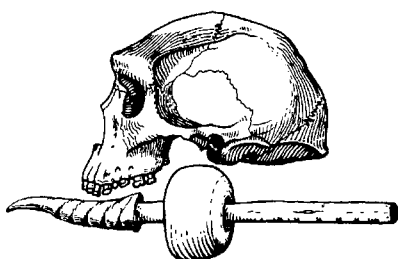


Volume 5, No. 1
April 1988

ISBN 0 620 05488 3

Published by
The South African
Archaeological
Society
P.O. Box 15700
Vlaeberg
8018
South Africa



The Digging Stick

Editor: Shirley-Ann Pager

Since I shall be attending the rock art congress in Darwin, Australia in September I would appreciate it if I could have your articles, news, views and comments for inclusion in the September issue of The Digging Stick by June or July at the latest so that I can have everything ready for printing before I leave. Members should please note that I am no longer living in Windhoek and material should now be sent to the following address: The Editor, The Digging Stick, P O Box 81292, Parkhurst 2120, South Africa.

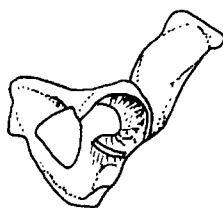
NEANDERTHAL BABIES AND THOROUGHLY MODERN MOTHERS

Janette Deacon

Some recent discoveries in the field of human evolution are focusing more on prehistoric women than on the old catch-all phrase 'Prehistoric Man'. According to Sarah Bunn in an article in *NEW SCIENTIST* (29 May 1986), Neanderthal women, who lived in Europe and the Near East from around 130 000 to 35 000 years ago, were different from ourselves not only in their facial features, brain contours and ultra-robust bodies, but also in the size and shape of their pelvic bones. The pelvis of the modern woman is shorter and broader making the pelvic bowl considerably smaller than that of her Neanderthal counterpart. Erik Trinkaus, of the University of New Mexico, has suggested that the extra volume enabled a Neanderthal mother to give birth to a baby with a skull (and therefore a brain) about 20 per cent larger than our infants have at birth. Such babies, he reasons, would have been larger, better developed, more mature and more resilient than modern infants, and pregnancy would have lasted not nine months, as at present, but a full year. He sees the change from the Neanderthal to the modern pattern as part of the process of evolution as cultural advances allowed for greater protection and nurturing of very helpless babies that needed care over a longer period.



NEANDERTHAL



MODERN

A comparison between the pelvic bones of a Neanderthal and modern woman.

Three-quarters of the development of the average baby's brain today takes place after birth, the capacity increasing from about 400 to just under 1400 cu cm. During the infant's first twelve months, growth continues

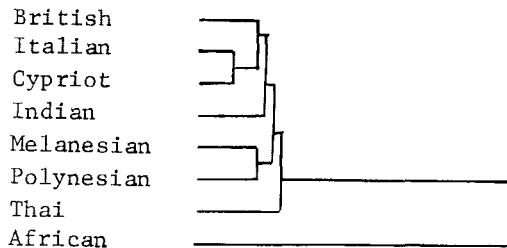
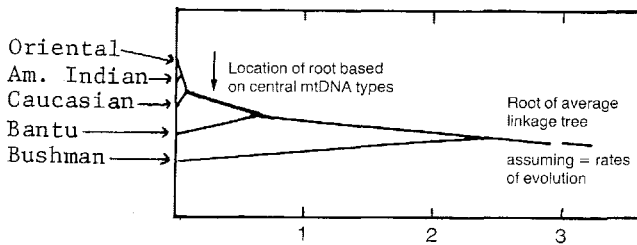
at the fetal rate, and by the end of the first year the brain has more than doubled in size. By the time our children are six or seven years old, the brain has almost reached the average adult size of about 1400 cu cm. By contrast, a chimpanzee's brain at birth, after a pregnancy of eight months, is already half its adult size.

Trinkaus's views are not shared by all physical anthropologists. Chris Stringer of the Natural History Museum and Christopher Dean and Tim Bromage of the University College, London, have studied the remains of a Neanderthal child from the Devil's Tower Cave on the Rock of Gibraltar. They have estimated from the incremental growth markings in the enamel on the surface of an unworn incisor tooth that the child died at the age of three years, yet its brain was already about 1450 cu cm in capacity, nearly 95% of its adult size. However, they argue that a nine month pregnancy is more plausible than one lasting a year because even when great apes and humans are compared, their gestation (pregnancy) periods overlap. There is a close relationship between the weight of the mother and the period of gestation among all primates, and amongst all mammals there is never variation in the length of gestation within a species, nor between closely related species. Further, they believe that the Neanderthals were not the direct ancestors of modern people. Neanderthals, by accelerating brain growth before birth, simply used metabolic energy differently, reducing the energy spent on nursing a baby, and producing children who matured at an earlier age.

Recent discoveries in Israel have confirmed that anatomically modern people, *Homo sapiens sapiens*, did not evolve from Neanderthals. As the scientific name indicates, modern people are of the same species as Neanderthals (*Homo sapiens neanderthalensis*), but belong to a different subspecies. They could therefore interbreed and produce fertile offspring, but the fossil record suggests that the Neanderthal line died out.

The current theory on the evolution of *Homo sapiens sapiens* is that Eve was alive, well and living in Africa around 200 000 years ago, and that one or more of her female descendants moved out of Africa with a small founder population into the Near East about 100 000 years ago, eventually to colonise Europe and, ultimately, the rest of the world. To refer only to Eve may seem overly feminist, but there is a good scientific reason for doing so. The theory is based on the fact that mitochondrial DNA, part of the genetic signature of our species, has a strictly maternal inheritance pattern. The mitochondrial DNA haplotype (pattern of combinations of alternative sites in DNA sequences) of an individual is inherited from the mother, the maternal grandmother, and so on, and the tissue samples that are used for establishing the mitochondrial DNA haplotype are drawn from the placenta of mothers of newly born infants.

