THE DIGGING STICK

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ROCKS THAT GONG IN THE MIDLANDS OF KWAZULU-NATAL

Annalie Kleinloog

Fig. 1: Pointer stone (G01) with significant landscape, peaks and sites

My aim with this article is to create an awareness amongst nature lovers and conservationists about the hidden aspects of rupestral (rock-related) archaeology. With the application of modern technology and advanced dating methods, this is a rapidly expanding field of research worldwide, and timelines and theories shift continuously. However, a neglect of our South African prehistoric sites because of a micro-focus on individual or modern and corporate projects hampers the prospect of South Africa becoming a major role-player in global discoveries and claiming its rightful place in the evolution of theories.

A rocky outcrop caught my attention during my research into ox-wagon trails in the Midlands of KwaZulu-Natal (KZN) in 2015. Domineering the small plateau, a pointer stone (Fig. 1) triggered many questions, since this rock –

a) overlooked an important river and valley;
b) seemed associated with battlefield and other culturally significant sites;
c) 'spoke' to historically and spiritually important peaks ('don't point at the sacred mountain');
d) appeared to be placed so that its axes aligned with the cardinal directions; and
e) made a hollow or metallic sound when hammered with another rock.

This jolted me into much reading, many fieldtrips, bursts of excitement and numerous assumptions. Since then, not a stone has been left unturned, or rather un-gonged, wherever fellow enthusiasts hiked. The obvious next step was to find out who else in the world knew about these weird, but wonderful rocks. Google overwhelmed our searches. ResearchGate and JSTOR inundated our queries with exaggerated answers. Taylor & Francis (tandfonline.com) and Academia poured obscure and famous authors' names and related titles into our inboxes. The conclusion was eye-opening – these metallic sounding stones were documented on a global scale.

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A combination of sifting through the many publications, selecting the most relevant material and taking up direct communication with willing professors, educators and researchers assured us that gong rocks were, are and will always be acknowledged as geological, cosmological, anthropological, archaeological and historical phenomena. They are *not* figments of any imagination. Here follows a summary of the multidisciplinary research that involved local and international publications and actual finds, mainly across the Midlands.

What are rock gongs?

Rock gongs have many names and definitions, such as a gong rock, lithophone, idiophone, bell rock, ringing rock, bushman piano and musical stone, as well as many other regional names. The descriptions that follow encapsulate what published articles, books and lecturers have to say about rock gongs.

According to David Morris et al. (2018), the 'term is restricted to only those gongs that demonstrably have been used, deliberately and repeatedly, thereby transforming them into what are, technically in a musical context, idiophones'. This definition is echoed by John Parkington et al. (2008: 103), except for the added explanation that 'although technically these rocks might not fit the acoustic definition of a gong in the sense of vibrating more strongly near the centre than at the edge, the use of rock gong as a generic term seems well entrenched'.

Geoff Blundell et al. (April 2016) mentions the 'appropriateness of the term' when quoting Rifkin (2009): 'The stones tend to be more musically complex than simply a "gong"'. This concept grew stronger the deeper our research went. Robert Bednarik (2008) differentiated between rock gongs and lithophones, the latter being defined as a 'musical instrument consisting of a number of rock pieces that produce musical notes when struck'. Bednarik is a prolific publisher on gong and cupule-related subjects that deserve further in-depth study.

In 2009, SC Lund, a musicologist and archaeologist from Scandinavia, listed the many names for gongs and proudly claimed that the one she found that is situated at Lärbro, Gotland, is named Sangelstainen, directly translatable as 'a singing stone'. She in turn quoted researcher M Catherine Fagg (1997) and added to the descriptions of gongs as natural, of any shape and size, sometimes repositioned and occasionally wedged, and that they 'show evidence of human use as idiophones; a percussion and abraded area may show on the edge of a rock; alternatively, hollow or cup marks are formed'.

Sven Ouzman et al. (2001) insists on using the term 'gong rock', which was the first word that came to my mind and therefore remains the term of choice in our communications. In view of the above, I would like to suggest the following revised rock gong definition: A rock that gongs must show one or more signs of human interference or involvement *before* it can be called a gong rock, that is –

- if placed in a position of better use and projection;
- if shaped for acoustic or referential purpose;
- if aligned to landmarks and other significant stones;
- if it presents with preferred platforms for percussion; or
- if it displays cupules (weathered, re-patinated or fresh in continued use).

What came first: gong or glyph?

In most literature it seems that petroglyphs or engravings (of the geometrical type) are typically found near gongs. Bernard Fagg mentioned in his Nigerian (1956) research that the gongs they identified and their nearness to other rock art 'leaves little doubt that they are associated in some way'. Similarly, David Morris et al. (2018) stated that 'in many reported instances in SA there appear to be a nearly consistent association between rock gongs and rock art in the form of engravings'.

But nowhere in the rich narrative of rock art (paintings or folklore) is there any depiction of a gong being used, which must make one wonder whether the gong in antiquity was used before the painters' time and then forgotten? Was part of the picture or story ritual? Was the gong overseen because it was such an everyday item? Was it sacred and not for common use?

Then recently, Neil Rusch's (2016) research answered some of the above questions. His study on gongs in the Karoo proved to be prized by his colleagues and echoed the sentiments of this investigation. He explained that among |*xam* descendants there seemed to be a recognition of rock gongs. They called it a Bushman piano, but there was 'no knowledge of how the gongs were used, or why'.

According to our findings around the KZN farmlands (especially in Weenen), the idea that the sound of a gong did not carry far is debatable. This was supported by anthropologist Frans Prins, who retrieves local folklore. According to him, during the Anglo-Boer War, locals regularly approached San people for their rainmaking skills. In a nearby cave the locals would gong a rock, the sound of which travelled far. San in the high mountains would hear and respond (personal communication, translated and summarised). Frans is currently working on a publication about the last of the San of the northern Drakensberg and added that the local Bhaca and Ntlangwini reckon caves with gongs are haunted by witches and *ithokoloshe,* and have traditionally avoided it. He also mentioned that nobody knew who made or used those gongs.

The suspicion that gongs could be prehistoric was reinforced more than once by Parkington (2008). One quote: 'We have not a single eyewitness account, nor any artist's account, of any act of painting or engraving in southern Africa. All images, with the exception of demonstrable graffiti or recent signatures, predate written records and literate observers.'

An article in *Discover* (25/01/2018: *Oldest human fossils outside Africa push back our timeline ... again,* by Gemma Tarlach) summarised the growing idea of a much-older-than-San South African past: '... 2017 was the year that the conventional timeline for human evolution and migration finally toppled thanks to overwhelming archaeological and paleogenetic evidence ...' There certainly are more questions than time to find answers.

Would this influx of new discoveries owing to advanced technology change present perceptions and interpretations of previously neglected phenomena? In rock art research, was the gong snubbed in the frenzy of finding recognisable depictions more fitting of a modern perspective? Or was it ignored because it did not fit into current and conservative worldview patterns? Must we retrace our steps and re-analyse previously researched and forgotten but significant sites where paintings failed to deliver plausible explanations? Or should we expand current horizons and be open to an added colourful narrative of our ancient forebears? Were the rocks selected because of their sound quality? Or were they accidental discoveries while engraving or grinding for other purposes?

Art or tool?

In the early cognitive development of humans, art has always been at the forefront of the evolution of culture. Progress in this field still means the involvement of all the senses. Which approach will make research valid, not anti-scientific and plausible? Cornelia Kleinitz's work nurtures thought processes in that direction. While she was desperately recording rock art and gongs in the Merowe Dam area at the Fourth Nile Cataract before it was flooded, Kleinitz (2004) highlighted that which is feared in such exploration: that rock engravings are 'considered primarily a visual phenomenon, the often inconspicuous and usually nonfigurative percussion zones are easily overlooked'.

Cup marks adorn most gongs. Some are badly weathered and hardly visible to the untrained eye, while others still in use today cover stone surfaces in a magnificent decorative display. One can easily draw the conclusion that this was or is art with purpose (Fig. 2, see page 4). A thought-provoking quote by Ouzman (2001), summarised this ongoing quest to research the deeper sense of a rock or a place or the combination of all disciplines: 'Recent work from southern Africa indicates that certain San rock engravings were hammered, rubbed, cut and flaked in order to produce sound; to touch certain numinous images and rocks; and to possess pieces of potent places. By combining rock art's non-visual appeal with the concepts of questing and desire we may understand how body, landscape and mindscape combine in an aesthetic and sensory articulation.' (Fig. 3.)

Fig. 3: Gong rock with rocks cortex removed by hammering, southern Namibia (Ouzman 2001)

Poets and philosophers express and describe with better-telling words that which scientists fear to feel or even express. There is a Celtic belief that 'landscape is not simply matter but is actually alive'. This is how Irish poet and philosopher John O'Donohue describes that belief in *Anam Cara* (1997): 'Landscape recalls you into a mindful mode of stillness and solitude where you can perceive time'.

It has been proven that landscape played a role in the reverence of ancestors. Is it possible that they used the tools of landscape to reach an altered state of consciousness? Or did they use the beauty of its sound and appearance to appease their gods? There are numerous publications on the phenomenology of landscape that have been omitted in this article for reasons of space and time. But this one quote from David Lowenthal (2007) encapsulates the idea: 'Landscape is everyone's fundamental heritage. It is all embracing and unavoidable. It inspires and shapes much of what we learn and do. Landscape is where we all make our homes, do our work, live our lives, dream our dreams.'

Is it possible that the San associated drumming with the sound of running animals or the falling rain, as MH Schoeman suggested while researching ritual stories in his 2009 article? Or did the 'gongers' have a deeper understanding of the perception of sound, namely that sound is perceived in two ways, by both hearing and feeling. This dual nature of sound is analysed in detail in Rusch's research (2016). He captured the essence in this quote: 'What you hear in the Karoo

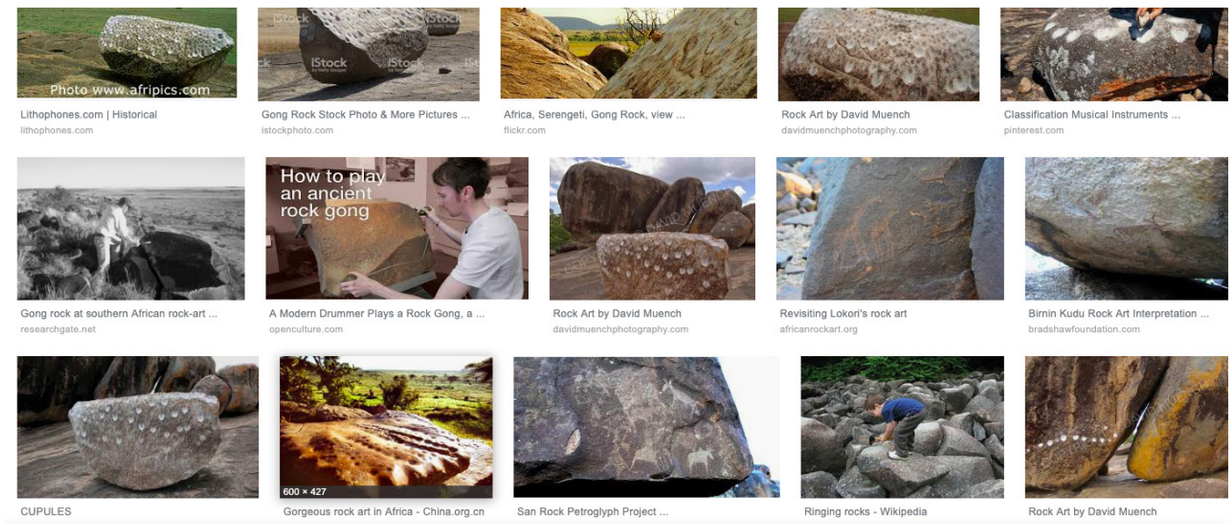

Fig. 2: A plethora of pretty gongs (Google)

and |*xam-ka !au* is stillness, but if you listen, what you hear is not silence'. Rusch referred to rock gongs as tangible artefacts and quoted Mazel (2011), Ouzman (2001) and Rifkin (2009) when he said the gongs '... reflect in turn upon the immateriality of sound and vibration which strictly speaking are not available in the archaeological record, although recuperations are attempted'.

