RENBAAN CAVE : STONE TOOLS, SETTLEMENT AND SUBSISTENCE

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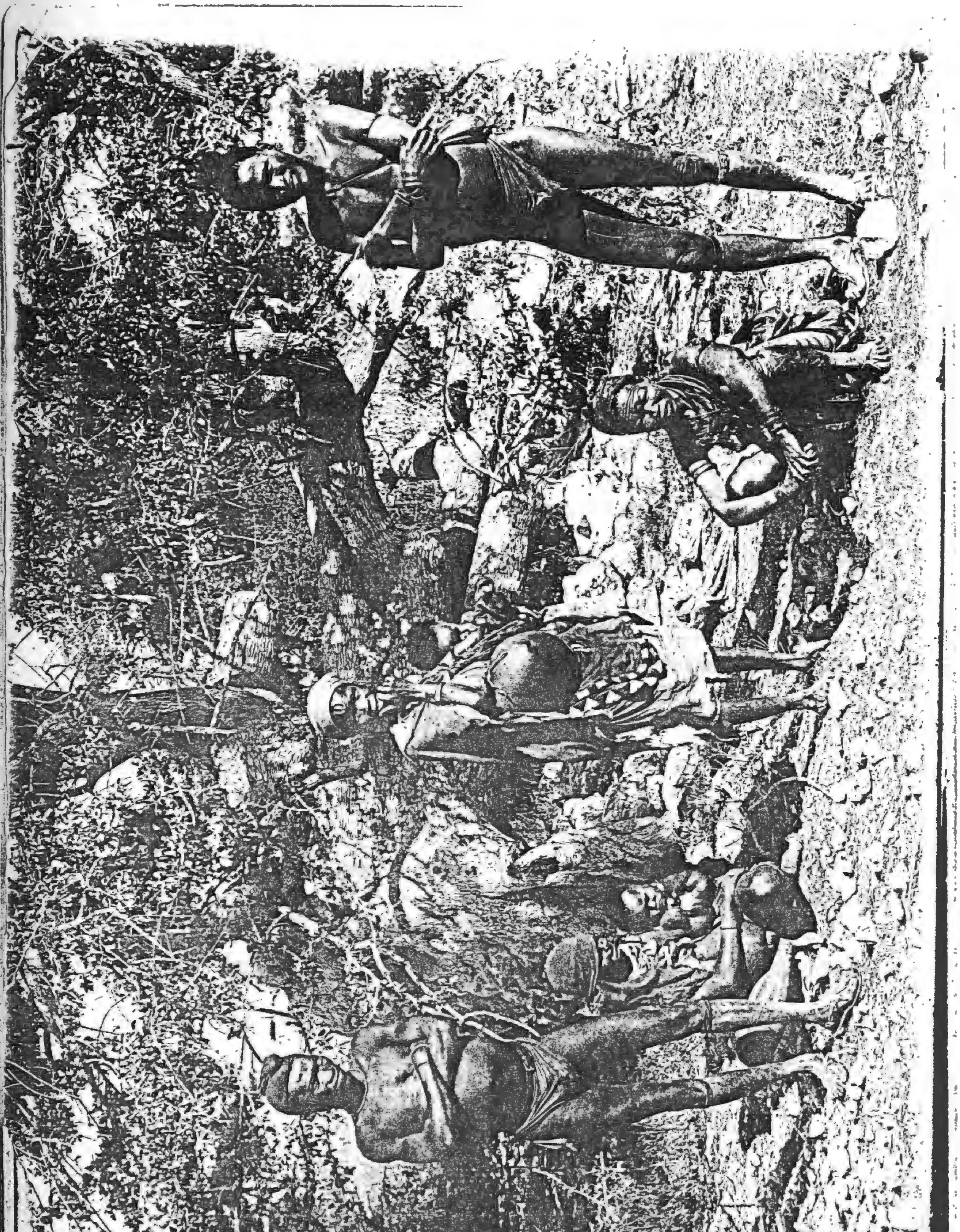
ABSTRACT

This project describes and interprets the results from the Renbaan Cave excavation and situates the site in the context of contemporary Later Stone Age studies in the southwestern Cape. It is designed to complement the research of professor John Parkington. It is argued that settlement and subsistance patterns at Renbaan Cave reflect similar patterns to those noted at other small cave/shelter sites in the research area. The availability of radiocarbon dates however, forces us to reconsider and question our previous perception of the distribution and occupation of late Holocene sites in the southwestern Cape. Important behavioural information has been located in the analysis of the stone artefact assemblage and new avenues of enquiry are suggested.



ACKNOWLEDGEMENTS

This project would not have been possible, let alone completed, without the generous help and guidance of a number of good people.

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LIST OF ABBREVIATIONS WHICH OCCUR IN DIAGRAMS AND TABLES

QTZ = Quartz
SIL = Silcrete
CCS = Cryptocrystaline silicate
QZ = Quartzite
HFS = Hornfels

SD = Surface Deposits
BU = Bedding Units
AD = Ash Deposits
BL = Basal Units

sd = Standard Deviation
f = Frequency
n = Number

CHAPTER ONE

AIMS OF THE PROJECT : INTRODUCTION

The excavation at Renbaan Cave in July 1979, was essentially a rescue operation. It came to the attention of the Department of Archaeology at the University of Cape Town (UCT), that the farmer who owned the land on which the site is situated, had removed a substantial portion of the deposit from the back of the cave. To prevent any further destruction of a potentially significant site, necessitated a controlled excavation. The site was excavated by Cedric Poggenpoel from the Department of Archaeology at UCT, and assisted by a number of under- and post-graduate students.

The aim of this project, is to present the results of the excavation and to situate Renbaan Cave into the context of contemporary Later Stone Age research in the southwestern Cape. To understand settlement and subsistance at Renbaan Cave as one segment of the wider picture of prehistoric people-environment relations.

Initially, the emphasis of this report, was designed to accomodate an in-depth analysis of the stone tool assemblage. After thoughtfull consideration, it was felt that a purely lithocentric approach would not enhance our understanding of the archaeology of the southwestern Cape, and that all material culture need to be taken into consideration to appreciate the nature of Later Stone Age society.

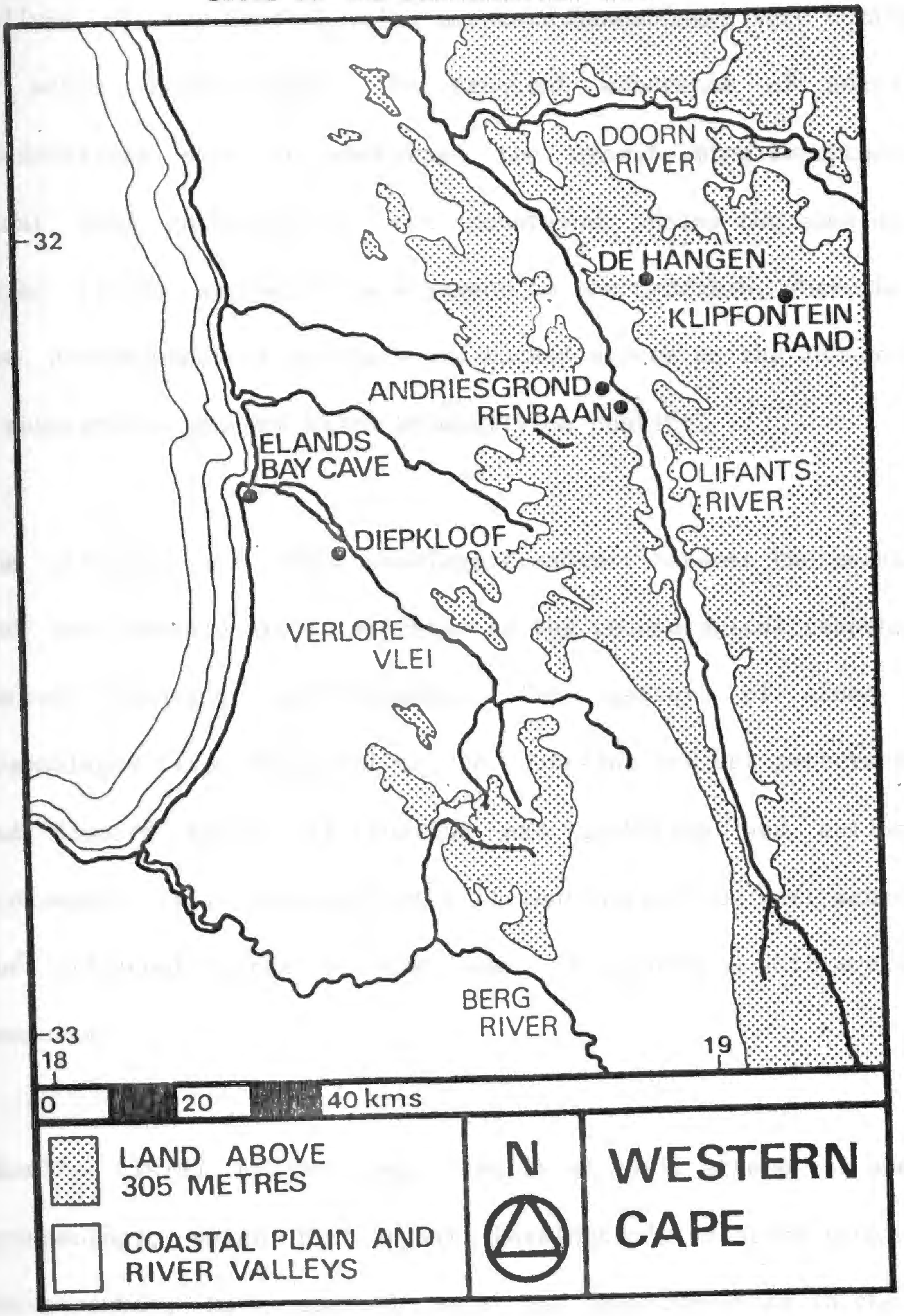
REVIEW OF PAST APPROACHES

This section is brief. The aim is to present a simplified overview of Later Stone Age research in the southwestern Cape and to situate Renbaan Cave within the ambit of this programme.

Renbaan Cave is situated in the Clanwilliam district of the southwestern Cape. Figure 1:1 illustrates the distribution of excavated cave/shelter sites in the research area. This region has been extensively researched by John Parkington (1972, 1976a,b, 1977, 1978, 1980, 1981, 1983, 1984a), with a view to understanding settlement patterns in the region. Combining archaeological, ethnographic, historical and environmental data, Parkington (1976a), hypothesised that the mountain site of De Hangen (Parkington and Poggenpoel 1971) appeared to have been occupied during the summer, while the winter months would be spent at the coast. Elands Bay Cave (Parkington 1976a), west of the mountains on the Atlantic coast was excavated to test this hypothesis and to establish a link between the two zones.