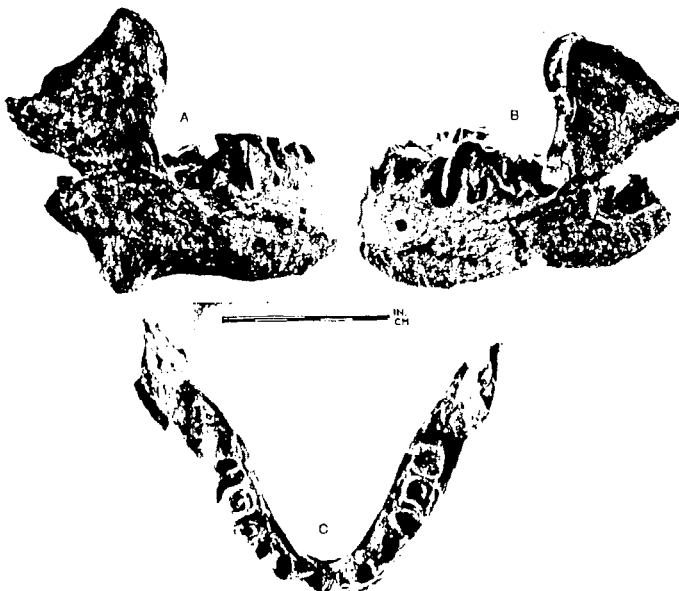
Mitochondrial DNA evolves rapidly with a mutation rate of up to ten times that of nuclear DNA, giving rise to much variation between the mitochondrial DNA sequences of different individuals. Three USA researchers, Rebecca Cann, Mark Stoneking and A C Wilson have determined some of the differences in mitochondrial DNA sequences amongst 147 European, Indian, Asiatic and African individuals



Dendrogram for the eight population groups studied.

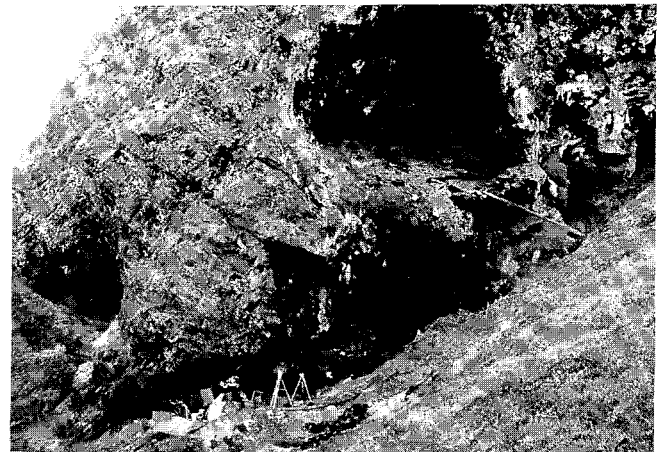
(Australian Aborigines have not yet been included). Their results show 133 different DNA types that can be analysed into a pattern of relatedness to each other and to a derived ancestral mitochondrial DNA type.

The mitochondrial DNA tree has two primary roots of descent, the first leading exclusively to Africans (including San or Bushmen) and the second to some Africans and to all other population groups. The basic African vs Caucasian-Mongoloid division is seen also in studies of nuclear DNA by Jim Wainscoat and others in Britain. In an article in *NATURE* (325:13, 1987), Wainscoat notes that the concurrence of these two sets of results indicates an early division between Africans and Caucasian-Mongoloids. The more difficult problem is to determine which was the ancestral population. He suggests that the study by Cann, Stoneking and Wilson is the best evidence so far in favour of Africans being ancestral to all other people because Africans seem to have more mitochondrial DNA diversity than any other population and we would expect that the population that has been around longest would have more DNA sequence changes. Studies of blood group and enzyme alleles in Africa and of DNA sequences associated with the sickle-cell mutants also suggest that African populations are genetically more subdivided than those from other parts of the world.



The most gracile of the human mandibles from the MSA 1, the earliest occupation horizon at the Klasies River main site. (Reproduced from Roland Singer and John Wymer's book "The Middle Stone Age at Klasies River Mouth in South Africa" published by Chicago University Press in 1982).

Cann, Stoneking and Wilson maintain that the implication of their findings is that the mitochondrial DNAs of all modern people stem from a single woman who lived between 140 000 and 290 000 years ago in Africa, and that her descendants spread into the rest of the Old World through a so-called 'bottleneck': in other words, by a small founding population. Using theory developed for population genetics, this bottleneck migration movement could have taken place over 20 000 years with 600 individuals, or over 200 years with 6 individuals, or with a single couple over 60 years. The dating technique is very crude, and the study of evolution through individual genes and DNA sequences is still in its infancy, but the method nevertheless gives a 'ball park' figure against which we can compare evidence from the fossil record.



The Klasies River main site. The mandible illustrated came from Cave 1b on the far left of the photograph.

The latest finds of anatomically modern human fossils give no reason to doubt the 'Out of Africa' hypothesis. The San or Bushmen of southern Africa are amongst the group with the greatest mitochondrial DNA divergence of all African populations and it is in southern Africa that some of the oldest *Homo sapiens sapiens* remains have been found. At Klasies River on the southern Cape coast both gracile and more robust individuals have been recovered throughout a long Middle Stone Age sequence that spans the period from about 115 000 to about 75 000 years ago. At Border Cave in KwaZulu, several individuals that as a group are physically more modern than the Klasies River people, are represented by skeletal remains also associated with Middle Stone Age artefacts. In East Africa similar fossils are of the order of 100 000 years old. By contrast, the oldest anatomically modern fossils in Europe date only to 35 000 years ago.



The section through the deposits in Cave 1b at Klasies River main site. Mandible 41815 came from three-quarters of the way down the longer of the exposed sections.

New evidence has recently come from the work of a team of Israeli and French archaeologists, led by Ofer Bar-Yosef, Eitan Tchernov, Bernard Vandermeersch and Henri Laville, that has found remains of *Homo sapiens sapiens* at Qafzeh Cave on Mt Carmel associated with Mousterian stone artefacts. These artefacts were previously thought to have been associated exclusively with Neanderthals both in Europe and the Near East. Thermoluminescence dates on 20 pieces of burnt flint give an age of $92\ 000 \pm 5000$ years for these deposits, and dates on flint associated with Neanderthal remains at the nearby Kebara Cave have been dated to between 60 000 and 48 000 years old.

