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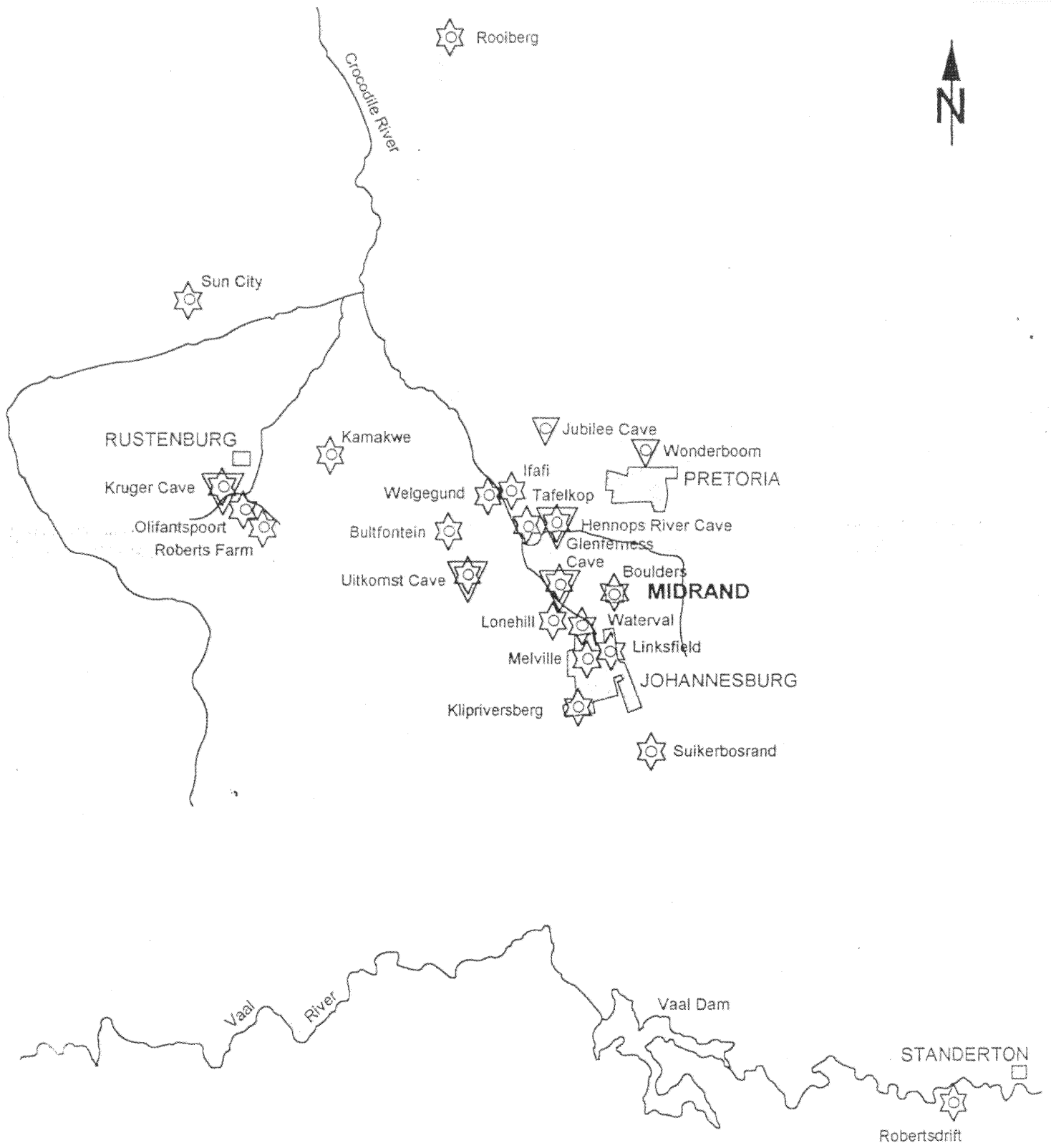
**FINAL DRAFT**

(11/12/1997)

RECORDING MIDRAND HERITAGE  
FROM THE EARLIEST HUMAN OCCUPATION

THE BOULDERS SHOPPING CENTRE PROJECT 1997

PROF REVIL MASON



★ Iron Age Pottery Sites Dated About AD 1400 - 1800 with Pottery Similar to Boulders Pottery

△ Stone Age Sites 250000 - 5000 BC with Stone Artefacts Similar to Boulders Artefacts

0 25 km 50 km

# THE MIDRAND HERITAGE PROJECT

THE BOULDERS SHOPPING CENTRE  
ARCHEOLOGY EXCAVATION 1997

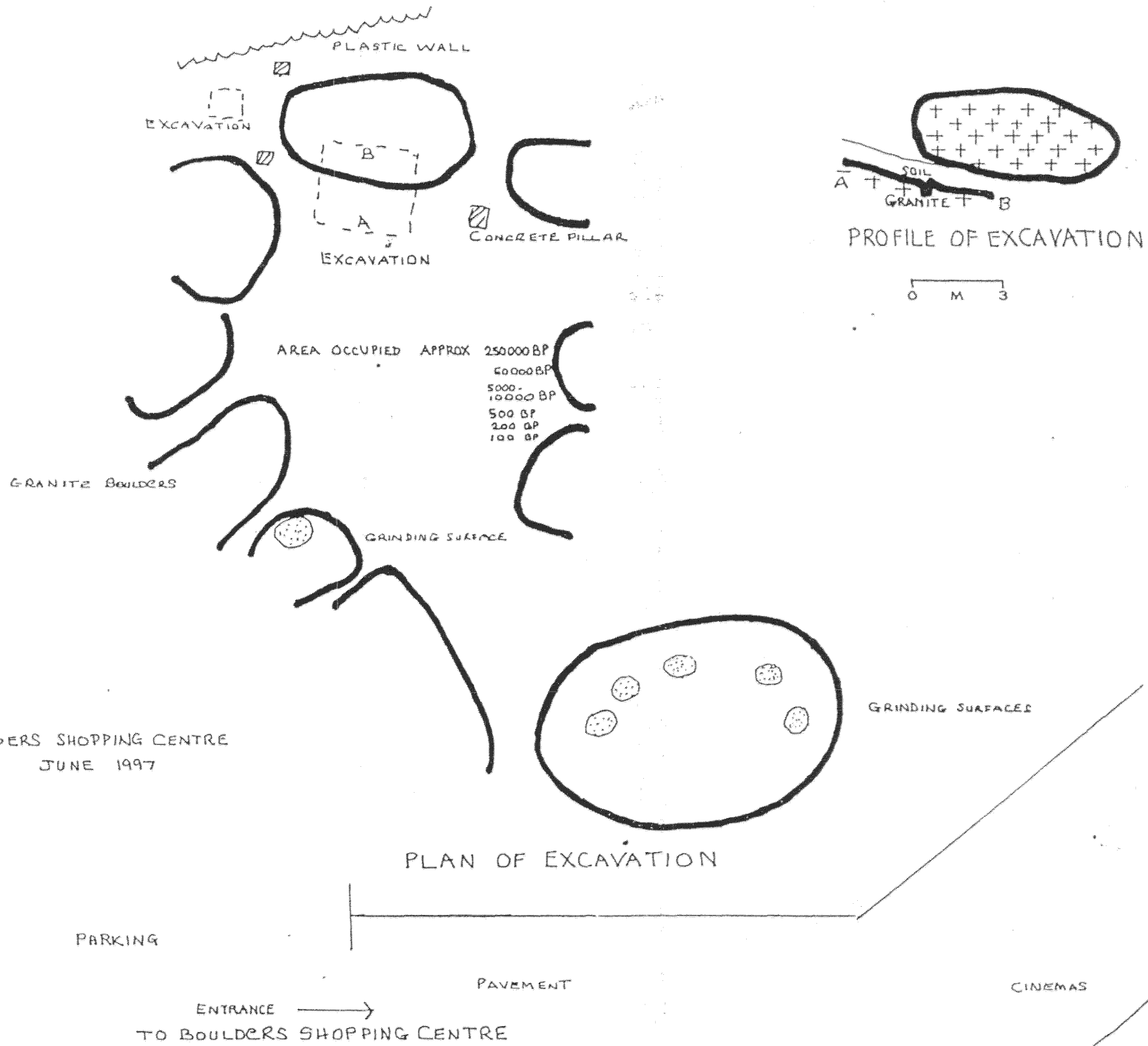
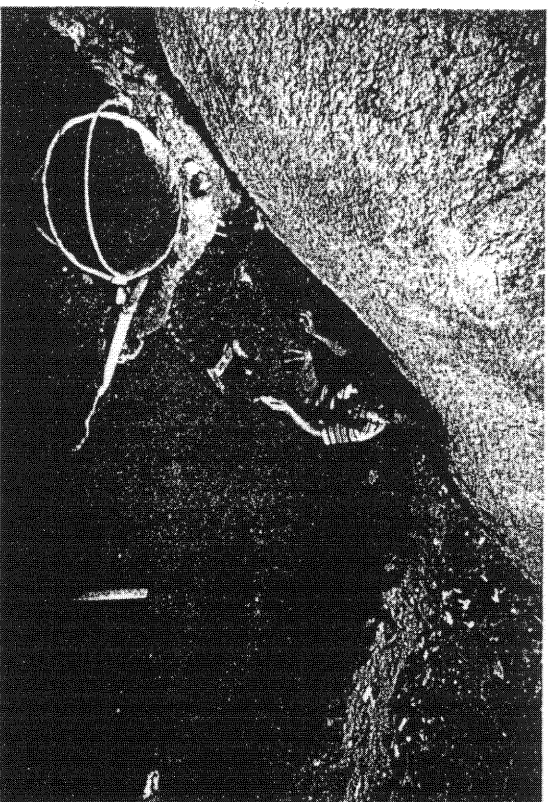
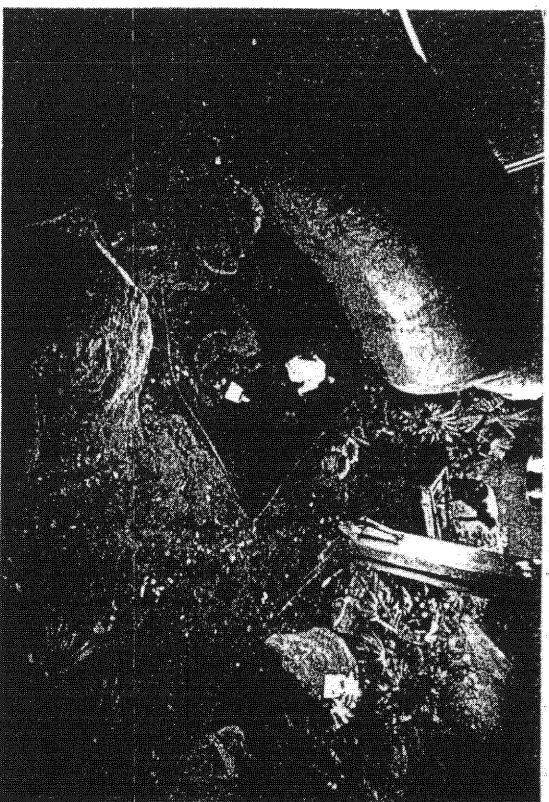
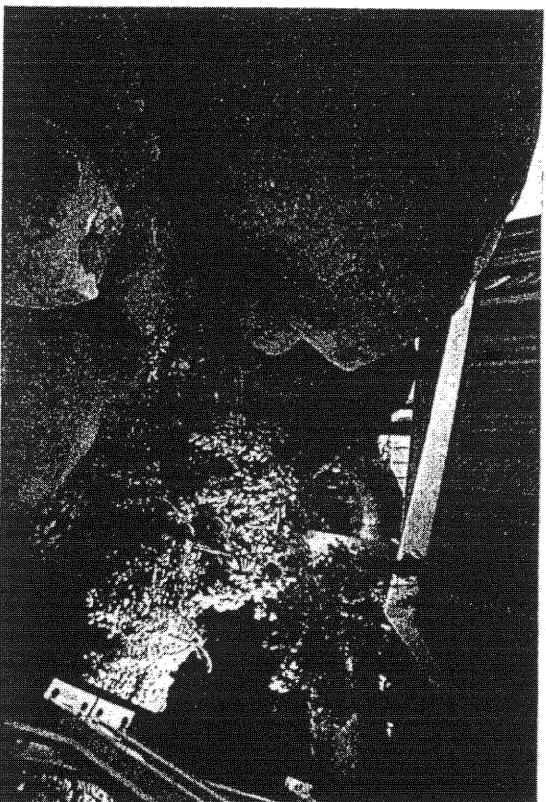