Subsequent Research projects by graduate students from the University of Cape Town (UCT) were designed to test the seasonal hypothesis. By far the most impressive and ambitious was completed by Mazel (1978), who studied the distribution of stone tools from the Sandveld to the mountains and identified explicit

FIGURE 1:1 RENBAAN CAVE IN RELATION TO EXCAVATED SITES IN THE SOUTHWESTERN CAPE

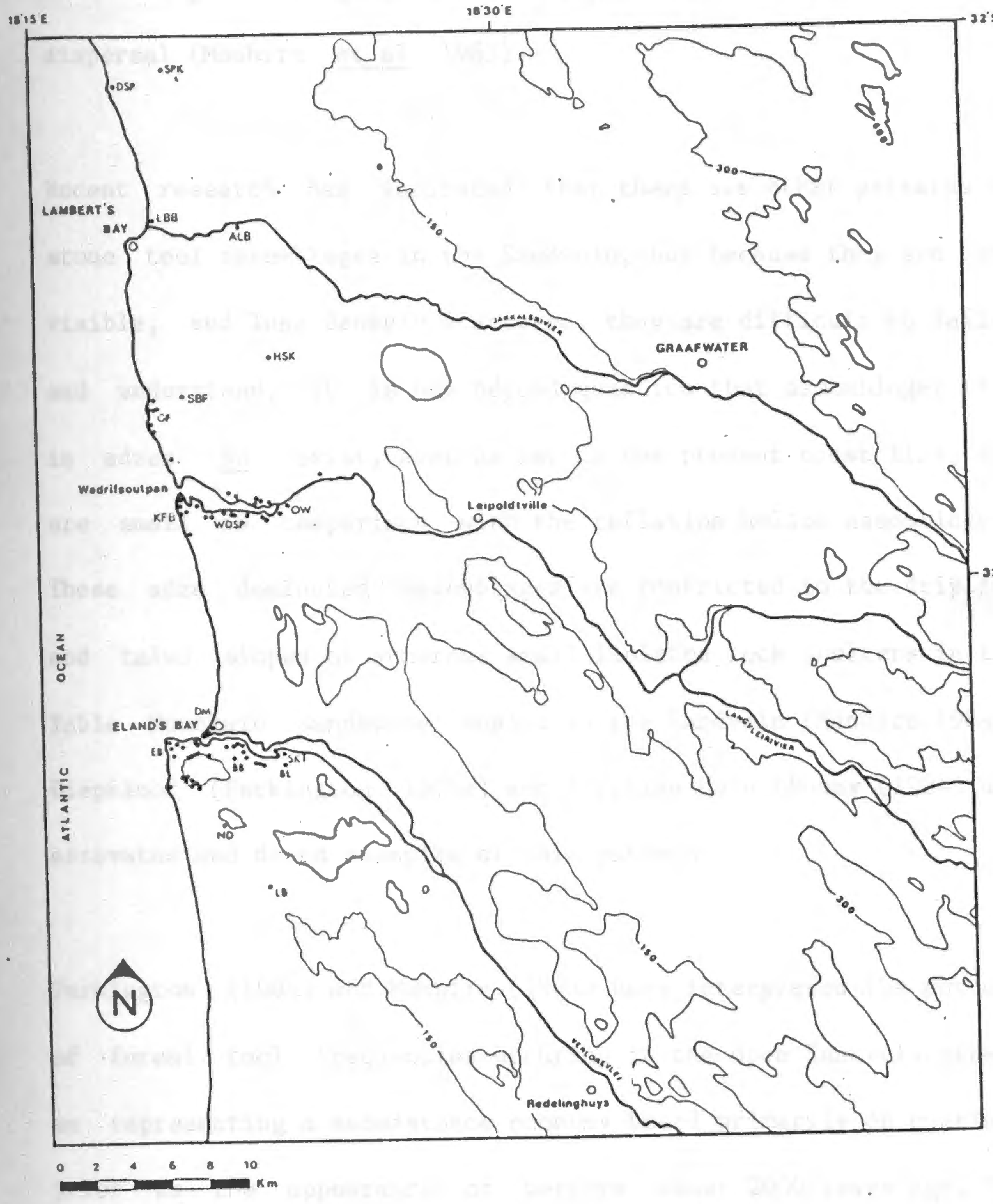


inter-assemblage variability across space. Scrapers and backed pieces were profusely visible in the sand shifting deflation hollows of the Sandveld. The mountain assemblages were dominated by adzes (Mazel 1978). The frequent occurence of adzes and woodshavings seem to emphasise the overwhelming importance of plant food gathering in the mountains. Using the same model, Mazel (1978) extended his argument to the Sandveld, where he saw the predominance of scrapers and backed pieces as the remnants of a subsistance economy based primarily on hunting.

The differences in the assemblage frequency between the mountains and the Sandveld are interpreted as the technological response to varied resource environments. The pattern of stone tool assemblages from the coast to the mountains reflect patterned use and discard habits of hunting and gathering and collecting economies. It is implied that different activities were scheduled for different parts of the year in accordance with available resources.

Mazel's (1978) project was clearly an early attempt at spatial archaeology, which tied in with Parkington's existing programme. Subsequently, more spatial work has been completed in the area (Parkington 1980; Mazel and Parkington 1981), much of it under the auspices of the Spatial Archaeology Research Unit (SARU). Archaeologists at UCT are systematically recording shell middens (Fig 2:1) and surface scatters of stone tools in deflation hollows and on talus slopes in front of small rock shelters (Fig

FIGURE 2:1 SHELL MIDDENS AND SHELL SCATTERS
(REFERENCE: MANHIRE 1984)



2:2 and 2:3) in order to understand changing settlement patterns over the last 10 000 years (Buchannan *et al* 1984; Manhire *et al* 1984). Spatial variability of subject matter in rock art is also being investigated, to identify patterns of aggregation and dispersal (Manhire *et al* 1983).

Recent research has indicated that there are other patterns of stone tool assemblages in the Sandveld, but because they are less visible, and less densely scattered, they are difficult to define and understand. It is now beyond question that assemblages rich in adzes *do* exist, even as far as the present coast line, but are small in comparison with the deflation hollow assemblages. These adze dominated assemblages are restricted to the dripline and talus slopes of numerous small isolated rock shelters in the Table Mountain Sandstone kopjes in the Sandveld (Manhire 1984). Diepkloof (Parkington 1976a) and Tortoise Cave (Robey (1984) are excavated and dated examples of this pattern.

Parkington (1983) and Manhire (1984) have interpreted the pattern of formal tool frequencies occuring in the open Sandveld sites, as representing a subsistance economy based primarily on hunting, prior to the appearance of herders about 2000 years ago. The stratified and dated deposits of Tortoise Cave (Robey 1984), have allowed comparison of these assemblages with the deflation hollow pattern. Tortoise Cave (Robey 1984) is the 'key' to understanding settlement in the southwestern Cape. On the talus slope and in the upper levels which post-date the introduction of

FIGURE 2:2 DEFLATION HOLLOWS (REFERENCE: MANHIRE 1984)

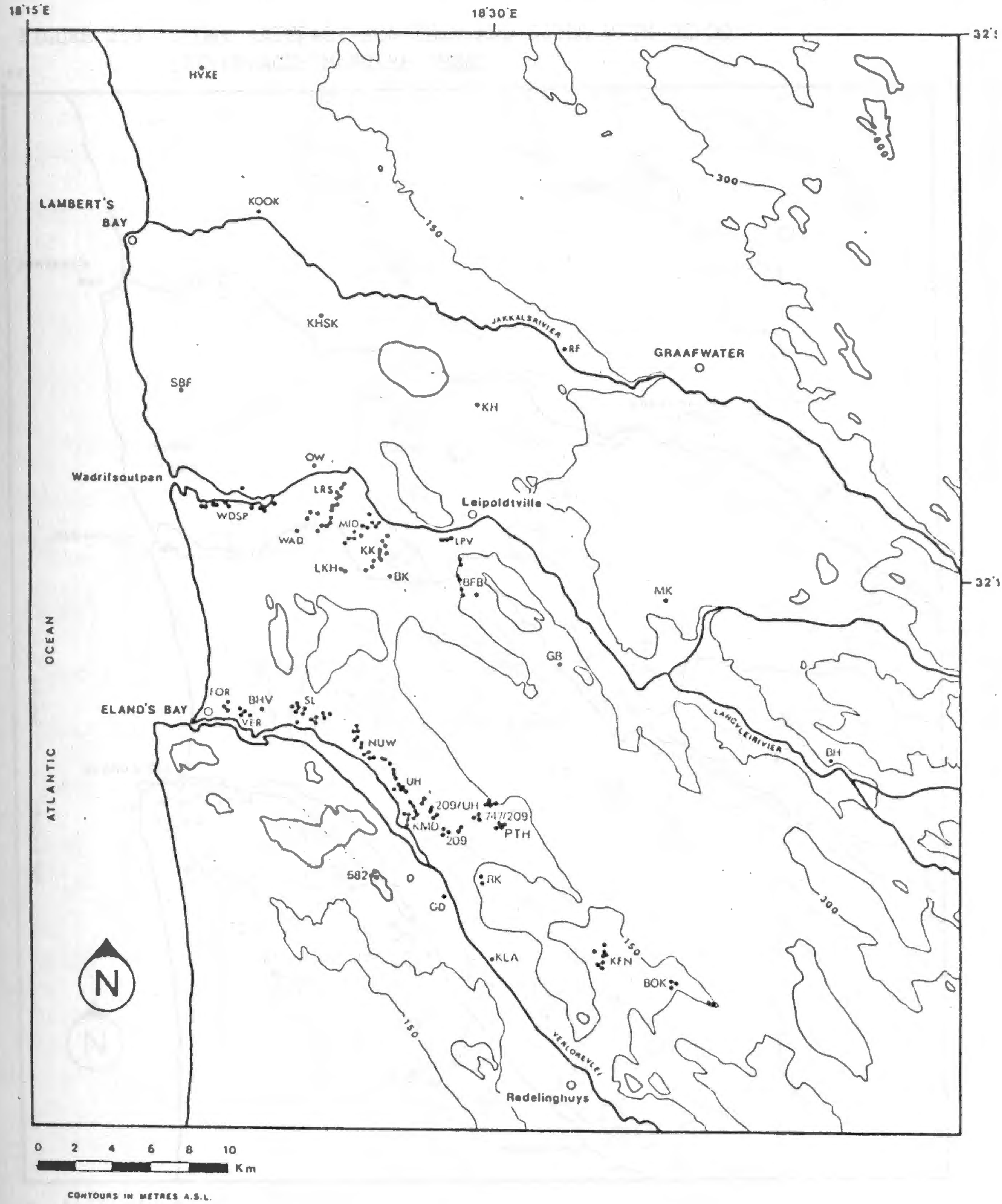
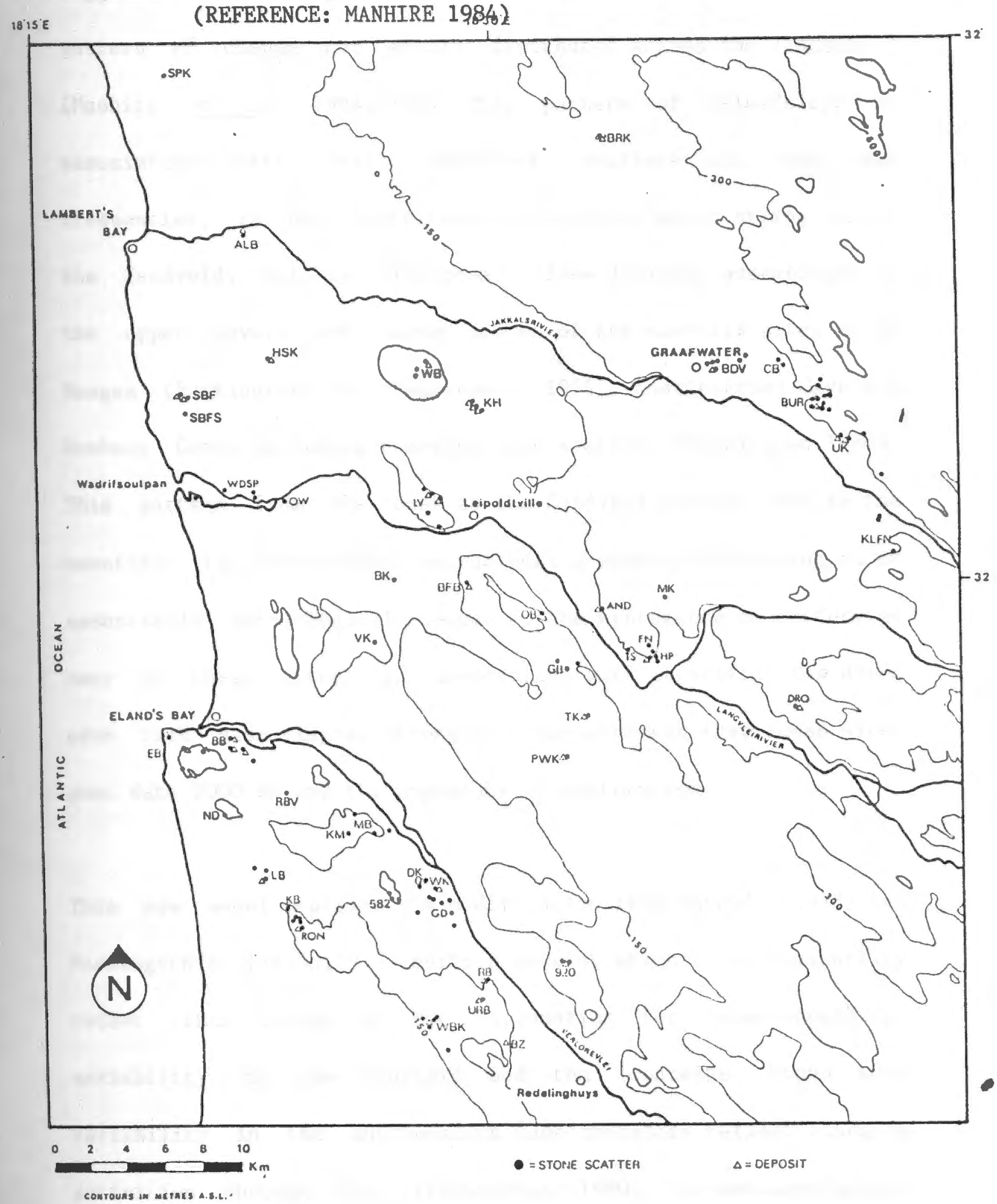