These new finds and dates suggest that the founding population of anatomically modern people from Africa had already reached the Near East by c. 90 000 years ago. The fact that the Neanderthal remains in Israel date to a more recent time suggests two possible scenarios: either *Homo sapiens sapiens* and *Homo sapiens neanderthalensis* lived alongside each other in the Near East for over 50 000 years, or the Neanderthals moved southwards into the Levant from Europe only 60 000 years ago where they co-existed with modern people until the latter began colonising Europe about 35 000 years ago. We clearly need more fossil evidence before we can re-write the textbooks.

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KURUMAN ROCK ENGRAVINGS

R.H. Steel

While on a recent visit to the Robert Moffat Mission Station near Kuruman, in the company of Father A Butler, Professor R J Mason and Mrs T Hesom, we discovered 200 or more rock engravings in Bophuthatswana, north-west of the main Kuruman and Hotazel road. They are on dolomite slabs on the banks of a dry donga with the larger number on the steeper over-grazed area on the west bank.

Almost every exposed rock over an area of about 250 x 100 m has pecked engravings, many of which follow the algal stromatolite contours on the dolomite. Meandering lines, settlement patterns, circles and crosses, cattle, horses, mounted horsemen, crude birds, goats and small antelope are represented. Although some are the colour of the surrounding grey rock, many more are faded white to very white.



Fig. 1. Pecked engraving of horse and foal.

In his book 'Missionary labours and scenes in South Africa' (1842), Robert Moffat described the engravings as LOKUALO, a Tswana word from which one used to express writing and printing is derived. These marks, chipped upon stone, he says, "are made by striking one stone upon another until curved lines, circles, ovals and zigzag figures are expressed upon its surface, exhibiting the appearance of a white strip of an inch broad, like a confused coil of rope." These the Rev Moffat suggested were done by Bechuana herd boys.

The engravings are also referred to by Louis Peringuey, Director of the South African Museum, in papers in the Transactions of the South African Philosophical Society in 1907-1908 and 1908-1909. He notes that Dr A W Rogers, Director of the Cape Geological Survey, saw in places between Kuruman and Tsenin along the Kuruman River numerous series of engravings of that type made by the Bechuana herd boys and others. Rev G E Westphal of the Berlin Mission Society and stationed at Pniel on the Vaal River was very careful in selecting for the South African Museum old original engravings from the numerous carvings perpetuated by the school-going children of the station, which are of Korana, Bechuana and Griqua mixed origin.



Fig. 2. Horses and humped bull with circles.

Some of these imitations are so crude that they cannot deceive anyone, but in some cases it is difficult to decide as to the authenticity of the etchings, i.e. to say if we assume that the most perfect are very ancient.

It must be noted that the Pniel Berlin Mission Society was started in 1845 and that the Rev Westphal arrived there in 1882 and knew and studied the many engravings found around the Mission Station.



Fig. 3. Meandering lines with faint circles.

Similar engravings occur over a vast area in the Cape, Bushmanland, the Transvaal and the Orange Free State, and from the remote mountains of the Richtersveld north-west of Kuboos to the far northern boundary of Zambia and to the Natal midlands in the south.

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THE PILTDOWN PROBLEM: SHERLOCK HOLMES AND ARCHAEOLOGY

A.J.B. Humphreys

It has recently been suggested that Sir Arthur Conan Doyle was responsible for the Piltdown forgery, implying that he had the knowledge and background to produce such a fake. But did he? An article by Winslow and Meyer in *Science* in 1983 thought he did and placed heavy emphasis on a remark made by one of the characters in Conan Doyle's *The Lost World* first published in 1912: "If you are clever and know your business you can fake a bone as easily as you can a photograph." In addition, they draw attention to a very vague resemblance between a map of the 'lost world' and a sketch map of the Weald in south-eastern England where the Piltdown site is located, and the fact that Conan Doyle was "an avid collector of fossils" and had an interest in geology and archaeology. An examination of the extent to which Conan Doyle's alleged knowledge of archaeology is reflected in his Sherlock Holmes stories is helpful in answering the question.

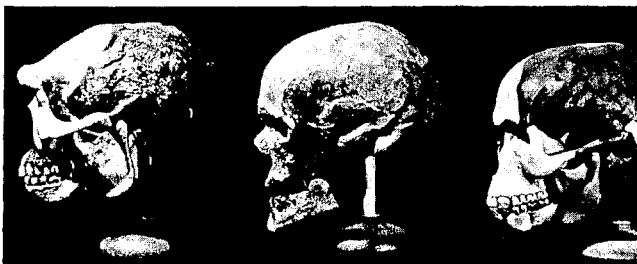
The Sherlock Holmes 'canon' is generally accepted as consisting of four novels and 56 short stories written during the period 1887 to 1927, as well as a few 'bits and pieces' that have been discovered over the years. The following extracts illustrate the extent of his interest in and knowledge of archaeology and anthropology. There

are, in addition, a few other comments or phrases such as a brief quotation from "Voodooism and the Negroid religions", a reference to iron horseshoes from the Middle Ages, mention of documents found in Coptic monasteries in Syria and Egypt, and the kingdom of the Midianites on a map of the Holy Land, but they are not considered germane to the question posed here.

In the first novel, *A Study in Scarlet* (1887), Holmes makes reference to Darwin in Chapter 5: "Do you remember what Darwin says about music? He claims that the power of producing and appreciating it existed among the human race long before the power of speech was arrived at. Perhaps that is why we are so subtly influenced by it. There are vague memories in our souls of those misty centuries when the world was in its childhood."

A second example, from *The Sign of [the] Four* (1890), also makes reference to anthropology, this time to the Andaman Islanders described some years later in a classic study by A. R. Radcliffe-Brown in 1922. In Chapter 8 Holmes consults a reference book which tells him that "The aborigines of the Andaman Islands may perhaps claim the distinction of being the smallest race upon this earth, though some anthropologists prefer the Bushmen of Africa, the Digger Indians of America, and the Tierra del Fuegians." Note that Holmes has to look up this information: he was not familiar with this piece of anthropology. Later in the novel, an Andaman Islander called Tonga plays a minor role, and there is a direct archaeological reference at the beginning of Chapter 10 where Holmes, at a meal, spoke of "medieval pottery" and diverse other subjects "handling each as though he had made a special study of it."