Is *repetition* incidental or intentional?

Many rocks that gong have dolmen or table arrangements (cromlech), although some are boulders of all shapes. The focus in this article is on the dolmen type as they are widespread globally and easily recognisable from afar. The extensive repetition of these formations initially dampened the excitement of my investigation as it seemed to be another trick of Mother Nature. But how easily can forces of nature create the regular and common appearance of rocks that are perfectly flat, roughly triangular and uniform in width, and that seem to be perched on two or more other rocks? So regular as to raise another question – is this incidental or accidental? (Fig. 4.)

Assumed uses and location of gongs

Kleinitz (2004) listed the cultural and ritual uses of gongs as described by different authors reporting mostly on gongs found in Africa:

- Signalling devices – Fagg 1956, Davidson 1959, Conant 1960
- Fertility aids – Fagg 1956, Morton-Williams 1957
- Rain-making – Lanning 1958
- Initiation rites – Fagg 1956, Conant 1960, Vaughan 1962
- Marriage rituals – Vaughan 1962
- Entertainment – suggested in all articles

Geologically and geomorphologically there are many stones with acoustic properties, especially those with a high iron content. It is therefore easy to go tapping and finding ringing rocks. But, like the princess and the frog, one has to gong many rocks before rocking the gong.

Gongs are mostly found in association with other rock art (essentially engravings), often near a water source, in relation to places of worship or ritual (past and present) and in proximity to other gongs or sacred stones. An organised SA Archaeological Society field trip gave me a more discerning perspective under guidance of Prof. David Morris from the McGregor Museum in Kimberley. Exchanged ideas, literature and personal finds mutually broadened horizons. Experiencing the first ringing notes of the rock gong at Ga-Mohana and witnessing the wealth of engravings on the surrounding boulders set the seal on my already time-consuming passion.

My search gained another dimension: the need to locate engravings to support my growing hypothesis

Fig. 4: Dolmens of the more primitive type found in the KZN Midlands

led to long hours of hiking and brushing moss and other debris from possible engraved rocks to discover geoglyphs in remoter locations. Refusing to give up because of the apparent lack or absence of engraved sites triggered a new direction of reading. The possibility that the glyphs may have eroded into unrecognisable forms arose. Bednarik (2012) came to the conclusion that finely scraped images could quickly become covered by re-patination and oxidation. Unused cups would suffer the same lot. Geologist confirmed that onion-peel type weathering brought on by regular and intense temperature changes caused by fires, snow, etc. destroys painted and engraved surface markings.

Technology is now capable of detecting more than that which is found on the surface. Experts and funding are urgently needed to capture, analyse and translate dormant but valuable data. But such funding is only available from reputable institutions, and these all appear to be tied up with their own or corporate work.

Conjecturing on collected data

Spreadsheet data (Fig. 5) gathered momentum, but only when co-ordinates and distances had been plotted and the information had been transferred to maps did a picture surface. New hypotheses emerge with every outing. Theoretical harbour or port areas, potential mooring places for river craft, formed on our maps, in particular around shallow left-over lakes and major navigable waterways. Using the Younger Dryas impact theory, water levels were inflated to an estimation of after-ice-age levels. The choice of contours and projected levels were also based on the general altitude of the surrounding gongs.

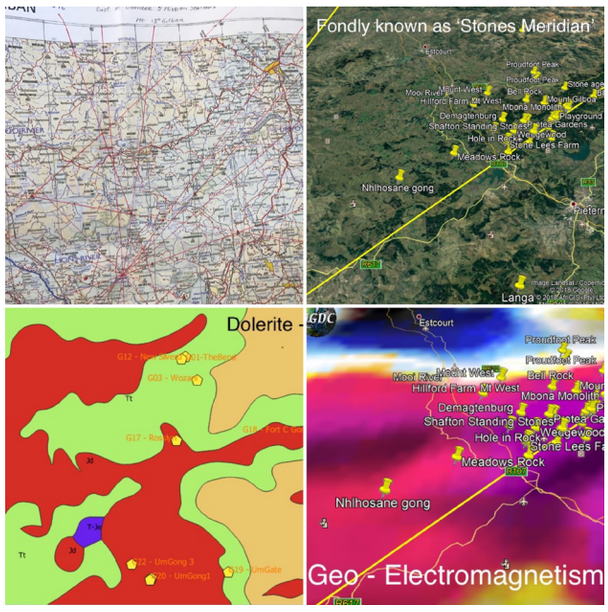

Fig. 5: How mapwork evolved: From 1:50 000 municipal maps with lines to Google Earth searches and finally data capture with advanced technology

These maps, the geomorphology and alignments of conspicuous contours (deductions from inter-site relationships) assist the investigations.

Questions arise from the gathered data, such as, are the gongs and standing stones navigational devices? Or are they communication tools to announce the arrival of visitors, enemies or traders. To quote Rusch (2016): 'What is certain, however, and can be inferred from the rock gongs, is that the landscape and its topography are integral to any consideration of soundscape'.

Conclusion

Although the gong-rock phenomenon proves to be part of the global geological history and a universal

Fig. 6: Gongs of different shapes and sizes found in the Midlands

cosmological worldview since times past, its importance to archaeology in South Africa remains a low priority against the overpowering popularity of cave paintings (Fig. 6).

Astrophysicist, Prof. JC Holbrook from the University of Cape Town, replied as follows to an enquiry by me: 'Determining astronomical significance is nearly impossible in South African ancient rock art. However, the fact that there are ringing stones, with obvious marks of where to strike them, should be sufficient for heritage preservation purposes'.

In Europe, researchers and heritage bodies have opened certain sacred sites during cosmological events (equinox and solstice) to pagan worshippers in order to control preservation. According to Blain and Wallis (2007), 'Increased flexibility and openness of government and heritage management, or the attempts by "alternative" groups to organise an event some distance from Stonehenge at the summer solstice, intended to reduce pressure on the

monument while enabling a “festival” ... There are very different views on “heritage”, site, landscape and the social relations that can inform or be informed by all of these; people’s spirituality embedding in landscape and community is also political on a wider scale, and paganism – the most evident spiritual “movement” associated with heritage sites – is growing fast.’ Their conclusion: ‘... relating to landscapes through narratives in which stones and spirits have agency, and in which humans and spirits exist in a state of mutual dependency ... are hard to convey through the discourse of academic rationality ...’ (Harvey 2001).

The protection of sites where these ‘ringing rocks’ and the significant stones associated with them can be found, in lieu of further studies to prove the role they played in the cosmological worldview of an ancient nation with navigational insight, should be a priority in future investigations.

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ARCHAELOGY IN SA

Hofmeyr Skull gains scientific significance

The East London Museum is internationally known for its remarkable coelacanth and humanoid trace footprints specimens. A third, globally important exhibit, the Hofmeyr Skull, is less well known. However, as scientists are discovering, the skull is hugely significant in understanding human evolution. Such is its tremendous palaeoanthropological importance that a cast of the skull currently enjoys pride of place in one of the most comprehensive human evolution displays in any museum in the world: the Koch Hall of Human Origins at the Smithsonian National Museum of Natural History.

The Hofmeyr Skull was discovered along the banks of the Vlekpoort River near Hofmeyr in the Eastern Cape and was donated to the East London Museum in 1954. It was not until fairly recently, however, that the skull was confirmed to be about 36 000 years old. The skull is considered significant because it carries all the features of an anatomically modern human with some archaic features such as thicker arches above the brow, large molar crowns and a prominent glabella, says the museum’s natural scientist Kevin Cole. ‘Although the skull was studied by the University of the Witwatersrand in 1964, it was never deemed to be of much significance as a specimen until well into the new millennium, by which time ideas of human origins were well developed’. The skull travelled to the Port Elizabeth Museum, the University of Cape Town and Stony Brook University (New York) before returning to East London in 2009.

It had proven impossible to date the Hofmeyr Skull using traditional radiocarbon dating. Thus a combination of optically stimulated luminescence and uranium-series dating was used. Osteological analysis of the cranium by the Max Planck Institute for Evolutionary Anthropology indicates that the specimen is morphologically distinct from recent groups in sub-Equatorial Africa, including the local Khoesan populations. Instead, the fossil has a very close affinity with Upper Palaeolithic skulls from Europe. This could be consistent with the Out-of-Africa theory, which hypothesises that at least some Upper Palaeolithic human groups in Africa, Europe and Asia should morphologically resemble each other.

Buffalo City Tourism, 2019

THE TAUNG CHILD AND PILTDOWN MAN

The Roles of Dart, Broom, Keith and Teilhard de Chardin

J Francis Thackeray

On 7 February 1925, in five pages of the prestigious British journal *Nature,* Prof. Raymond Dart (an Australian anatomist in the Medical School at the University of the Witwatersrand) described the 'Taung Child' as the first Plio-Pleistocene specimen of *Australopithecus africanus.* Soon thereafter, Dr Robert Broom (a Scottish palaeontologist working at that time as a medical doctor) wrote to Dart from Douglas in the Cape Province, saying: 'The missing link is really glorious. I have to be in Kimberley at a court case on February 23. Perhaps I'll run up to Johannesburg for the day and pay my respects to my distinguished ancestor' (Findlay 1972: 52). When Broom arrived without an appointment at the university, he 'dropped on his knees' (Dart's words) 'in adoration of our ancestor' (Broom's words), as recorded by Dart (1959: 8).

