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ARTEFACTS

Reports covering the period January to July 2014

EVENING LECTURES

Through the skin: the meaning of rock and skin markings at Namaratung'a in Northern Kenya (6 February 2014)

Thembi Russell, School of Geography, Archaeology and Environmental Sciences, University of the Witwatersrand

Thembi Russell told us of research she has done at an ancient cemetery in Namaratung'a, Northern Kenya. This cemetery is situated in a sandy desert area. It consists of 167 burial places indicated on the surface by circles of large stones or megaliths, many of which have been decorated with geometric engravings. Similar engravings can be found on a rocky outcrop near the cemetery. The current residents of the area are Nilotic-speaking Turkana pastoralists who brand the skin of their livestock with geometrical markings that seem similar to the rock engravings. Russell wanted to investigate whether there was a link between the Turkana and the occupants of the graves.

Excavation of this cemetery by BM Lynch in the 1970s revealed that each grave consists of a double chamber sealed with a large rock that contains a single male or female, adult or child skeleton. The distribution of megaliths on the surface cannot be used to identify the occupant of the grave, and it is often difficult to determine where one grave stops and another begins. Much speculation surrounds the origin of the site. Lynch proposed that it was one of three sites constructed by Eastern Cushitic pastoralists and dated it at 300 BC. Subsequently, other archaeologists have disputed the date (Lynch had obtained two dates: 300 BC and AD 700), the linking of the sites and the nature of the economy of the people who built the sites. Its fixed location is at odds with the nomadic lifestyle of pastoralists.

Russell's interviews of the current inhabitants, the Turkana who have lived in the region since about AD 1500, revealed that they probably had no connection with the people buried at the site. Turkana folklore accounts for the ancient cemetery in the following way: A woman stranger appeared at a dance and asked the assembled crowd not to laugh at her, but her clothes were so outlandish that they did, in fact, laugh and were immediately turned to stone. While the Turkana do brand their livestock, they do not engrave stones. When asked by Russell to propose a reason for the engravings, only the oldest inhabitant had one: '*They are animals that have been turned to stone; how else could brand marks be on stone?'*

Intricate livestock branding

Although the Turkana do brand their livestock, they do it for a number of complex ritual reasons rather than to indicate ownership as the ancient Cushites are reported to have done. The Turkana only brand male animals and not every animal is branded. Often only the best or favourite animals are branded and the practice is thus used as an opportunity to show off. Similarities between the stone engravings and livestock branding is probably the result of mimicry as many markings on Turkana livestock are not similar to those of the stone engravings. Often they mark their animals by cutting notches in their animals' ears, but the same individual will use different symbols on different species of animal. The Turkana believe the skin of an animal acts as the interface between this world and the next, and the act of cutting or branding the skin of animals thus enables humans to access the spirit world. Livestock with the same clan marks are guarded by the spirits of the same ancestors. This joins livestock, humans and ancestors together. Since stone cannot be used to communicate with the ancestors, brand marks lose their purpose when placed on any surface other than skin. This belief system contrasts strongly with that of the San hunter-gatherers of South Africa who see rock as the interface or *veil* between this world and the next. The Turkana thus access eternity 'through the skin' rather than 'through the veil'.

The Turkana believe that nothing survives beyond a lifetime and everything they mark is perishable. This philosophy of leaving no lasting monument extends to their burial practices. Only married people are buried; men are buried in their kraals and women in their huts. Although they are classed as Nilotic-speakers, evidence exists elsewhere in East Africa that when Cushites adopted cattle they also adopted not only many Nilotic cattle-keeping practices, but also the language, as it was better suited to describing the rituals associated with cattle. So although the Turkana are Nilotic-speakers, they may have a Cushite heritage.

Russell concluded her talk by describing some of the rituals associated with cattle and other animals (like many surrounding tribes the Turkana keep cattle for milk and blood), and comparing the rock engravings at this site with engravings found at other sites in East Africa. In Russell's opinion, it is counterproductive to try to ascribe an ethnicity to rock art, as some symbols seem to be universal and different meanings may have been ascribed to the same symbols. Instead she recommends using the patina on the rock engraving to establish a chronology and then to analyse the rock engravings motif by motif and site.

Report by Louise Mackechnie

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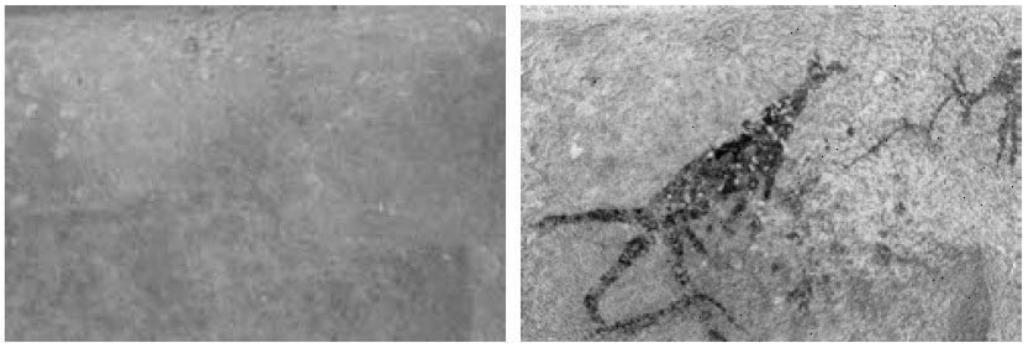
Digital imaging and the revelation of 'hidden' rock art: the Vaalekop rock art site, KwaZulu-Natal (6 March 2014)

Dr Jeremy Hollmann, research fellow at the University of the Witwatersrand

The technology for documenting rock art has been revolutionised by Kevin Crause, a software designer and professional photographer, who founded the company Fingerprints in Time, based in Stellenbosch. Many surfaces that rock art researchers overlook, seeing only a smear or a smudge of paint, are now revealing hitherto invisible images. The nature of this technology and its implications for the future of rock art studies was the topic of archaeologist Jeremy Hollmann's fascinating talk. Jeremy worked with Crause to photograph and uncover the hidden imagery of the Vaalekop rock art site near Rosetta in the KwaZulu-Natal Midlands. The site will soon be flooded by a dam that is being constructed in the upper reaches of the Mooi or iMpofana River. It is 1,5 m by 1,2 m in size and depicts a white rhebuck and a foreshortened rear view of a bichrome eland. Hollmann was tasked by the construction company to photograph and document the site. He also excavated a test pit and was able to remove the slab of painted rock to the KwaZulu-Natal Museum.

The paintings were photographed through what Crause calls the CPED process, named after the four phases – Capture, Process, Enhance and Display – that make up the process. Capture consists of digitally photographing the art and its context by using high-resolution, digital-medium format and SLR cameras, thereby providing a 360° panoramic sequence. The processing, enhancement and display components are labour-intensive and require the use of 16-bit RAW image data from the cameras. In the lab, these RAW images are worked on with Adobe Lightroom™ and then Adobe Photoshop™. Photographs are enhanced using algorithms designed to resolve details in the imagery that cannot be adequately resolved by the naked eye under normal light conditions. False colour, greyscale colour and colour-balanced images are produced. The display modules produce interactive virtual and augmented-reality datasets that facilitate pan, zoom and scan viewing of the data.

The ability of the CPED process to show up new detail of images on the rock face is incredible. In the case of the Vaalekop paintings, we see that the foreshortened eland is squatting, possibly in a mating or urinating position. It is associated with a figure of a human bending forward, which, on the rock face, is invisible to the naked eye. Another seemingly unpainted area on the panel reveals a row of dancing figures. The CPED process changes how researchers perceive rock art. The technology allows them to observe the site and its surrounding environment in its entirety in place of the common practice of scrutinising individual images without relating them to their wider context. Moreover, researchers are no longer dependent on 'well-preserved sites' for data.



CPED reveals art where none appears to be present!

This development places rock art researchers in a quandary. They are now questioning what they have been able to achieve through previously used recording techniques. They have been tracing sites for the last 30 years with good results. However, Crause's technology obviates the need for contact tracing. The drawbacks of contact tracing are numerous. Tracing can damage the paintings and it is subjective and interpretative. The conventions used in tracing and redrawing reduce the complexity of detail seen in the paintings.

The biggest hurdle at present in using the CPED process is related to cost. The technology is extremely expensive and there is only one person – Kevin Crause – who has the expertise to use it. The development of a Heritage Imaging Laboratory at Wits University is in the pipeline, but Hollmann intimated that the benefits of the CPED process should be shared as widely and as soon as possible. He himself is learning from scratch how to use the software, and encourages other researchers to do the same.