FIGURE 2:3 STONE ARTEFACT SCATTERS AND SITES WITH DEPOSIT (REFERENCE: MANHIRE 1984)



pottery and domestic animals, the assemblage is very different from those lower down. Adzes are common in the former, while the latter are dominated by scrapers and backed pieces. It is now suggested, that "high adze frequencies are late and represent a pattern of change not evenly distrbuted across the landscape" (Manhire et al 1984:116). This pattern of talus/slope in association with small cave/rock shelters and high adze frequencies, is not restricted to the hills which string across the Sandveld, but is widespread. Adzes dominate assemblages in the upper levels and talus slopes of the mountain sites at De Hangen (Parkington and Poggenpoel 1971), Andriesgrond Cave and Renbaan Cave, including numerous open scatters (Parkington 1980). This pattern from the coast to the Sandveld kopjes, east to the mountains is interpreted as reflecting spatial patterning in an essentially chronological sequence. The appearance of pottery at many of these sites, in association with stratified and dated adze rich assemblages, strengthens the argument that these sites post date 2000 BP and the appearace of pastoralism.

This new model represents a modification from Mazel's (1978) and Parkington's (1976a,1977) earlier models, which cited seasonality rather than refuge as the explanation for inter-assemblage variability in the Sandveld and the mountains. Stone tool variability in the southwestern Cape therefore reflect changing activities through time (Parkington 1980). Assemblages across space thus reflect a range of activities scheduled for a particulr site at a particular point in time. The functional aspects of the activities of hunter-gatherers is visible in the range of stone tools produced and discarded by them. Manhire _et al_ (1984) argues that we need to see changing activities through time and across space as a response to changing environmental conditions and resource availability and the appearance of herders.

An understanding of the different processes involved in bringing about these site and assemblage changes in hunting and gathering society is essential. The emphasis is on a behavioural approach to Later Stone Age studies in the southwestern Cape.

Post 1700 BP levels at Diepkloof (Parkington 1976a), De Hangen (Parkington and Poggenpoel 1971), Andriesgrond Cave and Renbaan Cave contain abundant remains of underground plant foods. The talus slope and the upper levels at Tortoise Cave (Robey 1984) consist of a substantial accumulation of shell midden dominated by black mussel and white limpet species. Coincidental with intensified exploitation of underground plant foods at post 1700 BP inland sites, was an inreased attention to shellfish collecting at sites close to the shoreline, as a preferance to plant foods. Buchannan _et al_ (1984), have identified patterning in shellfish distribution in time and across space and argue that there have been significant changes in the way hunter-gatherers integrated shellfish collection into their economy. Pottery has been found on 21 (65.6%) of the 32 sampled shell middens and in all six of the excavated middens (Buchannan _et el_ 1984:126), which implies that the sites were visited during the period after 1700 BP.

Between 8000 and 4000 years ago, the hiatus recognised at Elands Bay Cave (Parkington 1976a) and Tortoise Cave (Robey 1984), conditions were much drier and sea-levels rose at least two to three metres higher than the present day, thus eliminating important intertidal marine resources. At 4000 BP, conditions at the coast and Sandveld became more attractive for settlement. Prehistoric people then scheduled their visits to the coast and coastal sandveld fringes in the winter months, where exploitation was geared almost exclusively to mussel colecting. The heart of settlement systems during this time lay in the Sandveld plains to the east and the fringes of the Cape fold belt mountains.

The appearance of herders about 2000 years ago shifted the focus of settlement from open deflation hollows up into the Sandveld kopjes, the coast and the mountains. This led to a shift in emphasis from larger, more mobile game like eland and zebra to small, more sedentary animals like grysbok, dassie and tortoise, including plant food gathering and shellfish colecting. The open Sandveld was preferred by Pastoralists for grazing their sheep (and possibly cattle), the coast and Sandveld kopjes, where grazing is less attractive were ignored. Hunters and gatherers were therefore compelled to intensify their exploitation of marginal areas for domestic stock.

Along with the appearance of the herders "populations would have increased, wild animal biomass would have been partly replaced by protected domestic stock, new kinds of conflict situation may have arisen and non-pastoralists may have been forced, as the weaker group, to move down their list of preferred foods towards those more time consuming to gather or less productive to hunt" (Manhire et al 1984:118).

This model has been tested against excavation results from De Hangen (Parkington and Poggenpoel 1971), Andriesgrond Cave, Renbaan Cave, Tortoise Cave (Robey 1984) and Diepkloof (Parkington 1976a), shell middens located along the coast and further inland (Buchannan et al 1984) and the deflation hollows and Sandveld kopje assemblages (Manhire 1984, Manhire et al 1984).

Judy Sealy's (1984) research in the southwestern Cape is an independent test of Parkington's (1972, 1976a, 1977) seasonal mobility hypothesis. Her research is based on the analysis of bone collagen from skeletons found in archaeological deposits, in order to detect diet and settlement patterns in prehistoic inhabitants. Her results of the stable carbon-isotope assessments of the diet of Holocene hunter-gatherers of the southwestern Cape directly contradicts the hypothesis of the seasonal movement of people between the coast and the mountains, generated from excavated archaeological evidence.

In order to test seasonality, the δ^{13} values of over 200 animals and plant species were analysed, which enabled Sealy (1984) to establish the average δ^{13} values of the prehistoric diet from the four major physiographic zones, and compared these measurements on 18 human skeletons from archeological sites.

Sealy (1984) has demonstrated that food obtained in the mountains are isotopically different from marine foods obtained at the coast. Her results show that inland people consumed mainly plant and animal foods, while coastal people ate mainly marine food. The coastal skeletons have isotopic signatures consistant with marine resources, whilst those from inland sites have readings similar to terestial resources. Measurement of the δ^{13} values of the human foodwebs and skeletal remains are "direct reflections of the diet of prehistoric inhabitants"(Sealy 1984:3). Sealy (1984) therefore argues on the basis of consistantly positive carbon isotope ratios in coastal skeletons, that the coastal people lived permanently at the coast "throughout the Holocene", and inland people lived permanently in the mountains, with "occasional visits" to the coast (Sealy and van der Merwe 1984:32). These results directly contradict the seasonal mobility hypothesis. Her analysis explains the gross difference between inland and coastal skeletons.

Sealy's (1984) conclusions, have considerable implications for contemporary archeological research in the southwestern Cape, particularly in view of the model proposed by Parkington and others. Considerable changes in contempoary views of the Later Stone Age in the southwestern Cape might need to be made in order to accomodate this data.

CHAPTER 2

RESOURCE BACKGROUND AND PREHISTORIC SUBSISTANCE IN THE WIDER CONTEXT OF THE SOUTHWESTERN CAPE

The environmental background of the research area needs to be examined in its macro-context, in order to appreciate its characteristic nature and resource potential. The fact that each region offers its own potential resources, is intrinsically important and must have played a major role in late Stone Age hunter-gatherer land use patterns.

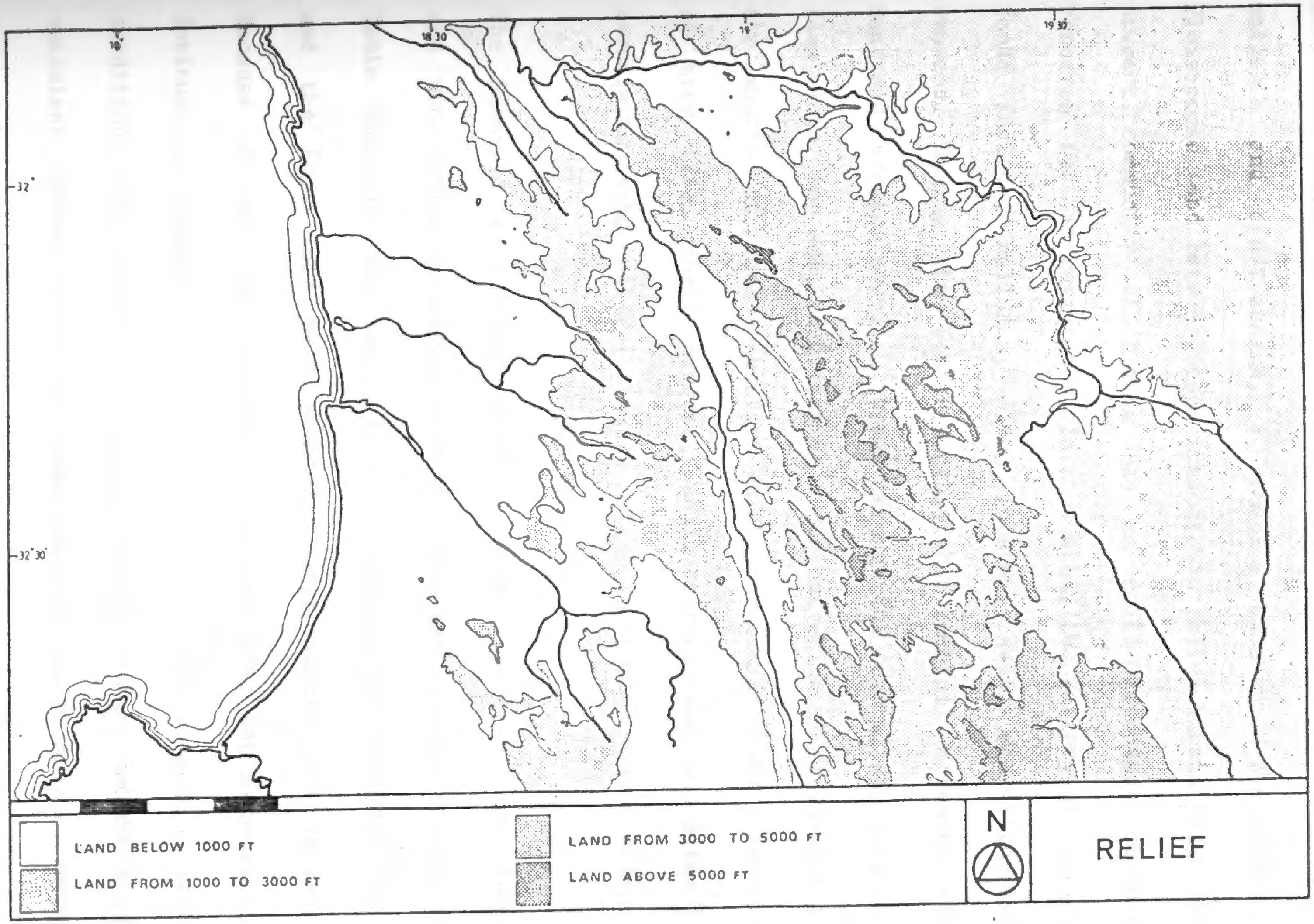
Although this report is essentially confined to Renbaan Cave, I argue that an understanding of the wider context of the research from which the excavation derives is fundamental in relation to all other excavated Stone Age sites in the research area.