Broom had come to Wits not only to see the Taung Child but also to discuss human origins with Dart at a time when palaeoanthropology was in its infancy. Of immense historical interest is a sheet of paper with two spontaneous sketches drawn by Broom on that great day (Pyne 2016). It carries the letterhead of Wits and is currently curated in the Raymond Dart Archive at the university. Both sides of the sheet were used by Broom: firstly, to sketch the Taung Child, reconstructed as it might have looked in life, complete with hair (Fig. 1) and, secondly, to sketch an illustrated phylogeny that includes *Australopithecus* in relation to other taxa that were known at the time (Fig. 2).

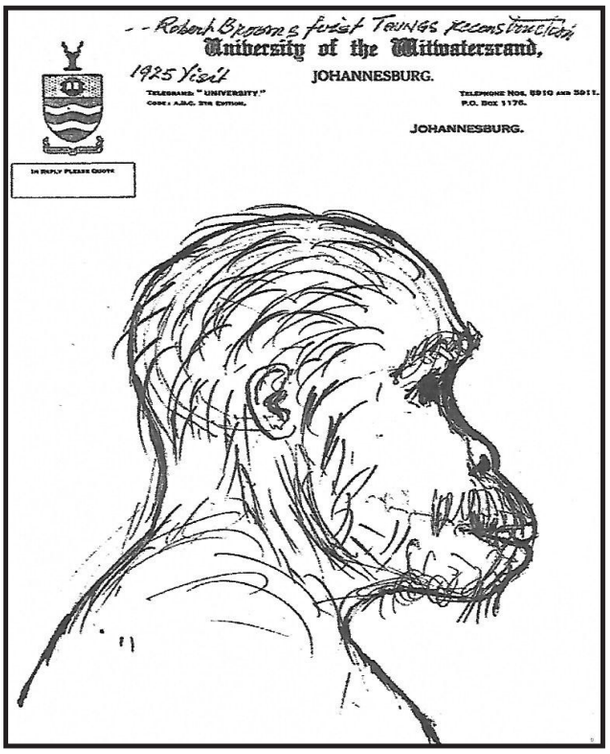

Fig. 1: Broom's reconstruction of the Taung Child, type specimen of Australopithecus africanus *(juvenile), sketched at Wits University in the presence of Dart in February 1925, courtesy of the Wits Archives*

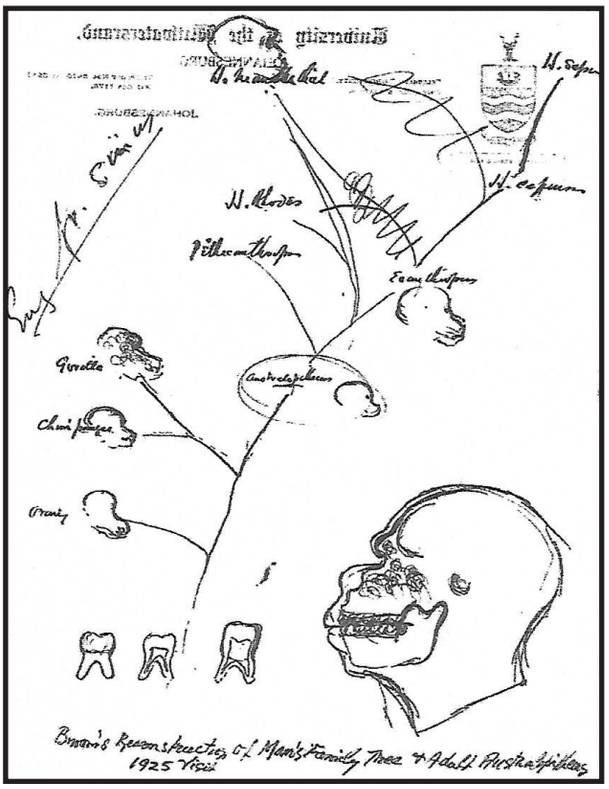

Fig. 2: Broom's phylogeny sketched at Wits University in the presence of Dart in February 1925, including a hypothesised representation of an adult Australopithecus *cranium (bottom right hand corner)*

Broom's phylogeny, the Taung Child and 'Piltdown Man'

In Broom's phylogeny we can make out in small letters the word '*Australopithecus',* and above it '*Eoanthropus'* ('Piltdown Man'). The latter was an infamous and unfortunate hoax that was perpetrated in about 1912 and which was not exposed until 1953. It confused palaeoanthropologists for 40 years in the context of the fundamental question as to where hominins originated.

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In the phylogeny, both *Australopithecus* and '*Eoanthropus'* are illustrated as crania in brief outline. Also in the sketch are '*Pithecanthropus'* (*H. erectus*) from Asia, '*H. rhodes'* (*H. rhodesiensis*, known today as *H. heidelbergensis* from Kabwe/Broken Hill in Zambia), '*H. neanderthal'* from Europe, '*H. capensis',* represented notably by the 'Boskop skull' (Broom 1918), which is a mineralised partial human cranium and which might today be considered as representative of the Late Quaternary 'anatomically modern' *H. sapiens,* and 'fully modern' *H. sapiens*. Also, in the phylogeny are the orangutan, chimpanzee and gorilla. I have redrawn the phylogeny in more legible text in Fig. 3.

As can be seen, Broom's immediate perception (as expressed in this phylogeny) was that 'Piltdown Man' must have post-dated *Australopithecus,* a view he also expressed later in *Nature* by saying that the Taung Child 'seems to be the forerunner of such a type as *Eoanthropus'* (Broom, 1925).

Australopithecus was recognised by Dart (1925) as a hominin with a small ape-sized brain but with human-like dentition (no diastema and a small canine), whereas 'Piltdown Man' had a large cranium but an ape-like mandible (later recognised as that of an orangutan, *Pongo pygmaeus,* from Borneo). Even in simple outline in his phylogeny, Broom's sketches of the crania suggest that both *Australopithecus* and *Eoanthropus* had similar (ape-like) degrees of prognathism, but the latter had a larger dome-shaped

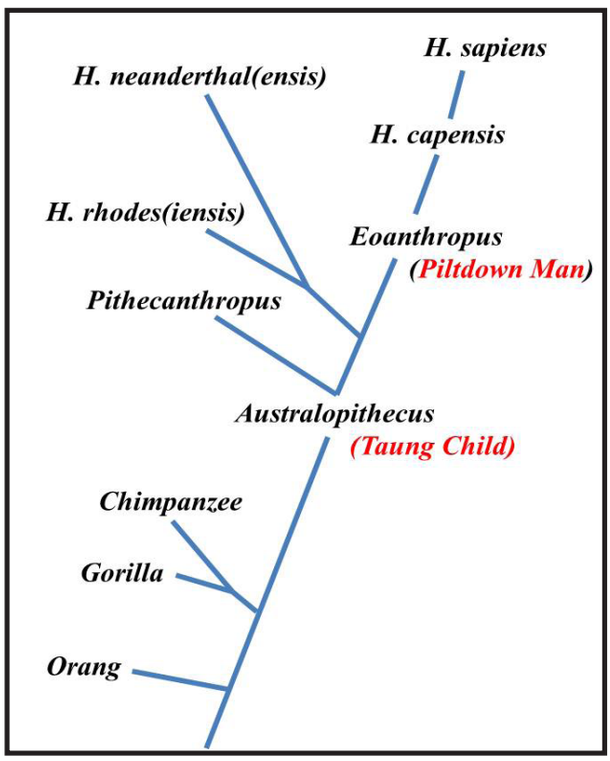

Fig. 3: The hominin phylogeny sketched by Broom immediately after seeing the Taung Child in 1925.

(human-like) cranium. In other words, Broom had quickly attempted to reconcile 'Piltdown Man' with australopithecines.

In Broom's phylogenetic tree, *Australopithecus* is perceived to represent a common ancestor for *Pithecanthropus* and *Eoanthropus* (Figs 2 and 3). This tree may have contributed to Dart's own claims expressed in charts displayed with casts at London's British Empire Exhibition at Wembley (April to October 1925). In any case, Dart's images would have been consistent with what he had written in *Nature* when comparing the Taung Child to 'Piltdown Man', in the context of the so-called 'simian shelf' of the mandible. Dart claimed: 'In this character, *Eoanthropus dawsoni* scarcely differs from the anthropoids, especially the chimpanzee; but this new fossil [the Taung Child] betrays no evidence of such a shelf, the lower border of the mandible having been massive and rounded after the fashion of the mandible of *Homo heidelbergensis'.*

Arthur Keith, the Taung Child and 'Piltdown Man'

One palaeoanthropologist who became increasingly critical of Dart's claims was Sir Arthur Keith, a distinguished anatomist based at the Hunterian Museum of the Royal College of Surgeons in London. He gave three opinions of the Taung Child in 1925. The *Rand Daily Mail* published his first view on 1 February, almost a full week before the official announcement of the fossil in *Nature*. Keith said that in his opinion the Taung Child had similarities with a chimpanzee or gorilla but was 'more human than either'. However, in *Nature* of 14 February, he wrote 'one is inclined to place *Australopithecus* in the same group or sub-family as the chimpanzee and gorilla. It is an allied genus. It seems to be near akin to both'. A few months later, after seeing casts at the time of the Wembley exhibition, Keith became antagonistic, stating that Dart's claims were 'preposterous' and that the Taung skull was 'a young anthropoid ape' with 'many points of affinity with the two living African anthropoids, the gorilla and chimpanzee [such] that there cannot be a moment's hesitation in placing the fossil form in this living group'.

At the time, Keith was convinced that 'Piltdown Man' was a genuine hominin fossil, ancestral to modern humans, despite its ape-like jaw. This line of thought must have had a major impact on his opinions of the Taung Child. Ironically, in 1925 Keith published an edition of *The Antiquity of Man* (2, Fig. 259) in which he meticulously demonstrated that the morphology of the 'Piltdown Man' mandible corresponded exactly with that of an orangutan. Keith was duped! He erroneously chose to ignore the implication of his observation. It was only in 1953, two years before his death, that he learnt the truth that *Eoanthropus* was a forgery. He candidly admitted, 'I was wrong, and Dart was right'.

Broom died in 1951, two years before the formal announcement of the hoax. One wonders what he might have said if the forgery had been revealed to him before his death. However, even without *Eoanthropus,* his phylogeny sketched in 1925 is still correct in the sense that it showed that *Australopithecus* was a human ancestor. In this regard Broom was astutely correct, in support of Dart.

Remarkably, Broom's 1925 hypothesised reconstruction of a cranium of an adult *Australopithecus* (Fig. 2) is not too different from that of 'Mrs Ples' (Sts 5 from Sterkfontein, representing *A. africanus* discovered by him with John Robinson and Saul Sithole on 18 April 1947). Nor is it too different from the left lateral view of the adult australopithecine skull of 'Little Foot' (Stw 573, *A. prometheus,* discovered by Ron Clarke, Stephen Motsumi and Nkwane Molefe) as shown in a photograph (Fig. 4) published by Clarke and Kuman (2019).