Report by Law Pinto

Viewing the traditional collections at the Johannesburg Art Gallery: beyond the modernist gaze (3 April 2014)

Nessa Leibhammer, former curator of Traditional Southern African Art, Johannesburg Art Gallery

Westerners have been interested in collecting cultural objects from Africa since at least the 18th century. Until quite recently these objects were seen primarily as 'tribal' curios and found their way into museums rather than art galleries. It was not until the early 20th century that artists and art critics in Europe and North America began to 'discover' African art. And it was not until the era of decolonisation after World War II that museums in the West began to see certain pieces in their African collections as aesthetic objects, and to display them as art rather than as curiosities or objects of ethnographic interest. A striking example is to be found in the Musée du quai Branly in Paris, which was inaugurated in 2006. Here the items on display are beautifully mounted and lit but, as in most museums, they remain in the realm of 'traditional' tribal ethnography, without histories to give them individual life and meaning.

In her talk, Nessa Leibhammer introduced us to a way of thinking about African collections in museums and galleries that breaks decisively with the modernist notion of the 'tribal'. Ms Leibhammer was until recently curator of Southern African traditional art (the name itself is telling) at the Johannesburg Art Gallery (JAG). She has a deep knowledge of the world of art and the world of museums in South Africa. By way of introduction, she took us through a brief history of JAG since its origins in 1915 as an institution aimed at uplifting 'the colonial philistine' in a rough, young mining town, in the words of its founding spirit, Lady Florence Phillips. At first the directors of the gallery focused exclusively on collecting European paintings, graphics and sculptures, and in fact succeeded in putting together a collection that for its time was exceptional in a colonial city. It was not until the 1930s that the directors began buying works by white South African artists, and not until the late 1970s and 1980s, in a time of deep-seated political change in the country, that they began regularly buying works by black artists.

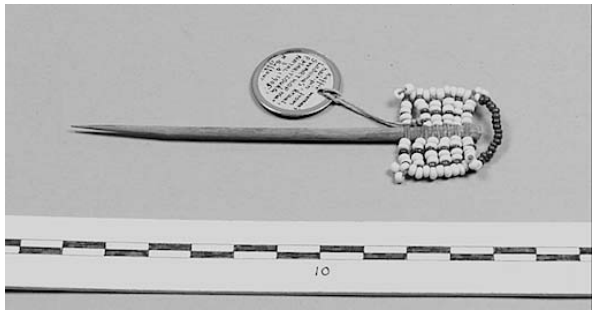
The policy of collecting works by artists working in a Western mode continues to the present,

but since 1987, following international trends, JAG has also been buying items made in what can be called a southern African indigenous aesthetic. These include items of dress, beadwork, pottery, woodwork, basketry and metalwork, some of them used in daily life, others in ceremonial contexts, and still others to display political and social prestige. But, quite unlike items of Western art, they have been seen as belonging to timeless 'tribal' traditions, with labels such as 'Zulu', 'Xhosa', 'Sotho', etc. standing in for information about the individual artist and the time and place of making. If any individuals appeared in their stories it was the collectors.

Thus, while these items moved into the world of art, they continued to be seen as ethnographic objects outside history. Collectors and curators showed virtually no interest in the particular contexts in which they had been made and used. And, in contrast to objects from West and Central Africa, which are often seen as 'masterpieces', objects from southern Africa have attracted little international interest because of their small scale and the apparently utilitarian purposes for which they were made.

Curators of African art have often argued that they cannot place the items in their care in historical contexts because there is simply no historical information available. But, as Nessa Leibhammer went on to show in the second part of her talk, a bit of imaginative detective work can sometimes go a long way towards digging up the story of a particular item out of museum records, and giving historical agency to its makers and users. The written labels attached to particular items may contain brief historical pointers that can be followed up in accessions registers, catalogues, correspondence files, photographic collections and long-forgotten research reports. Perhaps only a small minority of collected objects will have left this kind of information trail, but the point is that in these cases the obstacle to historical contextualising is not so much the absence of information as the ingrained cultural attitudes of the curators.

The detective story told by Ms Leibhammer began when she was trawling the website of the Pitt Rivers Museum in Oxford and found references to eight items collected in the colony of Natal by Henry Balfour, who had been appointed as the first curator of the museum in 1890. Unusually, the attached labels and the relevant accession books recorded precise dates and places of collection. One of the labels was attached to a woman's hairpin and carried the information that it came from 'Laduma's kraal, Swartkop, near P.Maritzburg, Natal, 1905'. Sometime later, during a research trip to Cambridge, Nessa found an identical pin in the Museum of Archaeology and Anthropology that had been collected by Alfred Haddon, a lecturer in ethnology at Cambridge, at the same time and place.



Above: The hairpin collected by Henry Balfour (Pitt Rivers Museum)
Left: Chief Laduma kaTetelegu in 1905 (Pitt Rivers Museum)

The trail grew hotter. From Balfour's diaries in the Pitt Rivers Museum, Ms Leibhammer discovered that in 1905 he had visited Natal in the course of a tour of South Africa by the British Association for the Advancement of Science. From Haddon's papers in the Cambridge University Library she learnt that he had participated in the same tour. On Saturday 26 August 1905 both men had been part of a group that caught a train from Pietermaritzburg to visit the homestead of Chief Laduma in the Swartkop location a few kilometres to the west. Here they witnessed a spectacular dance, drank beer in Laduma's hut, took numerous photographs (preserved in the Pitt Rivers Museum and the Museum of Archaeology and Anthropology) and bought 'ornaments etc. from natives' (Balfour's words). Almost certainly these included the hairpins, which, more than a hundred years later, caught Nessa Leibhammer's trained eye.

But this is not the end of the story. It seems that soon after his return to Cambridge, Haddon handed over the objects he had collected to the care of the Museum of Archaeology and Anthropology. The staff who were responsible for accessioning and cataloguing seem not to have consulted Haddon about their provenance of the objects and, following common practice, simply gave them a tribal label, namely 'Zulu' objects from 'Zululand'. Thanks to Nessa's research, we now know that this identification is deeply misleading. Neither Haddon nor Balfour had been anywhere near Zululand. And Chief Laduma, son of Tetelegu, was not Zulu but of the Mpumuza people who had moved away from the southern borderlands of Dingane's Zulu kingdom in the 1830s and had come under British colonial rule in Natal in the 1840s. To label them and their material culture as 'Zulu' is to flatten out the specifics of their history.

In this painstakingly researched context, the hairpins of the story ceased to be tribalised, historyless objects lying in the drawers of museum collections in Britain, and became items made among the Mpumuza people in the colonial society of Natal sometime before 1905. They are now potential sources of history in their own right. At a time when historians in South Africa are seeking to understand deep-seated notions of the 'tribe' in historical terms, we need many more such stories about the objects that we gaze at in our own museums and galleries.

Report by John Wright

My heart stands in the hill: casting light on rock engravings in the /Xam heartland (15 May 2014)

Dr Janette Deacon, honorary secretary of the South African Archaeological Society

Following the Trans-Vaal Branch Annual General Meeting on 15 May, members had the pleasure of listening to a presentation by Janette Deacon the making of her 2005 book, *My Heart Stands In The Hill.* The book was a collaboration between Janette and the photographer/filmmaker Craig Foster. The story behind the book goes back to the 1870s when Wilhelm Bleek and Lucy Lloyd filled nearly 11 000 pages with /Xam testimony and English translation. The work of Bleek and Lloyd lay forgotten for a hundred years until in the 1970s when Patricia Vinnacombe, Roger Hewitt and David Lewis-Williams re-evaluated the notebooks and came to realise their great importance to the interpretation of San Beliefs and especially their rock art. Included in the archives was a map drawn by Bleek with information from //Kabbo, one of the /Xam men interviewed by him, about where he (//Kabbo) and his family lived.

Inspired by the work of Vinnacombe and Lewis-Williams, and intrigued by the map, Janette set out in 1985 to visit the Northern Cape area where the /Xam had lived, and over a number of years located and visited may of the places marked on the map. Many still have almost the same names today. Janette related that while finding these places and seeing them in context, she 'began to realise how integral the landscape was to their beliefs'. She wanted to 'explore any clues she could find in the /Xam records that would confirm that the 19th century /Xam and their ancestors had done engravings and that the recorded memories could be legitimately used to decode them'. Bleek wrote that rock art was about things 'that most deeply moved the Bushman mind'. Although it took a century for Bleek's remark to be taken seriously, Vinnacombe and Lewis-Williams, working independently, made the connection between the remarks of the /Xam recorded by Bleek and Lloyd, and the trance rituals still practised by the San in the Kalahari.