FIG 2



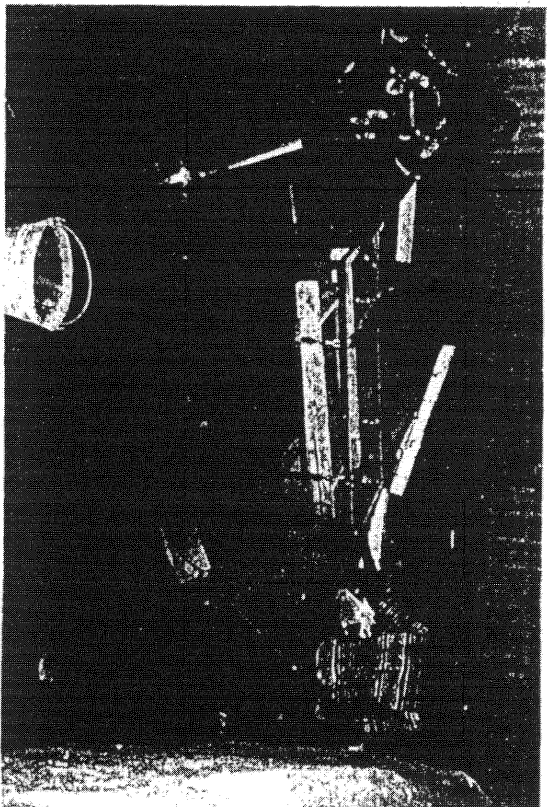
BOULDERS SHOPPING CENTRE EXCAVATION

JUNE 1997

FIG 3



CALVIN  
NDLOVO

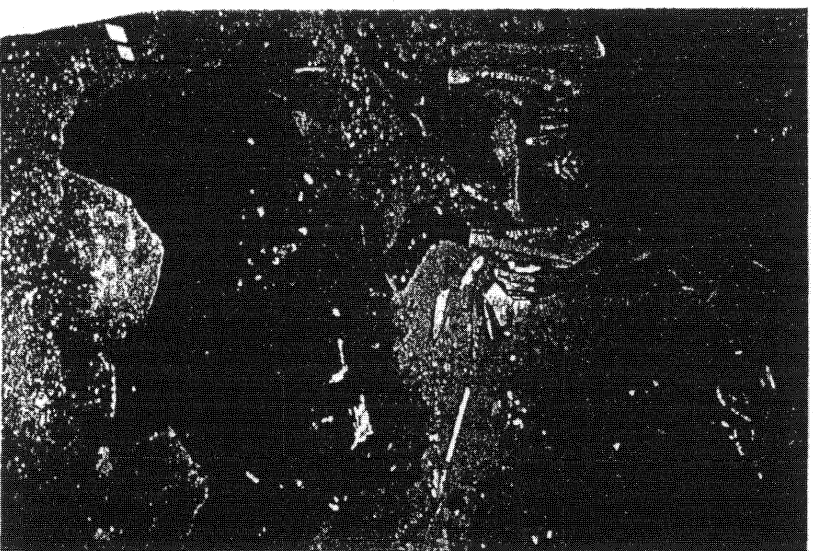


JOHN  
LEBESE

SIEVE AND PROCESSED SOIL



BAGGED ARTEFACTS



JOHN LEBESE AND TRENCH

## DEVELOPMENT OF THE MIDRAND HERITAGE PROJECT

Early in 1996 Midrand environmental and cultural conservationists, Alan Dawson, Dirk Bouwer and Pierre Nel came to see me to talk about the preservation of a Midrand environmental-cultural site known as Glenferness Cave. The cave is set among beautiful granite boulders on the Jukskei River known to pre-colonial Batswana as the Ori River. In 1948 I had excavated traces of Midrand Stone Age hunters and Iron Age farmers in Glenferness Cave. The cave is on Wildroocke farm, then owned by the Hindmarch's but now the property of Midrand Council (fig 1).

A few kilometers east of Glenferness the granite formation is exposed in a pile of huge boulders known as a 'Tor' and enclosed in the Boulders Shopping Centre. The shopping centre management felt that Midrand heritage data might be concealed among the boulders. The management asked me to investigate the site and generously offered to pay the costs. So in June 1997 the Midrand Council employed two assistants to work with me on the excavation of two trenches measuring a total of 6 x 4 meters on the north west side of the Tor (fig 2-4). The National Monuments Council granted a permit for the excavation, and Dr Udo Küsel, Director of the National Culture History Museum provided the necessary museum association.

### RESULTS OF THE JUNE 1997 EXCAVATION

Excavation of the 6 x 4 meter trenches to bedrock at approximate depth of 1 meter took six days. All deposit was passed through a 4 mm mesh sieve. Hundreds of stone artefacts, potsherds, bones, glass, metal and teeth were placed in plastic bags for washing, marking and analysis (fig 4).

Succeeding occupants had disturbed traces of earlier occupation so that intact occupation layers could not be identified. Normally, archaeologists in search of scientific data would not attempt to unravel such a mixture of materials. However, the purpose of the Boulders Shopping Centre excavation was to get data for public interest and education.

I decided to make 'most probable identifications' of the data based on comparisons with well-dated data from no less than eighteen Iron Age and two carbon isotope dated Stone Age sites mainly within a 100 km radius of the Boulders Shopping Centre, together with less well dated data from two Stone Age sites: Wonderboompoort and Cave of Hearths, and an Iron Age site: Tafelkop south of Hartebeespoort Dam (fig 1).

The Boulders Shopping Centre excavation therefore provides a preliminary outline of the Midrand heritage from the past. The excavation results challenge future archaeologists to improve upon the preliminary sketch I set out as follows:

## SUMMARY OF POSSIBLE BOULDERS HERITAGE SEQUENCE

1. The earliest human occupants of the Boulders left behind a few rough sandstone flakes similar to the Wonderboompoort Early Stone Age flakes. The Wonderboompoort Stone Age site does not have direct dating evidence but the artifacts resemble some artifacts from the better-dated Cave of Hearths Early Stone Age at Makapansgat. The Early Stone Age is to be dated in terms of hundreds of thousands of years (fig 9).
2. The next occupants of Boulders left behind stone artifacts resembling the later Cave of Hearths Middle Stone Age artifacts and the Waterberg Olieboompoort artifacts. The latter are isotope dated to 'over 33 000 years' (fig 9).
3. The third occupants of Boulders may have been very early San or Bushmen. The stone artifacts in this group are weathered but their shapes are quite distinct from artifacts in Boulders groups 1 and 2. The artifacts may represent an early development in the 'Oakhurst' style represented at Lockshoek near Colesberg (Sampson 1974) (fig 10).
4. The fourth occupants of Boulders may have been San. They made artifacts similar to the Kruger Cave and Uitkomst Cave artifacts dated between 10 000 and 5 000 B.P. (fig 11). Some of the smaller Boulders artifacts resemble artifacts associated with two San burials I excavated at Munro's Site near Bloemhof on the Vaal River. The fourth occupants left behind the largest Stone Age assemblage in The Boulders, representing many of the known kinds of artifact made at that time. These Boulders artifacts are similar to the stone artifacts found in Oakhurst Cave near George suggesting similar ways of human life both in Oakhurst and Boulders at that time.
5. The fifth occupants register a dramatic change in the Midrand human landscape. These people were probably ancestral Tswana speaking people, to judge by the similarities between their pottery and pottery recorded at a Zeerust area Tswana town by John Campbell in 1820. Similar pottery has been found at Iron Age villages west of Boulders at Olfantspoort 29/72, Bultfontein and Ifafi (fig 15-16).  
  