The environmental background of the southwestern Cape has been examined in detail by Parkington (1976a:30-45) and displays a marked seasonality in climate which has a considerable effect on the availability of potential resources. Figures 3:1-3:4 illustrate the topography, geology, rainfall and vegetation of the research area. Four physiographic zones are identified - the coast, Sandveld, Cape fold belt mountains and the semi-desert Karoo.

COAST

The coast supports a highly productive eco-system. The cold up-welling of the Benguella current has a beneficial effect on

FIGURE 3:1 RESEARCH AREA: TOPOGRAPHY

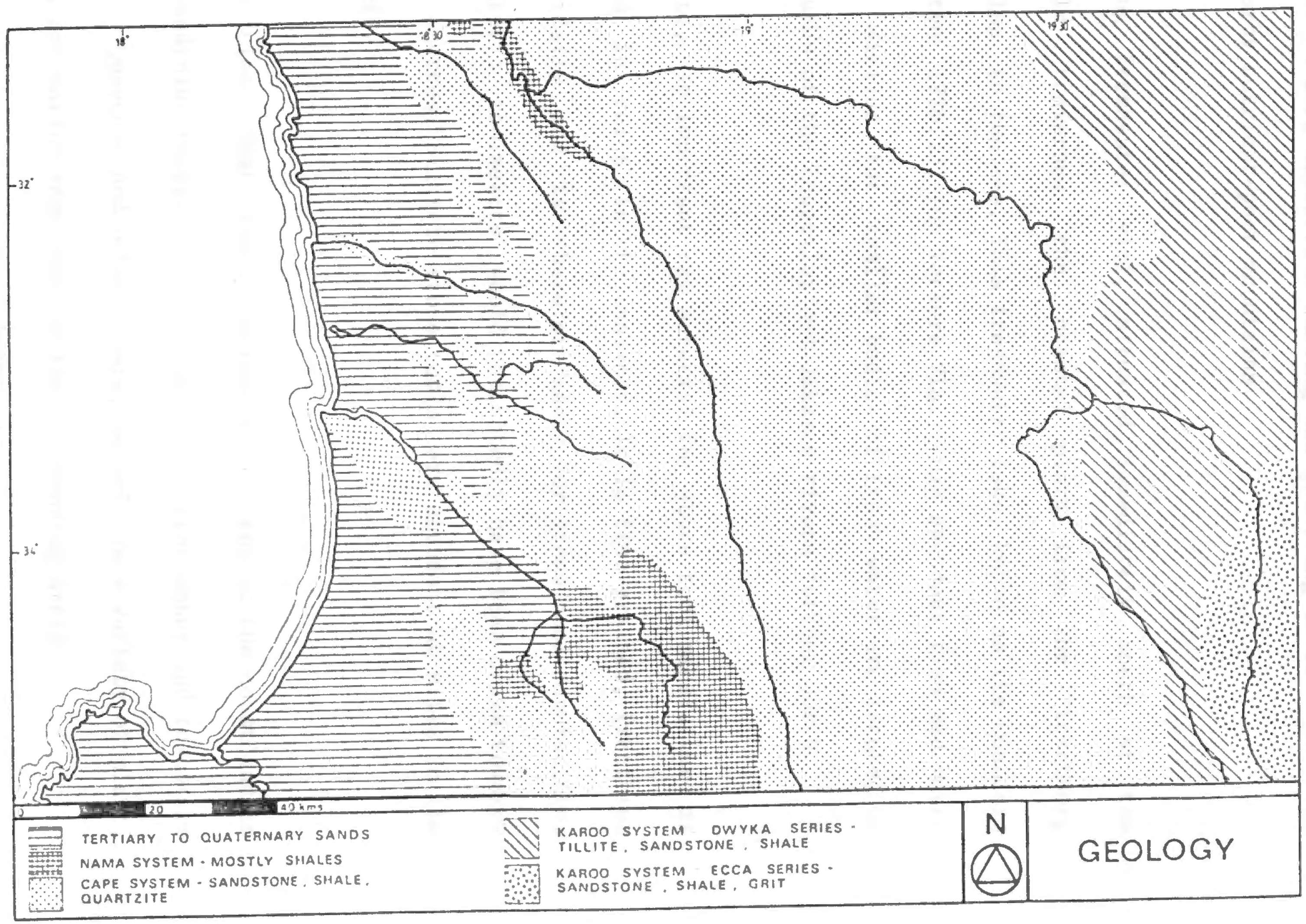


the marine resources of the west coast. The rich nutrient status of the water ensures an abundance of marine foods. The rocky intertidal zone offers a rich supply of exploitable marine molluscs and crustraceans, a resource upon which the terminal Pleistocene and late Holocene inhabitants relied intensively. The present community of Elands Bay is still dependant on this resource for its existance. In this area, the variety of marine foods include, molluscs, fish, lobster, seal, sea birds and seaweed. During the Winter months, when rainfall increases, the Sandveld streams overflow, break through the coastal sandbars and flow into the sea, resulting in a concentration of freshwater at the mouths of these estuaries which attracts fish and a variety of bird life. Shell middens, shell scatters and cave sites in association with cultural remains attest to coastal exploitation.

SANDVELD

The Sandveld is a sandy coastal plain and consists of sand dunes and wind deflation hollows with few rocky outcrops (or kopjes) of Table Mountain Sandstone). It extends between the Atlantic coast and the Cape fold belt mountains approximately 40 km away. Because of the low rainfall (less than 200mm per annum at the latitude of Elands Bay), the vegetation is adapted to arrid conditions and consist of stunted, thorny, drought deciduous and succulent shrubs. During the summer months, the area is extremely dry with water confined to a few water courses. The Sandveld does however, offer abundent plant food and animal resources which would have undoubtedly been exploited by hunters and gatherers. Fruit, roots, berries and corms, as well as small and larger

FIGURE 3:2 RESEARCH AREA: GEOLOGY



mobile game would have been available. Moll argues (1984) that the high nutrient status of the strandveld vegetation may have made it a more attractive hunting and gathering environment than the nearby nutrient-poor mountains.

A long freshwater vlei, situated immediately south of the Sandveld traverses the coastal plain from the Picketberg mountains to the sea. This freshwater lake, known as the Quaecoma (Valentyn 1726:23) (or Verlore Vlei), has abundant fish and water birds. Similar but smaller bodies of fresh water are located at the mouths of the Langevlei and Jakkals rivers further north.

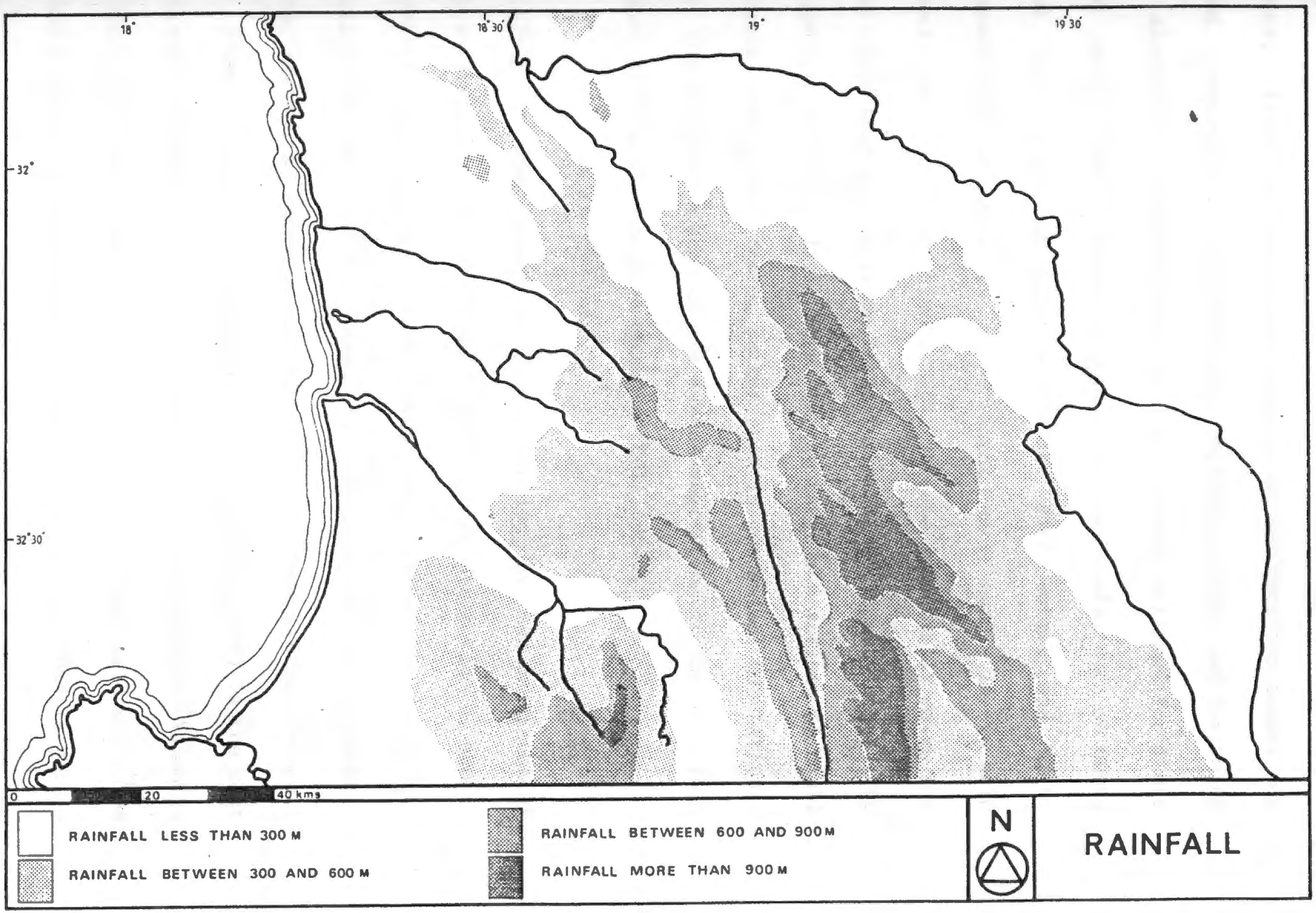
Silcrete, an important raw material for stone tool manufacture is located in rafts in the Sandveld. It is fine grained, fractures conchoidally and is therefore ideal for stone tool manufacture. Prehistoric toolmakers would undoubtedly have been drawn towards these sources. Silcrete stone tools are abundant at sites in the Sandveld.