One way to try and probe the meaning of the rock art is to accept that the landscape and its inhabitants provide inspiration for metaphors and symbols used in the spirit world. Visiting the landscape and reviewing the archives of Bleek and Lloyd showed that many of the /Xam stories illustrate the layers of meaning in relation to landscape and rock engravings. In the book, Janette discusses one of the stories that best illustrates this – the story of how a lizard became a mountain. Bleek and //Kabbo's map identifies */itten/hin* or Lizard Mountain as the 'Strontberg', which today is known as the Strandberg and lies on the western side of the road between Kenhardt and Van Wyksvlei. The three hills which were formed by the lizard's body being broken by the mountain are drawn and named in the archives. There are about 150 rock engravings on the three hills. Janette feels that the bond the Bushman have with the landscape they lived in is often overlooked and that the landscape of the Xam-ka is like their theatre. She wanted to express this in a non-academic way and the challenge for her was how to do this.

A chance meeting with Craig Foster, who had won acclaim for two films on the Bushman (*The Great Dance* and *Cosmic Africa*), led to a decision to collaborate on a book as envisaged by Janette. Craig began to take photographs of the landscape and the rock art. Craig and Janette got to know the rock art really well and they could feel the presence of the /Xam on the landscape, but they had no images to convey this feeling. The idea of 'taking the ancestors home' was born and the next part of their pilgrimage to produce the book began. The first step was to photograph all the faces of the /Xam that were in the archives in Cape Town using 35 mm slide film. The next step was to project the images of these people back into the landscape where they had lived in the 1870s. The landscape they had deeply loved and from which they had been forced away.

With their slides, Janette and Craig travelled to the land of the /Xam to project them onto the landscape and to photograph the projections. The first time they experimented with projecting images of people onto the landscape was on the banks of the Riet River near Kimberley, and they soon realised that they could project the pictures onto almost any background. They returned again and again to the /Xam heartland to the take the people back to where they had lived. The result is an amazing collection of photographs of these projected images, such as the following:

- //Kabo's photograph on cracked mud around the waterhole at Bitterpits, where he had lived and longed to return.
- /Kan's photograph (he had a scar on his face from a fight with a leopard) on a rock covered with lichen, and also on a leopard tortoise shell.
- Yarisho's photograph on a piece of rusted metal found in the veld to symbolise the breaking up of the /Xam world.
- A group photograph taken at the Breakwater prison in Cape Town on a dolerite boulder, thereby returning the men to 'the heart of the hill'.

In the words of Craig Foster: 'In many ways what we were doing wasn't dissimilar to some aspects of the trance experienced by the /Xam medicine people. In trance they would see ancestral spirits huge and often transformed into animals or trees. The luminous quality of the light is similar to altered state visions, when images are often seen as two-dimensional. In a small way the process had mended some of the broken strings that had been severed when the /Xam had been removed from their land of their ancestors.'

Janette and Craig were concerned about the reaction that /Xam descendants might have to this use of the photographs. In order not to offend them, they contacted N/u-speaking San elders (via the SA San Institute – SASI) and discussed the project with them, showing them both some rock art and the slides. The elders agreed that the method used to honour the /Xam was both appropriate and a powerful reminder of their presence.

My Heart Stands In The Hill tells the intertwined story of some of the /Xam Bushmen and European settlers, the spiritual travels of 'medicine men' and 'rock artists', and the pilgrimage of Janette Deacon and Craig Foster who symbolically return the images of the /Xam to the landscape that was their home. Janette's presentation was a fascinating insight into the story behind a beautiful book that celebrates the /Xam, as well as the work of pioneers Bleek and Lloyd.

Report by Anne Raeburn

Much ado about dinner (5 June 2014)

Christine Sievers, School of Geography, Archaeology and Environmental Sciences, University of the Witwatersrand

Dr Christine Sievers challenged us to think about the sequences involved in getting food onto our tables, a task that uses only a fraction of our day. Consider the purchase and preparation of a ready-made meal. This modern-day convenience is the result of over 10 000 years of experimentation and hard work. Dr Christine Sievers is an archaeobotanist and her interest in food is in the gathering, intensive collecting, cultivation and finally the domestication and modification of plants.

The interrelationship between people and plants not only changed our landscape, but diet had also been a driving force in our evolution. She used comparisons between chimpanzees (our closest relatives) and gorillas to highlight this point. Chimpanzees access a number of diverse food sources, using sticks to dig up roots, stones to crack nuts and sponges to collect water. They even hunt to obtain protein, so they are less dependent on a single food source when food is scarce. Gorillas, on the other hand, adapted their bodies to get more nutrition from the plants that dominate their diets, their large stomachs being an indication that they ruminate to some extent.

Chrissie Sievers explained that it is possible to use carbon-dating to establish the diets of an animal whose bones are being analysed because of the way plants process carbon in the form of carbon dioxide from the atmosphere. Carbon dioxide is converted into carbohydrates, which plants use as food. Depending on the plant, it may form carbohydrates with either three carbon atoms (C3 plants) or four carbon atoms (C4 plants). Grasses and cereal crops, which require a warm growing season and are abundant in tropical areas, form C4 carbohydrates, while trees and shrubs that produce fruits and vegetables require a cool growing season and form C3 carbohydrates. (Succulents form a third type of carbohydrate known as CAM). Since carbon atoms occur naturally in three different forms called isotopes (carbon-12, carbon-13 and carbon-14), the presence of carbon-13 can be used to identify whether a C3 or a C4 plant has been eaten. C4 plants incorporate more carbon-13 into their tissue. When carbon-dating was applied to early

hominoids, it was found that they had carbon-13 profiles that were similar to those of modern-day chimpanzees, an indication that they probably had similar diets.

Dr Sievers has used microscopic images of the contents of ancient middens to establish that a C4 plant, the purple nut sedge, was eaten by some peoples in the past. Other archaeologists have found evidence of this plant in paleofaeces from the Middle East dating back about 18 000 years. Only the bulb of this plant is eaten and although high in protein, it is poisonous if eaten raw, so processing must have taken place. Christine speculated that a lot of trial and error must have been involved in bringing this plant to the table in an edible form. Fires were probably the earliest way of processing food, and evidence of fires in dwelling places dates back one million years. More recent evidence exists that processes such as grinding, leaching, roasting and cooking were used to make inedible food edible and to add variety to the diet.

Evidence that grasses were being processed using grindstones was discovered when the Ohalo II cave in Israel, which dates back to about 23 000 years, was excavated. Over 90 000 plant remains were identified, including 16 000 small-grained grasses such as wild barley, wild emmer and wheat. Grindstones are not always present at ancient settlements and to understand these ancient cultures comparisons are often made with the 'stone-age' cultures of our time. In Australia, the Aborigines use portable wooden grindstones and ancient cultures could have used similar objects. Aborigines also use several techniques to extract nourishment from the produce around them, as other ancient cultures probably also did. Dr Sievers recommended watching Ray Mear's series *Wild Foods*, which that documents these techniques.

Eating the stomach contents of animals is a food-processing technique that is still practised by some cultures to this day. For example, the Inuit consider the stomach contents of reindeers (known as chyme) to be a great delicacy, probably because they contain mosses and grasses. In an environment where nutrients are scarce, chyme is probably essential for a healthy diet. There are tales from early North America of how buffalo hunters would squabble over who got to eat the guts of the animal, to which many health benefits were attributed. In Africa, porcupine chyme is highly valued as these animals are thought to eat medicinal herbs.

The consumption of food today is accompanied by ritual. Food can only be prepared in specific rooms and consumed in others. Specific foods are eaten at specific times of the day (e.g. breakfast) and at specific events (e.g. wedding cake). Food can also be used to indicate status. There are luxury foods and drinks such as oysters, chocolates and whisky. In South Africa there is even a culture of 'izikhothane', where the younger generation show their status by publicly discarding perfectly good food. In cultures with limited resources, such as that of the San, a strict practice of not allowing anyone to have a higher status is enforced and food must be shared out evenly. However, the growth of agriculture has enabled surpluses to come about and this may have introduced inequalities. Recent archaeological finds in Canada along a short stretch of a river showed that the middens of people living in a better location on the river had the most bones. This led Dr Sievers to ponder the question whether the greatest inequalities develop in areas with bountiful resources.