*Fig. 4: Left lateral view of the adult australopithecine skull of 'Little Foot' (*A. prometheus, *Stw 573), as published by Ron Clarke and Kathy Kuman (2019). Photograph by Matt Lotter, courtesy of RJ Clarke.*

The Piltdown forger or joker?

Prof. Phillip Tobias (1992) argued that Sir Arthur Keith was responsible for the Piltdown hoax. This has been regarded by many palaeoanthropologists as totally incorrect, for reasons explained in a lengthy issue of *Current Anthropology* (1992, 33). The identity of the hoaxer has been elusive. Recently (Thackeray 2016, 2019), I have suggested that 'Piltdown Man' was a joke perpetrated by Dr Edgar Willet, an Oxford-trained medical man of leisure in early retirement in 1912 who had an anatomical background, lived near Piltdown where he assisted the amateur archaeologist Charles Dawson with excavations, had been a museum curator, had probable access to orangutan jaws from Borneo since (with Charles Darwin) he had co-sponsored an expedition to that region where skulls and jaws of *Pongo* were collected, had access to pathological human crania, was a collector of antiquities and had an interest in archaeology, including stone artefacts of the kind that had been found at Piltdown. I have also suggested that the French palaeoanthropologist and Jesuit priest, Teilhard de Chardin, was an 'advisory accomplice' with a sense of humour who enjoyed jokes, but who recognised that his professional career would have been jeopardised if he had confessed publicly and implicated himself in a Piltdown joke (Thackeray 2019).

Teilhard studied for a time (1908–1912) at a Jesuit seminary near Piltdown and was allowed to collect fossils in the vicinity with his fellow theologian, Felix Pelletier. He participated in excavations at Piltdown where he discovered the orangutan canine (even though the place where he found it had already been thoroughly searched). Smith Woodward of the British Museum (Natural History) quickly accepted the fossils as genuine and announced them to great acclaim as *Eoanthropus dawsoni* in London in December 1912. Teilhard was back in France at the time and wrote immediately to Pelletier: 'We must do nothing. We must wait for the criticisms that will follow' (Thackeray 2012). To my mind, this is an indication that Teilhard must have known that 'Piltdown Man' deserved to face 'criticisms', as if there was something wrong that warranted close attention by specialists. There is indeed reason to question whether Teilhard played a role, however minor, in a hoax that went wrong (Thackeray 2011, 2012).

In terms of conjecture, Teilhard could at least have confessed in the confidence of a confessional, through a theologian such as Pelletier, to clear his conscience. Perhaps he was acutely embarrassed, especially since there is evidence that he claimed to *know* the identity of the hoaxer (Thackeray 2012).

Louis Leakey and Stephen Jay Gould were convinced that Teilhard was behind the forgery but I would not go so far as to say that he was the prime instigator. My impression is that he was a devout priest, a passionate palaeontologist and a deep-thinking influential philosopher who (with a sense of humour) had played a small role in the Piltdown joke. Notably, he was present at Piltdown together with Edgar Willett at the time of excavations in 1912, and it was Willett who may have needed advice from Teilhard in the context of studies of human evolution. Willett may also have obtained advice from Martin Hinton, a disgruntled member of staff of the British Museum (Natural History), who (like Teilhard) is known to have

had a sense of humour and also claimed to have known the identity of the hoaxer but did not want to let on. He is known to have experimented with the staining of bones of the kind found at Piltdown (Thackeray 2011).

Recommendation

I strongly recommend that the historically important page of Broom's sketches, including both 'Piltdown Man' and *Australopithecus*, be framed between two sheets of glass and kept for posterity in the PV Tobias Vault at the Evolutionary Studies Institute where the original skull of the Taung Child is curated. It could be installed this year, the year in which we celebrate the 95th anniversary of Dart's description of *A. africanus.*

Acknowledgements

I am grateful to Raymond Dart for stimulating my interest in palaeoanthropology; to Bob Brain who appointed me as a laboratory assistant at the Transvaal Museum in 1971 when I had my first opportunity to see original specimens of *Australopithecus,* plaster casts of the Piltdown 'fossils' and modern orangutan mandibles; to the Wits Archives for permission to reproduce Figs 1 and 2; to Brendon Billings for his assistance with regard to the Dart Archives; to Ron Clarke for permission to publish a photograph of the skull of 'Little Foot' (Fig. 4); to Dean Falk for her helpful comments; to Lydia Pyne for her enthusiasm regarding this study of Broom's 1925 sketches; and to the late Stephen Jay Gould who encouraged me to supplement his own views regarding Teilhard de Chardin (1920) and the 'Piltdown Case', recognising that it was Teilhard himself who had said (as early as 1920) that the condyle of the orangutan mandible may have been broken 'as if on purpose'. Kenneth Oakley (who helped to expose the Piltdown hoax through chemical analysis) inspired me to consider Teilhard's possible role in a misdemeanour (Oakley had his own suspicions about the recalcitrant priest and palaeontologist). Chris Stringer kindly showed me the Piltdown 'fossils' at the Natural History Museum where I was also given access to the Piltdown Archives. I am grateful to St John Thackeray from whom I inherited a 1925 edition of Sir Arthur Keith's *The Antiquity of Man*.

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ARCHSOC NOTICES

Annual General Meeting

Notice is hereby given in terms of section 8(a)(i) and (ii) of the Constitution that the Annual General Meeting of the Society will be hosted by the KwaZulu-Natal Branch on Saturday 18 April 2020 at 10:30 at the Phansi Museum, 500 Esther Roberts Road, Glenwood, Durban.

Members should submit items for the agenda in writing to the Secretary, PO Box 15700, Vlaeberg 8018, or by email to archsoc@iziko.org.za before 1 March 2020. Proposals must state in specific terms the resolution to be put to the meeting and the reasons therefor.

Janette Deacon, Honorary Secretary, 8 January 2020

The website of the SA Archaeological Society can be found at www.archaeologysa.co.za

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THE ROSETTA STONE OF ROCK ART

JM Dederen and J Mokakabye

The famous commemorative stele, the Rosetta Stone, depicted in Fig. 1, was originally housed inside an Egyptian temple and ended up as building material in an Ottoman fortress at the time of Napoleon's Mediterranean campaign, before being shipped off to London's British Museum in 1801. The three different languages incised into the stone's surface (hieroglyphic, demotic and Greek) announced a royal decree by Ptolomy V after his coronation in the 2nd century BC. The Greek text, together with a number of words in the demotic version, provided Egyptologists with important linguistic insights that eventually led to the decipherment of the hieroglyphic writing system.

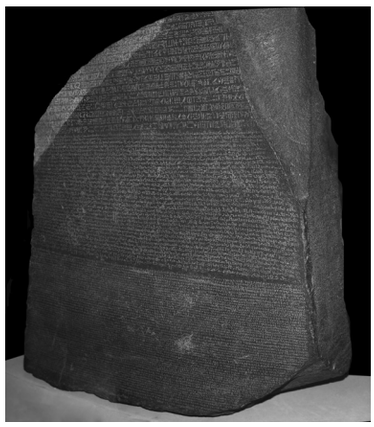

Fig. 1: Rosetta Stone on display in the British Museum (Wikipedia Commons)

The term 'Rosetta Stone' also refers to a significant clue in a new field of knowledge. It is used in San rock art studies by supporters of the mainstream theory, the shamanistic model. One of the wonderful polychrome Game Pass shelter panels (Fig. 2) – situated in a secluded valley in the Kamberg – is commonly referred to as the Rosetta Stone of rock art since its analysis constituted a key moment in the development of the shamanistic theory (Blundell 2000). The interpretation of this panel encouraged scholars to conceptualise San rock art as a system of metaphors rooted in a religion that essentially revolved around a communal healing ceremony known as the trance dance (Katz 1982). The curing dance continues to be the most intense and elaborate of San rituals. Its dramatic performance is believed to facilitate an out-of-body journey of its key participant, the shaman or healer who, in his altered state of consciousness, is said to transform into an animal and enter the other-worldly realm of spirits to gather healing potency.

The purpose of this article is to approach the Game Pass panel from an alternative vantage point, namely in terms of the mindset of the hunters who produced the art. The ideas discussed here should complement rather than replace existing interpretations. There are, in our opinion, no watertight, empirical truths in the study of prehistoric rock art when it comes to the reconstruction of its meaning. Our tentative suggestions are informed by an extensive literature study of traditional hunting societies and are a work in progress.

Existing interpretations

Based on the perception that the trance dance and its subsequent healing activities constituted the very core of San belief and social life, the proponents of the shamanistic model have interpreted the four humanlike beings in the Rosetta Stone painting as images of shamans and trance experience (e.g. Lewis-Williams and Dowson 1989; Lewis-Williams 2002). The posture of the eland, together with other details of its rendering, suggested to them that the animal was dying and, by the same token, releasing its supernatural potency. When an eland died of a poisoned arrow, it lowered its head, raised its hair, trembled, stumbled and dropped unconscious. The animal in the painting, it was noted, behaved in a similar fashion. The crossed legs of the thin humanlike figure on its right imitated the eland's hind legs and expressed its dying posture (this is the key feature on which the significance of the panel hinges).

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Fig. 2: The Rosetta Stone panel (redrawn from Lewis-Williams and Dowson 1989)

Another elongated creature on the extreme right has been depicted with its hair standing on edge, again in imitation of the eland. Its stretched-out arms, we are told, betrayed a posture that in San culture was associated with the metaphorical 'death' (the collapse) of the shaman during the height of the trance dance, when his healing potency was being activated. The same interpretation applies to the figure depicted in the bending forward position. The painting, therefore, is believed to display how in the mind of the San, trance and death were closely related. The hooves, tails and antelope heads expressed yet another important feature of the trance dance, namely the shape shifting of a healer into an animal being. The transformation of the four shamans into antelopes (often referred to as the 'eland conflation') visually marked the eland as the source of their healing powers. In sum: ritual healing and art, it was concluded from the analysis of this painting, were grounded in a similar vocabulary of trance metaphors.

Solomon (2008), an ardent opponent of the shamanistic school of thought, has argued that the two slender, humanlike forms portrayed spirits of the dead, some of whom were deemed benevolent to society. Their bodies displayed a dividing line in the middle of the chest and horizontal lines where the ribcage was located. Their lower limbs have been painted as lifeless appendages to the upper body. Motivated by a Drakensberg painting in which a rain animal is held by its tail, she proposed that the spirits of the dead in the Game Pass panel were 'rain-sorcerers' involved in a rain-making ritual. Paintings of the rain bull and rain making, she added, probably communicated religious concerns with mortality and misfortune in general.

In all fairness, it must be mentioned that Vinnicombe (1976) was the first to analyse the Game Pass panel systematically in terms of San religious beliefs and ritual. She identified the two elongated figures as spirits of the dead. This category of humanlike images has been labelled the 'split-body type'. Vinnicombe routinely encountered paintings of these mystical creatures throughout the research area of her doctoral studies (Fig. 3). Some of them appeared to be walking in a seated position with crossed legs, as does the creature holding the eland's tail in the Rosetta Stone panel. This particular body posture was associated in Khoisan culture with death and burial. Because split-body images often featured in compositions that included eland hunting, Vinnicombe contemplated that they could have been 'sorcerers of the game'. Game sorcerers were believed to influence the movements of the herds, even after they had passed on.