It is clear that the large number of sites at the coast and in the Sandveld reflect a reliance on the freshwater and resources of the Quaecoma and other rivers, as well as a variety of plant, animal and marine resources in the surrounding areas.

MOUNTAINS

The Cape fold belt mountains of Table Mountain Sandstone, quartzite and shale, are probably the most impressive physiographic feature of the south western Cape. The diversified

FIGURE 3:3 RESEARCH AREA: RAINFALL

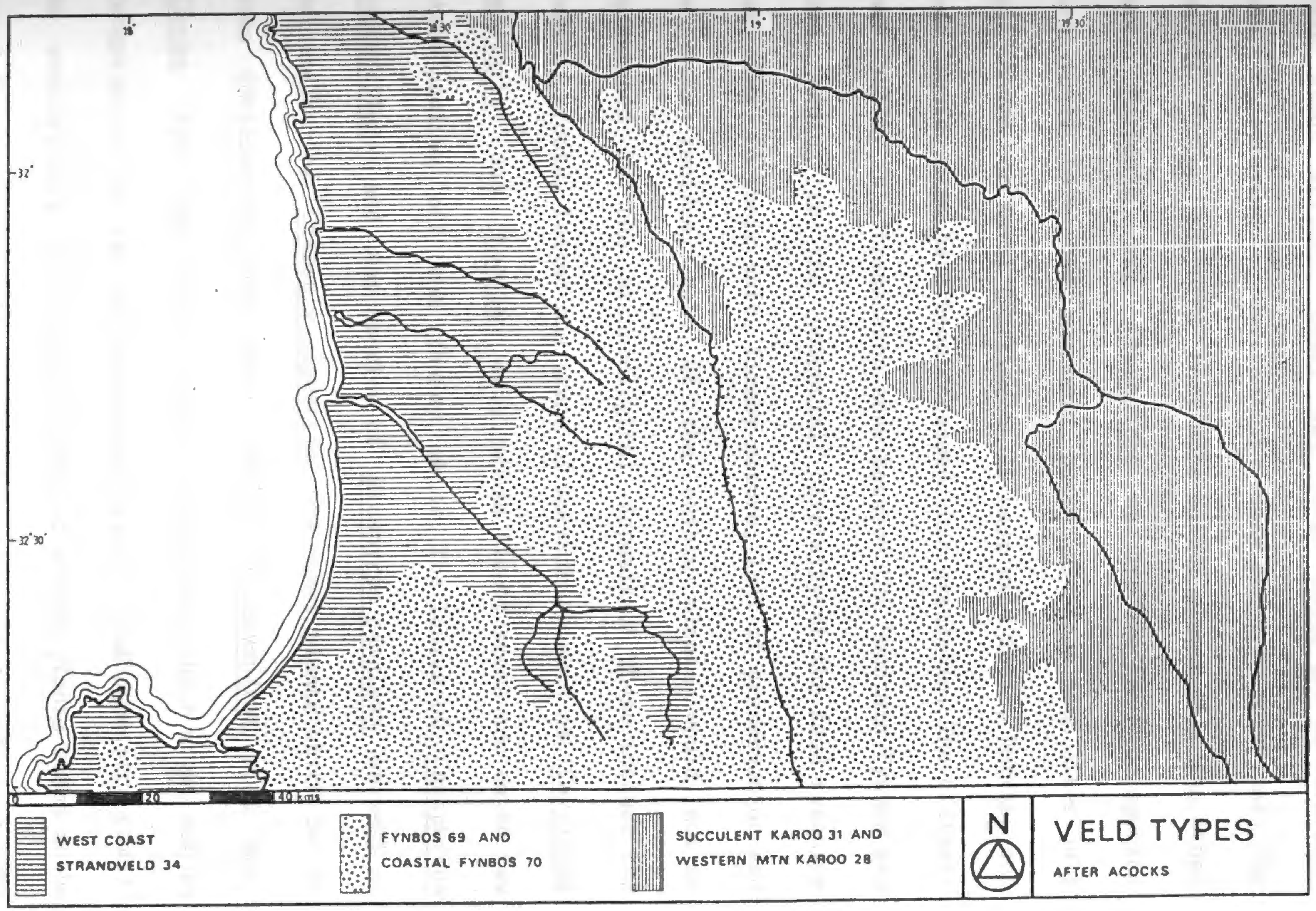


terrain of the mountains, which peak at 2000 meters in some places, offers an enormous variety of habitats for animal and plant communities. Raw material, including quartz and quartzite is abundant and these rocks were undoubtedly utilized for stone tool manufacture. A range of organic raw materials, such as wood, reed and grass is also available. Rich animal and plant communities, as well as a permanent water supply in two main rivers and countless kloofs and streams potentially makes the Cape fold belt zone a prime focus for prehistoric settlement. The potential however, lies more in the range and variety of small animals and plant foods, rather than larger animal populations. The low nutrient status of the fynbos vegetation in the mountains cannot sustain the larger ruminants (Moll 1984).

Rainfall in the mountains is controlled by the orographical charactersistics of the area. In the high mountain kloofs, annual rainfall amounts greater than 1000mm have been recorded, with the average at between 600-900mm, the majority falling in winter. This contrasts strongly with the Sandveld where average rainfall is 200mm or less. The Tharakamma (or Olifants River) is the most reliable permanent water catchment in the mountains (Valentyn 1726:33). Streams and kloof draining the Cape fold belt mountains contain running water for most of the year. This is partly because the Table Mountain Sandstone is a good aquifer (or storage area).

The vegetation cover of the mountain zone is referred to by

FIGURE 3:4 RESEARCH AREA: VEGETATION



Taylor (1978) as Mountain Fynbos; this replaces Acock's (1975), Fynbos. The Mountain Fynbos supports a great number of useful and edible plant species. Small and large trees are occasionally found, encouraging a substantial woody resource potential. The Mountain Fynbos supports many more edible plants than the other zones. Watsonia and Chasmanthe sp. are two geophyte species which would have had economic potential from soon after July until March or April (Parkington 1976a); wild fruit, berries and seeds would also have been consumed when available. The Olifants River valley is a transition zone between the Mountain Fynbos and Karoo, adding to the potential diversity of the food resource base. Due to their soft, fleshy nature, lack of preservation and low waste residue, many of the edible plants would not be represented in the archaeological deposits. These include the flowers, roots, leaves and stems of succulents such as Caralluma mamillaris and Hoodia sp., whose fleshy stems are eaten raw after peeling off the thorny skins. The leaves of Canophytum truncatellum and the berries of Diospyros camulasa as well as the stalks of Crassula Alpestris are other plants which can be eaten (Metelerkamp and Sealy 1983). Trachyandra spp. and Albucha spp. are other edible plant foods which might not be recognisable in the archaeological record (Liengme pers comm). The availability of a wide variety of edible plants seems to be taken for granted. It is very possible that plant food was a more important food resource than is apparent from archaeological deposits. Plants are also used for medicinal purposes and for making fibre, string, mats, nets, bedding and fuel. Small rodents, dassies, tortoises and small, and occasionally large, bovids would also have been available, supplemented by other resources such as honey, caterpillars, locusts and termites (Waterhouse 1932:117,128). Recent analysis suggests that the mountains (and Sandveld kopjes) became more intensively occupied after 2000 BP, coinciding with the introduction of pastoral herders. Hunter-gatherers were forced to occupy more isolated and secure sites, with increased emphasis on plant food gathering, trapping, snaring, collecting (and possibly) fishing.

KAROO

East of the mountains is the semi-desert Karoo/Doorn basin, where the rocks of the Cape system are overlain by the shales and tillites of the Karoo system. The landscape is flat and dry, broken by numerous flat-topped hills. Raw material such as indurated shale (or hornvels), chalcedony, jasper, agate and cheit are available. Indurated shale is derived from the intrusion of dolorite sills into the shales of the Karoo. Its primary source is the Doorn/Tanqua basin, but its geographical dispersion has been greatly intensified by water action. It is available in pebble form from most of the rivers which drain the basin. The Karoo is in the rain shadow of the Cape fold belt mountains and rainfall, is therefore limited. The whole valley receives less than 150mm per annum, most of it (60%) during winter. The Tanqua and Doorn rivers are major drainage areas in the Karoo. The Doorn River flows all year round, the Tanqua, mainly during winter.

The vegetation of the Karoo is dominated by succulents, hence its name Succulent Karoo (Acocks 1975:69). Although rainfall is exceedingly low, the winter rains dramatically transform the Karoo into an attractive area for exploitation. Grasses, such as Aristidious obtusa are abundant, which attracts large migratory herds such as springbok. Along water courses, trees and large shrubs are found. It is possible that during the winter months, the Karoo may have been occupied and exploited by prehistoric hunter-gatherers. It was the response both of indigenous herders and early white stock keepers to move seasonally into the Karoo to exploit the temporary pastures and then to return in summer to better watered adjacent areas (Parkington 1976a:38).

CHAPTER 3

RENBAAN CAVE - THE EXCAVATION

The excavation at Renbaan Cave in July 1979 was completed in seven days (4th to 10th July). The whole site was not excavated and we are therefore only dealing with a sample of what actually lies buried there. Problems relating to excavation have been identified by Robey (1984) at Tortoise Cave and it should be noted that similar and other problems were experienced by the writer at Renbaan Cave. In particular, no section drawings and few survey measurements were made by the excavators of the site. Subsequently, a schematic section drawing was made which illustrates the relationship of the main levels (Fig:4:1).

Renbaan Cave takes its name from that of the farm on which the site is situated. The site is located on a sandstone kopje on the northern side of a kloof approximately three quarters of the way up from its confluence with a minor tributary of the Tharakamma (Plate 1). The cave is fairly accessible, but requires a fairly long walk from the Olifant's River Valley, and is about four kilometers south of the present day town of Clanwillam. It is a sandstone cave, 5,6m deep and 16m across, facing almost due south on the co-ordinates 33°14' south, 18°52'east. From immediately above the site, one has a view directly east to the Tharakamma, about five kilometers away (Plate 2). There is therefore a permanent supply of water within easy access. The site, during the day, lies completely in the shade with no sun penetrating in.