Report by Louise Mackechnie

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Beyond borders: new light on LSA human behavioural variability in southern Africa (10 July 2014)

Justin Pargeter, Department of Archaeology, Stony Brook University, New York

Humans exhibit differences in behaviour and technology to a greater degree than any other primate. Documenting the prehistoric evolution of our capacity for behavioural and technological variability leads inevitably to the Later Stone Age (LSA), arguably the most variable of all the African Stone Age periods. Justin Pargeter explored the dynamics of the LSA, focusing on stone tool technologies and their role in the evolution of human cultural variability. He is investigating the evolution of hunter-gatherer behaviour during this period in southern Africa in particular.

Researchers are still in a relatively exploratory phase of understanding what the LSA is, in particular in the realm of lithic technologies. Justin showed that the LSA is the not the same thing as the Upper Palaeolithic. The LSA starts about 55 000 years ago in East Africa and about 30 000 years ago in South Africa. The *Homo sapiens* stone tools show gradual change and all are microlithic. The Upper Palaeolithic is dated at about 45 000 years ago in Western Europe, when *Homo sapiens* and *Homo neanderthalensis* were both living there, and in South-west Asia. Stone tools show punctuated change and are not fully microlithic until less than 10 000 years ago. The LSA is not a purely lithic concept. It is a culturally diverse period, where elaborate burials and graves are present, art like that at the Apollo 11 site in Namibia is found, and the use of coloured pigments and ostrich egg shell beads shows complex human thought and activity.

Homo sapiens individuals did not all look alike in different parts of Africa. In the LSA, cooler climates gave rise to adaptations and in Africa there is a great variety of lithics. Technology and social connectivity become very important. In the late Pleistocene, human behavioural flexibility and variability, environmental and social changes, and more frequent *Homo sapiens* dispersals led to technological evolution. This set the stage for the Holocene, when people began living in villages and producing their own food. Pargeter showed the variations in LSA technology in Australia, China, North America, the near East and North Africa.

The micro-technological age we now live in (dominated by smaller, more mobile and powerful technologies) has a long evolutionary history, potentially beginning with the processes of microlithisation that flourished in the LSA. In this sense microlithisation is more than a tool size, but is a concept and an evolving approach to technology. In southern Africa one particular technology, the bipolar, features prominently in the LSA and in discussions about the evolution of microlithic technologies.

A component of Justin Pargeter's current research involved working in the Lesotho Highlands at a site called Sehonghong, which has a 110 000-year-long sequence of human occupation. Here he found a decreasing role of bipolar technology accompanied by the increasing use of more formal technologies, such as punch and pressure techniques to produce microliths. His ultimate question is: why does this matter? His arguments is that the microliths show greater investments in technological transmission, sharing and skills development through time. His documentation of the changing role of bipolar technology is a way to track these behavioural changes through time and provides a way to assess evolutionary events in the LSA in South Africa.

Report by Hilary Geber

EXCURSIONS AND OUTINGS

Outing to the Coosner Wedgwood collection, Pretoria (16 February 2014)

At the home of Syd and Maureen Coosner, with a lecture by Professor Alex Duffy, head curator, Heritage Collections, University of Pretoria

This was our second visit to this wonderful collection and we were once again warmly welcomed by Syd and Maureen Coosner to their home in Pretoria. Maureen began collecting Wedgwood pottery in 1954. After her marriage to Syd, he also became a dedicated collector. In 1960, when they were living in Kroonstad, they had 160 pieces and by the time they had lived in Zambia for five years the size of the collection had grown to about 360 pieces. It covers the many varieties of Wedgwood pottery and is housed in specially made cabinets.

To our delight, we were allowed to open the cabinets and take out pieces to look at more closely. There were tiny thimbles in both blue and green, small cups, jugs, plates, ornamental vases, plaques, dishes, biscuit barrels and more. The range of colours was fascinating. One is inclined to think of Wedgwood pottery as being mostly in blue, but many articles were in pale green and there was Cream Ware, Black Basalt and browns. Adding to our enjoyment of the outing was an illustrated lecture by Professor Alex Duffey who is, among other things, the Head Curator, Heritage Collections, at the University of Pretoria. He told us the story of Josiah Wedgwood and his family, and explained to us the processes involved in the creation of the different types of pottery.

Josiah Wedgwood was born into a family of potters in 1730 in Burslem, Staffordshire. His formal education ceased upon the death of his father when he was nine years old and was apprenticed to his brother's pottery business. However, after the amputation of a leg because of the effects of smallpox, he was no longer able to work a potter's wheel, which led him to experiment with new materials and methods of making pottery. He became a chemist and engineer, and among other things developed a thermometer for use in ovens. He also structured new methods for organising workers in pottery factories.

In 1759 he started his own pottery and later went into partnership with Thomas Bentley. They produced two broad types of pottery: the useful, such as dinnerware, and the ornamental, such as Jasper ware, the design of which was based on Roman and Greek art work. Bentley had contacts with numerous business people, diplomats and aristocrats, and the partnership soon developed a good reputation. Bentley also engaged the famous artist, John Fluxman, some of whose designs are still being produced today. Josiah's marriage to a distant cousin, Sarah Wedgwood, brought money into his family and enabled him to expand the factory. One of their daughters married Charles Darwin, a connection that led to Darwin receiving financial backing from the Wedgwood family for his voyages of exploration.

One of Wedgwood's first productions was called Cream Ware, a superior type of earthenware which incorporated ground flint and was fired at a high temperature. This laid the foundation for the development of ceramics in Britain, where Chinese porcelain had been dominant until then. Cream Ware was also known as Queen's Ware because a complete dinner service was made for Queen Charlotte, wife of George III. Thereafter Josiah often described himself as 'potter to the queen'. In 1773 Wedgwood made a 950-piece service for Catherine the Great of Russia. Her royal coat of arms appeared on each piece. Among other things, it pictured frogs, so the set became known as Frog Ware. Many copies were made, a piece of which is found in the Coosner collection.

Jasper Ware, inspired by a classical revival, was made in a great number of new designs. Special clay, found in Staffordshire and also in America and Australia, was used in its production. Pieces were often urn-shaped with white relief work added. The most famous piece in this style is the Portland Vase commissioned by the Duke of Portland. This masterpiece was on loan to the British Museum when, in 1845, one William Lloyd, who was drunk, dropped it and broke it. An attempt at restoration ended with 36 spare pieces! In due course it was properly restored, with only one spare piece. While Jasper Ware is made in many classical shapes and colours, the most popular is still blue with white overlay.

A very popular design was Etruscan pottery; it gave the impression of being made of metal as it had a purple-black sheen. There were numerous varieties, with different names and uses. In the 1930s a line called Lusterware became popular. Another line created by Wedgwood was Drab Ware, unpatterned and for general use. Pearl Ware was made of bone china. For all his designs, Wedgwood made pattern boards from which clients could make choices. He also developed the Michelangelo lamp for which he used a plaster mould that enabled decorations to be stuck on and then fired.

Wedgwood is credited with industrialising the manufacture of pottery. He built canals, which still exist today, to carry materials round his factory, and organised his work space to maximise efficiency. He was also a philanthropist who built houses for his workers and saw to their welfare – a commitment rarely found among employers during the Industrial Revolution. He was an associate of William Wilberforce and supported his struggles to put an end to slavery and the slave trade.

Report by Gerry Gallow

Walking tour of Spicy Fordsburg (12 April 2014)

With Jo Buitendach of Past Experiences

On a bright autumn day, 30 of us gathered at the blue train in Mint Road in Fordsburg. Our first stop was to look at the nearby blue heritage plaque on the wall of what is now a public toilet. The plaque is one of several recently put up by the City of Johannesburg to commemorate important historical events. This particular one records that Fordsburg was the scene of violent battles between white mineworkers and government troops in the miners' strike of 1922. Jo Buitendach gave us a brief account of the strike. The gold price fell after World War I and to keep their mines profitable the mining companies began to use cheaper black labour in place of white labour. White miners on the Witwatersrand went on strike and the strike began to turn violent. Prime Minister Smuts declared martial law and sent in troops to retake control of the streets. Miners in the working-class areas of western Johannesburg fired on them and fierce battles broke out. After several days of fighting and the death of more than 200 people, the miners surrendered. Several strike leaders were later hanged. The miners went back to work but never forgave Smuts his actions.