One of the identifying attributes of this kind of pottery is internal surface incision decoration on bowls (Mason 1986). Sites with pottery of this kind are probably dated between about AD 1300 and 1500, and are identified as 'Middle Iron Age' sites. Other archaeologists identify this kind of pottery as ancestral Sotho-Tswana 'Moloko' pottery.
6. The sixth occupants moved into the Boulders about AD 1700. They were probably Tswana-speaking descendants of the AD 1300 - 1600 Boulders people. Both groups probably used Boulders as a cattle-sheep-goat station during good grazing conditions in Midrand. Their permanent villages were probably to be found between Kilpriviersberg and Northcliff. Pottery left at

Boulders by the sixth group resembles pottery from the nearby Lonehill iron smelting site which is dated to about AD 1700. One of the time-specific artifacts made after about AD 1600 in the Gauteng - Northern Province region are baked clay smoking pipes. Smoking pipes have not been found in the many AD 350 - 1600 Iron Age sites excavated in the Boulders-Rooiberg-Olifantfontein area. Fine diagonal external rim incision is another attribute of the approximately AD 1700 pottery made in this area; this fine rim incision is found on some of the Boulders pottery (figs 17-25).

7. The seventh occupants of the Boulders were present after about 1890. They left late 19<sup>th</sup> century earthenware jars, glass marble-neck bottles, 'Suncrush' bottles dated 1932 and 'Hubbly Bubbly' bottles from the 1960s, as well as other artifacts of this period (figs 27-28).

Ian Burger's paintings show the people who took part in the Boulders' sequence through tens of thousands of years. The granite boulders backdrop to the human story, has probably not changed at all for millions of years. The Boulders were there long before we came. They will be there long after we have left (figs 29-30).

### HOW ARCHAEOLOGISTS RECONSTRUCT THE PAST

From the earliest times, about 4 million years ago, people have survived by making tools or artifacts. They used these to secure or process meat and plant food. They left remains of all three things at their living places, such as the Boulders.

Archaeologists find the remains and identify them by comparing them with living animals or plants, or with tools described in historical records, or with similar tools or artifacts left at living places in similar environments. If the tools or artifacts suggest a hunter gatherer way of life dated earlier than the production of metals, they are taken to represent Stone Age people.

If they suggest a farming economy supported by metal production, they represent Iron Age people.

Archaeologists sometimes find similar stone tool collections at widely separated sites. For example, some of the Boulders stone tools resemble stone tools excavated by John Goodwin in the Oakhurst Cave near George in the Cape in 1938. This Garden Route cave gave its name to a particular kind of stone tool collection known as the Oakhurst Assemblage taken to represent a particular way of human life dating between about 10 000 and 5 000 BP (before the present). The Boulders stone tool collection receives the same name as the Garden Route cave, Oakhurst.

Pottery found at Boulders is similar to Tswana pottery, suggesting that Tswana people lived at Boulders hundreds of years ago.

Comparison of groups of material things is the basis of scientific explanation. Artifacts found by archaeologists at places like the Boulders can sometimes be

tage, and waste are carefully saved in baskets or other suitable containers and dumped into a pit 10-50 meters from the habitation area.

The pattern is the same from informant to informant irrespective of the cultural or linguistic affiliation of the hide worker. No direct relationship can be established between the contemporary stone tools and prehistoric materials.

Gallagher, James P.

1973 Preliminary report on archaeological research near Lake Zuai Ethiopia. Annales D'Ethiopia, 9 (64-80), Ethiopian Archaeological Institute, Addis Ababa.

1974 Preparation of hides with stone tools in south central Ethiopia. Journal of Ethiopian Studies, 13 (177-182), Institute of Ethiopian Studies, Addis Ababa.

In press Ethnoarchaeology in south central Ethiopia. Proceedings of the VIth Pan African Congress of Prehistory and Quaternary Studies. Addis Ababa.

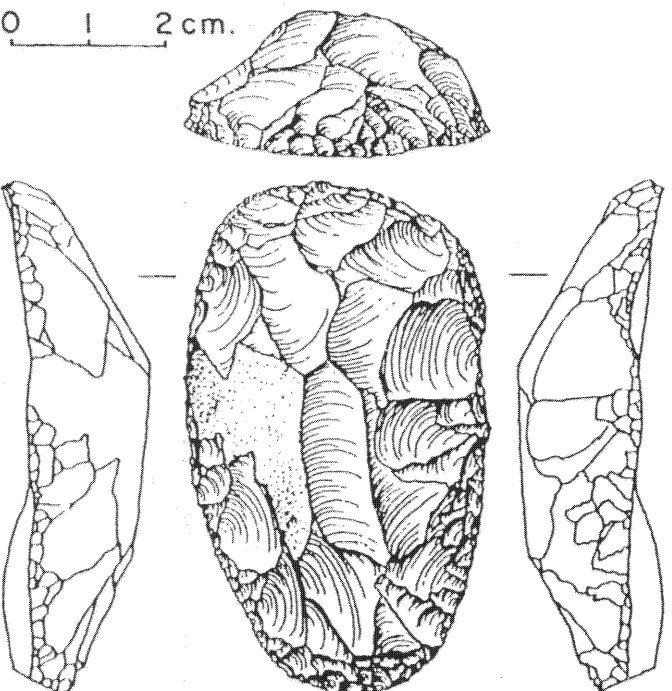


Fig. 1 Hide Scraper

Fig 5



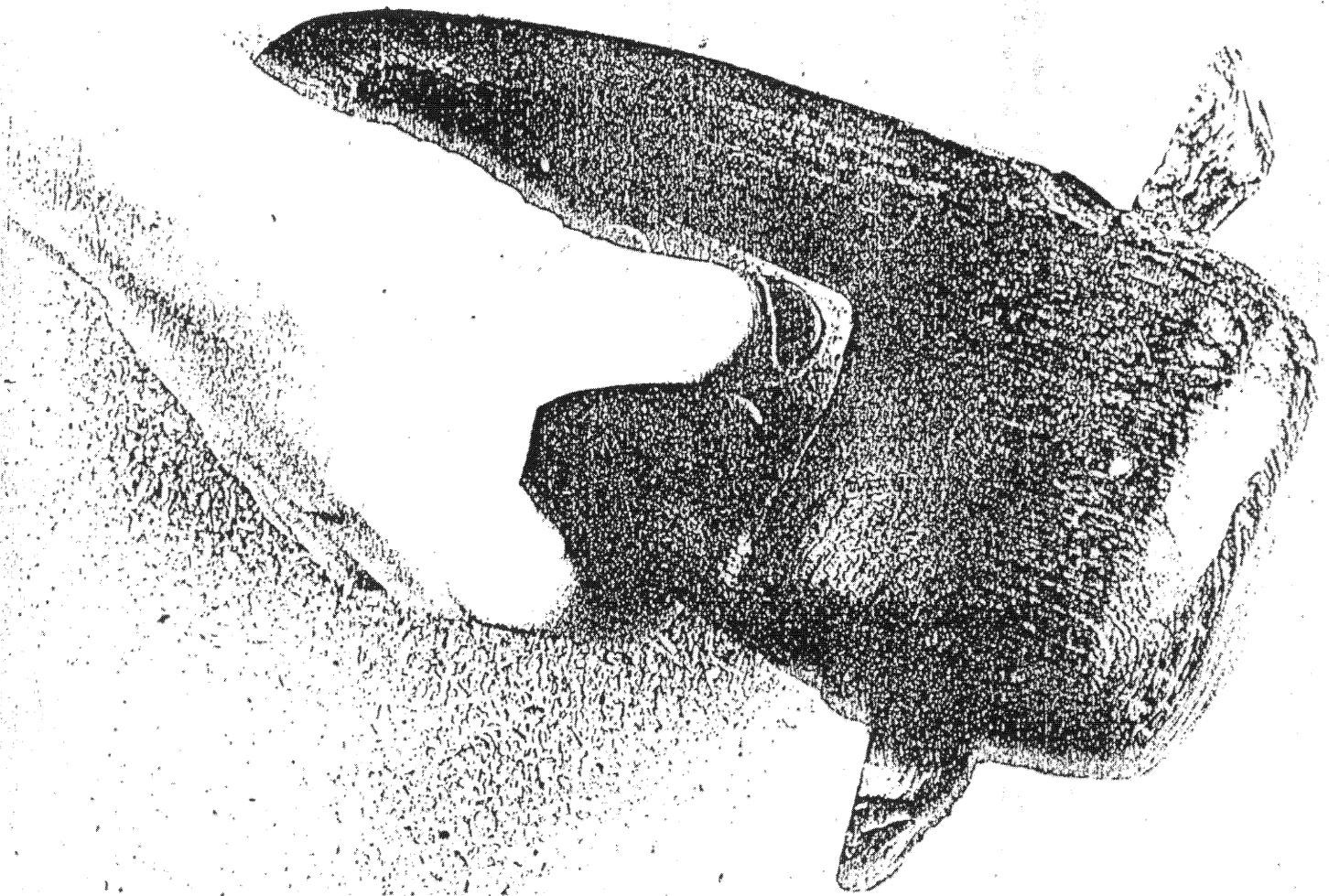


Fig. 2  
Hide Scrapers in Wooden Handle

Fig 6

explained by finding similar things in daily use by pre-industrial people. Some of the Boulders artifacts closely resemble artifacts still being made by pre-industrial or farming or hunting people in Africa, such as the following:

1. Many of the Boulders stone artifacts (figs 10 and 11) closely resemble Ethiopian leather workers' stone and glass tools still in use in Ethiopia in the 1970s (figs 5 and 6). Jim Gallagher, an archaeologist working in South Central Ethiopia in the 1970s, found that a group of "leather tanners" called 'Fakis' "mined obsidian with digging sticks shaped (it) into blanks and transported (the blanks) to the home of the hide worker. The hide worker shaped the blanks into oval scrapers and inserted them into a wooden handle – usually four scrapers were used up in the preparation of a single cow hide." Jim Gallagher was even able to record the personal names of the leather workers (Mucta, Molliso and Mafaed) (Gallagher 1977). In 1995 I was able to inspect some of the leather workers' stone tools collected by Jim Gallagher and housed in the Addis Ababa Museum. I can confirm the close similarity in shape between some of the Boulders Late Stone Age trimmed flakes (figs 11-12) and the Central Ethiopian 1970s leather workers trimmed stone flakes (Gallagher 1977) (fig 5).
2. The red mineral concretions found at Boulders (figs 13-14) may have been used as a body paint like the facial painting recorded among the Kalahari Bushmen by J. Mauduit (Rudner 1982) (fig 7).
3. The Boulders potsherds (figs 15-25) resemble Tswana pottery photographed by C.S. van der Waal of the National Cultural History Museum (Grant 1975) (fig 8).