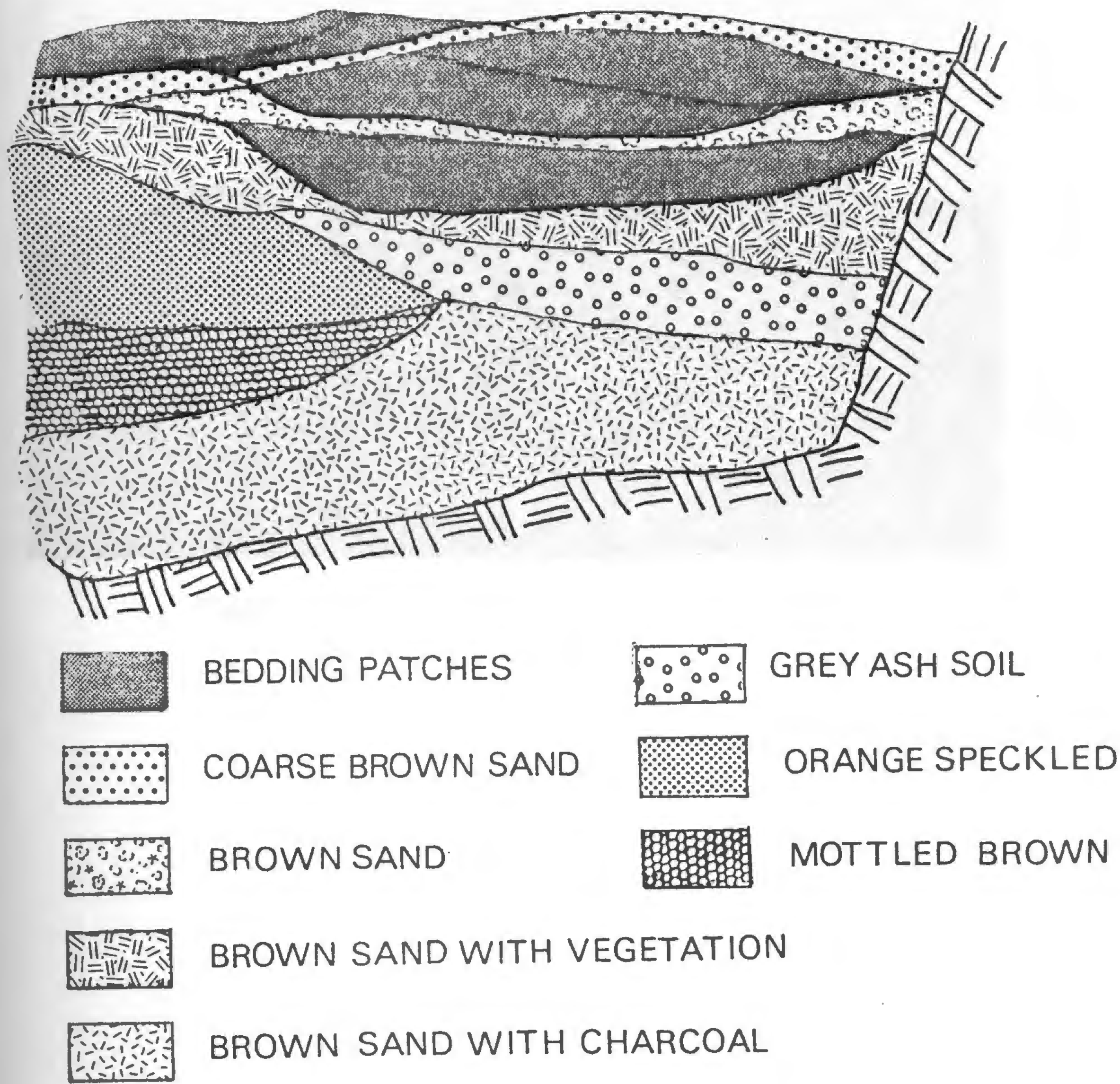


FIGURE 4:1 SCHEMATIC SECTION DRAWING

PLATE 1: Renbaan Cave

PLATE 2: Tharakamma

It is well protected from the elements and roughly hemispherical in shape. The view to the south is limited to the upper half of the kloof. The walls of the shelter are heavily weathered. Some very indistinct paintings are visible, including a u-curved linear feature, possibly a handprint. There is a fairly steep, shrub covered talus to the immediate east of the site, extending down into the kloof. The area to the east is in the sun for most of the day and is fairly comfortable for relaxing (and possibly manufacture of implements).

VEGETATION AND ANIMAL

According to "Vegetation of Fynbos Biome,1:1000 000 map" (Chief Director of Surveys and Mapping Mowbray, Cape Town 1983), Renbaan cave falls in the region of mosaic of Dry Mountain Fynbos and Karoo Shrublands (Fig:5:1).

A survey by Sue Milton (1978) of vegetation in the vicinity of Andriesgrond cave, described eight plant communities. Around Renbaan Cave, which falls within the same vegetation type as Andriesgrond Cave, at least five of these communities were recognised:

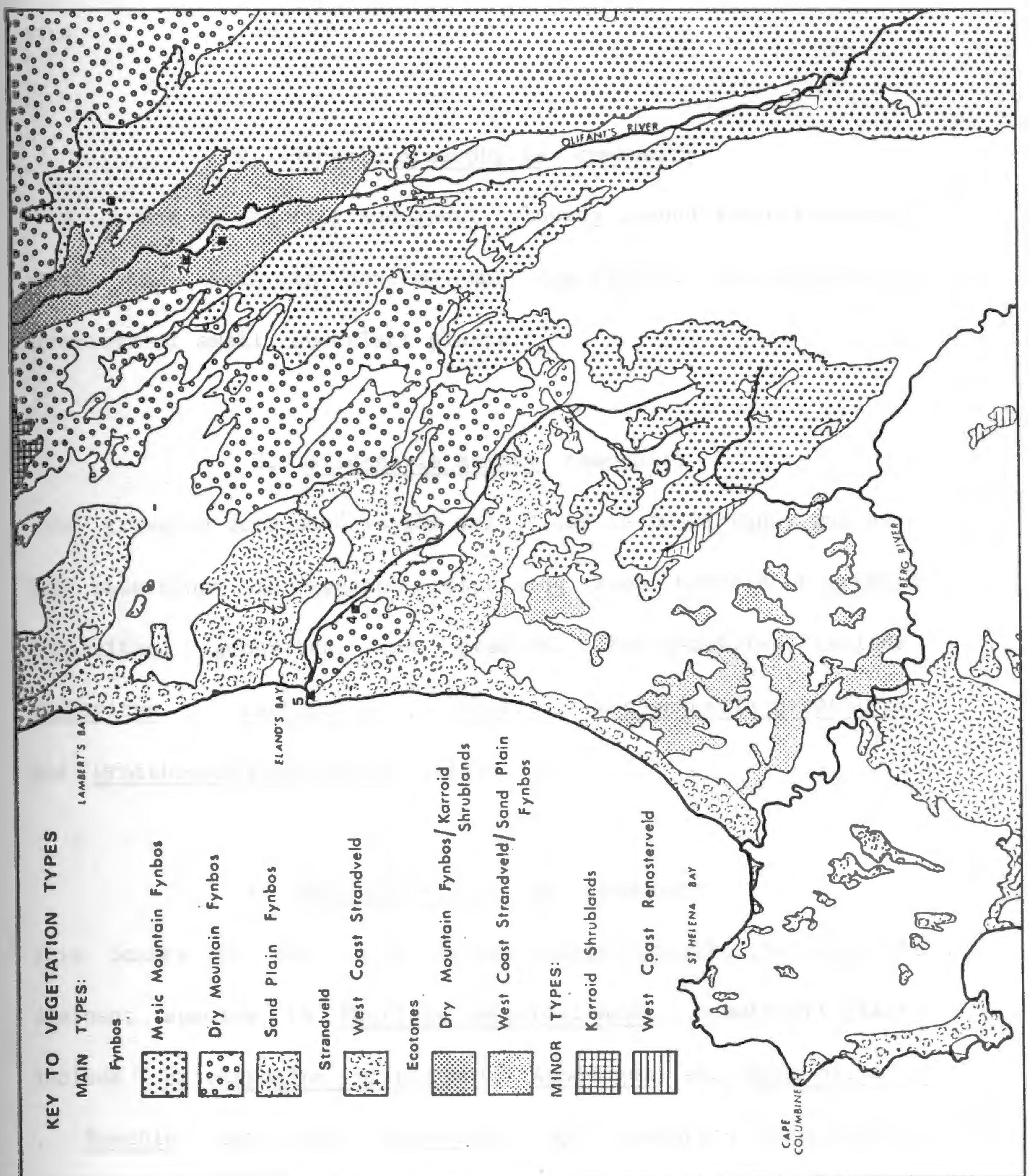
1. Rhus undulata - Asparagus retrofractus community

This occurs immediately in front of the site. Its general distrbution is restricted to south facing slopes of hills and around boulder scree. Other shrubs occuring in this community are: Olea africana , Maytenus oleoides , Diospyros ramulosa , Hartogia capensis and Euclea sp.

FIGURE 5:1 VEGETATION OF FYNBOS BIOME 1:1000 000 MAP

1= Renbaan Cave 2= Andriesgrond Cave 3= De Hangen

4= Diepkloof 5= Elands Bay Cave



The understory plants include Felicia scabrida and Solanum spp.

Geophytes growing in the shade of bouldres include Chasmanthe floribunda , Haemaithus sp., Oxalis spp, and Empodium plicatum. Two grass species occured on the slope below the site.

2. Diosmia acuaephylla community

This occurs on the flat and gently sloping ground above the site, where the soil is shallow and quartzitic. The understory consuists of small, succulent plants.

3. Wildenovia stinta community

This grows on deep sand in the valley and in small sandy gulleys. The understory is sparse, comprising some karroid or ericoid compositae, geophytes and grasses. The geophytes include Anthericum , Lachenalia , Oxalis , Wachendorfia paruiflora and Ornithogalum maculatum (Plate 4).

4. Montinia - Cotyleda community

This occurs in the north facing slope opposite the site. The dominant species is Montinia caryophyllacea . Understory plants include Eriocephalus ericoides , Asparagus sp, Rhus dissecta , Ruschia spp. and Euphorbia sp. Geophytes found in the community are Oxalis , Cyarella , Lachenalia , Moraea and Babiana . Annual grasses and herbs also occur.

5. Rocky seasonal drainage course community

This is related to the Rhus undulata - Asparagus retrofractus comminity and is charachterised by Diospyros ramulosa . Other shrubs found include Rhus undulata , Montinia caryophyllacea and Maytenus oleoides .

Milton (1978) suggests that the distribution of plant communities appears to be influenced primarily by soil nutrient status, soil moisture, soil depth, slope, geology aspect of topography and grazing pressure. "It is unlikely that drastic changes have occured in the distribution of the major plant communities since the shelters were first occupied by hunter-gatherers, although overgrazing may have depopulated the flora. In order to obtain plant food, fuel, fibre and chemicals, hunter gatherers would have to have exploited most or all of the plant communities" (Milton 1978:1).

A list of some of the plant species found growing in the vicinity of Renbaan Cave is presented in Table 1:1.

Thus, the area around Renbaan Cave and the Olifants River valley supported, during prehistoric times, and continues to support, a wide range of plant species.

Skead's (1980) comprehensive volume of historical mammal sightings in the Cape Province explicitly details all accounts of sightings of mammals by early visitors to the Cape, and

TABLE 1:1 SOME PLANT SPECIES FOUND IN THE VISCINITY OF THE SITE RENBAAN CAVE

Wildenowia striata
Asparagus retrofractus
Ornithogalum maculatum
Wachendorfia parvifolia
Haemanthus sp.
Moraea fugax
Babiana sp.
Gladiolus alatus
Ferraria sp.
Melasphaerula ramosa
Lapeirousia sp.
Montinia caryophyllacea
Oxalis spp.
Ficus cordata
Leucospermum sp.
Rhus dissecta
Rhus undulata
Rhus sp.
Maytenus oleoides
Dodonaea viscosa
Hermannia sp.
Struthiola sp.
Passerina sp.
Diospyros ramulosa
Salvia sp.

travellers into the interior after permanent settlement in 1652. Under the heading: "Picketberg and Clanwilliam district", Skead (1980:52-680) lists all accounts of mammal sightings in the area, showing that a wide range of species was supported in this region. These include small ground game, babboons, dassies, elephants, lions, leopards, zebras, warthogs, jackals, foxes, hyaenas, steenbok, grysbok, klipspringers, rheebucks, gemsbucks, eland, rhinocerous and others. Historical accounts of hippopotamous do not appear but "there are local traditions of past occurences of hippo in the lower Olifants River" (Shortridge in Skead 1980:410). Most of the small ground game, dassie, small and large bovids would probably have been attractive targets for hunter-gatherers living here.