We learnt that the original suburb of Fordsburg was built on the farm Langlaagte, where gold was first discovered in 1886. Two businessmen, Ford and Jeppe, bought the land for upmarket housing in 1887 but the area was taken over by poor Afrikaners displaced from the land, miners

and artisans. They lived in small semi-detached houses with corrugated iron roofs. We visited the original police station, which now serves as a post office. A photograph taken in 1922 shows a third floor to the building that no longer exists.

Today many different communities live alongside each other in the suburb. Most of them are of Indian and Pakistani origin, with smaller Turkish and Chinese groups. The Muslim influence is strong and as a result no alcohol is sold in the area. More recent history is reflected in streets named after Albertina Sisulu, Dolly Rathebe and Barney Simon.

The tour was not just about history, but also about exotic shops and tasty food. We visited Shalimar, a sweet shop where we tasted sweet *burfi* and savoury *sev*, which are given as gifts called *mithai*. In Central Avenue we visited the Swadeshi Hindu prayer shop to hear a little about the Hindu deities Brahma, Vishnu, Shiva and Ganesh, and see small, colourful statues of them. Nearby is the Oriental Plaza, which was designed by apartheid planners in the 1960s as a site for shops whose owners were forced out of the suburbs of Fietas and Vrededorp. Shopkeepers moved their shops to the Plaza from 1974 to 1976, but most of them lived in Lenasia on the distant southern outskirts of the city. Fietas was a mixed-race area where many buildings were knocked down during the forced removals. The suburb is now called Pageview and the Fietas Museum opened there last year.

The Truth memorial

Opposite the Oriental plaza we find the oldest Muslim school in Johannesburg, and at the corner of Bree and Malherbe Streets we saw the building used as the set for the local movie 'Material'. We also passed the corner shop that was used as the fabric shop in the movie. At Jennings Street we passed the men-only Hamidia Mosque. Across the road is an artwork memorial called Truth, which commemorated a protest organised by Mohandas Ghandi in 1908 in which Indian and Chinese people burnt the pass books they were forced to carry in terms of a Transvaal law passed in 1906. The artworks can be seen at www.heritagetime.co.za.

A walk through back streets took us past the disused Maronite church, built in 1913, and another church that is now the Divine Bakery. We also saw the façade of the former Majestic Theatre. Then we made our way through the market and down Crown Street to the Al-Mehran restaurant for a lunch of traditional Indian dishes. It was a delicious ending to a tour of a fascinating part of Johannesburg.

Report by Hilary Geber

Iron Age archaeology, rock art, geology and ecology of the Kruger National Park (4 to 10 May 2014)

With geologist Professor Morris Viljoen and SANParks manager for conservation interpretation, Vanessa Strydom

Sunday 4 May: The 19 ArchSoc participants on the tour arrived independently at Punda Maria Rest Camp in the afternoon and later met for a briefing by Professor Morris Viljoen and Vanessa Strydom on geological, archaeological and organisational aspects of the programme. During the five-day tour we would be travelling in wilderness areas and on many private roads in the park to reach the sites included in the programme. Morris took us through a slide show of the most important geological sites. Thereafter we retired to the camp's restaurant for a welcome dinner at which participants could learn to know each other better. [Note: in all the reports that follow, use has been made of reference and illustrative material supplied by Prof. Morris Viljoen.)

Monday 5 May – Nyalaland Wilderness Trail Area: We met up bright and early with Vanessa and specialist field guides Jaco, Johan and David (the rifles bearers who would protect us over the next days) and set out from Punda Maria on the first outing of the trip. We were headed north-west to the Nyalaland Wilderness Trail area in the direction of the walking trail base camp to visit the Makahane Iron Age site. We expected the journey to take us a maximum of two hours but as the base camp had been washed away during the floods of early 2013, the exact state of the 'off road' road was unknown and proved to be much worse than our guides had expected. As a result, the trip that demanded 4x4 capabilities of our vehicles and also provided an interesting encounter for some with a male elephant in must bursting from among the mopane bush, extended to three hours and we arrived at our 'parking' point from where we were to proceed on foot quite a bit later than expected, with the day already quiet hot.

Most members set off to Makahane Hill on a journey that would eventually turn into a lovely five-hour hike. Most of the countryside covered was flat with occasional outcrops, all underlain by lower Karoo sediments. The Main Karoo Basin, which covers more than 50 per cent of South Africa's surface, can be divided into the Dwyka, Ecca and Beaufort Groups. The layers overlying the Beaufort Group can be sub-divided into the Molteno, Elliot and Clarens Formations, which are in turn overlain by the Drakensberg Basalts.

The Karoo strata of Limpopo province are very rich in fossils that mainly fall into two groups: plant-leaf imprints and coal derived from *Glossopteris Flora* in the lower part of the Karoo sedimentary succession dating from about 300 million years ago, and dinosaur fossils from the upper part from about 200 million years ago.

The Red Rocks member of the Clarens formation includes a 5 m thick mudstone layer near the top of the sequence that contains prosauropod dinosaur bones. A floodplain of old Karoo sediments has exposed the fossil-bearing strata in this area and our first stop was to look at what seemed like vertebra fossil remains of a *Massospondylus* dinosaur. This early Jurassic dinosaur from 170 to 190 million years ago was first described by Sir Richard Owen in 1854 from remains found in South Africa and was one of the first dinosaurs to be named. *Massospondylus* means 'massive vertebra' and refers to the bones of the animal's neck. This most unusual plant-eating dinosaur had a tiny head at the end of a very long and extremely flexible neck.

Like the practice of some modern birds, *Massospondylus* is believed to have swallowed stones (known as 'gizzard stones') to help grind up and digest plant matter. When the stones had worn smooth, the dinosaur would regurgitate them and swallow new ones. Evidence for this

behaviour, namely piles of polished stones known as 'gastroliths', have been found in *Massospondylus* skeletons. The fossilised eggs of this dinosaur have also been found, six of them in South Africa in the 1970s. The eggs were opened many years later and found to contain near-hatchlings. As the young of *Massospondylus* were apparently born without teeth, scientists conjecture that adults probably cared for their young.

After speculating about these fossil remains and also inspecting extensive pottery and other archaeological remains in the floodplain, we continued on to Makahane. By the time we reached the base of the ridge of Clarens sandstone on top of which sits the Makahane Iron Age Site, it was very hot. A fairly steep climb rewarded us not only with a view of extensive stone walling but also of the lovely Levuvhu River and its floodplain below. The chief's kraal was situated on the hill top overlooking the Levuvhu and the commoner area on the eastern and western slopes. Unlike, Thulamela, this site has not been rebuilt. MM Küsel in *Koedoe* (1992) states that when the archaeological site on Makahane Hill was investigated by Eloff and De Vaal in 1963, oral ethnohistoric information on Makahane, the 18the century Lembethu ruler, was still available. Apparently, despite the fact that Makahane was reportedly extremely cruel, his descendants visited the site up to the middle of the 20th century to offer sacrifices and pray. From ethnohistorical investigations it seems the site was occupied from the 17th to 18th or early 19th century.

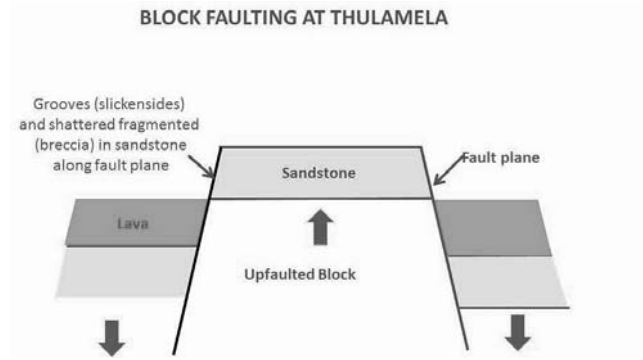
Some participants who did not climb to the top of Makahane took a leisurely walk back to the vehicles accompanied by two of the four rangers. The rest of the group decided to follow the path down the back of the hill and return along the Luvuvhu River, enjoying great views. When all participants were together again, we drove back the way we had come, stopping along the way at a small river pool to have a belated lunch in the shade of Natal mahogany trees. We returned to Punda Maria at the end of a long, tiring but very exciting day. **Anne Raeburn**

Tuesday 6 May – Shantangalang, Thulamela, Crook's Corner, Shinwedzi: Once again we assembled at dawn, ready for a full day of visits to iconic geological and archaeological sites between Punda Maria and Pafuri. There was a mood of adventure as we turned onto a no-entry gravel road with a high middelmannetjie, heading for Shantangalang, an area of rounded hills of Clarens sandstone. We left the vehicles to walk along game paths through quite long grass, in and out of the Clarens outcrops, to an overhang where there were some Bushman paintings. Bushmen lived in this area as far back as 10 000 years ago and were eventually displaced by the arrival of the first Nguni-speaking people some 2 000 years ago. The mood was tense as we walked silently, in single file, protected by two rifles at the front and two at the back. But we had absolute confidence in our four experienced and knowledgeable guides. We stepped over fresh buffalo dung and were alert to movement as we made our way to the shelter where Morris Viljoen explained the geology of the area.