So groups of similar artifacts from different sites represent the former presence of similar ways of life, cultures or traditions at the different sites. To assist the reader to understand how the Boulders story has been put together, I have added labels to the artifact drawings to show the sites nearest the Boulders where dated artifacts have been found. Similarity in artifact shapes at the Boulders and other sites within walking distance of the Boulders suggests that people sharing a similar way of life were present at the sites.

Archaeologists don't use linguistic labels like Setswana for archaeological records because there is no historical proof of the languages people spoke at archaeological sites. Instead archaeologists give cultural labels to the people who lived at the sites, based on the material remains left at the sites. So the Iron Age people who lived at Boulders cannot, in the scientific sense be labeled 'Batswana' although they can be labeled Batswana in the popular, non-scientific sense. Archaeologists identify prehistoric Iron Age cultural developments which were associated with pottery styles known as 'Traditions'. So the Boulders Iron Age people were associated with a pottery style related to the 'Oori Tradition' which started at Broederstroom about AD350. The associated way of life developed into part of modern Batswana peoples.

Traditions are named after places where the main sites are found. The Oori Tradition is named after the Oori River, which is the ancient Tswana name for the Jukskei-Crocodile-Limpopo River, the main river draining the ancient Batswana heartland between the Witwatersrand and the Soutpansberg.

Archaeologists use technology as a major key to past human development, Technology means 'method of adapting to the environment'. Man's earliest technology was a hunter-gatherer stone technology when stone was a major tool making material. This technology is identified as a Stone Age technology, divided in terms of Early, Middle and Late. In sub-Saharan Africa, Stone Age technology was replaced by Iron Age technology, also subdivided. I use a division into Early, Middle and Late Iron Age technology. Other archaeologists identify only Early and Late Iron Age technology. Early Iron Age technology apparently did not reach the Boulders area, but was limited to the Magaliesberg Valley and northwards, and to Mapulanga and southwards on the coast to Transkei, dated from AD350 – 600.

In about AD1300 the Middle Iron Age began in the Boulders area, developing into the Late Iron Age about AD1600. Traces of both Middle and Late Iron Age people following the Oori Tradition are found at the Boulders

#### **WHAT DID STONE AGE PEOPLE AT BOULDERS DO WITH THE STONE TOOLS THEY MADE?**

There are two possible sources of speculation on the functions of Stone Age stone tools. One source is found in the very limited historical record of observations of hunter gatherers using stone tools. The African data is virtually limited to a 1970's observation made by an American anthropologist, Jim Gallagher. Jim Gallagher saw Ethiopian leather workers using obsidian flakes to prepare leather. The other, less direct source of speculation is experiments made by anthropologists using reproductions of Stone Age tools. These unsatisfactory speculations suggest the following applications of the Boulders stone artifacts:

**Stone artifacts probably used for cutting, shaping or preparing wood, skin or meat**

Stone tools identified in this paper as utilised and trimmed flakes, and waste flakes.

**Stone artifacts probably used as general purpose tools**  
Utilised fragments of stone.

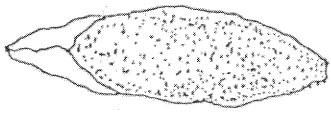
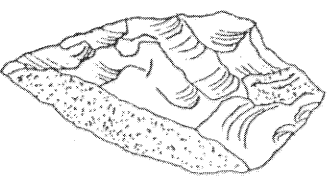
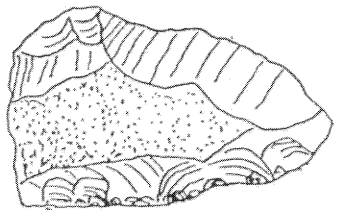
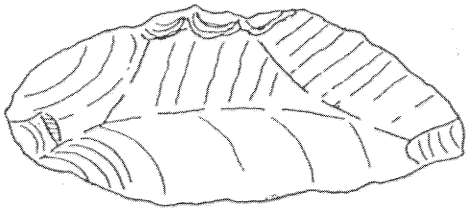
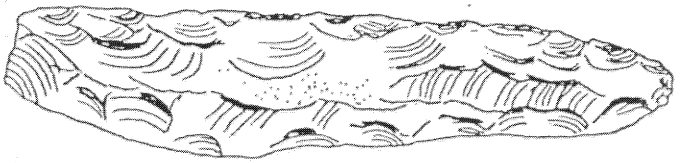
**Stone artifacts probably used as hammers for making other stone artifacts**

Chipped stones about the size of a billiard ball, either irregular in shape or shaped like a cuboid.

**Stone artifacts used to produce flakes or chips**

are known as 'cores'. These are thick rocks that were edge-struck with a hammer-like stone, probably a 'cuboid'. Parts of the core then fractured into thin sharp-

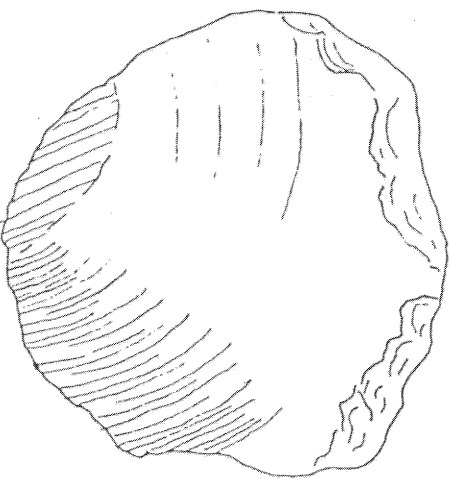
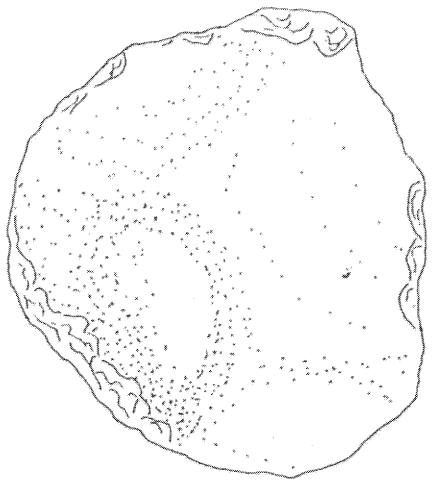




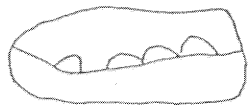
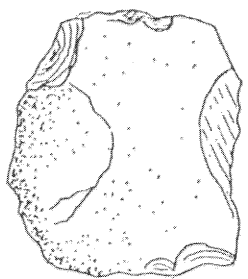
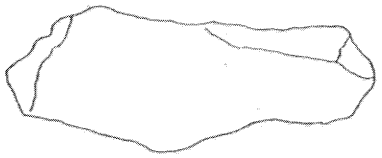
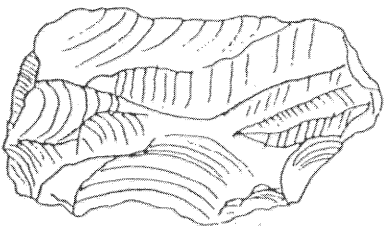
SIMILAR TO CAVE OF HEATHS  
50000 BP?

MIDDLE STONE AGE  
TRIMMED FLAKES

SIMILAR TO PRIMROSE RIDGE  
LINKSFIELD RIDGE 50000 BP?

