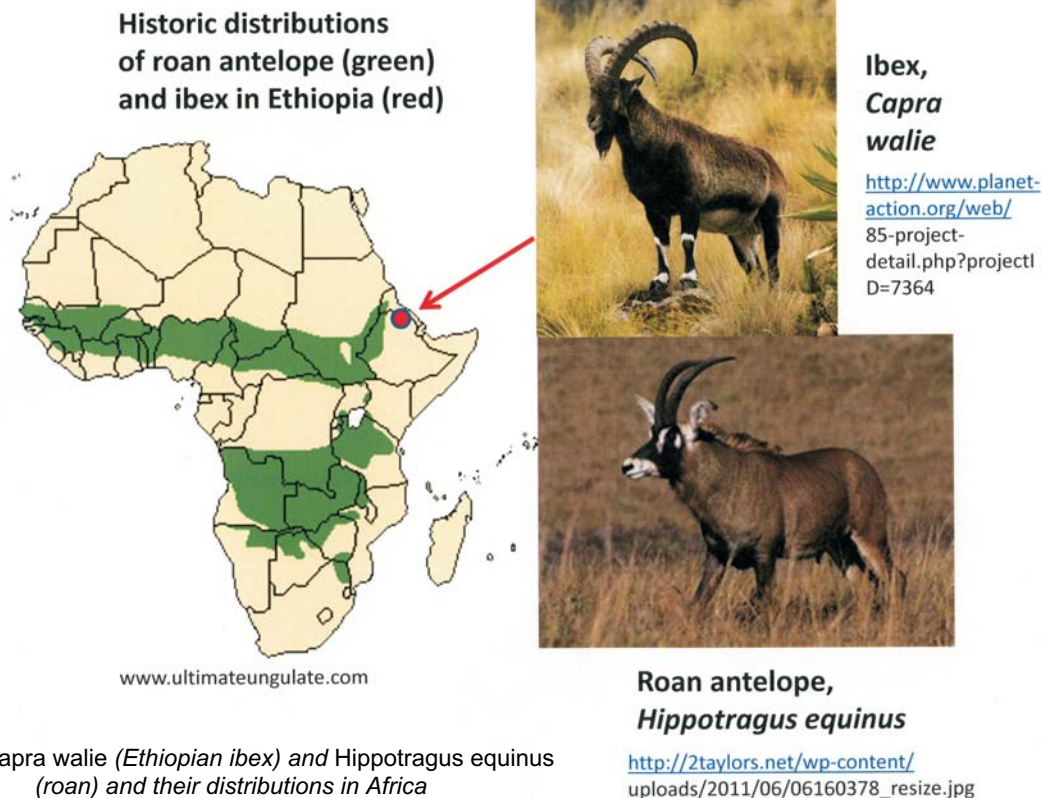


Fig. 2: *Capra walie* (Ethiopian ibex) and *Hippotragus equinus* (roan) and their distributions in Africa

therianthropes at Melikane (Thackeray et al. 2014). Of note in both the Chi Wara and 'buckjumper' rituals is the fact that individuals have antelope heads and adopt a quadrupedal posture, simulating the behaviour of an animal (in this case a roan antelope with horns), while holding a stick in each hand to represent the front legs of the antelope. Evidence has been presented to support the hypothesis that the roan-related rituals in West and South Africa have common heritage (Thackeray 2005), perhaps spreading from a source in eastern regions of Africa.

The Ibex-Roan hypothesis is supported not only by the similarity between the Amharic word *wala* (ibex) in Ethiopia and *kwala* (roan) in South Africa, but also by the similarity between *wala* and *wara* as in 'Chi Wara' associated with roan among the Bambara in Mali (Thackeray 2005; Thackeray et al. 2014) in the context of 'wounded roan'. Remarkably, the Khoekhoe supernatural potency or deity known as *Tsuni-Goam* or *Tsui //Khoab* (Hahn 1881) is also thought to be associated with the concept of 'wounded roan', from the Khoekhoe *tsui* (wounded) and *//khoab* (roan) (Thackeray 2005).

Conclusions

Roan and ibex may have been analogous animals in prehistoric belief systems in the Near East, southern Arabia and parts of Africa. It should be mentioned that Mohammad Naserifard (no date) has recently suggested that ibex in Iran were possibly analogous to eland in the rock art of southern Africa. He cites archaeological evidence based on ibex horns

suggesting that ibex hunting at Tappe Ali Kos in Iran dates to the early Holocene.