The yellowish to orange-red Clarens sandstone of this formation was laid down under desert conditions about 190 million years ago, with deposition being largely by wind action. The sediment was slowly lithified (compacted and cemented) into rock. Faults in the rock occurred later once the sandstone had become competent. The low ridges are weathering by exfoliation and there was visible evidence of layers breaking off. The Bushmen paintings were faint but we could make out a giraffe and an eland as well as a possible 'late white' buffalo painted over an earlier one. A bonus was the discovery of the track of a huge python on the floor of the cave as well as a recent, large, buffalo hoof print.

Back in the cars and eating breakfast snacks, we drove north passing over flat basaltic lava plains covered by very shallow clayey soils supporting the distinctive Stunted Mopane Shrubveld Ecozone. This is a rather monotonous landscape, so the sight of a hill with a baobab growing on top of it is a notable landmark. The hill was formed by a vertical dolerite dyke intruding into basaltic lava flows with fine-grained chilled contacts. A road cutting through the hill has exposed the formations. The hill is also of historical interest. Between 1919 and 1927 men were recruited by the Chamber of Mines' WNLA or WENELA (Witwatersrand Native Labour Association) organisation in Mozambique to work on the Witwatersrand gold mines. They were travelled by foot, donkey cart or ox-wagon from Pafuri through the Kruger Park to the railway station at Soekmekaar. The landmark known as Baobab Hill was the first outspan on their journey.

We had all been looking forward to visiting Thulamela, a stone walled hill-top citadel, which is an important Iron Age site that was occupied from the 15th to the mid-17th century. It was excavated and partly reconstructed by archaeologist Sidney Miller assisted by Eric Maluleke who later became the guide. Led by Vanessa Strydom, we walked up to the site with the rangers, following a contoured route past magnificent, ancient baobabs. Thulamela is situated on an upfaulted block of Clarens sandstone with spectacular slickensided fault planes (striated movement planes along which grooves and striations were cut by moving rock masses) and breccias (angular stone fragments cemented by finer calcareous materials) marking the fault zones.



Walling at Thulamela

The royal settlement at Thulamela would have accommodated 1 000 people within designated areas separated by stone-walled enclosures. There is evidence that a further 2 000 subjects lived on the land below the hill. In its hey-day, Thulamela was the centre of vigorous trade with routes extending to Africa's east coast. Imported glass beads, Chinese porcelain and cloth were bartered for ivory bracelets, metal rings, and gold and bronze jewellery, examples of all of which were found at the site. The people of Thulamela were skilled goldsmiths, but in addition they extracted iron ore from up to 200 mines in the region. Grinding stones and hoes were found, as were remains of maize and wild cotton. A spindle whorl suggests that cloth was also woven.

Two skeletons were found during the excavations, which were sponsored by Gold Fields. The first grave contained the body of a woman wearing a twisted-wire gold bracelet with two gold beads. She was buried in a foetal position with her hands under her cheeks in a position of respect known as *losha*. For this reason she is now known as Queen Losha. Her teeth were in good condition, indicating a good diet, and she was not work-worn, but lines on her bones suggested

that she had suffered a high fever, possibly malaria. The second skeleton was of a man, seemingly reburied in a shallow grave and dated 200 years earlier. The bones showed serious damage, indicating that he had suffered a violent death. Grave goods including 72 double or single-strand gold beads, ostrich eggshell beads and copper wire, indicating that the man was probably a king or chief. Sidney Miller saw a leopard (Ingwe) next to his car the day the skeleton was found and was convinced that this leopard was the spirit of the king, so he called him King Ingwe. After archaeological and medical details had been recorded, the king and queen were reburied in a solemn and moving ceremony with the involvement of the local community. A traditional grave-side ceremony was held, in which offerings were made to the ancestral spirits by Venda and Shangaan groups. As we stood at Thulamela, looking down on the Luvuvhu River far below, there was a strong sense of the past. One could imagine the sounds of voices and livestock, of agricultural activity and handcraft.

After a picnic lunch at the shady Pafuri picnic site on the banks of the Luvuvhu, with time to read the display boards about Thulamela, we drove through a fever tree forest on the alluvial floodplain towards Crooks Corner. This is an area of deep alluvial soils on basalt bedrock supporting among the best Riparian and Riverine Ecozone in the park. Our convoy was held up for quite a while by the dramatic sighting of a 2 m long Egyptian cobra killing a much shorter but far fatter puff adder in the middle of the road. The death throes of the puff adder continued for quite some time. Thereafter the cobra started dragging the puff adder of the road to swallow it whole. Apparently cobras are the only snake species to eat other snakes.

In the late afternoon we arrived at Crook's Corner and stood gazing out across the confluence of the Limpopo and Luvuvhu Rivers. At this point the boundaries of South Africa, Zimbabwe and Mozambique meet, and Crook's Corner is an island that is a piece of no-man's land. This area was once one of the most remote places in South Africa, accessible only via long, arduous wagon trails through thick bush and in very hot conditions. And then there was malaria. It was a natural refuge for people who were avoiding the law and became the hangout of ivory poachers, illegal black labour recruiters, gun runners and the like. They could easily slip across an international border if pursued. The borders were marked by a beacon but a formal demarcation only took place in 1925. Our specialist field guide Johan recounted stories about the legendary character Cecil Barnard known as Bvekenya, more of an adventurer than a criminal. Upon hearing of the approach of a police patrol, he would move the beacon so as to place himself in another territory and thus save himself the trouble of having to move his whole camp! Later he worked legally for the mines and during this time he built several roads and drifts in the area. Little remains of those wild days recounted in Bulpin's *The Ivory Trail*. The beacon has been washed away and only the foundation slab of the old trading store remains.

In the 1920s WENELA established a camp in the area. Later, a manager's house, administration building, doctor's house and clinic were built. WENELA had to close in the 1970s and its recruiting function was taken over by TEBA (The Employment Bureau of Africa), also a department of the Chamber of Mines. In 2001, relaunched as an independent organisation and made a commitment to apply its facilities and infrastructure to improving the lives of rural people through community support programmes.

As night fell we drove to Shingwedzi, our overnight camp. We crossed the flat basaltic plains underlain by very shallow clayey soils supporting the distinctive Stunted Mopane Shrubveld Ecozone and we only stopped briefly to watch a robust full-maned lion who eyed us inscrutably at close range.

Pamela Küstner

Wednesday 7 May 2014 – Red Rocks, Lebombo Mountains, Mopani: We left Shingwedzi camp, fully and beautifully restored after having been flooded and severely damaged by the great flood of January 2013, and drove to the nearby look-out point to the famous Red Rocks. From here, we could see the Shingwedzi River far below with the most interesting towering cliffs above and the Red Rocks with their water-filled potholes in the background. Starting at the river's edge on the west side and underlying the Clarens sandstone is an exposure of the basement granitic grey gneiss dated at three to four billion years old. Secondary pegmatite veinlets that formed during a thermal event are present in the gneiss. The unconformable contact with the overlying Clarens sandstone dated at 190 million years ago is sharp and represents a phenomenal time break of over 3,1 billion years. The base of the Clarens formation is characterised by the presence of large concretions and coalesced masses of light grey calcium carbonate.