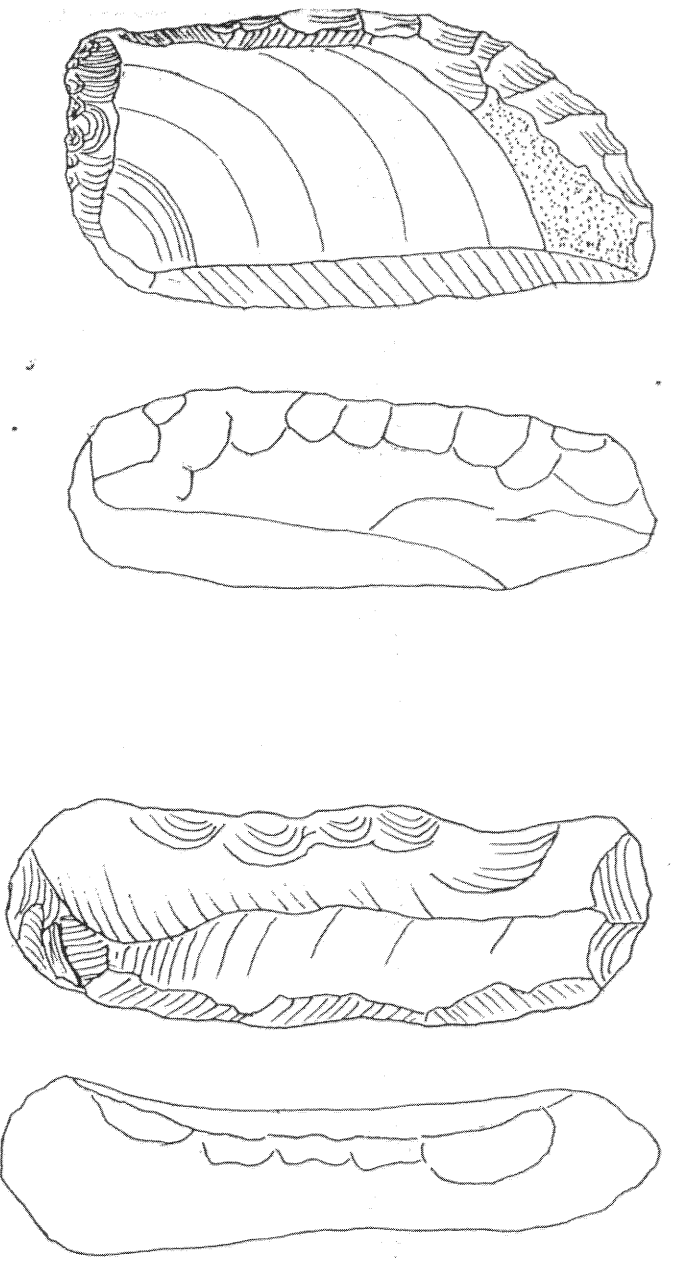


TRIMMED FLAKES

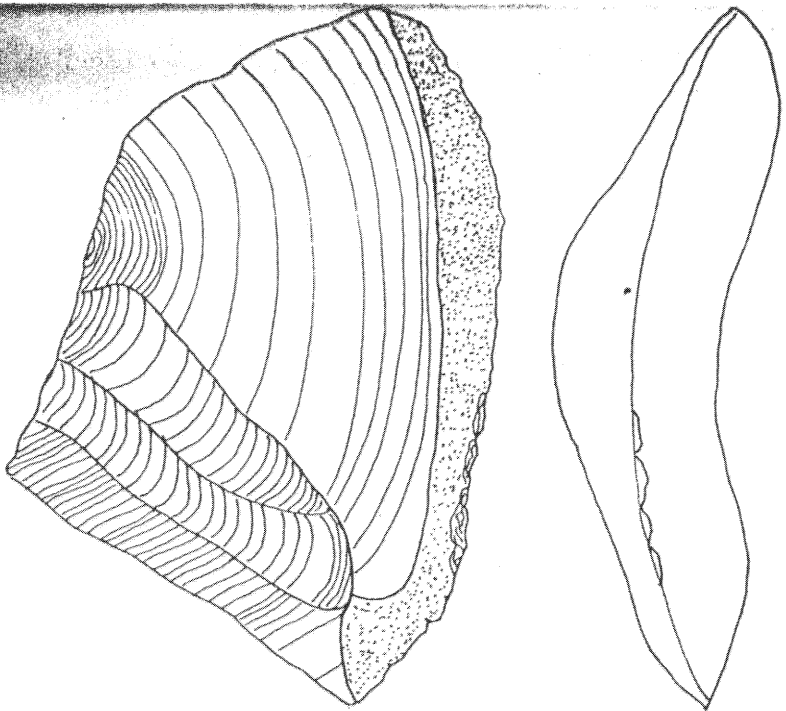


EARLY STONE AGE

SIMILAR TO WONDERBOOM POOL  
CAVE OF HEATHS 250000 BP?



STEEP TRIMMED FLAKES

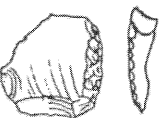
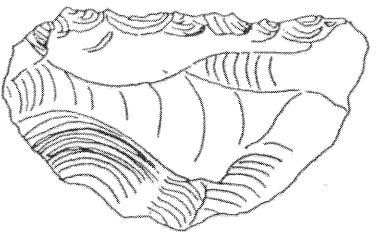
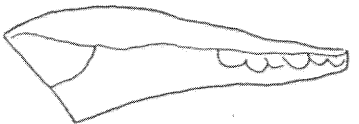
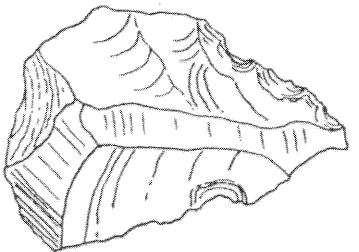


UTILISED FLAKE

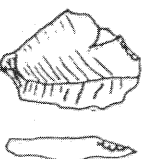
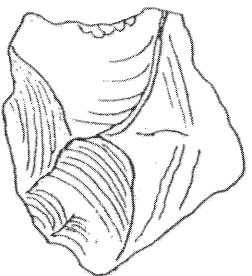
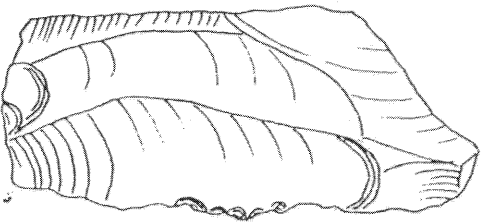


EARLY LATE STONE AGE  
SIMILAR TO LOCKSHOEK -

20000 - 30000 BP?

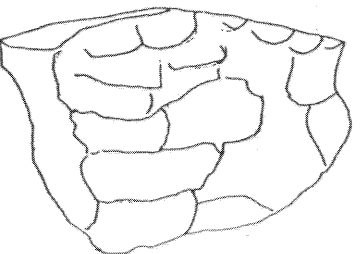
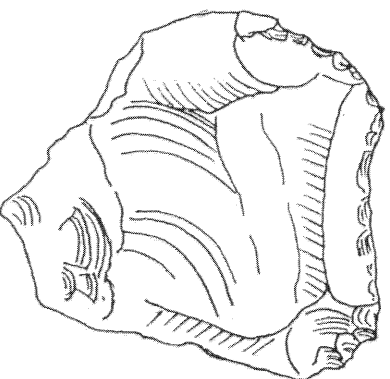
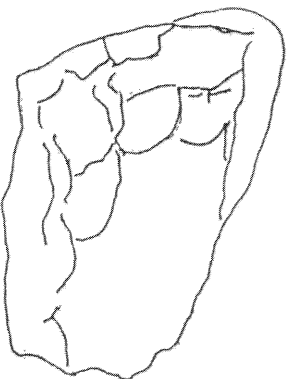
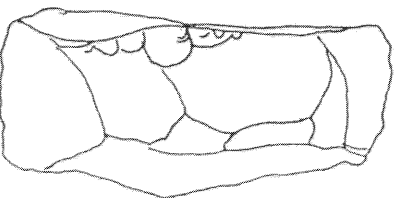
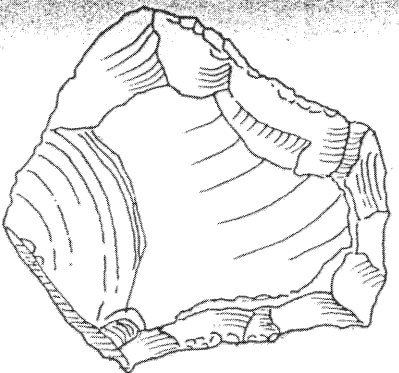


TRIMMED FLAKES



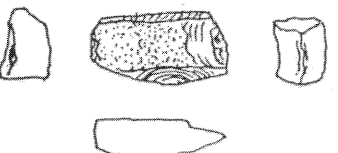
UTILISED FLAKE

UTILISED FLAKES



THICK STEEP TRIMMED PIECES

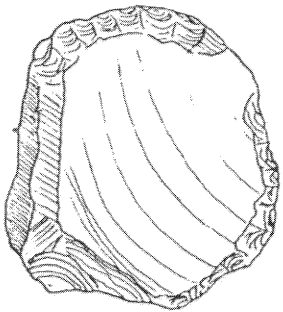
DUTILS ECAILLE  
OR CHISELS



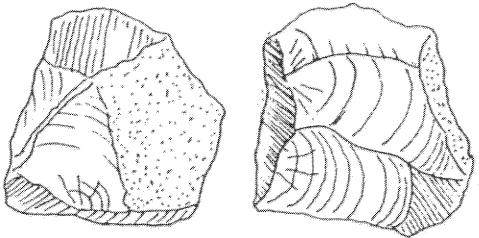
11

LATE STONE AGE

SIMILAR TO UTKHMET CAVE KRIGER CAVE 5000-10000BP



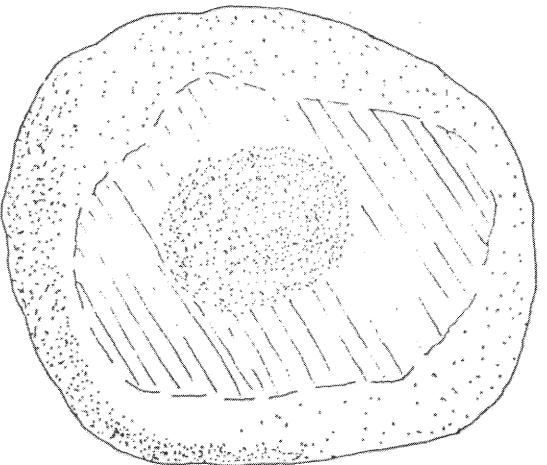
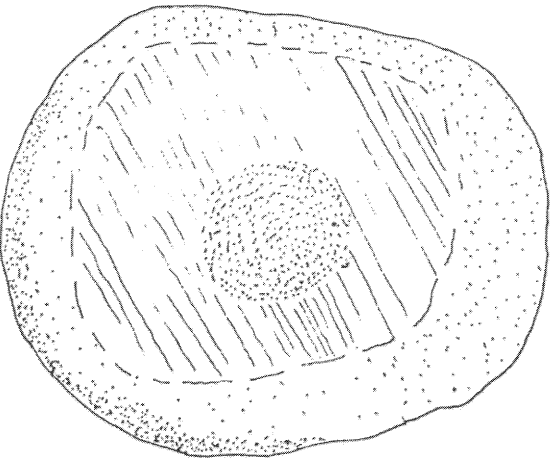
TRIMMED FLAKE



CORE

LATE STONE AGE

SIMILAR TO UITKOMST CAVE KRUGER CAVE 5000-10000 BP



UPPER GRINDSTONE

POSSIBLY BETWEEN 50000 AND 200 YEARS OLD.