The recent DNA analyses of human populations studied by Breton et al. (2014), Pickrell et al. (2014), Schlebush et al. (2012, 2013), Pagani et al. (2012) and Henn et al. (2008) provide intriguing evidence of movements of people and gene flow over wide areas. Migration and interaction of human populations in Ethiopia, other parts of Africa and adjacent areas such as southern Arabia and the Near East are of particular interest in relation to ibex and art within the Holocene. Pickrell et al. (2014) state that 'the west Eurasian ancestry proportions reach 40–50% in some Ethiopian populations ... Archaeological records from this region are sparse, so Pagani et al. (2012) speculate that this admixture is related to the Biblical account of the Kingdom of Sheba.' It may not be coincidental that Olsen (2013) cites evidence of ibex in engravings at Marih, apparently associated with the reign of the Queen of Sheba.

Pickrell et al. (2014) also state that 'the highest levels of west Eurasian ancestry in eastern Africa are found in the Amhara and Tygray, who speak Ethiosemitic languages'. The Amharic word for ibex (*wala*) in Ethiopia may be cognate with a word for roan (*kwala*) in South Africa (Thackeray 2005) and with *wara* among the Bambara in Mali in West Africa. If so, the Ibex-Roan hypothesis is strongly supported and can be assessed in the context of rituals in Africa and southern Arabia as well as the Near East. Furthermore, exciting genetic evidence from human populations deserves to be studied in the context of art.

Acknowledgments

I am grateful for resources at the Sterling Memorial Library at Yale University where I first explored the 'Ibex-Roan' hypothesis in 1980, at a time when it was not considered appropriate to explore African art in the context of rituals and beliefs in southern Arabia and the Near East. I am grateful for enjoyable discussions with Professor Frank Hole at Yale.

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ARCHAEOLOGY IN BRIEF

Volcano painting linked to ancient eruption. A 9 000-year-old painting of an exploding volcano, the oldest ever found, can be linked to a real eruption in Turkey. The towering Hasan Dag volcano erupted some 8 970 years ago, Axel Schmitt of the University of California has reported. The volcano is about 130 km from the ancient village of Çatalhöyük, a proto-urban village settled during the Stone Age. The mural was painted in red-coloured ochre on the wall of a shrine, showing what appear to be a map of the settlement and the double peaks of Hasan Dag. *Livescience*, 30/10/13

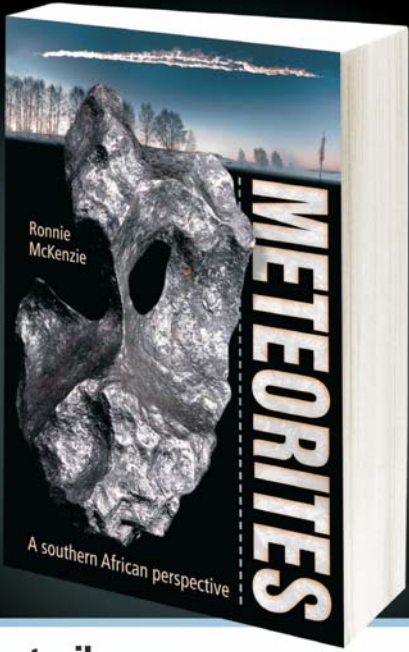
METEORITES

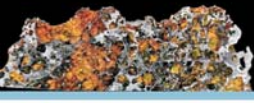
A Southern African perspective

By Ronnie McKenzie

Find out all about meteorites – how to identify them, where they come from, where to find them

Meteorites are the remnants of meteors from outer space that have survived the fiery journey through the earth's atmosphere and landed on our planet. Rare, and bearing secrets about the formation of our Universe, these 'treasures of space' have fascinated people ever since they were first identified as extraterrestrials.





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ROCK ENGRAVINGS AT RATELGAT: A GRIQUA HERITAGE SITE

Janette Deacon

In September 2012, Reinoud Boers organised a tour of West Coast and Cederberg archaeological sites for members of the Trans-Vaal Branch of the South African Archaeological Society, as well as a few Western Cape members, while I guided the tour. We stopped over one chilly night at the Griqua National Conference Trust farm of Ratelgat north of Vanrhynsdorp (340 km north of Cape Town) to overnight in a camp of *matjieshuisies* and enjoy Griqua hospitality and food. In the late afternoon as dusk approached, the manager, Jan Joseph, mentioned that he thought he had found some rock engravings. He wanted us to see whether they were 'genuine' or not. There are San rock paintings in the vicinity, but no engravings (apart from grinding hollows and so-called 'slash' marks) in either the San or Khoekhoe tradition had been reported within a hundred kilometres of Ratelgat. We were therefore sceptical, but went anyway.