The Hound of the Baskervilles (1901-2) contains some of the most interesting archaeological references. Apart from a remark early in the book where Dr Mortimer professes the study of human skulls to be his "special hobby", the setting is Dartmoor where "circular rings of stones" and "stone huts" play an important part in the plot. Although attributed by one of the characters to "Neolithic man - no date", these structures probably date to the Bronze Age. The area was first visited by Conan Doyle in the company of Fletcher Robinson. The various references to the early occupation of the area are generally accurate, except perhaps for the remark that the huts "are his wigwams with the roofs off"! Watson, in a letter to Holmes, sets the scene rather picturesquely: "When you are once out upon its [the moor's] bosom you have left all traces of modern England behind you, but on the other hand you are conscious everywhere of the homes and the work of prehistoric people. On all sides of you as you walk are the houses of these forgotten folk, with their graves and the huge monoliths which are supposed to have marked their temples. As you look at their grey stone huts against the scarred hillside you leave your own age behind you, and if you were to see a skin-clad hairy man crawl out from the low door, fitting a flint-tipped arrow on to the string of his bow, you would feel that his presence there was more natural than your own." Conan Doyle had clearly been well primed by Robinson, for although Dartmoor features in an earlier short story, *Silver Blaze* (1892), there is no reference to archaeology in it and Conan Doyle had obviously never visited the area when it was written.



Piltdown skull (right) is compared with *Homo sapiens sapiens* (centre) and *Homo erectus* (left).

In *The Golden Pince-Nez* (1904), Watson refers to "the singular contents of the ancient British barrow" that might merely reflect an awareness of what Glyn Daniel referred to in 1964 as "the pleasant hobby of barrow digging" which at about the turn of the century was being transformed into "an arduous scientific pursuit" by Pitt-Rivers. Conan Doyle's knowledge of them is aired again in *The Devil's Foot* (1910). The story opens with

Holmes and Watson taking a well-earned break on the Cornish peninsula. "In every direction upon these moors there were traces of some vanished race which had passed utterly away, and left as its sole record strange monuments of stone, irregular mounds which contained the burned ashes of the dead, and curious earthworks which hinted at prehistoric strife." Holmes was moved to say: "Let us walk along the cliffs together and search for flint arrows" and the two decided, despite a pressing case that needed solving, to "devote the rest of our morning to the pursuit of Neolithic man." Characteristically, Holmes discoursed for two hours "upon celts, arrowheads, and shards." This atmosphere induced Holmes to research the possibility that the ancient Cornish language was akin to Chaldean and had been derived from Phoenician tin traders, a theory advanced by John Twyne as early as 1590. The setting of this story also clearly owes its origin to Conan Doyle's trip to Devon with Fletcher Robinson.

Lastly, in *The Three Garridebs* (1924), Holmes and Watson visit a client's room which is "like a small museum". In it is a "cabinet of flint instruments" as well as a case of ancient coins. "Behind his central table was a large cupboard of fossil bones. Above was a line of plaster skulls with such names as 'Neanderthal', 'Heidelberg', 'Cromagnon' printed beneath them." Later in the story, Holmes makes the following statement: "I am a bit of an archaeologist myself when it comes to houses . . . I was wondering if this was Queen Anne or Georgian."

If these extracts are reviewed chronologically, the earlier comments on Darwin and the Andaman Islands can all be dismissed as reflecting concerns of the day. On the other hand, the later more specific references are always linked to the area of Devonshire where Conan Doyle was introduced to the countryside by Fletcher Robinson, himself a successful journalist and collector of strange legends and country tales. Conan Doyle in fact acknowledged that Robinson "gave me the central idea [for *The Hound of the Baskervilles*], and the local colour."

The only really 'incriminating' evidence with regard to Piltdown is the reference to the plaster skulls in *The Three Garridebs*, although 'Heidelberg' can hardly be described as a 'skull', being represented only by a mandible. There is thus no evidence to suggest that Conan Doyle's knowledge of prehistoric skulls went any further than what could be expected of a conventional medical man. There is no greater emphasis on anthropology or archaeology in the Sherlock Holmes stories than there is, for example, on the use of cocaine, Stradivarius violins or the smoking of pipe tobacco. In short, a verdict of 'not guilty' must be returned with respect to the accusation that Sir Arthur Conan Doyle was responsible for the Piltdown forgery.

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A MAMMOTH JOKE

Janette Deacon

The following report appeared in the British newspaper THE GAZETTE recently:

"A huge mammoth which roamed the land more than 12 000 years ago has been dug up at a derelict building site.

Practically every part of the mammoth, including its hair, is still intact because it was preserved 16 ft below the ground in a bed of peat, on the north side of Western Avenue, Acton.

Rupert Green, chief scientist at the British Museum of Extinct and Ancient Animals in Stafford, said: "Even in my wildest dreams I never thought this possible. The peat has preserved the mammoth perfectly."

It was discovered in January when workmen reinstating the derelict site noticed the tip of a tusk at the bottom of a huge pile of rubble.

Local engineers called in museum archaeologists who spent two months unearthing the mammoth.

Five cranes were needed to lift the two-ton beast after a reinforced blanket carrier had been laid beneath it. The operation was kept secret to prevent sightseers trampling the site.

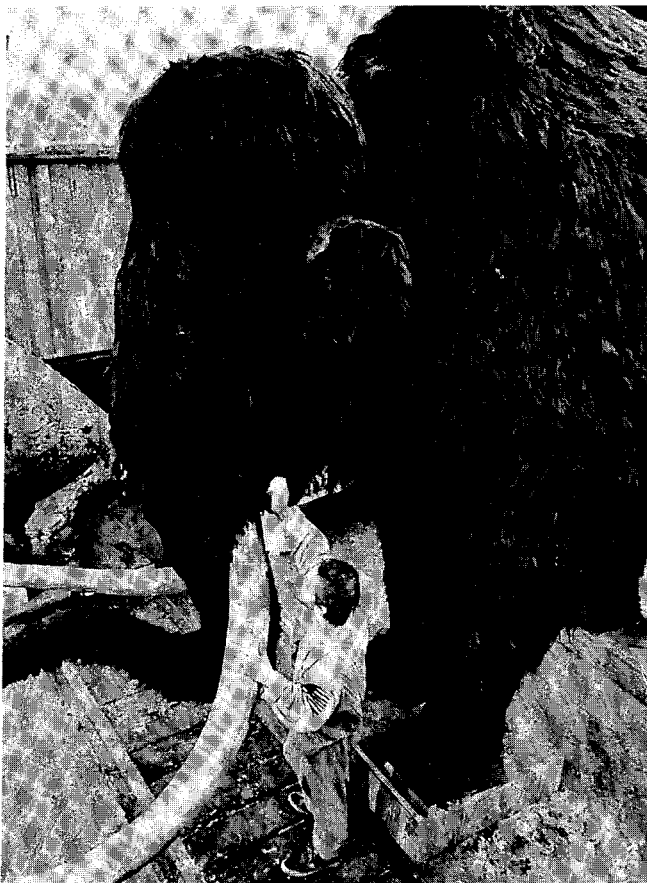
On March 20 the mammoth was transported just 300 yards to an empty warehouse. The operation took five hours. Scientists have inserted metal rods to reinforce the bones temporarily, and a newly-developed preserving agent has been injected, under high pressure, into the body and