From this viewpoint, we proceeded to the red rocks themselves, but had to wait for Vanessa Strydom's reconnaissance of the area to evaluate our safety as lion spoor had been spotted. Once we had the all clear, we proceeded with our exploration of the Red Rocks pavement that forms the bed of the Shingwedzi River. We looked at the linear scours or elongated potholes that have developed. These rounded potholes of all shapes and sizes cover much of the extensive, sloping red sandstone pavement. They have formed and are still forming as a result of the swirling action of floodwater driving hard rock pebbles, boulders and sand in a rotational motion and thus drilling into the sandstone. The grinding pebbles are dominated by pegmatite and granite. Many of these potholes, which can be several metres long, are filled with water lilies and some even had barbel swimming around. Over time, the potholes will coalesce and start mini-gorges. The red colouration of the sandstone is the result of small amounts of red oxide contained in the sandstone. Leaching of the iron has taken place along secondary joints and fractures to give white

Eric Maluleke – in memoriam

From the time he assisted Sidney Miller with the excavation and partial reconstruction of Thulamela, Eric Maluleke has acted as SANParks' guide of the site. He was present when Sidney showed ArchSoc members around the site many years ago, and of course he also welcomed us to Thulamela this time round. As he began talking to us about the site he complained of a severe headache. Shortly after, the symptom recurred and then he collapsed. The field guides accompanying us immediately tried to revive him, but without success. It was decided to take him to a clinic that would be able to attend to him. Some hours later we heard that he had died of a seizure on the way. This was a very distressing event for the participants and a great loss not only for his family and colleagues, but also for the Kruger Park and archaeology in South Africa.

Reinoud Boers

Eric addressing the ArchSoc group just before he collapsed (Photo: Vanessa Strydom)

bleached vein-like features in the red sandstone.

The Red Rocks have a cultural history. In the 1890s it was known to the local people as *Ribye-ra-Gudzani* ('Gudzani's Rock'). When passing through the area, the indigenous people would never fail to pay tribute to by offering some of their possessions, such as a bit of tobacco, a small piece of meat or a piece of clothing. Later, in the 1920s, Bill Lusk, better known as Texas Jack from Crook's Corner, discovered alluvial gold at the Red Rocks.

From the Red Rocks we drove southwards over a layer of granitic rocks that gives rise to shallow sandy soils dominated by woodlands of Mopani, Knob Thorn and Bushwillow. The route then turned eastward across basaltic lava plains and onto a resistant ridge of granophyre forming the western side of the Lebombo mountain range, which form the border with Mozambique. Our destination was a locality next to a remnant of the Mozambican border fence called the Shilowa Hills dominated by a solitary baobab tree. Traversing on foot through thick grass and dodging many golden-orb spider webs we arrived at a classic example of granophyre outcrop with both exfoliation and spheroidal weathering providing a splendid panoramic view into the distance. Here we rested while Morris gave us a lecture on the area's geology and the two Iron Age sites that had been found here. Many pottery shards could still be seen. Part of the group then proceeded to a second hill (crossing an area that had been flattened by a huge buffalo herd, believed to be 500 strong when it was later seen from the vehicles on the way to camp), while others made their way back to the vehicles from where they proceeded to Mopani camp where we would spend the night. **Anita Arnott**

Thursday 8 May – petroglyphs, Masorini, Letaba, Olifants: With a full day ahead of us, we made another early start, heading for the Mooiplaas petroglyph site situated north-east of Mopani Camp. This is a large outcrop of reddish-weathering Clarens sandstone with examples of relatively thick exfoliation layers breaking up in places to form scattered boulders. The petroglyphs comprise a cheetah and multiple circular designs. The latter could perhaps be related to a initiation ceremony, or the area could possibly have been an aggregation site where people came together over time. The thin exfoliation surface is breaking up and some of the petroglyphs have already been lost. We also found peckings from another period. A resistant small dark hill marked by several mountain syringa trees south-east of the site is an outcrop of almost black, olivine-bearing basaltic lava of the Letaba formation. The hill is topped by an ancient walled structure on its west side.

Exfoliated boulders

We continued on the Shimuweni road to Masorini Hill across granite basement rock, passing the resistant pinkish syenite hill of Shikumbu that is one of several similar syenite bodies such as Masorini in the area that belong to the Phalaborwa Igneous Suite. The texture of the syenite consisting of dark pink feldspar with the dark amphibole aegerine is seen on fresh surfaces at both localities. The high, baobab covered koppie of Masorini is a cultural heritage site. During the 18th century, the Baphalaborwa, who are said to have come from the north, settled in present-day Phalaborwa, calling their settlement by that name, which means' better than the south'. Their main trade item was iron, which they smelted themselves. We were met by a local guide who showed us artefacts in a small museum, the village layout, reconstructed huts and a display of Iron Age iron ore furnaces.

Iron Age iron ore furnace

Subsequently, we travelled eastwards across basement terrain past the pink syenite hill of Shisiwana and the resistant blocky-weathering Timbavati gabbro forming Shilawuri Hill to Letaba Rest Camp for lunch in the Bush Kitchen and a visit to the impressive Elephant Museum, which honours Kruger's Big Ten of both the past and the present. From Letaba we crossed over flat basaltic lava plains to Olifants camp, which is situated on a resistant rhyolite dome surrounded by basalt. The pink, flow-banded rhyolite forms the resistant bed of the Olifants River, which is well observed from the Camp. The river has cut a multitude of slots and channels along flow contacts and joints of different directions in the rhyolite to give a broad trellis-like pattern on the river bed. We stayed in bungalows high above the Olifants and in the evening dusk watched elephant grazing on the reed-covered islands and crossing the river higher up. That evening we all met for a much enjoyed braai at one of the bungalows. **Reinoud Boers**

Friday 9 May – Olifants Gorge, Pumbe Shrine, Satara: The first thing we did this morning was to visit the Olifants Gorge we had seen from the camp. Leaving our vehicles on the road, we descended part of the way into the gorge. This particular part of the gorge is known for spectacular swarms of dolerite dykes that intrude into the Karoo basaltic lava flows. Morris explained that the fractures into which the dykes were emplaced heralded the initial split of the Gondwanaland continent and the formation of the proto-Indian Ocean. There are a considerable number of dykes of varying width. We walked and clambered along a part of the gorge while Morris pointed out various features of interest such as erosion caused by wind, geodes, which are little holes in the rock lined with a different mineral such as quartz, and a black mineral called magnetite in the sand. He inserted a magnet into the sand and it was immediately covered with what looked like iron filings. We also saw how potholes with grinding stones in them enlarge and join to form the gorge. Some of the potholes were far above the water level and would only be underwater during floods, when they might grow by half a millimetre. This gave us an idea of the great time span required for the potholes to coalesce and form a gorge. We also saw how harder, more erosion resistant rock, caused waterfalls.

After a long drive to and along the Lebombo Mountains we came to a pan that is unique to the park, being the last of a series originating in Mozambique. It is lined with an impervious layer of pebbles cemented by ferricrete. The pan is home to two most unusual types of fish, firstly the lung fish that can survive in the mud and overwinter even if there is no water left in the pan, and the Kiloi fish which lays its eggs in the mud. If the pan dries up the adult fish die but the eggs can survive for more than a winter until the next rains and will only hatch when the acidity of the water is correct. En route to the pan we saw one of the park's 22 new large tuskers.

Not far from the pan we visited the remains of the small Pumbe shrine, which is believed to have been built by Hindu traders as far back as the 16th century. Very small clay bricks, which are known from their use in India and could have been imported, have been layered over river cobbles covered by a rounded dome of clay. This design is similar to those of *tupi* shrines in south India, which are Hindu places of worship. The shrine is in very bad condition and has been partly

excavated, but not restored, by archaeologists from the University of Pretoria. A Portuguese map of 1893 has been compared to the location of the shrine and it was found that the structures pinpoint a place called Mahasane on the map. This indicates Eastern or Arabic influence and could point to Arabs and 'Goanese' trading in this part of the world from an early time. In the 16th century the Portuguese gave permission for Hindu traders only to trade in the area. It is speculated that they could have started a trading post at Pumbe since it is situated on a very old Delagoa Bay trading route.

After leaving the shrine we made our way across the Punbe Sandveld to Satara for our last night in the park.

Barry Jacoby

The forts of Pretoria (29 June 2014)

With Dr Anton van Vollenhoven, managing director of Archaetnos Archaeologists

Members met at Fort Klapperkop before leaving in convoy for East Fort, located in Lynnwood on what is known as Struben Kop. Here Dr Anton van Vollenhoven, who is working on the archaeology of East Fort, gave a brief outline of its history. Then, at the southern redoubt, Anton explained the general shape of the fort and the particular shape of the redoubts or infantry firing positions, and outlined the nature of excavations conducted in 2013, as well as the five-year excavation plan. As this was the only fort that the British built during the 1899 to 1902 Anglo-Boer War, an archaeological investigation provides an opportunity to understand British defensive positions in comparison to forts designed by the Germans and French in the Pretoria area.