Jan took us to a stream in which about a metre of water covered many rocks. However, we could see that several larger quartzite boulders above the waterline had geometric patterns engraved on them. They seemed to be not only old, but also worthy of further investigation. There was no time to linger and I promised to return, but the water level remained high throughout 2013. Over two long weekends in April and June in 2014, members of eCRAG and the Western Cape Branch made a detailed recording and we report on our findings here.

Historical context

Most of the engravings are weathered enough to suggest that they were made in pre-colonial times, but a few are less weathered and were most likely made in the last few hundred years. Inspired by the work of David Morris at Driekopseiland near Kimberley (Morris 2010) and by Jeremy Hollmann's PhD thesis on engravings at Gestoptefontein in North West Province and his article in the December 2013 *South African Archaeological Bulletin* (Hollmann 2013), we suggest that the engravings at Ratelgat were made as part of girls' puberty rites. The ritual, recorded in oral histories in the 19th and 20th centuries, was practised by Griqua, Korana, Nama and possibly other Khoekhoe communities in South Africa, as well as by



Fig. 1: Quartzite boulders on the eastern side of the dry river bed at Ratelgat

San in the Northern Cape, Botswana and Namibia (Hollmann 2011, 2013, 2014).

Do historical records give a clue as to who could have made the engravings? Perhaps, but there is no certainty. For example, nearly 330 years ago the first recorded journey undertaken by Dutch colonists from Cape Town up the west coast took place over a period of nearly six months. Motivated by the search for copper, the northward journey of more than 500 km to O'Kiep was led by the Dutch East India Company's governor of the Cape, Simon van der Stel. On 23 September 1685 his party met some of the indigenous Khoekhoe herders, who they called Gregriqua (De Wet & Pfeiffer 1979: 319), less than 50 km south-west of Ratelgat, near present-day Vredendal. A few days later they met Sonqua (San) hunter-gatherers and on 4 October, when they were about 70 km north of Ratelgat, they visited the kraal of another herder group who they called the Amaqua (Namaqua) (Serton et al. 1971: 281). Ratelgat was therefore within the territory of some 17th century San and near the border between the land occupied by the Gregriqua or Griqua herders and that occupied by the Namaqua.

Today, Ratelgat is a significant cultural property that was handed back to the Griqua National Conference in 1999 after a land claim. A small section of the land, which includes a memorial to AAS le Fleur, the Griqua *kneg* (prophet), and the grave of his grandson, Paramount Chief AAS le Fleur II, who died in 2004, was recently declared a Provincial Heritage Site. Le Fleur senior lived there in the 1930s when it was state land and he was trying to encourage Nama people to unite with the Griquas. After his death in 1941 and the entrenchment of apartheid legislation later that

Dr Janette Deacon is an honorary research associate at the Rock Art Research Institute at the University of the Witwatersrand and works as an independent archaeologist with a focus on rock art conservation and management, particularly at World Heritage sites with rock art in southern Africa. She is the Honorary Secretary of the South African Archaeological Society. janette@conjunction.co.za.

decade, the land was sold to white farmers. The fact that the land was occupied by Griquas in the 1930s, even though they did not own it, was a major reason for the success of the land claim. The larger section of the land is part of a reserve established by the Worldwide Fund for Nature (WWF) to protect the unique succulent Karoo vegetation of the Knersvlakte that is home to some 133 Red Data Book plant species. There are facilities for tourists to overnight in traditional Nama mat huts, but they are not being used at present pending an upgrading of the accommodation and completion of an information centre.

The rock engravings

The hard, grey quartzite boulders on which the engravings appear outcrop on the eastern bank of a stream that feeds into the Sout River that joins the Hol River and in turn flows into the Olifants River. A low dam wall has been constructed about 30 m upstream from the engravings and after heavy rain the water overflows and forms a large pond downstream. We recorded 24 boulders with engravings over a distance of about 80 m (Fig. 1). There are more boulders upstream and downstream, but we identified no others with engravings.