sprayed over the exterior.

On April 21 the mammoth will be taken to the Museum of Extinct and Ancient Animals.

Local archaeologists are intrigued by the find. Several years ago a mammoth graveyard was discovered under Hogarth Roundabout, Chiswick. Experts now believe that the graveyard could cover a far wider area. Full story next week."

The photograph that accompanied the article is reproduced here and caused some excitement - until a sceptic noticed the date on the newspaper: April 1, 1988!



Photograph of 'an expert' with the 'perfectly preserved mammoth' published in THE GAZETTE of April 1, 1988.

The article appeared close on the heels of a more believable discovery of mammoth bones at a gravel pit in England last year. They consist of an almost complete adult skeleton and partial skeletons of at least three juveniles. Tusk fragments have been radiocarbon dated and are about 12 800 years old, extending the known occurrence of these huge mammals in Britain to near the end of the Last Glacial. Previously it was thought that mammoths disappeared from Britain during the Last Glacial Maximum between 18 000 and 15 000 years ago as the result of extensive glaciation of the island. The report in the December 3 1987 issue of NATURE notes that the adult skeleton is the best preserved mammoth of any age yet found in England.

The most recent finds in North America suggest that mammoths became extinct there about 2 300 years later, but more finds in Europe could narrow the gap and lend support to the idea that the rapid global climatic changes at the end of the Last Glacial Maximum and the onset of the Present Interglacial were the cause of the extinction everywhere. On the other hand, many will still stand by the theory that the numerous large mammal extinctions in North America were the result of overkill by human hunters.

In southern Africa it is most commonly believed that the extinction of several unusually large species, including a giant buffalo, the giant Cape horse and a giant hartebeest, was the result of a combination of environmental changes at the end of the Last Glacial Maximum and improved hunting methods that included the bow and arrow.

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AN ARCHAEOLOGIST IN ISRAEL

Leora Frucht

For Osnat Misch-Brandl archaeology is a family affair. The 40 year-old Israeli-born archaeologist and museologist attributes her passion for the past to her father who used to take her to archaeological sites all over Israel when she was a child. Her mother is a volunteer at the Hebrew University's Archaeological Institute (where her daughter studied). Husband Baruch Brandl is a well-known archaeologist.

The Misch-Brandl family may be more steeped in the study of ancient ruins than the average Israeli family, but not by much more. In Israel, archaeology constitutes a national passion. "People from all walks of life are interested in archaeology here. It is part of our national consciousness" says Professor Avraham Biran, the former head of the country's Department of Antiquities and currently director of Hebrew Union College's Nelson Glick Institute of Archaeology.

Israel is one of the world's richest reservoirs of ruins. "All of Israel is an archaeological site" says Mrs Misch-Brandl. "People find artefacts in their backyards." The sheer abundance of artefacts has made archaeology into a national pastime. But it is the deep-rooted significance these artefacts have to Israelis that has turned the subject into a virtual passion. "When we study the Bible we can connect it to the real sites where the story happened" says Mrs Misch-Brandl. "Our history is alive here." She recalls her own reaction upon discovering an ancient house at Tel Batashi, a 2800 year-old site not far from the modern city of Beit Shemesh. "This was once Philistine country, and when you are digging at a site that was once inhabited by the Philistines and you uncover a room where Samson might have come to visit Delilah, it is hard to describe the excitement you feel." Sharing that excitement with the entire Israeli public is a large part of her job as a curator at the Israel Museum in Jerusalem. A museologist by profession, Misch-Brandl is responsible for putting together archaeological exhibits at Israel's largest museum. "I try to help the public enjoy a subject that can be extremely dry, dull and complex if it is not understood clearly. Museology enables me to combine my interest in archaeology with my aesthetic sense, in terms of how to make an exhibit look good. I also enjoy the aspect of being a link between the archaeological world and the general public."

Mrs Misch-Brandl has been a witness to the growing popularity of archaeology. "When I was growing up, the first time I heard archaeology mentioned was when I was in high school", she recalls. "Today I teach it in elementary school. It is important to make sure that everyone in Israel has some grasp of archaeology, because archaeology is really a way of bringing people their history."

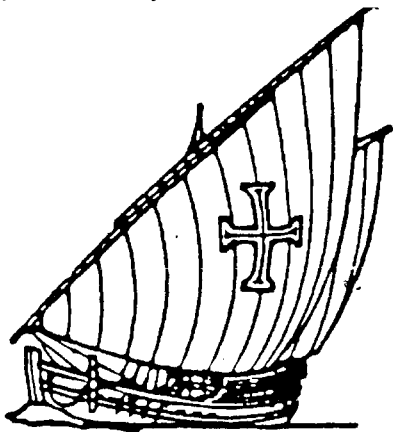
Embassy of Israel, P O Box 3726, 0001 Pretoria



Archaeologist Osnat Misch-Brandl working on a pottery exhibit at the Israel Museum in Jerusalem.
(Photo courtesy of the Israel Museum).