Information on animal species living in this region before whites trekked inland, is recorded in the archaeological deposit. Faunal remains from Andriesgrond Cave deposits include baboon, dassie, klipspringer, duiker, eland, hare, mongoose, dune-mole, rat, hippopotamous, honey badger, porcupine and domestic sheep. At De Hangen (Parkington and Poggenpoel 1971) and Renbaan Cave, similar species are recorded. Table 2:1 lists the faunal assemblages from De Hangen and Andriesgrond Cave. Caterpillars, locusts, insects, fish and honey also contributed to the diet (Warterhouse 1932). Rock Art in the mountains of the southwestern Cape visually portrays animals which, if not hunted, were at least sighted. Paintings of eland, elephant, buffalo, buck, pheasant and equids are recorded in the Clanwilliam district (Golson 1984).

TABLE 2:1 COMPARISON OF THE FAUNAL COUNTS FROM DE HANGEN AND ANDRIESGROND CAVE. MINIMUM NUMBERS IN THE DEPOSITS.

	DE HANGEN	ANDRIESGROND CAVE
Homo sapiens sapiens (man)	1	-
Papio ursinus (baboon)	1	-
Procavia capensis (dassie)	± 94	8
Lepus sp. or Pronolagus sp. (hare)	6	4
Raphicerus sp. (grysbok/steenbok)	6	6
Oreotragus oreotragus (klipspringer)	3	-
Sylicapia grimmia (duiker)	1	4
Antidorcas marsupialis (springbok)	1	-
Taurotragus oryx (eland)	1	-
Bos tauras (domestic cattle)	1	-
Bovidae gen et sp. (large)	-	-
bovine or eland	-	1
Ovis sp. or apra,sp.(domestic sheep/goat)	1	-
Equus sp. (an equid)	1	1
Herpestis pulverulentis (mongoose)	8	3
Genette tigrina (genet)	2	-
Herpestis or genette (viverrid)	2	-
Mellivora capensis (honey badger)	1	-
Canis sp. (jackal or dog)	1	1
Hystrix sp. (porcupine)	1	1
Bathyergus suillus (dune-mole rat)	-	3
Ictonyx striatus (zorilla)	-	1
Felis caracal (caracal)	-	1
Hippopotamus amphibius (hippopotamus)	-	1
Testudo (chersine) angulata (+ spp.?)	313	unknown

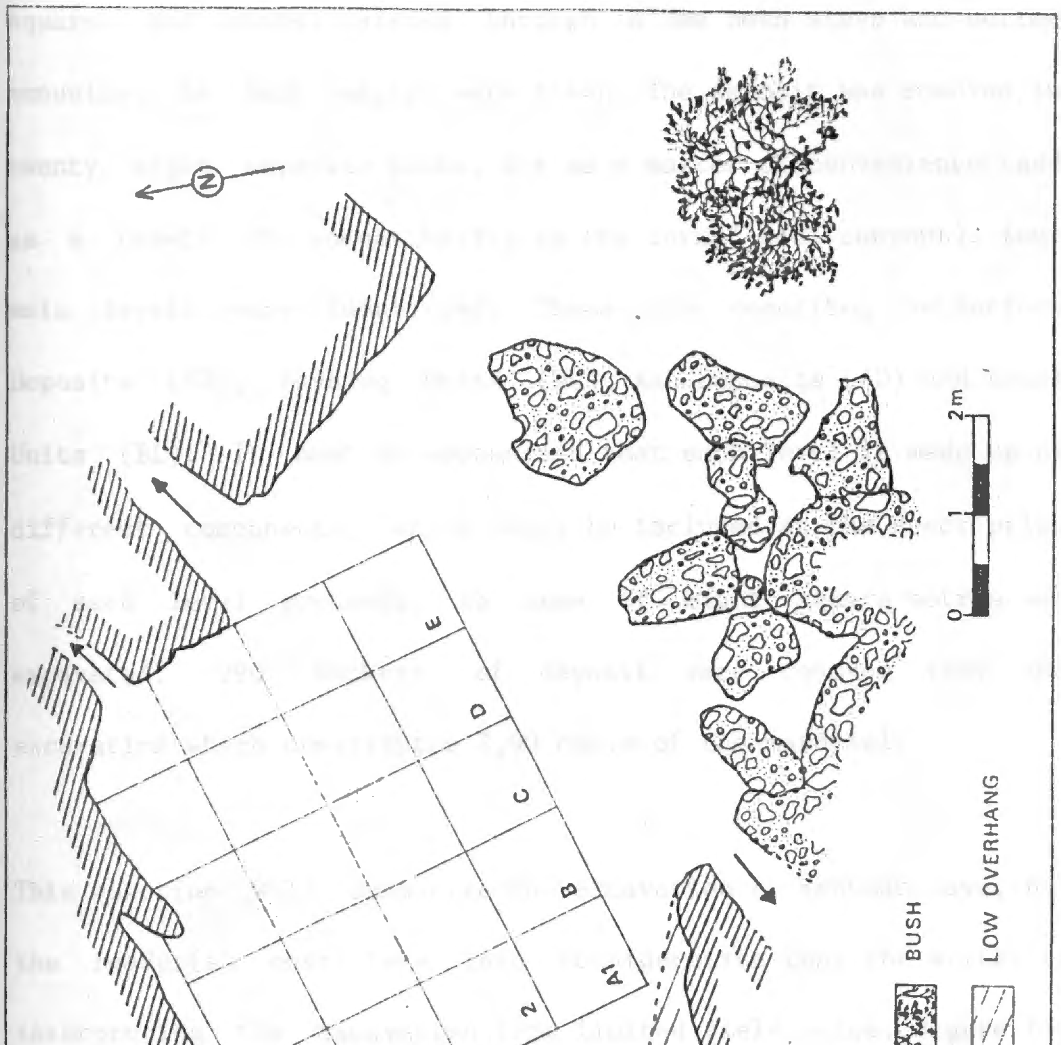
Today, many of the animals recorded above, such as elephant, buffalo, rhinocerous, eland and lion have been hunted out. Baboons, dassie, small bovids, small ground game and tortoise are still abundant. Rare sightings of the Cape Leopard are recorded occasionally. As can be seen from the above, a wide range of plant and animal species were available in the Olifants River Valley, many of which were exploited by the prehistoric inhabitants.

STRATIGRAPHY OF THE DEPOSITS

The deposits at Renbaan Cave seem to conform to the normal pattern of small, Later Stone Age sites in the mountain zone, with an arc of bedding lining the back of the cave and an ashy, charcoal rich deposit towards the centre. The farmer who owned the land on which the cave is located, had disturbed and removed a substantial amount of deposit at the back of the cave. This area was avoided during excavation, but may have contributed to some blurring of the distributional features because the farmer dumped the deposits elsewhere.

A horizontal grid was laid on the surface of the deposit to facilitate controlled excavation methods and recording of artefacts and features. The surface of the site and cave outline was surveyed with the aid of a theodolite (Fig 6:1). An attempt was made to recover all stone artefacts, non-lithic cultural material, botanical and faunal remains from the excavation. These

FIGURE 6:1   RENBAAN CAVE : PLAN OF CAVE AND EXCAVATION



were placed in paper packets and marked according to square and level. The deposit was removed according to clearly identifiable squares and units, sieved through a 3mm mesh sieve and sorted manually. No bulk samples were taken. The deposit was removed in twenty eight separate units, but as a matter of convenience (and as a result of compatibility in the formal tool content), four main levels were identified. These are described as Surface Deposits (SD), Bedding Units (BU), Ash Deposits (AD) and Basal Units (BL). It must be emphasised that each level is made up of different components, which will be included as the description of each level proceeds. An area of eight square metres was excavated. 290 buckets of deposit were removed from the excavation which constitutes 2,90 cub.m of the material.

This section will summarize the excavation at Renbaan Cave, but the reader(s) must take into consideration that the writer is interpreting the excavation from limited field notes. Figure 6:2 shows the distribution of the four main levels in the excavation.

SURFACE DEPOSITS

Surface Cleanings (SC) is the surface layer. A substantial part of the surface was in a disturbed condition and was therefore collected together and packed. The rest of the surface deposits were placed in paper packets according to squares. The surface material was very shallow. It was merely cleaned and scraped. Underneath SC, four individual, (floating units) were recognized. Course Brown Sand (CBS), Hearth above Course Brown Sand (H+CBS),

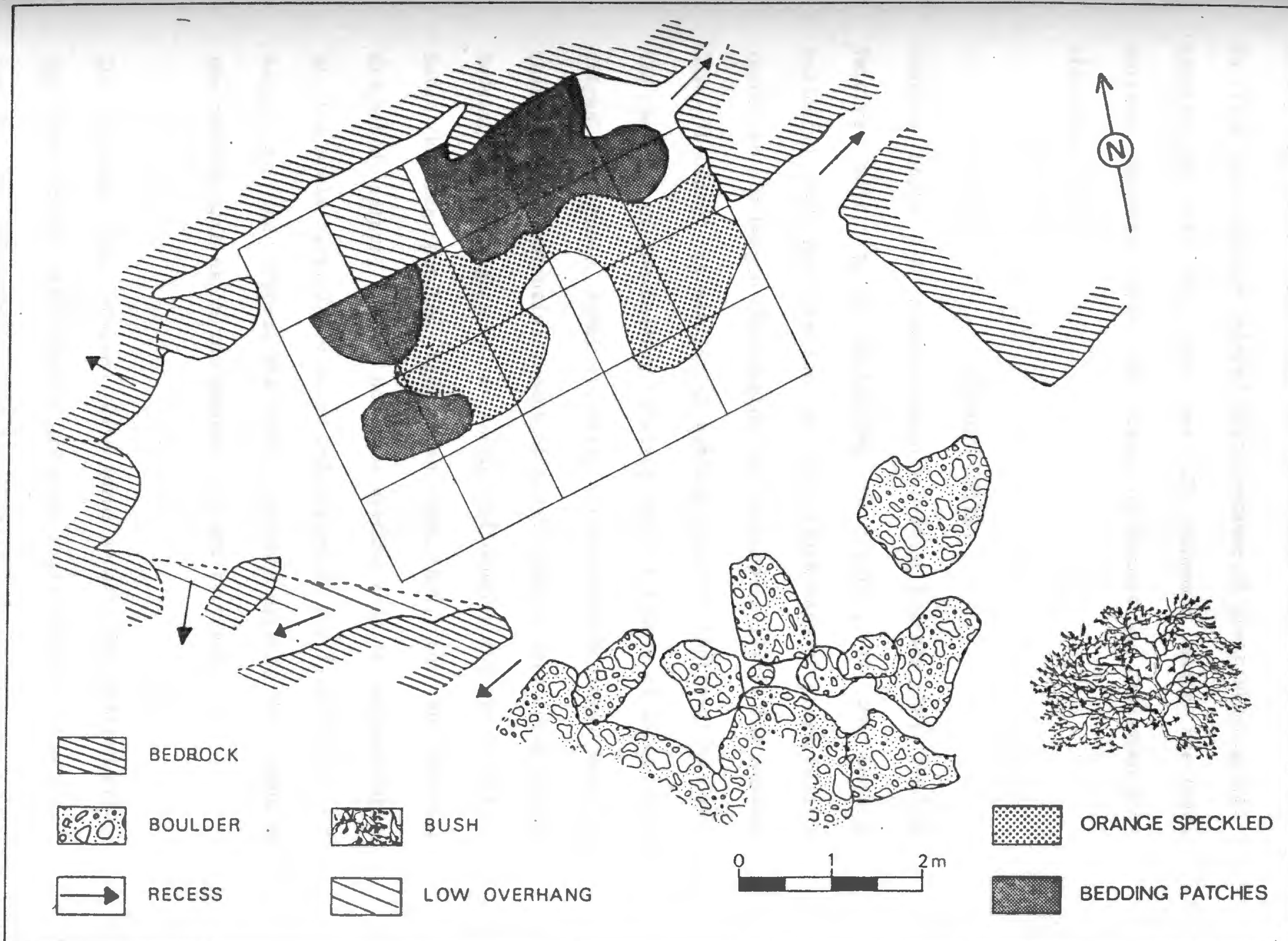


FIGURE 6:2 RENBAAN CAVE : DISTRIBUTION OF MAIN LEVELS

Hearth in Brown Sand (HBS) and Brown Sand (BS). I have referred to them as surface related units because of their stratigraphic association with SC. They are all subsumed under the level Surface Deposits (SD). 82 cub.m of deposit was excavated from this level.