Fig. 2: A line of shallow cupules (below) and concentric circles of peck marks, possibly representing necklaces

Each engraved rock was numbered according to the distance from the dam wall. It was then photographed and selected patterns were traced on flexible clear plastic sheets. Tissue paper gently rubbed with carbon paper was used to make rubbings of a few of the patterns that had too little contrast to enable them

to be seen easily. Figs 2, 3, 4 and 5 illustrate these techniques.

It is difficult to classify the patterns without some insight as to what they were meant to represent. Despite being so common in San rock art, there are no obvious human figures, while there are only two images that represent four-legged animals, but these are of indeterminate species. The most frequently repeated elements are round, shallow cupules that range in diameter from 20 mm to 4 mm. They are found in linear, oval or roughly circular arrangements (Fig. 2). Clusters of pecked marks that form circles, ovals, concentric circles or linear trails are the next most-common (Figs 2 and 3). Less commonly repeated are sun-bursts and snake-like forms (Fig. 4), bags with tassels (Fig. 5) and one or two that could fit into the category of aprons (Fig. 6) as described by Hollmann (2011). One of the rocks has an intricate set of interconnected patterns that extends over an area of about 1 m by 1,5 m (Figs 7 and 8).

Ratelgat, Driekopseiland (Morris 2010) and Gestoptefontein (Hollmann 2013) are all situated close to water, and Hollmann has made a convincing argument for interpreting geometric engravings like



Fig. 4: A snake-like pattern made with conjoined cupules

these as representing the gifts of jewellery, ornaments, aprons and bags given to young women during the rite of passage to womanhood. The ritual, performed by 20th century Griqua, as described to us by Jan Joseph (who had read about it but had no personal experience) and by 20th century Nama, Korana and Griqua, as published amongst other by



Fig. 3: Concentric circles, possibly necklaces, made with small pecked marks





Fig. 5: A bag with tassels and a handle, made with shallow peck marks



Fig. 6: Tracing and photograph of an engraved pattern possibly representing a front apron



Fig. 7: Tracing of the pattern of engraved lines on rock 60-70/3

Hoernlé (1918), Engelbrecht (1936), Waldman (1989), Hoff (1995, 1997), Morris (2010) and Hollmann (2011), has some variations. The 19th century /Xam San allude to such a ritual and it has been observed during the 20th century amongst !Xun and Ju/'hoan San (Hollmann 2011).

Essentially, however, the girl was secluded during her first menstruation and thereafter taken to a pool of water or a river with her relatives and friends. She was thoroughly cleansed and the women with her sang and danced to celebrate her new status. Her body was covered with clay, buchu and red ochre to remove all impurities. In recent times, she was dressed in white, like a girl going to her first communion. In one version the clay and ochre were then scraped from her body and put into a bag with buchu and the pelvic bones and attached lower vertebrae of a ewe (sheep or goat). The bag with its contents was then thrown into the water to appease the water snake. If the bag sank, the girl would have good luck. If the water was disturbed and bubbled, however, it was taken to indicate that the water snake was angry with her.

Lucky people were regarded as calm and good-natured. They shared with others and brought harmony and rain to the community, in contrast to unlucky people, who are bad tempered and unreliable and brought drought. A lucky girl would receive more presents than an unlucky one (Hollmann 2011). Traditionally, these gifts were made by her family members and included beaded headbands, necklaces, bracelets, earrings, beaded tortoiseshell purses that contained sweet-smelling herbs and buchu, and front and back aprons that were decorated and tied around the waist. Hollmann (2011) quotes a remark made by a !Kung woman to anthropologist Marjorie Shostak in the 1970s: 'All the women came to me, took off their beads and necklaces and put them all over me. My heart was excited to be wearing all those beautiful things.'

Significance and implications

The presence of engravings recognisable as bags, aprons, necklaces, bracelets, ornaments and snakes, and the location of the engraved rocks next to a seasonal pond, support the possibility that the place at Ratelgat was used for girls' initiation over a time period that could have included both hunter-gatherers and herders.

If we are right about the identification of the engraved patterns, the implication is that the girls' initiation ritual was practised at Ratelgat long before the *kneg* came there in the 1930s. As there is no oral or written history about the performance of girls' rites of passage at Ratelgat, there is no certainty as to whether or not the engravings were made by 20th century Griqua or their Grigriqua ancestors, or by Namaqua or San, all of whom have lived in the area for some time during the last 2 000 years.