ARCHAEOLOGY AND THE DIAS QUINCENTENNIAL

Archaeologist and culture historian Sonia Schoeman, attached to the Department of Archaeology at the University of Stellenbosch, recently submitted a 115-page report on her excavations at the site of the Post Office tree at Mossel Bay. The excavations were designed to help with the symbolic restoration of the inlet where Bartholomeu Dias is thought to have landed in February 1488. The presence of a railway line, a pier and several buildings in the vicinity made it impossible for the landscapers to put the contours back the way they were five hundred years ago, however. Unfortunately, no cultural material older than the late nineteenth century was found to confirm or deny that this was indeed the landing place of Dias. Earthworks at the turn of the century destroyed much of the original land surface, and rubbish dumps of the late Victorian period and early twentieth century filled in the land around the stream bed and beach. Despite these hitches, Sonia Schoeman was able to trace the position of a small spring called the Watering-place of St Blaize (Aguada de Sao Bras) by Dias and described by several early travellers who followed in his footsteps, and she was able to give some useful guidelines to the developers on the overall lie of the land so many centuries ago.



Official celebrations of the Dias Quincentennial have tended to focus on Portuguese perspectives of this historic event. Rarely is the 'view from the shore' discussed. The Western Cape Branch of the Society has therefore decided to devote the annual one-day lecture series or 'teach-in' to this theme. It is to be held on Saturday September 24 and is entitled KHOIKHOI: THE FORGOTTEN PEOPLE OF THE CAPE - AN ARCHAEOLOGICAL ODYSSEY OF SOCIAL INTERACTION AT THE CAPE 1488-1988. Five speakers will address aspects of this topic, from the physical anthropology and archaeology of the Khoikhoi to the life of modern Nama people. The lecture series aims at informing the general public, publicising the Archaeological Society and raising funds for the Western Cape Branch. Details will be sent to Western Cape Branch members in monthly newsletters and will also be available in the press nearer the time. Members from further afield who may like to attend can write to Dr Anne Thackeray, Department of Archaeology, University of Stellenbosch, 7600 Stellenbosch.

THE REMARKABLE MARIA WILMAN: A FOOTNOTE

Leslie E. Kent

As a follow-up to Dr Janette Deacon's delightful article in the September issue, those with a geological bent may be interested to learn that Miss Wilman has yet another claim to fame, having been a pioneer member of the staff of the Geological Commission of the Cape of Good Hope, the first and oldest continuing state-funded geological organization in Africa, that was established in 1895. In the Commission's Report for 1898 it is noted: "The staff had been added to by the appointment of Miss M. Wilman as an assistant to the Geologist in the office and museum work." As Dr Deacon noted, Miss Wilman worked in a 'voluntary capacity' at the South African Museum, apparently for several years, before her appointment to the staff of the Commission, which had its offices in a building in the Museum complex.

The 'Geologist', later styled Director, was Professor G. S. Corstophine and the only other members of the professional staff were A. W. Rogers and E. H. L. Schwarz. In the Annual Reports up to 1903, Miss Wilman is listed as 'Museum Assistant'. Subsequent reports name only the members of the 'Scientific Staff' - an injustice in view of her achievements at Cambridge. The only specific reference to her work is in the 1902 Report where it is noted that the bones of a *Pareiasaurus* for exhibition were "cleared of their matrix by Miss Wilman, under the superintendence of Dr Broom." Dr Rogers, who succeeded Professor Corstophine and later became Director of the Geological Survey of South Africa, spoke to me on several occasions in glowing terms of Miss Wilman's work in cataloguing the Commission's collections and preparing selected specimens for display in the South African Museum. This experience led to her appointment as the first Director of the McGregor Museum in Kimberley in 1908.

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PAST CLIMATES IN SOUTH AFRICA: THE LAST 130 000 YEARS

Janette Deacon

In a book that will soon be available from Oxford University Press entitled LATE QUATERNARY PALAEOENVIRONMENTS OF SOUTHERN AFRICA, Janette Deacon and Nick Lancaster have summarized the evidence for climatic and environmental changes in the subcontinent over the past 130 000 years.

During the past two million years or more the earth has gone through a series of cooler and warmer cycles as the amount of heat received from the sun has varied systematically according to changes in the angle of the earth's axis and the orbit of the earth around the sun. Each so-called glacial/interglacial cycle has lasted approximately 100 000 years with cooler conditions than at present predominating. At present we are in what is known as the Present Interglacial that commenced about 10 000 years ago. The Last Interglacial commenced about 128 000 years ago and conditions as warm as at present ended some 10-12 000 years later. Between about 115 000 and about 75 000 years ago, temperatures fluctuated around a mean that was about 2 degrees C cooler than at present. Thereafter, climates worldwide became progressively cooler in the Last Glacial after about 75 000 years ago, and culminated in the Last Glacial Maximum around 18 000 years ago when temperatures in southern Africa were between 5 and 9 degrees C cooler. From about 16 000 BP temperatures began to ameliorate and reached a maximum during the so-called climatic optimum of the Present Interglacial between 7000 and 5000 years ago.

The scale and timing of worldwide climatic shifts can be gauged most accurately from the study of oxygen isotope and species changes in the calcareous shells of marine micro-organisms such as planktonic foraminifera and radiolaria that have accumulated through the ages on ocean beds. The mud on the sea bed is not subjected to as much erosion as occurs on land (although there are of course some parts of the ocean bed where sediments do not accumulate steadily and rapidly) so it is at least potentially possible to find thick accumulations of shells and other matter. Cores can be obtained through these deposits using sophisticated equipment and they are sampled at regular intervals. The shells can be identified as to species, they can be dated by radiocarbon and other methods, and they carry an oxygen isotope 'signature' that records the ratio of oxygen-16 to oxygen-18 in the ocean water at the time they were alive.

It has been established that when water evaporates from the ocean, the lighter isotope oxygen-16 is evaporated more easily than the heavier oxygen-18. Consequently, when large amounts of water are locked up in polar ice caps during glacial times, the ratio between oxygen-16 and oxygen-18 in ocean water is greater than during interglacials when the lighter isotope is released again by the melting ice. In addition, certain species of forams and radiolaria are very sensitive to changes in temperature and salinity. At times of cooler temperatures when ice caps formed at the poles, ocean waters were both cooler and more salty and the range of species found at different latitudes varied accordingly. These species changes can be correlated with changes in oxygen isotope

ratios through sophisticated computer analyses and after several decades and many thousands of core analyses, an accurate picture of the scale and timing of changes in ocean temperatures over the past million years or so has been built up. The last 130 000 years is the best documented part of the record and the accompanying Figure illustrates the results for this time period.