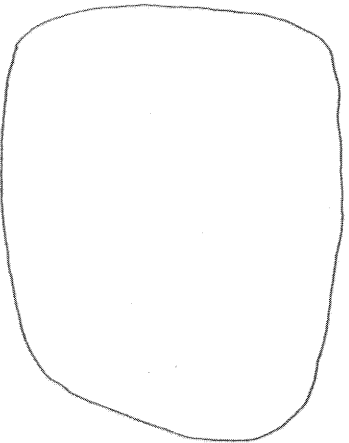
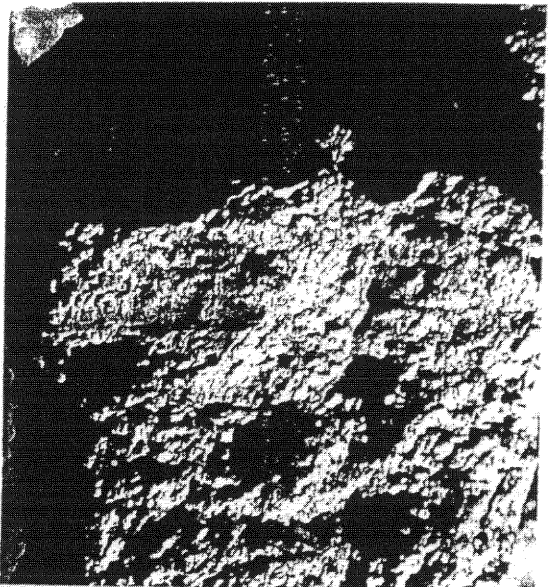
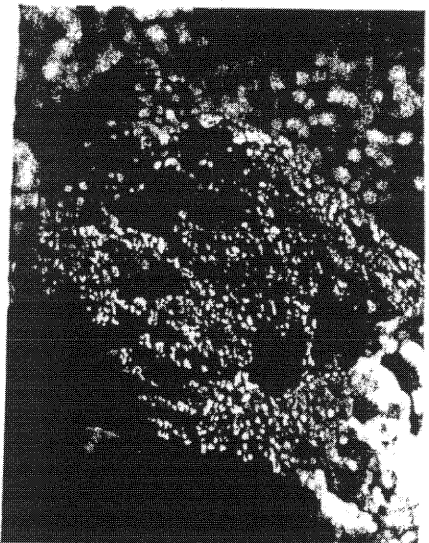
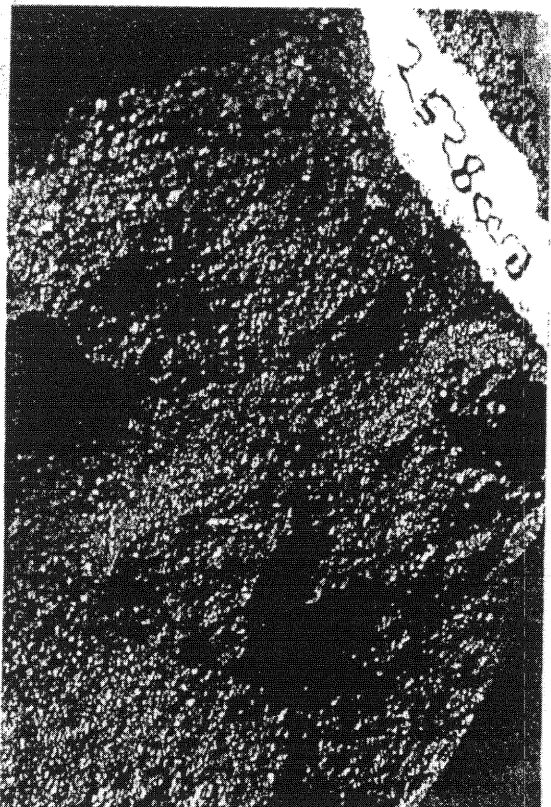


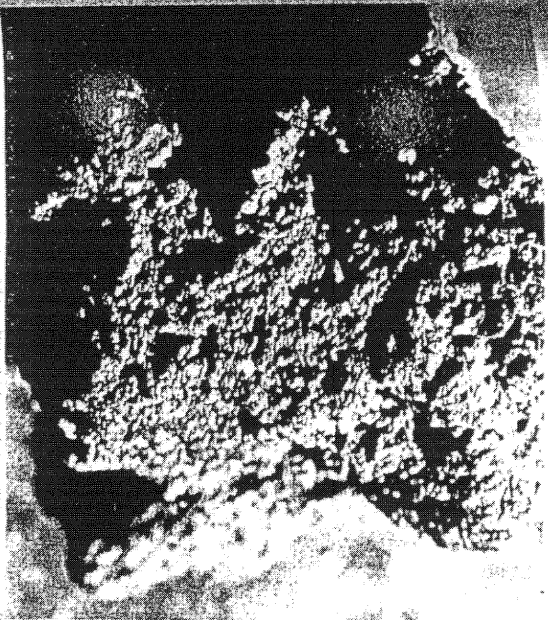
Fig 12



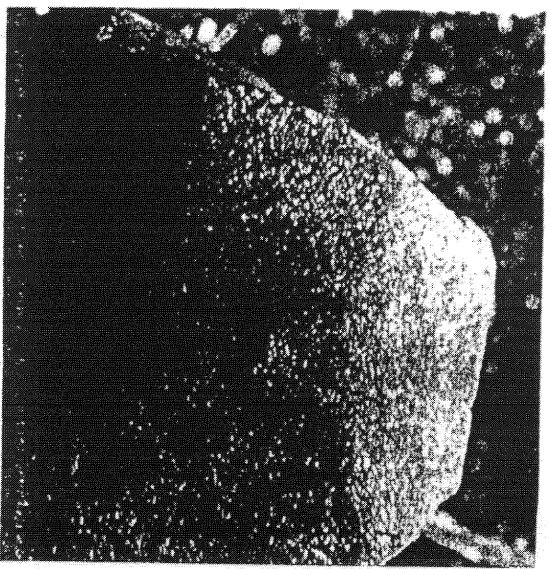
FERRICRETE CONCRETION



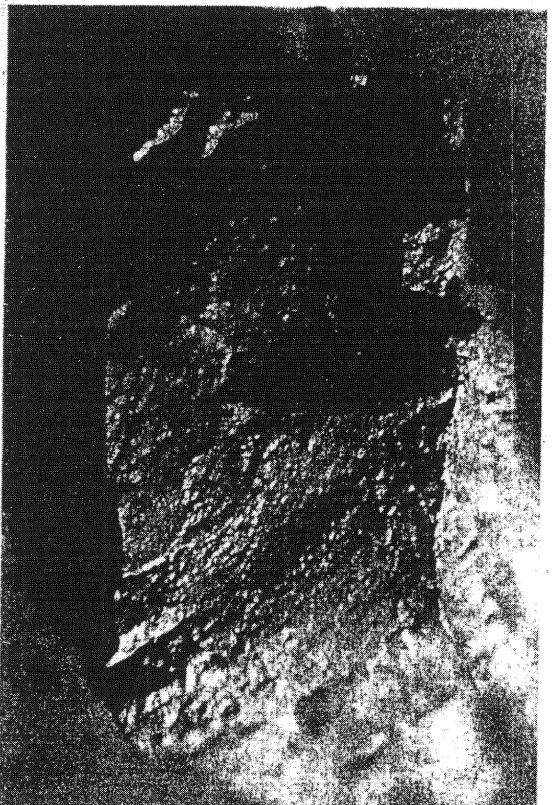
FERRUGINOUS QUARTZITE



FERRICRETE CONCRETION



RED PIGMENT ON GRINDSTONE



LATE STONE AGE CORES IN RED FERRITE

Fig 14



edged pieces. If the piece was well-defined in shape, it is identified as a 'flake'. If not well-defined, as a 'chip'.

#### **Stone artifacts used for specialised purposes, possibly as chisels**

Late Stone Age artifacts often include roughly rectangular flakes that have thick, robust chipped edges on opposite sides of the tool. The shape suggests that these tools were held in contact with the worked material, then driven into it by a tap from a hammer-like tool on the opposite edge.

#### **Stone artifacts used as upper and lower grindstones**

Upper and lower grindstones are the only stone artifacts at Boulders which can be accurately interpreted. They were first produced in Africa tens of thousands of years ago. They are still being made and used for preparing food and cosmetics.

#### **Colouring matter**

Ferruginous rocks were used to produce a reddish stain as a cosmetic.

### **SOURCES OF ROCKS USED BY STONE AGE AND IRON AGE PEOPLE AT BOULDERS**

Both Stone and Iron Age people needed tools for cutting, chopping, scraping and hammering. Stone Age people used stone for these operations, but Iron Age people knew how to make iron and used iron instead of stone for cutting tools. Both Iron and Stone Age people used stone for grinding and hammering. The tools they made for grinding and hammering were identical in shape, although the Stone Age way of life was based on hunting and collecting wild foods and Iron Age life was based on farming. Stone and Iron Age people used grindstones in pairs, an upper and a lower. Both were made from compact, dense rock such as diabase found in the dyke south of Boulders Shopping Centre, or granite was used for upper and lower grindstones. Two granite upper grindstones were found in the Boulders dig. There were five lower grindstone surfaces in the big granite outcrops above the dig. Both Stone and Iron Age people used iron-rich rocks for making a red paint used in body painting, pottery surface decoration and painting leather clothing and bags. Four pieces of iron-rich rock or concretion were found in the Boulders dig. Two of these are ferricrete concretions which were probably found in the gully or donga head soils overlying the Midrand granite. The other two are ferruginous quartzite (probably from the Timeball Hill formation) which occurs as outcrops above the ridge to the south of Pretoria on which UNISA is built.