Fig. 8: A rubbing from Ratelgat

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Andrew Walford was born in Bournemouth, England, in 1942. His family later immigrated to South Africa, where he studied sculpture and pottery at Durban Art School. He has exhibited, taught, viewed and practised art in many countries in Europe and the Far East and is a hands-on, intuitive artist working in the Anglo-Oriental tradition. He is singularly involved in every aspect of making a ceramic item, from digging his own clay to forming and firing. His visit to legendary potters Bernard Leach in St Ives, Cornwall, UK, and Shoji Hamada in Japan profoundly influenced his artistic development. His studio is in Shongweni, KwaZulu-Natal, and he often refers to his mark making as Zulu Zen.

The Cape Gallery deals in fine art work by SA artists and stocks a selection of paintings depicting South African rock art.

WORLD ARCHAEOLOGY

Charlemagne's bones identified

After almost 26 years of work, German researchers have announced that bones interred at Aachen Cathedral for 1 200 years are likely to be those of Charlemagne (742–814 AD), king of the Franks and the first emperor of the Holy Roman or Carolingian empire. He did much to define the shape and character of medieval Europe and presided over the Carolingian Renaissance. After the fall of the Roman Empire, he was the first to reunite Western Europe and ruled a kingdom that encompassed what is now France, Germany, Italy, Austria and the Low Countries, consolidating Christianity throughout.

Charlemagne introduced administrative reforms throughout the lands he controlled, establishing key representatives in each region, and held a general assembly each year at his court at Aachen. He standardised weights, measures and customs dues, which helped improve commerce, and initiated important legal reforms. His cultural renaissance provided the basic tools – schools, curricula, textbooks, libraries and teaching techniques – upon which later cultural revivals would be based. It is for these reasons that Charlemagne became known in his time as Carolus Magnus ('Charles the Great') and Europae Pater ('Father of Europe'). However, Charlemagne also forced conversion to Christianity upon pain of death, and his 'military accomplishments' frequently involved extreme brutality, such as the beheading of more than 2 500 Frankish and Saxon village chiefs.

When Charlemagne died in 814, his remains were buried in the basilica that he had built at his own expense. However, over the centuries, the coffins containing his remains were opened and his bones reinterred many times, first by Otto III in 1000, then by Emperor Frederick Barbarossa in 1165, by Frederick II in 1215 and lastly in 1349, when a revival of interest in relics led to the creation of two separate reliquaries to display some of Charlemagne's bones.

The Chapel's choir hall was also reconstructed and the king's shrine was moved to a new location. Then in the 15th century more building work was undertaken, expanding the site, resulting in what we now know as Aachen Cathedral.

In 1988 most of Charlemagne's skeleton was found in an elaborate tomb, a skull was found in a bust of the king, and a shinbone was discovered in Charlemagne's reliquary. Some bones were missing and believed to have been given away as relics. An analysis of the bones matched the height, build and age of Charlemagne, and the kneecap and heel bones have deposits consistent with an injury that would have resulted in a limp.

Ancient Origins, 01/02/2014



The South African Archaeological Society

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

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

Cape Town head office: PO Box 15700, Vlaeberg, 8018. Tel: +27 (0)21 712 3629. Fax: +27 (0)866 155 874. archsoc@iziko.org.za. www.archaeologysa.co.za.

Trans-Vaal Branch: PO Box 41050, Craighall, 2024
Membership Secretary: Mrs Pamela Küstner
012 365 3608
pmkustner@mweb.co.za
www.archaeology.org.za

Western Cape Branch: PO Box 426, Muizenberg, 7950
Chairperson: Ms Yvonne Viljoen
021 788 5620
yv3@mweb.co.za

KwaZulu-Natal Branch: c/o Natal Museum, P/Bag 9070, Pietermaritzburg, 3200
Secretary: Ms Barbara Dunn
031 209 1281
dunn@camsol.net

Trans-I-Gariep Branch: David Morris
053 839 2706
dmorris@museumsnc.co.za

The Society produces the following publications:

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

Subscription rates for 2014 are as follows: Individuals: Single – R265; Joint/Family – R280; Junior membership – R190; Africa ordinary – R320; Overseas ordinary – R550*. Institutions: Local and African – R550; Overseas – R1 050*. [* Plus R100 bank charges]

The Digging Stick

Editor and advertising: Reinoud Boers
PO Box 2196, Rivonia, 2128
Tel/fax: 011 803 2681
Cell: 082 566 6295
fox@boers.org.za

Layout: Marion Boers
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