In South Africa temperatures at the height of the Last Glacial Maximum were at least 5 degrees C cooler than at present, and in some areas could have been as much as 9,5 degrees C cooler. For most of the Last Glacial, temperatures were 3-5 degrees C cooler, and at the height of the Present Interglacial they were possibly 1-2 degrees C warmer than at present. Temperature estimates were calculated from oxygen isotope analyses of stalagmites in the Cango Caves in the southern Cape and Wolkberg Caves in the eastern Transvaal and from water that has built up in a vast underground aquifer near Uitenhage. These sources represent water evaporated from the Indian Ocean over the past 40 000 years and deposited on land as rain. In the case of the stalagmites, it filtered through the soil and became fixed in the calcium carbonate of underground caves, and in the case of the Uitenhage aquifer, radiocarbon dating has confirmed that the rain water that fell on the mountains has seeped into the natural dam underground and has trickled downwards towards the coast. The water nearer the coast is therefore older than the water nearer the mountains.

The temperature estimates show that it was not cold enough for permanent snow to accumulate anywhere in southern Africa during the Last Glacial Maximum, although there are periglacial features typical of very cold conditions in the Drakensberg mountains. Generally cooler temperatures would have meant a greater incidence of frost and snowfalls in the interior of the country, particularly in mountainous areas.

It is much more difficult to estimate past rainfall than past temperatures, and it is possible that cooler temperatures overall may have led to different rainfall responses in the summer and winter rainfall regions of southern Africa. By correlating the available information, it would seem that the wettest conditions were experienced between about 40 000 and 20 000 years ago, and again between about 16 000 and 12 000 years ago, in other words on either side of the coldest conditions at the Last Glacial Maximum itself when it was unusually dry and cold in most places between about 20 000 and 16 000 years ago. It seems also to have been generally drier at the height of the Present Interglacial between 7000 and 5000 years ago.

What about the future? Should you start knitting warmer winter woollies or save up for central heating? Not unless you expect to live for more than 2 000 years! In fact, if some forecasters are correct, the effect of increased carbon dioxide in the atmosphere as a result of human interference (burning fossil fuel, chopping down forests, damaging the ozone) could reverse the natural process of global cooling and we may be in for a long heatwave.

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GOINGS ON IN NATAL – THE BRANCH AND THE MUSEUM

Val Ward

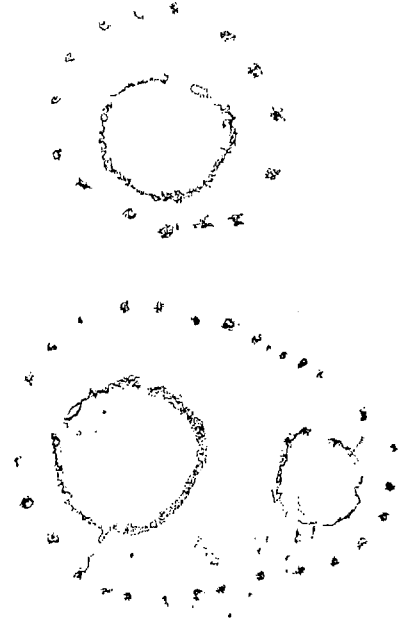
Rock Engravings

During construction of a new section of the N3 road over the Thukela River, previously unknown rock engravings were found. In the vicinity are Iron Age stone ruin settlements that are depicted in considerable detail in the engravings.

A large number of Natal Branch members spent a day recording and tracing the engravings for the Natal Museum. Subsequently, Tim Maggs included the engravings in his report on two stone ruin excavations in the area. His paper is to be published in the ANNALS OF THE NATAL MUSEUM in December this year.

Shortly before Tim Maggs was due to give an illustrated lecture on the engravings to the Branch, the road engineers delivered to the Natal Museum several engraved rocks rescued from a quarry. We decided to mount a temporary exhibition showing the new acquisitions to coincide with the talk.

The exhibition features not only the engraved rocks, but re-drawings of other engravings and surveyed plans of stone ruin excavations all showing uphill entrances to the cattle pens. As a comparison we included in the display a Zulu woodcarving depicting a homestead, and a low level air photograph of a rural Zulu homestead of today, both showing the characteristic pattern of houses around a central cattle pen, but now the entrance to the pen is downhill.



Pecked rock engraving showing a settlement with central pen with uphill entrance surrounded by houses and another settlement with two pens, also with uphill entrances. The engravings are redrawn here as they were found on the rock.

In his lecture Tim compared settlement engravings from Natal with other areas. He used two projectors simultaneously and rigged up two rear-view mirrors so that he could face the audience and see the screen at the same time. Many in the audience did not know about the mirrors and were most impressed that Tim knew his slides so well, only to discover the trickery afterwards.

Flood rescue exhibition

A second temporary exhibition at the Natal Museum deals with the positive side of Natal's floods. Several previously unknown archaeological sites exposed by the scouring of Natal's rivers were brought to our notice and several Early Iron Age pots were rescued. The display shows these pots, that date from the fourth to the seventh century AD, along with marula nuts and slag recovered with them. Photos of flood devastation and pots in situ accompany the display.

Research seminar

Natal being short of archaeological posts and with more demands than it can handle, has resorted to contract archaeology. Post-graduate students from Wits, Stellenbosch, UCT and Pretoria are undertaking research projects which will partially fill the needs of Natal, KwaZulu and Transkei and will assist the students in their requirements towards post-graduate degrees.

Since contact is infrequent, the Archaeology Department of the Natal Museum organized a one-day research report workshop in March in which archaeologists from Natal, KwaZulu and Transkei participated. People from allied disciplines attended and contributed to discussions. Subjects addressed were the Later Stone Age, the Early Iron Age, Late Iron Age, historic Zulu sites, education and display. The workshop was very successful and it was agreed to have them regularly.

Rock art excursion

Thirty-four Natal members, family and friends spent a March weekend in the southern Natal Drakensberg visiting rock art sites under the guidance of Aron Mazel. Sites visited included Boundary Rock and Mpongweni Shelter in the Cobham area and Bottoms Up Shelter near the Sani Pass. The Himeville Museum opened especially for the group on Sunday morning so that we could visit the excellent display on San hunter-gatherer history in the area.