Finally, Thackeray (2019) has contended that the magical power used by San 'sorcerers' to influence the outcome of the hunt (through acts of sympathetic magic) or the weather (through rain rituals) would have been similar in nature to the trance healing potency that is revealed in the Game Pass panel.

In this article, we argue that there is no need to involve shamanistic beliefs in the interpretation of the Rosetta Stone panel. The painting can be explained in terms of the idiom of the hunt, more particularly with reference to the close affinity or bond between hunter and prey, which defined most of daily life, beliefs and activities in hunter-gathering societies. Such cosmic empathy between humans and animals is difficult to grasp from a modern, scientific perspective because in our world view, culture and nature are largely delineated and separated as oppositional domains. In hunter-gatherer societies, on the other hand, the natural and cultural realms were perceived as one.

The world view of the hunter

There is, admittedly, no such thing as a single, universal hunting ideology. The world view of foragers, we would like to emphasise, is immensely varied. We are also aware that ethnographic data recorded in the recent past does not necessarily inform us about the older hunting-gathering modes of subsistence. The ways of the hunter, not unlike any other manifestation of culture, have been subjected to change and adaptation. Nevertheless, informed by our extensive literature review, we cannot but acknowledge that hunters worldwide have displayed remarkable ideological and behavioural resemblances. The following elementary description of the mindset of the hunter, based on Martin (1978), defines the realm of hunting within its spiritual context.

Fig. 3: Various 'split-bodied' figures (Drakensberg, redrawn from Pager 1975 and Vinnicombe 1976)

In the animistic vision of traditional small-scale societies, the hunter merged sympathetically with other living and non-living beings in a world filled with a magical power that controlled nature and humankind's destiny. Rituals were organised to influence or harvest this vital force. Animals, it was believed, were controlled by their Masters, the Game Keepers who controlled their movements and, on occasion, inspected their treatment by the hunters. When an animal was butchered, its soul returned to the Keeper to report on the humans who had killed it. Abuse, insult and torture were punished by withholding the prey. The hunters were granted success as long as they paid scrupulously attention to the rules of the hunt. Cordial relations with the game and the Keepers needed to be maintained for society to benefit from the vital force.

When a young man joined the rites of passage into adulthood, he was introduced to the contract or spiritual agreement with the Keepers. He learned about the correct forms of interaction with animals and started participating in the different forms of communication with the spirit world that sustained them. Because prey animals were considered almost as smart as the hunter, it was deemed necessary to perform hunting magic. The more powerful animals were the object of many ritual observations. Their spirits attended important community ceremonies and, in some instances, they became the focus of specialised cult activities.

In the indigenous mindset, hunting, especially the collective hunt of larger prey animals, was considered a holy occupation, imbued with religious ideas and symbolism. Hunting, therefore, involved ritual and ceremony, dancing and singing. Hunters could communicate with the prey through their mind (dreaming, visions) and their body (feelings). Animal spirits routinely paid a visit to their human relatives. They were perceived to be conscious and intelligent animal-persons who involved themselves in kinship and social relations with the hunters.

Through the eyes of the hunter

We would like to suggest that the Rosetta Stone of rock art – among other things – plainly illustrates the affinity between humans and animals around which the traditional world of the hunter revolved. More specifically, the panel makes perfect sense with reference to the contract between the hunter and the Master of Animals. In essence, our interpretation rests on three observations.

First and foremost, we concur with previous interpreters that all four humanlike figures are visually associated with the dying eland by touching it, mimicking its posture or exhibiting its body features and sensations. They hold the animal's tail (a special locus of its supernatural potency); bend forward and stumble; display hooves, muzzle, ears and horns; are dressed in antelope coats; and reveal graphic elements, such as lines and flecks that form part of the portrayal of the eland body.

Second, in spite of their common attachment to the animal, these creatures are not necessarily similar in nature, something that has been conveniently ignored or overlooked in earlier interpretations of the panel. Only the two elongated figures, placed on the left and right of the panel, are comparable in form. The forward-bending figure, on the other hand, has been painted using conventional body proportions and anatomical detail (muscular legs, pronounced buttocks, widening torso). He is certainly the most humanlike of the four. The remaining image, in addition to being the smallest and wearing a different type of kaross, seems to be rather inactive. He is merely standing, perhaps in the background of the others. This particular outline is a regular occurrence in the rock art of the Drakensberg (Fig. 4).

Fig. 4: Figures dressed in large karosses (Drakensberg, redrawn from Pager 1975 and Vinnicombe 1976)

Third, previous analytical accounts of the panel have also failed to shed light on the fact that the eland and the two slender images are facing the viewer, whilst the others are not. This is an unusual feature in the art, as heads are conventionally depicted in profile. The head of the smallest figure is turned to the left of the panel, perhaps looking at the eland? Not much can be suggested about the bending-forward individual with the unpronounced head, other than that he is facing neither the viewer, nor any of the other images in the panel.

Assuming that the panel was conceived and executed

as a single, integrated whole, what are we to make of its five constituent images from the vantage point of the hunter? During our extensive survey of hunting cultures, it was established that myth and ritual – two key realms of expressive culture – were often concerned with the communication of the mystical nature of hunter-prey interaction. Myth and ritual served to honour and remember its sacred origins. The didactic function of many myths and rites was to maintain amicable relations with the supernatural forces that either released or withheld the game, and by the same token influenced communal survival. We contend that San rock art was an additional means aimed at upholding the rules that regulated hunter-prey relations. The artist used the visual language of forms and composition to foster respect for the norms and values in which these relations were grounded.

In our understanding, it is the concept of human-animal affinity, together with the beliefs related to animal potency (an important source of life-power), that keep the Rosetta panel together, not trance metaphors or experience. The slender bodies, chest details and dislocated limbs of the two largest protagonists seem to support their identification as spirits of the dead. Because these creatures are generally portrayed with their hunting gear in other parts of the Drakensberg region (Fig. 4), the label 'ancestral hunters' would perhaps be more appropriate than 'spirits of the dead'. On closer inspection, the cross-legged pose of the spirit holding the eland's tail does not really resemble that of the eland. Perhaps, the eland's hind legs are not crossed at all.

It seems feasible to suggest, in the light of the hunting ideology discussed above, that the panel displays how two spiritual guardians of the game have come to inspect the dying eland and ascertain that it has not been abused by the hunters and that all forms of ritual behaviour, as prescribed by custom, have been observed. The formal details of these ancestral hunters visually express their empathy with the animal. The same applies to the hunter in the bent-forward body posture, who could be mimicking the stumbling eland. All three men are grieving the death of the hunted animal. The Master of Animals, who has sent the spirits, looks upon his favourite creation, the eland. The animal and the two ancestral hunters display and honour its potency represented by means of lines and specks. They face and address the viewer of the painting, reminding men and women alike that both their individual and communal welfare depends on the respectful attitudes and behaviour of humans towards their animal kin.

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ARCHAEOLOGY IN BRIEF

Scotland's largest find of prehistoric pottery

Remains of more than 200 prehistoric eating bowls and cooking vessels were found near Edinburgh. The collection spans more than 2 000 years, with the oldest piece dating to around 4000 BC. More than 2 000 sherds of pottery reveal that diets may have included yoghurt, butter, cheese, roasted hazelnuts and toasted barley. It is the biggest collection of its kind to be found in Scotland. Most of the finds were Middle Neolithic 'Impressed Ware' dating from around 3300 BC to 3000 BC. Analysis of a round-bottomed carinated bowl shows the vessel once contained milk-derived fats. The report says the discovery 'demonstrates once more that Scotland's early farmers were dairy farmers'. Although Neolithic people of the area were likely to be lactose intolerant, they would have been able to digest yoghurt, butter and cheese. *The Scotsman, 12/09/2018*

Danish king Bluetooth's treasure found

A 'significant' trove found in Germany may have belonged to king Harald Bluetooth who brought Christianity to Denmark. The find of a piece of silver on Rügen island in the Baltic led to a dig covering 400 m^2 and the find of a hoard believed to be linked to king Harald Gormsson, better known as Harry Bluetooth, who reigned from around AD958 to 986. The find includes braided necklaces, pearls, brooches, a Thor's hammer, rings and up to 600 chipped coins, including more than 100 that date back to Bluetooth's era, when he ruled over what is now Denmark, northern Germany, southern Sweden and parts of Norway. The oldest coin is a Damascus dirham dating to 714, while the most recent is a penny dating to 983. Bluetooth fled to Pomerania after a rebellion led by his son Sven Gabelbart. He died in 987. *Agence France-Presse, 16/04/2018*

AMMOGLYPHS – A NEW NAME FOR A NEW NOTION

Charles Helm, Hayley Cawthra, Jan De Vynck, Carina Helm, Renée Rust and Willo Stear

In a recently published article in *Proceedings of the Geologists' Association* (Helm et al. 2019a), we suggested the term 'ammoglyph' for a pattern that was once created in sand by humans and is now evident in rock. We reported about eight sites on the Cape south coast that harboured possible ammoglyphs. We made this suggestion based on the following logic.

Aeolianites and 'beachrock' on this coastline are the cemented remains of dune and beach surfaces, from within the age range of 70 ka – 158 ka, based on previous dating studies of these deposits (Roberts et al. 2008; Bateman et al. 2011). Through our identification of over 140 vertebrate tracksites on these rocks along a 350 km stretch of coastline between Arniston and Robberg (Helm et al. 2019b), we appreciate the capacity of these surfaces to record the events that once transpired on them, often in impressive detail.

We know that humans travelled over these surfaces through the discovery of a tracksite, estimated at 90 ka. This site contained 40 footprints made by a group of humans who were travelling down a dune slope (Helm et al. 2018). Our subsequent explorations have yielded further hominin tracksites, which will be formally described.

We also know that southern Africa has an extensive record of palaeoart (Bednarik 2013) and that humans were creating palaeo-art in caves on the Cape south coast during the Middle Stone Age. Evidence for this includes hashtag (chevron) patterns engraved in ochre at Blombos Cave (Henshilwood et al. 2002) and Pinnacle Point (Watts et al. 2010), and painted on a rock surface at Blombos Cave (Henshilwood et al. 2018).

The question that therefore confronted us during our research along this coastline was whether humans just left their footprints on these surfaces, or whether they may have left other evidence of their activities (such as symbols, patterns, sculptures or evidence of foraging). We considered how much easier it might have been in the Middle Stone Age to use a finger or a stick to create a pattern in the sand, rather than to have to transport an ochre manuport a considerable distance to a cave, and then laboriously create proto-art with it or on it.