All the Boulders stone artifacts are in rocks found within 100 km of Boulders. Most of the stone artifacts from Boulders are dated BP5000 - 10 000 (Late Stone Age). The most common rock used by Boulders Late Stone Age people was vein quartz, a hard glassy material which makes a good knife if struck off the core in the right way. Vein quartz lumps can also be used as hammers. Vein quartz is found in thin layers in the granite at Boulders Shopping Centre. The next most common rock used by Boulders people is lydianite or diabase which is found in or near a diabase dyke which forced its way to the surface through a granite crack about a kilometer south of Boulders Shopping Centre. Many Boulders stone artifacts were made from

Witwatersrand quartzite and shale which outcrops between the East and West Rand (Springs to Krugersdorp). Some of the Boulders artifacts were made from chert found in Malmmani dolomite which partly surrounds Johannesburg and outcrops at Alberton, Zuurbekom, Sterkfontein and Centurion. The chert is found in bouldery outcrops of dolomite.

A few of the Boulders stone artifacts are in pale grey and pink to red felsite, a volcanic rock outcropping north of Bronkhorstspuit. I guess that the Boulders Stone Age people actually went to outcrops of the Witwatersrand quartzite and shale between East and West Rand, stripped the weathered crust off portable pieces of these rocks, then carried the stripped pieces ten or twenty kilometers to their Boulders camps where they made the artifacts. They did the same with the lydianite or diabase from the dyke south of the Boulders, and possibly also carried in chert fragments from the Centurion-Sterkfontein-Zuurbekom-Alberton dolomites. A few artifacts were made from iron-rich quartzite found in the Timeball Hill rocks in or near Pretoria or fine grained lava from the Ventersdorp rocks in the Klipriviersberg west of Alberton or Ongeluk lava from Eastern Pretoria. The volcanic felsite known as the Rooiberg Felsite, north of Bronkhorstspuit may have been carried into the Boulders area by the Dwyka Ice Sheet which moved across Africa from north to south several hundred million years ago. Patches of rock debris carried by the Dwyka ice have been found near Kempton Park, south-east of Boulders. Alert Stone Age hunters may have spotted both the reddish and grey felsite pieces and chert pieces in these patches known as "Tillite" and carried them to their home base in the Boulders.

#### SPECIALIST REPORTS ON BOULDERS DATA

- Andy Brown - Animal remains from Boulders excavation, page .....
- Johan Geyer - Isotope dating of Boulders, page .....
- Ian Burger - Reconstructions of Boulders people, page .....
- Tim Partridge - Contributed all geological data used throughout this paper.



## **REASONS FOR PREHISTORIC PEOPLES' USE OF BOULDERS AS A HOME BASE**

Discovery of ancient artifacts made by early Midrand people at Boulders depends upon two things - preservation of the artifacts, and a fruitful or favorable environment outside the Boulders to attract people to seek shelter in the Boulders in the first place. The grasslands surrounding Boulders have been there for millions of years. These grasslands attracted the grazing animals that Stone Age Boulders people needed for their food, and also supported edible plants that made up the bulk of Stone Age food. A spring of water certainly drained out at the lowest point of the ground level north east of the excavation site. The Tswana Iron Age people herded sheep, goats and cattle but also hunted wild animals. Some of the sixteen animal species identified by Andy Brown (p. ....) at Boulders may be Late Stone Age hunters' prey, but the blesbok dated to between 368 and 678 B.P. is definitely Iron Age hunters' prey because this is the most probable date of the 'Middle Iron Age' occupation of Boulders. The huge granite rocks of the Boulders stopped elephants and buffaloes from trampling people and their children inside the rock walls of the Boulders.

The Tswana Iron Age sheep, goat, cattle herders who lived at Boulders, may have lived in thatched stick shelters between the Boulders which have left no trace for us to find. The most probable home base for the Boulders Iron Age people was in the Klipriviersberg, a day's walk to the South West, where there were dozens of Tswana villages. The Boulders cattle station herders had their permanent homes in these villages.

The probable sizes of the Iron Age pots and bowls from Boulders may support the idea of Boulders a an Iron Age cattle-sheep-goat station rather than a permanent village. None of the 10 reconstructable pots, jars or bowls from Boulders are more than 27,5 cm in rim diameter, suggesting that the larger vessels were left at the Klipriviersberg home base, only the smaller, more portable vessels being carried to the presumed cattle station in the Boulders, broken there, then trampled or forced into the soft soil between the boulders for the archaeologists to find.

The Boulders pottery may have been used for milk from the cattle, or may have been used for cooking meat or porridge. There are at least 6 lower grindstones visible on the large granite surfaces near the excavated site. Upper grindstones were found in the deposit, but these could date anywhere from about 50 000 B.P. onwards. Evidence of mabele cultivation has been found at Olifantspoort site 29/72 dating from about AD1300 onwards. Therefore it is possible that the Boulders Iron Age people used some of their pottery for cooking 'mabele' porridge.

Preservation of the many hundreds of artifacts, bones and teeth found in the June 1997 excavation may be due to impeded drainage or reduced surface water flow caused by the damming effect of the boulders. The gentle hillslope environments of Midrand may have destroyed most traces of prehistoric camping or settlement in Midrand, by providing inclined surfaces for rapid run-off rainfall, leading to active

destruction of delicate materials left on open site camping places. But inside the Boulders the huge rock surfaces may have reduced the erosive power of surface run-off after rainstorms, providing micro environments that preserved the material described in this report.

Lyn Wadley has written an imaginative reconstruction of Late Stone Age hunters' seasonal changes in behaviour in the Magaliesberg area which may well apply to the Boulders Late Stone Age people. Wadley's work is based on her excavations of Jubilee Cave, Cave James and other sites in the Magaliesberg area. Stone Age people related to the Late Stone Age people at Boulders lived in these Magaliesberg caves. The reader will find Lyn Wadley's reconstructions in Wadley 1987.

#### DATING AND INTERPRETATION OF THE BOULDERS ANIMAL REMAINS

There is little doubt that huge herds of animals milled around in the Boulders region until modern farmers settled there. As recently as 1835 Cornwallis Harris wrote about the beautiful African animals in all their variety in the Magaliesberg valley just around the corner from Boulders, including the glorious Roan Antelope which was first recorded here. The Boulders animal sample includes 16 species, similar in species to the Melville Cave animal sample of 15 species. Both Melville Cave and Boulders have the same problem, however. The different species cannot be precisely dated and related to associated artifacts.

Andy Brown found that the Boulders bones and teeth represent the following species:

Sheep	Grey duiker
Possibly goats	Kudu
Cattle	Warthog
Donkey	Springhare
European rabbit	Dassie
Blesbok	Land snail
Hartebeest	Land snail
Wildebeest	Fresh water mussel
Grey rhebok	Fish

I attempted to decide whether the Boulders bones and teeth were modern, Iron Age or Stone Age in date. There are no extinct animal remains among the 16 species of animal represented in the bones and teeth analysed by Andy Brown. The only method I could use to make a probability estimate of the dating of the bones and teeth was to separate the obviously modern bones on the basis of butcher saw cut bones. The butcher saw cut bones all had a white colour and represented domesticated animals. Bones that were broken rather than cut with a machine saw, had a darker, grey colour. Bones from wild animals such as wildebeest are grey in colour.

Two of the grey bones were submitted to Professor B. Verhagen and Johan Geyer for isotope dating. Part of a blesbok bone was C14 isotope dated to 523  $\pm$ 155 BP, indicating it could date to either 368 BP or 678 BP (AD1580 or 1420) or somewhere between these limits. This dating range would relate to local 'middle Iron Age' village dating such as Olifantspoort 29/72 which is dated to AD1240  $\pm$ 120 and AD1510  $\pm$ 90, suggesting a date between AD1120 and 1600. The blesbok was therefore probably killed by a Middle Iron Age hunter.

A burned grey bone fragment was C14 isotope dated to 471  $\pm$ 250 BP, supporting a date between AD1229 and AD1729, which could overlap with the blesbok date.

The machine saw cut bones and bones representing a donkey are clearly modern in date, but the wild animal bones could relate to either of the two Iron Age occupations of Boulders, or to the Late Stone Age occupation. The Late Stone Age occupation is represented by hundreds of artifacts and should also be registered in wild animal bone, but the only definite wild animal bone dated, the blesbok bone, is too recent to relate to the Late Stone Age. Since there are wildebeest, hartbeest, duiker, rhebok, kudu, springhare, dassie and warthog in the Boulders species list, any of these could relate to Boulders Late Stone Age hunting in the approximate 5000 10 000 BC range.

The final point to consider in the Boulders bone sample is the uneven registration of quantities. Some animals such as the warthog are represented by only two molar fragments, the kudu by only a lower molar fragment, and a dassie by only a tibia shaft. The best represented in terms of quantities are definitely domestic animals (such as sheep) or animals that could be sheep or cattle.

Hunter gatherers and probably Iron Age people as well probably ate crushed bone (compare P Borchard's San record of bone eating on the Orange River in 1801). Thus the small quantities of wild animal bone at Boulders could be explained by Boulders people eating crushed bone.

The larger quantities of domestic animal bone represented in the Boulders sample may be due to the easy availability of domestic stock to Iron Age farmers.