Honorary Secretary, Natal Branch

BOOK REVIEW

HOLM, ERIK Snr. 1987. *Bushman art*. Pretoria: De Jager-HAUM Publishers. R14.95.

This book is part of a series entitled INSIGHT and is presumably meant for school libraries. I am forced to begin by noting that it has NO INSIGHTS whatever to offer and should be avoided by all with an interest in the prehistoric paintings and engravings of southern Africa, and especially by children who might be inclined to believe it as authoritative. I am convinced that it is not only superficial and misleading, but that it promotes a racist and dangerous vision of the southern African past. I am frankly disturbed that a reputable publisher can even suggest that these views are worth printing, let alone promoting.

The organization of the text comprises a brief introductory section (in which the anticipated audience is revealed in the phrase "the primitive European art of our own ancestors") followed by a misleading section on where and why people painted or engraved. The bulk of the text describes the way Holm believes the 'Bushmen' viewed various animals, largely through an 'analysis' of their paintings. This leads inevitably and poignantly to the final discussion as to where the art came from.

The first eleven pages of text (a) totally mislead us in a single map as to the distribution of paintings and engravings, (b) completely misunderstand and misrepresent archaeological reasoning and some specific archaeological results, and (c) illustrate adherence to an unfounded and hyper-diffusionist view of the origins of southern African paintings and engravings. The comments on how 'Bushmen' perceived and depicted various kinds of animals is totally uninformed by recent scholarship and is initiated by a belief in the literal and explicit purpose or character of the painted images. There is only one reference in Holm's bibliography to a work written after 1969 and the average 'age' of his reading in 1941; for such a book to appear in 1987, ignoring a decade of very rapid progress in our understanding of what we now call San art, is disgraceful.

The impression given that the paintings speak for themselves (a springbok 'inside' an elephant has been swallowed, an animal is 'among clouds', an engraving shows 'a giraffe casting off its skin' etc, etc) might be merely mistaken, but in fact is the starting point of what appear in the final ten pages to be the crux of the book. Having analysed a complete panel in Silozwane Cave in the Matopos of Zimbabwe, Holm concluded (p. 41) "In fact these older images are not snakes at all but boats with decorative animal heads" and "In actual fact, this 'tent' is really the sail of a large boat made from animal skin . . . Small pure white humans can be observed running alongside this sailingboat." His view that the paintings are literal depictions allows him to set up a finale in which he asks why white people in boats get painted in southern African caves. The answer, not surprisingly by now, but amazing nonetheless, is that white Europeans (the intended 'us' of the readership) sailed here at some unknown time in the past bringing art to the hitherto ignorant natives. This explains why the rock art of southern Africa resembles that of Europe, he says; it also explains why this text is littered with European examples, often very simplistically compared with local paintings or engravings.

Even more amazing is the suggestion that the white (really, and in the paintings!) people sailed up the rivers of south-east Africa, including the Matjes River just east of Plettenberg Bay, into the interior. "Wherever they came across caves they apparently practised their customs and rituals, thereby initiating the natives with such customs." The reason for including the unlikely Matjes River soon becomes clear. Holm, noting that a cave near the Matjes River mouth has produced a series of human burials, reports that "an expert, A. J. Meiring, explains that these skeletons showed definite similarities to those of the European cave painters, the so-called Cro-Magnon people." We should make it clear that this is very misleading as the skeletons in question are undoubtedly African *Homo sapiens sapiens* and are the likely ancestors of modern San or Bushmen.

Such a book would barely be worth reviewing were it not for the fact that the author claims to be another 'expert' and uses literature neither cited nor accessible to his

readership. There is no doubt that this book is very badly informed and allows little or no insight into the complex and exciting question as to why southern Africa is such a storehouse of prehistoric art. For that, people will have to read something else.

John Parkington

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A NEW BOOK ON ZIMBABWE

In *SYMBOLS IN STONE: UNRAVELLING THE MYSTERY OF GREAT ZIMBABWE*, Professor Thomas N Huffman of the Department of Archaeology at the University of the Witwatersrand has presented a new interpretation of this famous and most important capital of the medieval Shona empire. Using sixteenth-century eye-witness accounts of the Zimbabwe culture, together with Shona oral tradition and traditional Shona custom, he reconstructs the different uses of the stone enclosures and the meaning of many symbols, including the Zimbabwe birds and the conical tower.

The book is available from the Witwatersrand University Press, P O Wits, 2050, at R5,33 including GST, postage and packing for South African addresses, and R6,75 for all other countries.



SCHOOL HISTORY AND OUR SOUTH AFRICAN PAST

We have had a very gratifying response from readers of the BULLETIN to the article by Aron Mazel and Peter Stewart on the lack of information in school history textbooks with regard to the indigenous peoples of southern Africa and their precolonial history. We would like to take the matter further with education authorities, so if any readers have suggestions about whom one should approach, we would greatly appreciate the information. Please write to Dr D M Avery, the Secretary, South African Archaeological Society, P O Box 15700, Vlaeberg, 8018.

WHAT WESTERN CAPE MEMBERS WANT

Dr Anne Thackeray, Secretary of the Western Cape branch of the South African Archaeological Society, recently circulated a questionnaire to members to discover what they are most interested in hearing about at monthly lectures and in visiting on outings.

Twenty percent of the members responded (48 out of 240). Of these, about half were willing to help with field work by sampling shell middens and other sites in danger of being destroyed in mining operations on the West coast, and about the same number showed an interest in learning to identify and sort archaeological materials one evening a week on a regular basis. About 40% showed an interest in monitoring construction developments generally and in clearing and measuring ruined buildings in the Newlands forest.

Nearly 60% of the people who replied prefer lectures on rock art and the Stone Age, including human origins, and only 17% want more lectures on classical archaeology such as the Greek Bronze Age and pharaonic Egypt. Their interests are reflected also in their preferences for outings: nearly 40% would like to visit a variety of places including historic, prehistoric and rock art sites, rather than only historic sites (2,8%), only prehistoric sites (16,7%) or only rock art sites (2,8%).

Dr Thackeray expressed surprise at the obvious interest in Stone Age sites and will be planning Western Cape activities to cater for it.