East Fort is known to have been built by the Royal Engineers in the latter part of 1900 to defend the eastern perimeter of Pretoria. It was, in fact, the proposed site of one of the eight forts planned by President Paul Kruger, although only four were built, three by the Germans and one by the French. From the southern redoubt the party moved to the almost completely excavated foundations of the eastern redoubt, a D-shaped area about 8 m by 4 m. Originally this would have had a double wall of corrugated steel sheeting with small pebbles between the sheets as a form of bullet proofing. This is the Rice pattern walling, named after a Major Rice of the Royal Engineers who devised it.

On the top of the hill is a semi-circular walled area where, according to photographic evidence, a 4.7-inch naval gun facing east was positioned. From there we walked down to an area that is being excavated by the writer on what is thought to be the barracks area. A silver coin, a historical tea cup, a mineral water bottle, and many used and unused .303 Lee-Metford cartridges were found during the excavations last year. Continuing along the line of the northern wall to the unexcavated western redoubt, the group returned to the cars and travelled back to Fort Klapperkop. In the barrack room, Anton gave us a lecture on the fortifications of Pretoria, with particular emphasis on the West Fort, also known as Fort Daspoortrand. This is the largest of the Pretoria forts and was built by the French from 1897 to 1898 at a cost of £46 500. It was originally designed for two 155 mm Long Toms and two 35 mm Maxim-Nordenfeldt guns, but it seems that only one Long Tom and the two Maxims were actually placed there. The shape of the fort – an extended hexagon – is totally different from that of the other forts, as are the underground bunkers for ammunition storage. By November 1899, only 20 men manned Fort Daspoortrand, but in the end it never saw action. It was taken over by the British forces once Pretoria fell in 1900. Anton used historical plans and photographs to illustrate his talk. He included photographs of the German forts at Wonderboompoort, Schanskop and Klapperkop and showed how they differed in design from the French fort at Daspoortrand. His talk also illustrated the blockhouse system built by the British from 1900 onwards. Many of these blockhouses have been destroyed by modern construction activities and where they survive only foundations or collapsed walling remains.

The group gathering at Fort Klapperkop

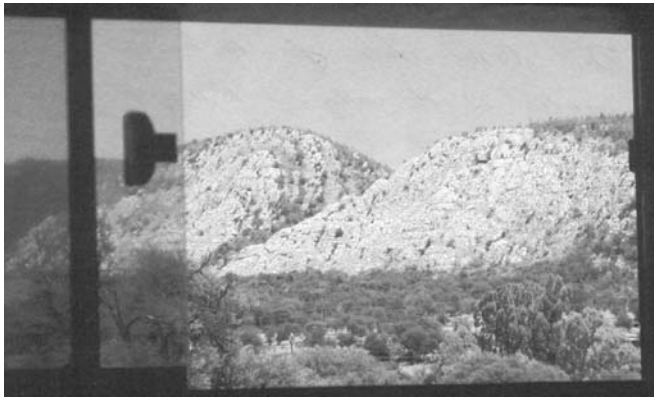
After the illustrated talk, the group was taken around Fort Klapperkop and shown the various rooms and its defences. Fort Klapperkop cost £59 000 to construct and was handed over in 1898. It was designed to have two 155 mm Long Tom guns along with two 75 mm guns and two 35 mm Maxim-Nordenfelt guns. By November 1899 only a single 65 mm Krupp mountain gun and two hand Maxims were left at the fort, with a total of 17 troops manning it. The forts were connected by what was then a modern telegraph and telephone system. Forts Klapperkop and Schanskop were supplied with water pumped up from the Fountains valley. Each German fort was equipped with a paraffin engine linked to a generator to supply electricity. In the end the forts were of no real use in defending Pretoria. Kruger and his government decided to abandon the town to the advancing British forces. One Boer reservist in each fort acted as custodian and handed over the forts to the British forces. Historical photographs show that the British strengthened the infantry defences of each fort with a Rice pattern wall. In the final room of Klapperkop members were able to see a display of artefacts recovered from the 2013 excavation at East Fort. Members of ArchSoc worked on the excavations in 2013 and 2014. Information on how to join the excavation team can be obtained from the writer.

Report by Graham Reeks

Outing to the Vredefort Impact Structure (20 July 2014)

With Professor Frans Waanders, director, School of Chemicals and Mineral Engineering, University of the North–West

This outing by luxury coach took us through Parys in the north-west Free State, across the Vaal River and through the hills of the Vredefort Impact Structure, or Vredefort Dome as it is commonly called. At our first stop Professor Frans Waanders laid out an excellent relief map that enabled us to get an idea of the size of the Vredefort crater, the position of the main rim



A view of the collar of hills making up the Vredefort structure taken through the bus window

and the extent of the associated World Heritage site, which encompasses a relatively small area of the whole. Prof. Waanders gave us a brief description of how the Vredefort Impact Structure was formed. About 2 000 million years ago a giant meteor, or astrobleme, crashed into the earth at this location, creating the world's greatest-known single energy release. The area that was affected is about 360 km in diameter. The encircling hills we passed through are the remains of the actual crater.

We then moved to an area where granophyre dykes are to be seen. Granophyre is an unusual crystalline and glassy igneous rock that is thought to have been formed after the impact of the meteor when the shock wave had passed and pressure had returned to normal. On the flat surfaces of these rocks were very interesting San petroglyphs depicting rhino, elephant, eland and other animals, which suggest that the area had a more sustaining vegetation in the past. The San are believed to have occupied this area 2 000 years ago.

Next we moved to the granite quarry near Kopjeskraal. The granite is known as Achaean granite and is about 3,5 billion years old. It was about 15 to 17 km below the surface of the earth at the time of the impact. The fine rock powder that was formed during impact was deposited in cracks in the rock and solidified into dark-coloured veins. The rock was previously quarried out and used for pillars in buildings, as well as for table and kitchen tops in view of their multi-coloured pattern and a glassy finish. But then this type of finish went out of fashion and the quarry closed, with numerous blocks of mined granite remaining behind. Plain grey granite is now more popular. Frans Waanders explained to us how the rock was cut and formed into blocks.

We travelled along the valley floor with the Vaal River on our left and tree-covered hills on our right. One of the hillsides is covered with wild olive trees. It is the largest such area in the country and a National Heritage Site. Most of the grove recently survived a ravaging fire. The olives are about the size of a match head and are inedible. Further along the river lies a farm owned by the government and used as a school boot camp. Because the sewage works of Parys are malfunctioning, the water in the river below the town is polluted and not only dangerous for humans and animals but also unsuitable for the irrigation of crops. In spite of warnings, numbers of schoolchildren at the camp swim in the river and fall sick every year.

At this point white Brixton quartzite, formed from what was once the white sand of an inland beach, is clearly visible. The quartzite is named after Johannesburg's Brixton suburb. The Vaal River cuts through an opening in the hills that is believed to have been made by the movement of glaciers some 300 million years ago. Further along the river, at Schurwedraai, we came to a panoramic lookout, situated on part of an old volcano. Here there is a 90-degree bend in the valley, which also results from the movement of glacial ice.

We stopped for a lunch break at what remains of Venterskroon. This was once a bustling gold-rush mining town of 10 000 people. The old hotel and police station still stand, and the former post office is an information centre. Unfortunately it is closed on Sundays so we were not able to visit it. We continued our journey through the valley to a road cutting where numerous shatter cones can be seen in the rocks. These were formed by the shock waves that resulted from the meteor impact. Our last stop was to look at an abandoned mine working in the gold-bearing conglomerates of the Elsburg group. The era of mining lasted from 1886 to 1930, but the paucity of gold recovered meant that commercial mining was never really viable. From time to time there is renewed interest, with the last person to try to seek his fortune in this area being Brett Kebble.

Shatter cones in Kimberley shales alongside the road – particularly clear in the top right-hand corner

As we travelled between the sites, Prof. Waanders told us anecdotes about the history of the region. His expertise in geology, together with his ability to get technical information across to an audience of non-experts, was much appreciated by all on what was an instructive and enjoyable outing.

Report by Gerry Gallow

The Kruger National Park adventurers