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Perhaps the more pertinent question, then, was whether these ancient canvases of sand, if that is what they were, have left evidence that we are able to view and interpret today. If the answers to these questions were to be in the affirmative, then such evidence would provide a previously undocumented form of Middle Stone Age human expression and activity.

We believe that the plausibility of such patterns having been created in sand is beyond reasonable doubt, along with the possibility that these patterns were preserved for us to recognise today. The relevant question therefore becomes not whether this was possible, but whether the standard of evidence that we have presented from the eight sites is sufficient to demonstrate the existence of ammoglyphs to the satisfaction of others.

Two distinct challenges

Addressing this question involved having to confront two distinct challenges. First, there are multiple lines, grooves and patterns on these rock surfaces, caused by a variety of agents (including wind, water and traces left by plants and invertebrates, reptiles, birds and other mammals). We would therefore need to establish if a hominin 'signature' could be identified within this plethora of patterns. Second, these rock surfaces form an attractive medium for graffiti artists, and while modern graffiti in the form of letters and heart shapes may be easy to identify, older etchings, especially if expressed as abstract forms, might be more challenging.

We would therefore need to develop ways to distinguish ancient anthropogenic patterns from patterns caused by other agents and from more recent graffiti. A substantial portion of our published article addressed these issues. For example, the presence of rims on either side of a groove is easy to explain if the groove was made in sand, but virtually impossible to account for if the groove was etched in rock. However, rims are easily blown away or subsequently eroded, hence their absence does not exclude an ancient anthropogenic origin.

At some of the sites described by us, we simply drew attention to interesting patterns that could conceivably have been of human origin but for which we could not exclude other causes. We simply noted such sites as being of an equivocal nature. In fact, in one case, at a site with an intriguing combination of parallel and nested lines (the rainbow pattern), where we initially considered a human origin, closer analysis led us to conclude that this was probably the first-recorded example of a fossil seal tracksite. And

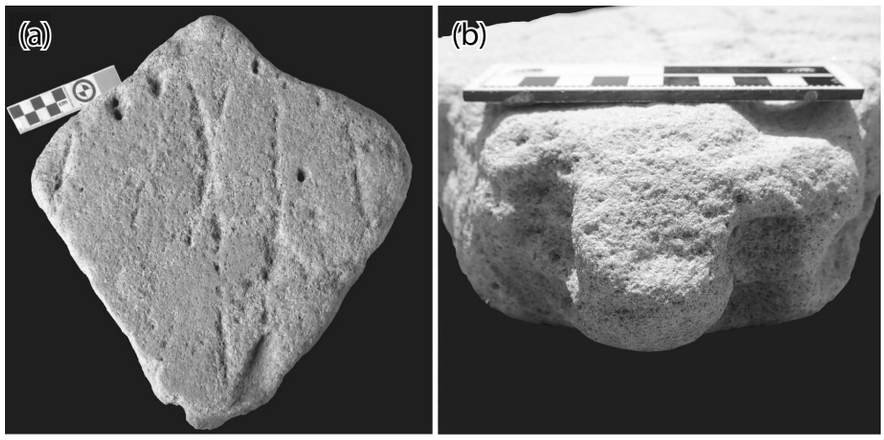

Fig. 2: (a) Symmetrical groove patterns on the surface of a loose rock, the symmetrical shape of which resembles that of a stingray; scale bar is in cm. (b) Symmetrical appearance of the putative 'tail stub' at the posterior end of the rock shown in (a); scale bar is in cm.

in some instances, such as where we think we may have found patterns that indicate foraging behaviour, further studies (such as CT scanning) will hopefully help confirm or refute our hypotheses. In other cases, the evidence appeared to be more compelling. Here we briefly describe four diverse examples from the sites described in our published article.

Four examples

A surface of a loose rock in the Garden Route National Park contains a groove feature forming about 60 per cent of a near-perfect circle with a radius of 30 cm (the remainder of the circle was absent since a portion of the rock had broken off). At the centre of the circle is a rounded circular depression (Fig. 1 see page 17). Just outside the circle are two oval, slightly depressed areas and between them there is a very slight break in the continuity of the circle. In one portion, the circular groove forms the edge of the rock surface and here we could measure that it is as much as 3 cm deep. Slight rims are evident beside sections of the circular groove.

We suggest that a kneeling human may have created these features, possibly using a forked stick, in the same way that a circle is created nowadays in mathematics classes using a compass. The slight discontinuity in its outline may represent the 'start-finish area'. One possible non-anthropogenic origin for a circle is that of a frond, anchored to a central plant stem or root, scraping the sand during windy conditions. Such a possibility did not seem consistent with our observations of such a deep groove and the absence of a central rhizolith. Multiple features (including the presence of rims) led us to conclude that the circular feature was made when the surface was moist sand, rather than being of more recent origin. The putative knee impressions would be the first of their kind recorded in the global fossil record.

In our second example, a loose rock was found at the bottom of a coastal cliff east of Still Bay (Fig. 2). Its left-right symmetrical outline uncannily resembles the shape of a stingray and its surface contains multiple elements of symmetry, including a cross feature where the two diagonals meet. On either side of this cross, and parallel to its arms, are a series of further grooves that are symmetrically aligned. The only irregularities in the otherwise smooth, curvilinear outline of the rock are beside the midline at the posterior end, where two small 'bites' on either side of a stubby protrusion are evident.

Symmetry does not necessarily imply a hominin origin. However, such multiple levels of symmetry, including both the shape of the rock and the patterns on its surface, are unique in our experience and prompted our consideration that these patterns and shapes may have been created by a human. In fact, Henshilwood (2002) noted how the engraver of the hashtag pattern at Blombos Cave had incised lines to 'complete the symmetry of the pattern'. We are only aware of two possible explanations for these features. The first is that there are so many rocks along this coast, containing so many grooves, that eventually remarkably symmetrical forms will appear on the surface of a rock that also happens to be symmetrical and have the shape of an animal that occurred in the area at the time the rock was still sand. The second is that a human created a sand sculpture and incised grooves on its surface, and that its shape and the patterns on it resemble those of a stingray.

While the concept of the shape of a pedestalled surface eventually being transformed into that of a loose rock may seem fanciful, it is a familiar notion to dinosaur trackers who often encounter remarkably well-preserved natural casts of dinosaur tracks in creeks and canyons. Should our speculation about the 'stingray sculpture' be valid, then the patterns on the surface can be related to the features on the dorsal surface of an extant stingray. The lateral symmetry in the rock shape is attributable to the pectoral and pelvic fins, and the posterior stub is all that remains of where the long tail was once attached to the rest of the sculpture. If so, this would be the oldest reported example of a human creating an image of another creature.

Next, a loose rock (no longer identifiable) in the Goukamma Nature Reserve contains a cross-hatched pattern of narrow grooves that are approximately 25

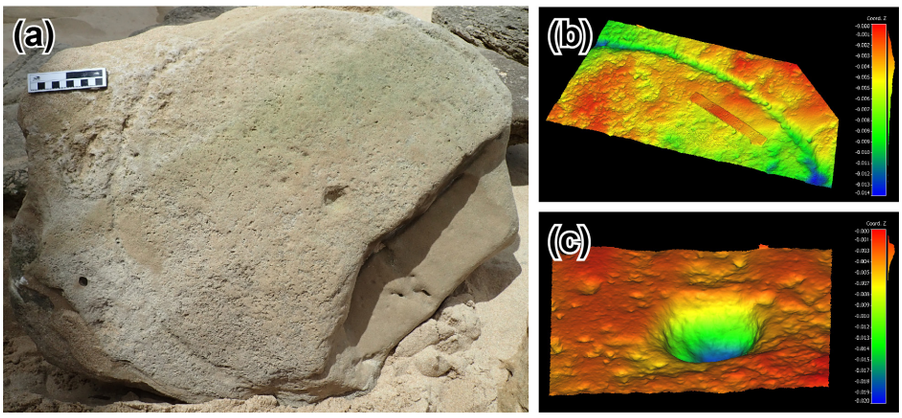

Fig. 1: (a) Circular feature with a central depression; a putative knee impression is evident below the 10 cm scale bar. (b) Photogrammetry colour mesh tilt view of a portion of the circular groove, showing a slight discontinuity that might represent the 'start-finish' area; vertical scale is in metres. (c) Photogrammetry colour mesh tilt view of the central depression; vertical scale is in metres.

cm long. The angle of intersection of these grooves is about 20 degrees (Fig. 3). Beneath the cross-hatched area is a 15 cm long horizontal groove. This pattern bears a resemblance to the hashtag motifs described from Blombos Cave (Henshilwood et al. 2002, 2018) and Pinnacle Point (Watts et al. 2010). The repeated parallel nature of the cross-hatched lines and the similarity to an established ancient motif suggested an anthropogenic origin.

Finally, clustered around what appears to be an impression of a left human forefoot, with a big toe and three further digits, are eight linear sub-parallel groove features (Fig. 4). They occur on a 25-degree inclined in situ aeolianite truncation surface in the Goukamma Nature Reserve and are orientated in an approximate upslope-downslope direction. One of these grooves has features that suggest that it may have been repeatedly lengthened. Some of the grooves are surrounded by rims. The longest groove measures 39 cm. At the bottom edge of the surface another depression shows, also with the appearance of the anterior portion of a left human footprint with toes. Both putative footprints are aligned in an upslope direction. An anthropogenic origin, created by the use of a finger or a stick, seems plausible, augmented by the presence of probable human forefoot impressions. In late 2019, after high tides exposed underlying bedding planes, two further, sub-parallel grooves were noted on a surface 30 cm below the main surface. This suggests repeated use of the site over time.

Only a brief time window

A problem with many of the tracksites that we identified along this coastline is that they are ephemeral. The tracks and traces were made in sand, they were buried and the sediments in which they were made became cemented (lithified) over time. Because of cliff collapse or other forms

Fig. 3: A hashtag pattern that bears a resemblance to reported examples of palaeoart in the region; scale = 10 cm.

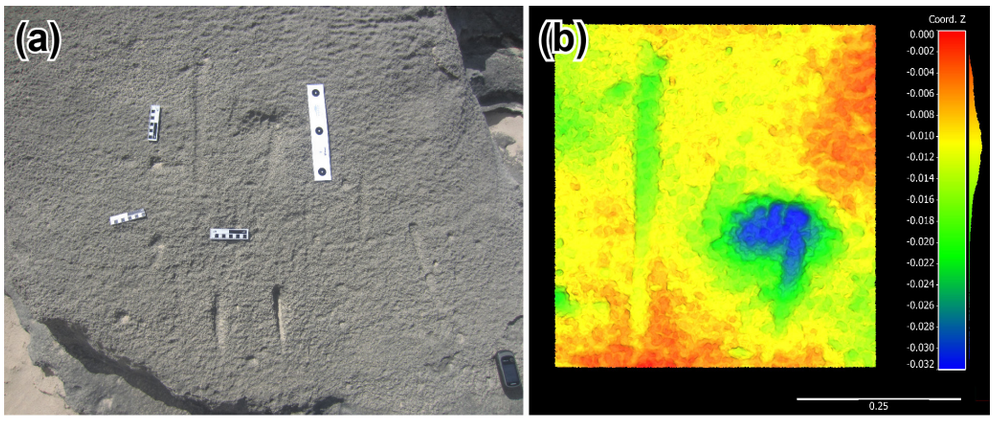

Fig. 4: (a) Multiple groove features clustered around a probable human footprint; scale bars 25 cm and 10 cm; the right lower groove shows possible evidence of deliberate lengthening. (b) Photogrammetry colour mesh of the probable partial human footprint, showing possible digits, spatially associated with groove features; scale in metres.

of erosion, they may then become re-exposed on aeolianite or beachrock surfaces. And then they slide into the sea, fragment or their quality degenerates rapidly as they are eroded by the forces of wind and water. In other cases, rock surfaces are exposed briefly and then become covered by thick layers of sand.