**SUMMARY OF QUANTITIES - ARTIFACTS, BONES AND TEETH FROM THE BOULDERS JUNE 1997 EXCAVATION**

1.	Early Stone Age artifacts	Total 3
2.	Middle Stone Age artifacts	Total 8
3.	Late Stone Age stone artifacts "Early Oakhurst" "Later Oakhurst" but not microlithic	Total 4 Total 1767
4.	Stone artifacts common to Middle, Late Stone Age and Iron Age	Total 9
5.	Waste bone and enamel fragments	Total 358
6.	Identifiable bone or tooth pieces representing 16 species	Total 102

**STONE AGE ARTIFACTS AT BOULDERS**

Probably Early Stone Age (compare with Wonderboompoort and Cave of Hearths) (Mason 1962, Mason 1988)

1. Three heavy flakes, sandstone, water worn, also one in diabase.
2. Rough long flake in reddish sandstone.

Probably Middle Stone Age (compare with Cave of Hearths Mason 1962)

1. Long narrow flake, both edge trimmed, like Cave of Hearths Middle Stone Age - water worn diabase.
2. Short thick faceted platform flake, steep edge trimmed, cortex back, like Primrose Ridge Middle Stone Age, and biacially trimmed stone artifact.
3. Two weathered diabase flakes and two small trimmed sandstone flakes.
4. Core-like flat sandstone piece with flakes removed.

Probably Late Stone Age Early Oakhurst (compare C G Sampson Lockshoek Sampson 1974)

1. Three thick plain flakes, one heavy, diabase.
2. Thick heavy piece with steep trimming on two sides. Heavily weathered with less weathered re-trimming, diabase.

BOULDERS LATE STONE AGE LATER OAKHURST

(Compare with Uitkomst Cave Mason 1962, Kruger Cave Mason 1988, Jubilee Cave Wadley 1987)

- |    |           |  |
|----|-----------|--|
| 1. | Material: | Trimmed flakes in white and brown banded baked Eccca shale, lydianite, felsite, vein quartz and chert: |
| 2. | Total:    | 10   |
| 3. | Length:   | 20-90 mm.  |
| 1. | Material: | Utilised flakes chert, Witwatersrand quartzite   |
| 2. | Total:    | 17   |
| 3. | Length:   | 20-90 mm.  |
| 1. | Material: | Utilised Chunk/Hammer quartz 75, chert 1, sandstone 3.   |
| 2. | Total:    | 79   |
| 3. | Length:   |  |
| 1. | Material: | Edge abraded piece shale 26 mm   |
| 2. | Total:    | 1  |
| 3. | Length:   | 30 mm  |
| 1. | Material: | Steep edge trimmed Cuboid, Vein quartz and diabase   |
| 2. | Total:    | 5  |
| 3. | Length:   | 80 mm x 60 mm x 65 mm<br>45 m x 40 m x 55 m  |
| 1. | Material: | Plain flakes Quartz 104, Felsite 2, indurated shale 10, sandstone 13, Chert 5.                         |
| 2. | Total:    | 134  |
| 3. | Length:   |  |
| 1. | Material: | Plain flakes fine grained diabase lengths  |
| 2. | Total:    | 6  |
| 3. | Length:   | 45-74 mm   |
| 1. | Material: | Waste flakes Chert 2, sandstone 13, diabase 30, shale 1, lydianite and quartz 225                      |
| 2. | Total:    | 271  |
| 3. | Length:   | 225<br>30-35 mm  |
| 1. | Material: | Cores Vein quartz  |
| 2. | Total:    | 34   |
| 3. | Length:   | 35-50 mm   |
| 1. | Material: | <u>Outils ecaille</u> - Vein quartz.   |
| 2. | Total:    | 42   |
| 3. | Length:   | 12-42 mm   |

1.	Material:	Utilised Quartz fragments	2
		Utilised Diabase fragments	
2.	Total:	Utilised Sandstone fragments	15
1.	Material:	Diabase pieces not utilised	121
		Quartz pieces not utilised	209
		Sandstone pieces not utilised	29
		Chert pieces not utilised	31
2.	Total:	390	
1.	Material:	Edge abraded piece shale	
2.	Total:	1	
3.	Length:	30 mm	
1.	Material:	Steep edge trimmed Cuboid	
		Vein quartz and diabase	
2.	Total:	5	
3.	Length:	80 x 60 x 65 mm	
		45 x 40 x 55 mm	
1.	Material:	Plain flakes	
		Quartz total	104
		Felsite total	2
		Indurate shale total	10
		Sandstone total	13
		Chert total	5
		Fine grained diabase total	6
2.	Total:	140	
3.	Length:	45-47 mm	
1.	Material:	Waste flakes	
		Quartz	225
		Diabase	30
		Sandstone	13
		Shale	1
2.	Total:	269	
3.	Length:	30-35 mm	
1.	Material:	Cores	
2.	Total:	Vein Quartz	34
3.	Length:	35-50 mm	
1.	Material:	<u>Outils ecaille</u>	
2.	Total:	Vein Quartz	42

1.	Material:	Utilised Quartz fragments	308
		Utilised Diabase fragments	2
		Utilised Sandstone fragments	15
		Diabase pieces not utilised	121
		Sandstone pieces not utilised	29
		Chert pieces not utilised	31

### ARTIFACTS COMMON TO STONE AGE HUNTER GATHERERS AND IRON AGE FARMERS AT BOULDERS

Upper and lower grindstones and ferruginous concretions used for red colouring were first used by African peoples about 50 000 years ago. African people today are still using these materials. I found grindstones and colouring matter in the Boulders excavation but could not associate them with any one of the three or four prehistoric Boulders inhabitants who lived there after about 50 000 BC.

1.	Material:	Upper grindstones	
		Granite	3
		Sandstone	3
		Diabase	3
		Diabase coated with red paint	1

1.	Material:	Lower grindstones	
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These are located in a group of five on a large granite boulder and one by itself on a smaller granite boulder, just upslope of the excavation trench.

Upper and lower grindstones were used in pairs for a wide variety of purposes. Prehistoric and recent people used them for preparing wild or cultivated plant food, for grinding the spongy inside of bones to make an edible paste, and for powdering hard ferruginous concretions known as ferricrete (from swampy soil) or iron ore (from hard rock). The red powder was mixed with fat and used to colour the skin or leather clothes or pottery surfaces (Rudner 1982).

#### Ferruginous rocks

Four pieces were found. Two are ferricrete concretions (from swampy soil exposed in dongas) and two are ferruginous quartzite carried in from the Timeball Hill rocks, south of Pretoria. One upper grindstone still has reddish stain from grinding these materials (fig. 13-14).

**BOULDERS POTTERY ANALYSIS**

Total rims with part of profile	39
Shapes inferred from rims:	
Wide mouth jar	23
Narrow mouth jar	3
Bowls	13
Total decorated rims	22
Total body sherds decorated	8
Decoration Technique:	
Dentate	13
Incised external	3
Incised internal	5
Incised and dentate	1
Rim nick	1
Incised and rim nick	2
Incised and punctate	2
Burnished:	
Graphite band on rim	2
Red on body sherd	14
Black on body sherd	3
Sherd abraded edge - skin scraper?	1

**THE BOULDERS SMOKING PIPE AND BOULDERS DATING**

Smoking pipes, probably for dagga, are recorded only at Late Iron Age (after AD1600) sites in the Boulders region. Some of the Boulders pottery attributes are Middle Iron Age (before AD1600) in affinity. Therefore the Boulders pottery assemblage may be a mixture of both Middle and Late Iron Age pottery assemblages. Smoking pipes were found at Olifantspoort 20/71, Bruma 30/81 and Klipriviersberg 5/65 (Mason 1986) all dated after AD1600.

**POTTERY SITES WITH POTTERY SIMILAR TO BOULDERS POTTERY**

The Tafelkop pottery assemblage (Mason 1952) is not dated but it is the largest in the Boulders region. Tafelkop links with Boulders are dentate and incised decorations, in parallel horizontal lines, diagonal lines, lip and rim nicking and black burnish in narrow bands on the vessel shoulder.

Ifafi 35/85	1	AD1510 ±30
Bultfontein 41/85	1	
Roberts Farm 28/71	1	AD1510 ±95
Olifantspoort 29/72	1	AD1510 ±90

These sites have single line interior incision bowls like some Boulders bowls.



## **BOULDERS POTTERY ANALYSIS AND COMPARISON WITH OTHER POTTERY ASSEMBLAGES**

Boulders pottery has some similarities with Klipriviersberg 5/65, Suikerbosrand 107/73, Linksfield sites and especially the small Lonehill 51/85A assemblage. Boulders pottery has little or no similarity with the more remote assemblages such as Olifantspoort 20/71, Platberg or Kaditshwene.

The Boulders smoking pipe relates to late Iron Age assemblages (AD1600-1800) at nearby Bruma 30/81 and Klipriviersberg 5/65 (dated after AD1600). The Boulders internal incision bowls relate to Middle Iron Age assemblages dated before AD1600 at Ifafi, Roberts Farm and Olifantspoort 29/72.

Therefore, the Boulders pottery assemblages probably reflect two separate Iron Age occupations of Boulders, one before circa AD1600 and the other after AD1600.

The general similarity between the Boulders pottery and recent Tswana pottery suggests Tswana occupation of the Boulders.

**CONCLUSION - THE VITAL CONTRIBUTION THE BOULDERS SHOPPING CENTRE HAS MADE TO THE MIDRAND CULTURAL HERITAGE**

The seven part cultural heritage story of the Boulders suggests that people have sought shelter in the Boulders from Stone Age to modern times. The Boulders have been a focal point for people on the Midrand landscape for, perhaps, 250 000 years. The Boulders gives Midrand an outline of Midrand's past. Here at Boulders we have a valuable local stimulus to other scientists to locate undisturbed Midrand heritage sites that, in future, will provide more definite evidence. But now, in 1997, we have the first tentative sketch of the Midrand heritage ever attempted, thanks to the enterprise of all concerned with the Boulders Shopping Centre Project of June 1997.