We therefore enjoy only a brief time window in which to try to recover these rocks, or replicate them through casting or photogrammetry, or capture their essence with photographs and descriptions. Repeat visits are desirable and vigilance regarding new areas of cliff collapse or after storm surges is often rewarded with the identification of new sites, while established sites are lost. Indeed, possible ammoglyphs at three of the sites described can no longer be identified and a fourth site is now buried deep beneath layers of beach sand.

While many of the surfaces described occur in situ, three rocks were potentially portable. They lay within the Garden Route National Park, where they were buffeted twice a day by high tides and were at risk of being lost to burial by sand or destruction by people passing by. Following discussions between South African National Parks (SANParks), Heritage Western Cape and the African Centre for Coastal Palaeoscience, these rocks were successfully recovered with the much-appreciated assistance of SANParks personnel. The Blombos Museum of Archaeology in Still Bay acquired formal repository status and kindly agreed to accept these rocks through an agreement with SANParks. They are now on exhibit and are being interpreted for the benefit of visitors.

Conclusion

Ancient art can be recorded on many types of surfaces. This is acknowledged through terms such as pictograph, petroglyph, dendroglyph and geoglyph. Sand surfaces on dunes and beaches have not traditionally been considered a medium capable of preserving palaeoart since sand has been considered to be a perishable medium. However, our enjoyment of this medium nowadays through the creation of drawings, messages or sculptures is readily apparent on beach or dune surfaces frequented by humans.

For taphonomic reasons, works of art made on trees do not persist for as long as those made on surfaces of bone or shell, which in turn do not persist as long as those made on stone. Furthermore, we know from serial visits to San rock art sites that pictographs fade relatively rapidly when considered on a geological time scale. Discussion of protoart therefore tends to be biased towards materials that endure over time (Bednarik 1994). It is probable that such art was commoner in early human history than is apparent through the evidence that has been reported thus far. The addition of another medium through which it can be interpreted is therefore significant.

We have taken samples for Optically Stimulated Luminescence dating studies from these sites and anticipate that the results will fall somewhere within the 70 ka – 158 ka range. Sand is, therefore, far from 'perishable'. Patterns made in it are not necessarily obliterated by the next tide or wind storm but can be preserved and re-exposed, ready for our interpretation if we know where to look and what to look for.

Subsequent to our research paper being published, we have identified what appear to be further probable examples of ammoglyphs and we will be reporting formally on these once we have fully studied them. We hope that if our findings are confirmed and some of our interpretations are accepted, awareness of this previously undocumented form of ancient human expression will open up a new avenue of palaeo-anthropological research.

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WORLD ARCHAEOLOGY

Denisovan jawbone discovered in Tibet

In 1980, a Buddhist monk in Tibet entered a sacred cave to pray. On the floor, he found half a human jawbone with two teeth. A team of scientists has now reported that the fossil belonged to a 160 000-year-old Denisovan, a member of Neanderthal-like humans that disappeared about 50 000 years ago. The fossil is the first evidence of this species found outside the Denisova cave in Siberia, buttressing the theory that these relatives of modern humans once lived across much of central and eastern Asia. The new fossil demonstrates that Denisovans were able to endure harsh conditions on the Tibetan plateau at an elevation of 3 570 m with only simple stone tools. The find also suggests that these Denisovans may have evolved genetic adaptations to high altitudes and that living Tibetans may have inherited those genes thanks to interbreeding between Denisovans and modern humans.

From the 1970s, Russian researchers at the Denisova cave in Siberia found a wealth of bones. A few looked like they might have come from humans or an extinct human relative. Some of the bones were sent to the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, whose experts excel at retrieving DNA from fossils. It turned out that some of the bones contained Neanderthal DNA. But in 2010, Max Planck researchers discovered that one finger bone held different genes from an unknown human lineage. Over the past decade, more Denisovan teeth and bone fragments have been discovered, including a chunk of a skull. Denisovans appeared to have lived in the Denisova cave off and on from 287 000 years ago.

Judging from their DNA, Denisovans shared a common ancestor with Neanderthals about 400 000 years ago. They interbred with Neanderthals and with our own species. Today, people in East Asia, Australia, the Pacific islands and the Americas all carry some Denisovan DNA. The spread of Denisovan DNA in living humans strongly suggest that they may have lived throughout East and Southeast Asia. And perhaps not just there: earlier this month a team of researchers argued that a population of Denisovans reached New Guinea and interbred further with modern humans.

In 2010, Dongju Zhang, an archaeologist at Lanzhou University in China, began studying the Tibetan jaw, which had been languishing in storage. Right away, she could tell it was humanlike but not human. ‘We all have chins, but this doesn’t have one,’ she said. She emailed photos of the jaw to Jean-Jacques Hublin at the Max Planck Institute. Soon he and Dr Zhang had begun a collaboration with other experts to learn more. Chuan-Chou Shen and Tsai-Luen Yu of National Taiwan University handled the task of figuring out how old it was. The jaw still had bits of rock stuck to it and these contained sufficient uranium for measurement. No genetic material had survived but Frido Welker, a molecular anthropologist at Max Planck, discovered ancient proteins in the jawbone’s teeth. The proteins matched Denisovan DNA from Siberia. With the new discovery and other recent finds, a picture of the Denisovans has grown clearer. Everything about their heads seems to have been big, from their giant molars to their thick jaws and their massive brain cases. It is speculated adults may have weighed well over 100 kg.

The discovery of Denisovans living at high altitude is intriguing for the fact that today’s Tibetans share a special genetic link to Denisovans. They ended up with a gene, EPAS1, that promotes health at high altitudes. In recent decades, Chinese palaeontologists have found a number of puzzling bones that are almost human and are tens or hundreds of thousands of years old. Researchers will compare them to the Tibetan jaw and search the fossils for ancient proteins.

Carl Zimmer, 01/05/2019

Babylonian treasure seized

An attempt to smuggle a valuable kudurru, an official document drawn up on the instructions of King Nebuchadnezzar I (about 1126–1103 BC), was foiled when it was seized at Heathrow airport. The 30 cm high stone inscribed in cuneiform, which records benefits bestowed on a particular individual, was looted from Iraq. Suspicions were raised by a declaration that the cargo contained a ‘carved stone for home decoration’ made in Turkey and valued at ‘300’ in an unspecified currency. The British Museum was contacted. The artefact will be returned to Iraq.

The kudurru has not been previously recorded nor published and must therefore come from illicit digging at a site in southern Iraq. The text, which is difficult to interpret as the object is broken and its central portion is worn away, mentions the god Enlil and the goddess Gula and refers several times to the city of Nippur in southern Iraq, where Enlil was the chief god. It must originally have been placed in a temple, as its concluding lines contain curse formulae to safeguard the monument.

Many archaeological sites in southern Iraq were badly looted between 1994 and 2004. According to the British Museum, looting in Iraq is now under control. There is a system of armed archaeological police who patrol and are responsible for the protection of all sites that are currently being excavated. They also patrol the unexcavated ones. *Dalya Alberge, 11/03/2019*

A BURIED VILLAGE IN NEW ZEALAND

Barry Jacoby

The village of Te Wairoa in New Zealand, in which Maoris and Europeans both lived, was buried under volcanic mud and ash in 1886. Excavation of some of the structures in the village has yielded many artefacts and has improved understanding of both Maori and European culture during the late contact period.

Fig 1: The pink and white terraces near Lake Rotomahana. Hocken Collection, University of Otago.

The explosion of Mt Tarawera completely destroyed the Pink and White Terraces near Lake Rotomahana that lies not far from the town of Rotorua on North Island. The terraces were famed for their incredible beauty and were a very popular tourist site. A visit to the area by a son of Queen Victoria popularised the site and many travellers from around the world came to marvel at the beauty of the terraces and swim in the heated pools of the pink terrace. Thermal water flowed down a series of large descending steps. Over time, the terraces were covered by sinter, which is a precipitate of thermal waters carrying silicon dioxide or silica (Fig 1).

The Tuhourangi tribe, who lived in Te Wairoa and other nearby villages, owned the terraces and controlled access to them. Guides from the villages would conduct tourists to the terraces, provide cultural entertainment and canoe transport, and cook visitors' lunches in the hot water pools. The two hotels in Te Wairoa became the centre of the village's social life and the points of departure for tours to the terraces.

By 1870, a series of wars between various Maori tribes had ended, the area was peaceful and tourism to the hot-lakes district had become a boom industry. This led to the growth of Te Wairoa and a decline in farming in the area. One of the more famous guides was Sophia Hinerangi in whose home several people sheltered after the volcanic eruption. Most of the terrace guides were women and the tribe prospered at this time.

Te Wairoa was established near a stream of the same name in the 1850s by a missionary named Seymour Spencer. He planned to lay it out like a model English village and it was later described as being an amalgam of Maori and English settlement patterns. The Maori houses, known as whares, were built from plant material, wood and corrugated iron, and had thatched roofs of fern and other plants. According to a visitor, no two whares were constructed alike. By the time of the volcanic explosion, many European goods were being used by the Maoris in Te Wairoa. Apart from the Rotomahana Hotel and the smaller temperance Terrace Hotel, the village also boasted a mill, two stores, a blacksmith's shop (Fig 2), a school house, a Maori meeting house, a temperance hall, the Maori whares and the homes of the Europeans who worked in the village.

The volcanic eruption

At about 1.30 a.m. on 10 June 1886, the inhabitants of Te Wairoa and the surrounding villages were woken by an earthquake. Mt Tarawera emitted clouds of smoke and quantities of flaming volcanic matter that was thrown into the air and into the lake. Soon thereafter, the Wahanga crater erupted, to be followed an hour later by the eruption of the Ruawahia crater.

Barry Jacoby, a committee member of the Northern Branch of the SA Archaeological Society, is a retired attorney, the author of two books of short stories and an enthusiastic amateur archaeologist. He has excavated with Prof. Jose Braga at Kromdraai, worked over a seven-year period at Swartkrans with Dr Morris Sutton, and excavated his own site, Goldsmith's farm. barrydane45@gmail.com

Mt Trawera itself erupted at about 2 a.m. There was a strong wind and deluges of mud, stone and basalt cinders descended on the surrounding countryside. The volcanic eruptions continued along the cleft of the volcano, the lava ultimately reaching Lake Okaro by 2.30 a.m. and Lake Rotomahana by 3.20 a.m. The eruptions continued until 5.30 or 6.30 a.m., but volcanic material was discharged by the lakes for a further 10 to 12 days.

Over a metre of mud and ash fell on Te Wairoa. This was preceded by red-hot rocks coming down the hillside, which caused bush fires. Steam and water from the erupting lakes caused mud showers that also fell on the village. The flimsy buildings and whares could not withstand the weight of the rain of mud and many collapsed. No building in the village was usable after the eruption. Even the town of Tauranga lying some distance away was covered in ash and all the boats on lake Tarawera were destroyed. The noise of the repeated eruptions was so loud and continuous that people thought that a warship had run aground and was firing distress signals.

Fortunately, the eruption occurred at the end of the tourist season, but one visitor was killed when part of the the Rotomahana Hotel collapsed. About 120 Maoris and 15 Europeans lived in the village but Maoris from other villages were visiting Te Wairoa at the time to attend a funeral and many of them were killed. Over 100 people died in the eruption. They were either killed by falling stones and hot mud or crushed in collapsed buildings. Terrified Maori and European survivors sought shelter in whares and the Maori meeting house. After the eruption, Sophia Hinerangi had very little clothing left, having given most of hers to survivors. `

The eruption was heard and felt as far away as Wellington. The whole country from Tauranga to Lake Taupo was covered with smoke. One survivor said that the countryside looked like an English landscape after a heavy snowstorm. Soon after the eruption ended looters ransacked the store, private homes and the liquor cellar of the hotel (Fig 3). Both hotels were virtually destroyed in the explosion. It has been recorded that the insurers of the Rotomahana refused to honour their contract and did not pay the owner a cent. It is not known where the Maoris or Europeans went to after the loss of their homes and businesses. The village was not rebuilt.

Fig 2: The grindstone recovered from the Blacksmith's workshop in Te Wairoa (photo B Jacoby)

Fig 3: The cellar of the Rotomahana Hotel

The buried village and the new thermal features became a tourist attraction not long after the eruption. Visitors came from considerable distances on horseback along a bridle path to see the damage. A few rooms in the Terrace Hotel were made habitable and provided rudimentary shelter. By 1906 a tea kiosk and accommodation house had been established nearby to cater to the increasing number of tourists who visited the now famous buried village.

In 1931, the tearoom, which had been closed for 20 years, was sold to a Reginald Smith, whose two sons, Dudley and Basil, became interested in the buried ruins of the village and began to excavate some of them. Basil Smith was killed during World War 2 but Dudley continued to excavate the site on his return. In 1994 Phil Smith and Pamela and Patrick McGrath acquired ownership of the site and began to establish a museum of the artefacts recovered from the village (Fig 4). Some of the excavated whares and houses have been rehabilitated to recreate the old village (Fig 5). Today part of the area is owned by the Smith Trust and the Tuhourangi tribe.

Even though the hotel's liquor cellar was looted after the eruption, much of the cellar survived. Large amounts of ceramics were recovered by Smith and his sons from the collapsed pantry. The hotel owner recovered five wagonloads of goods from the wreck of the hotel but there was also much free-lance digging and looting. However, the dining room was found undisturbed and archaeologists later recovered a woollen table covering, some spoons and broken glass ware.

Fig 4: Artefacts from the village in the museum at the tea shop

Professional excavation by archaeologist Alexy Simmons, funded by the Department of Conservation and the New Zealand Historic Places Trust, took place over less than a month in early 1990. Two separate projects were undertaken, the first to make a proper record of the artefacts collected over 50 years and the second to excavate two whares and the rest of the Rotomahana hotel. The excavations also tried to establish the degree of integrity and contents of remaining parts of the hotel and whares in the light of the looting that had taken place after the eruption. It was important to record and map the location of organic and metal artefacts since not many of these had been recovered previously. Other issues of interest related to the lifestyles of the Maoris who lived in the whares and the amount of European goods they used.

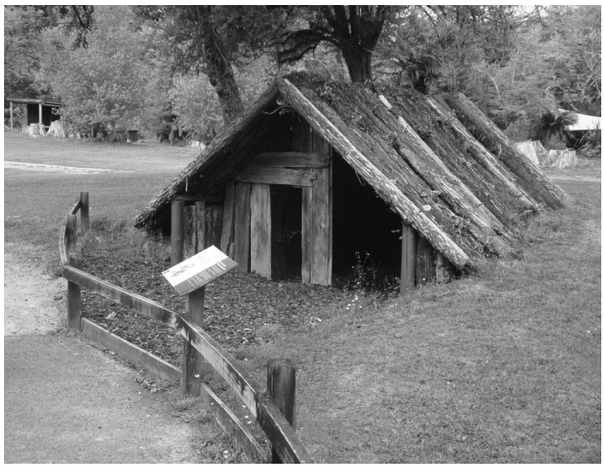

Fig 5: A reconstructed whare that had been partly buried (photo B Jacoby)

The artefacts recovered from the hotel, which constituted the majority, included several tea sets produced by a number of manufacturers in England, among them a Willow set by Blair China. More than one Asiatic pheasant-type tea set was recovered. Doulton and Thomas Furnivall and Sons toilet ware were found along with a number of chamber pots. Table ware, fine drinking glasses and plates were excavated. Analysis determined that the Rotomahana Hotel was more up market than other hotels in New Zealand, possibly because of the number of overseas tourists who stayed there. Also recovered were ceramics that post-dated the eruption. It is not known where these came from.

Time did not permit more than one whare to be excavated. A midden on top of this whare contained various broken items similar to those found at the hotel. Other items that were not from the hotel were also recovered from the midden. Alexy Simmons believes that the collapsed whare became a dumping site when Smith and others excavated the hotel and surrounding whares. Rubbish was also left there by picnickers and campers. Both Maori and European artefacts were found in the midden, including broken window glass, medicine bottles, broken ceramics similar to those from the hotel, a button and part of a woollen garment. The whare itself yielded the remains of wooden vertical posts, fragments of broken board and corrugated iron from the roof.

The only artefacts recovered from it that may have belonged to the original owners were from where a cupboard may have been situated, comprising fragments of a whisky flask, a medicine and other bottles, fragments of a glass, a scrubbing brush and some ceramic and lamp fragments. No artefacts of Maori origin were found. The excavation by Simmons has shown that further work on the site will provide valuable information of the modification of the Maori culture by its exposure to English Victorian culture and artefacts during the missionary period and the latter part of the European contact period.

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ARCHAEOLOGY IN AFRICA

Ethiopia: ancients lived at extreme heights

Archaeologists have discovered what is considered the oldest evidence of human occupation at extreme altitudes: a rock shelter strewn with bones, tools and hearths 3 353 m above sea level in the mountains of Ethiopia occupied as long as 47 000 years ago. The research, reported in *Science*, contradicts the long-held view that high elevations were the last places on earth settled by humans. In East Africa, paleoanthropologists have long focused their attention on the Rift Valley and other archaeological sites at lower elevations. The high-altitude humans thrived as hunter-gatherers, subsisting on roasted giant mole-rats and glacier-fed streams. They crafted stone tools from a nearby outcrop of obsidian and they occupied the rock shelter, off and on, for at least 16 000 years.

In recent years, expeditions to mountains and plateaus have turned up clues of high-altitude human occupation tens of thousands of years ago. In 2018, for example, a team of researchers working on the Tibetan Plateau found stone blades and other artefacts dating back over 30 000 years. More recently, another team discovered the 160 000-year-old jawbone of an extinct human relative, known as a Denisovan, in a high-elevation Tibetan cave (see page 19). In Africa, even more tantalising clues have come to light: simple stone tools that appear to be hundreds of thousands of years old have been found at high elevations in Ethiopia. Still, it is hard to know whether these findings mean that humans were living at these altitudes or just making a brief sojourn.

To get a deeper understanding of life at high elevations, Dr Götz Ossendorf, an archaeologist at the University of Cologne, began a project in the Bale Mountains of southern Ethiopia in 2015. They travelled over 1 100 km on foot and with pack horses in search of signs of early human occupation. They found 331 rock shelters with signs of human occupation. Almost all had been visited in recent centuries by livestock herders, making it difficult to examine the sites for truly ancient human remains. But one rock shelter they called Fincha Habera was undisturbed, thanks to its low ceiling. When the scientists dug into the shelter floor, they quickly turned up hearths, animal bones and tools made in the distinctive style of the Middle Stone Age, which lasted from about 300 000 years ago to 28 000 years ago. Carbon from charcoal still in the hearths was dated to 47 000 to 31 000 years old.

The Fincha Habera occupants made a great number of obsidian tools, traced to an outcrop nearby at an elevation of 4 175 m, and their menu was dominated by one entree: giant mole-rats, a species that lives today only in the Bale Mountains. During the Ice Age, parts of the Bale Mountains were covered by glaciers that fed rivers year-round. These were flanked by forests that may have been home to antelope and other game. Some researchers have viewed extreme altitudes as refuges of last resort, where people went only if the surrounding lowlands became unliveable. But at the time that people lived at the cave, the lowlands were wet and had plenty of game. *Carl Zimmer, 08/08/2019*

A Middle Stone Age obsidian point found at the Fincha Habera rock shelter (photo G Ossendorf)

Lee Berger announces another find

Humanity's ancient family tree is set to be shaken up by fossil skeletons found at the Cradle of Humankind north-west of Johannesburg. 'We have another major hominin discovery,' Lee Berger announced to *New Scientist Live* in October 2019. The new fossil remains are located near the Rising Star caves but are embedded in very hard rock. So could this be another new species? 'I don't know. We haven't got them out of the rock yet,' said Berger. 'All I have is a glimpse of several individuals and they are not very tiny.'

The large size of the jaw and teeth means that the skeletons do not belong to the diminutive *H. naledi* and are not *A. sebida* either, he said. One possibility is that they are another species of the ape-like *Australopithecus.* But this is just one of many new sites with remains of hominins 'known or unknown' awaiting excavation that Berger and his team have discovered. 'We have a multitude of early hominin discoveries at different sites,' he said. 'Now we're in this period where it's exploding, where we're finding that these things are not as rare as we thought. We were often just looking in the wrong place or with the wrong eyes.'

While we wait for these bone treasure troves to be excavated, we can expect new insights into *H. naledi* too. Although the first attempts to extract DNA from the skeletons did not succeed, studies are ongoing and will hopefully reveal where this species fits on the hominin family tree. 'Molecular studies are in play,' said Berger. *Humans, 14/10/2019*

Corner Café, Aberdeen, 2019 by John Kramer
Oil on canvas, 30 cm by 50 cm

The South African Archaeological Society

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

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

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