BEDDING UNITS

Bedding Units (BU) contains mainly Bedding Patches (BP). Bedding Patches might be a misleading description, as the bedding collected did not consist of the thick wads of grass bedding found at De Hangen (Parkington and Poggenpoel 1971). The Renbaan Cave 'bedding' is similar to bedding found at Andriesgrond Cave. The matrix of the bedding consists more of a mass of uncompacted fibres, vegetable remains, twigs, sticks, woodshavings, sand and charcoal. A substantial amount of termite casts were found in the bedding which might be a factor influencing its preservation. Seven bedding patches have been described, but due to their disturbed nature, we are not sure whether this is representative of the whole site. There is no indication in the field notes, how deep into the deposit the bedding patches extend. The extent of the bedding patches in the deposit was not surveyed.

The bedding from Renbaan Cave forms an arc-like pattern around the back of the cave, similar to other small mountain cave sites. Due to its disturbed nature (especially bedding patches 1,2 and 4), it had shifted towards the centre, overlaying an orange speckled (OSP) deposit. Bedding Patch 3 in square C4 and D4 was considered the only reliable in-situ deposit. After removing the surface sand, it was evident from the tufts of bedding sticking out, that these squares contained the undisturbed material. It was more dense than the other bedding patches. A sample of grass fibres from bedding patch 3, in square D4 at a depth of 5cm was submitted to the radiocarbon dating laboratory of the CSIR in Pretoria. The fibre was dated to 1150 $\pm$ 50 BP (PTA-3768).

The matrix of the bedding at Renbaan Cave is clearly quite different from that found at De Hangen. At De Hangen, it was possible to lift large wads of bedding out of the hollow, but at Renbaan Cave, they were mixed with layers of course sand and lots of charcoal interspersing scatters of twigs and grass. It is possible that bedding and corm residue with twigs were laid down in a shallow hollow to form part of a bed, but these were not recognized in the excavation. Sand was then thrown on top of the bedding with hot coals and more sand, before being slept on. The amount of charcoal in the bedding without any stratified fires, may suggest that the coals were added to the bedding for warmth. Ethnographic information supports this suggestion (Parkington 1976a). Alternatively, it may have been that the inner boundary of the bedding became ashy on contact with the main ash unit, or mixed up with the main ash unit when the bedding was disturbed by the farmer.

Within the bedding unit, an additional nine excavation units were identified. They were not stratigraphically separate, but represent localized and isolated units. These were identified as Brown Sand with Vegetation (BSV), fragmented Bedding (FB), Brown Sand with Fragmented Bedding (BSFB), Hearth in Brown Sand (HBS), Iridacea Patch with Charcoal (IP), Bottom of Iridacea Patch (BIP) which was comparable with IP, Hearth with Vegetation (HV), Pit Below Bedding Patch 5 (P-BP5) and Vegetation Patch (VP). the stone tool composition was clearly similar to Bedding Patches 1-7. 1,30 cub.m of deposit was removed from this layer.

ASH DEPOSITS (AD)

The inner border of the arc of bedding patches merged into an orange and grey ash deposit with flecks of charcoal. This Orange Speckled deposit (OSP) is made up of a heavy concentration of fires made roughly in the same place. It extends over squares B2,B3,B4,C2,C3,D2,D3 and E3. In square B4, OSP was removed in spits of 10cm. 30cm into the deposit, the deposit petered out and is slightly overlain by a Grey Ashy layer (GA), which was removed separately. The bulk of the Grey Ash in square B4 resembled a small hearth merging into square C4. OSP in square B4 seemed to stop at a depth of approximately 18cm. The deposit petered out at approximately 46 cm in square B2, which is its deepest. In square C2, it is truncated by an animal burrow. This disturbed deposit was taken out separately and called Pit Infall (PI) and ignored in the analysis.

A feature of OSP is its lack of stratigraphy.It suggest an accumulation of fires compacted together to form one level. It is a fairly homogeneous unit, but does not display the pure white ash deposit as at De Hangen (Parkington and Poggenpoel 1971:71).This difference might reflect the different kind of wood being burnt, an intensity of fire making and occupation at the site, post depositional processes or age. An interesting observation, is that OSP resembles Unit 3 (Orange Flecked) at Andriesgrond Cave. A sample of charcoal was collected from square C3 at a depth of 30cm in OSP and Radiocarbon dated to 1910 ± 60 (PTA 3783).

OSP was clearly homogeneous, but four small, localised units in close association were identified and included into this level. These are : Grey Brown Sand (GBS), Grey Ash Soil (GAS), Grey Ash with Vegetation (GAV) and Grey Ash (GA). These ashy deposits are in close stratigraphic association with the main ash deposit (OSP).

BASAL UNIT

Brown sand with charcoal (BSC) which constitutes the majority of the basal layer deposits, represents a clear break with SD, BU and AD. The unit was excavated in only one square, B4 and rests on bedrock. It therefore represents the basal layer of the site and possibly an earlier occupation. The deposit is brown in colour and has a crumbly texture. Considering the amount of artefacts and other cultural remains from this one square, it is a fairly rich deposit. BL is clearly stratigraphically distinct from the other three levels and this is visible too in the stone tool assemblage. Potentially,this deposit is very interesting because it represents a clear break from the other levels and therefore needs to be closely examined.

Toward the front of square B4, BSC is divided by a light brown mottled deposit which was removed seperately and called Mottled Brown (MB). The assemblage represented in this deposit reflects that from BSC and it was decided to include it as part of this level. It is possible that MB may represent a slightly later occupation than BSC, but dates would be needed to confirm this. BL clearly represents the earliest deposit in the cave and thus the earliest occupation.

No sub-units were visible in BSC and it was therefore removed as one unit. This rich brown coloured deposit slopes quite steeply towards the back walls of the cave, and it looks very much as if the first bedding could have been laid down here. Another more tangible feature of basal unit which indicates its non-association with the other three layers, is the change in frequency and type of stone tools found. The artefacts are visibly larger than those found in the other three levels and the formal tool component is also very different. A charcoal sample collected from square B4 at a depth of 50cm in BSC is radiocarbon dated to 5430 $\pm$ 70 BP (PTA 3766). This clearly shows that BL is definitely not contemporary with SD, BU and AD, 21 cub.m. of deposit was removed from this level.

DATING AND CORRELATION

Three radiocarbon dates are available for the Renbaan Cave sequence and the individual dates have been cited above. The deposits at Renbaan Cave span a time range of over 5000 years, with the earliest date from a charcoal sample from BL. This is not to suggest that occupation at Renbaan was continuous, but more plausibly, represents short bursts of occupation seperated by periods of non-occupation. The time difference between the basal layers and ash deposits, represents a difference of over 3500 years, although it is possible that units dated between may shorten the gap. The same is true for the 760 years of 'non-occupation' which separate the apparently complimentary levels, BP from OSP. This may be due to the depth at which the two samples were collected. The sample of grass bedding from the back of the cave from square D4 came from a depth of 5cm, while the charcoal sample from square C3 in OSP came from a depth of 30cm. More dates would be needed to confirm its contemporaneity, although the lithic assemblages are almost identical.

Few radiocarbon dates only provide us with a 'relative' understanding of the occupation of the site. We need dates from all the units to enable us to locate precisely the periods of non-occupation, and in this way gauge a more reliable unerstanding of settlement at Renbaan Cave. And it is not only from Renbaan Cave that we need as many dates as possible, but from all sites in the southwestern (and southen and eastern) Cape in order to assess hunters and gathrers adaptive strategies throughout the Holocene.

Renbaan Cave dates are compared against 6 dates from De Hangen, two from Andriesgrond and two from Klipfonteinrand (Table 3:1). The latest five dates from De Hangen all predate the first date from BP at Renbaan Cave. The earliest date from De Hangen (PTA-127) 1850 ± 50BP, was from a small lens of ash and charcoal situated within the loose bedrock below the glass layers (Parkington and Poggenpoel 1971). This date, interestingly, pre-dates the ash and grass layers at Renbaan Cave. The later date from Renbaan, from OSP (PTA-3783) 1910 ± 60, is similar to the earliest date at De Hangen and suggests that Renbaan Cave was occupied much earlier than De Hangen.

Two dates are available from Andriesgrond Cave, (PTA-2480) 1640 ± 50BP, from 'Charcoal Flecked', below the main ash concentration, which interestingly, corresponds to OSP (PTA-3783) 1910 ± 60BP at Renbaan Cave. At Andriesgrond Cave, 'Charcoal Flecked' was isolated from a layer called main ash concentration (MAC). Charcoal Flecked, at Andriesgrond Cave structurally resembles Renbaan Cave OSP. Orange Speckled is considered to be the MAC of Renbaan. The 'MAC' at Renbaan Cave is thus different from the MAC at Andriesgrond Cave (and De Hangen). Those floating, ephemeral units which together with OSP,make up AD therefore GBS, GAS,GAV, and GA are all more ashy in content than OSP. However, they were uncompacted and did not suggest continuous fire making, but intermittent fire making. We need to question then whether OSP at

Renbaan Cave is the main ash concentration.

The other date from Andriesgrond Cave, (PTA-2482) 430 ± 50BP, is the main ash concentration. If this is so, then the MAC from Andriesgrond Cave is separated by nearly 1500 years from the 'MAC' at Renbaan Cave.

Two dates are available from Klipfonteinrand. Klipfonteinrand is a large cave, located on the eastward margin of the Cape fold belt, bordering the semi-desert Karoo zone. (PTA-2475), 5570 ± 70 BP is dated from spit 1 and is similar to (PTA-3766), 5430 ± 70BP at BSC from Renbaan Cave. Parkington (1980, 1983, 1984a) feels that all small cave sites in the mountains post date 2000 BP, a settlement response by hunter-gatherer to the introduction of Pastoralism. Renbaan Cave is a small Later Stone Age mountain site, but has a deposit extending nearly 5500 years. We need to question then this suggestion of 2000BP samll cave settlement pattern syndrome. Clearly Renbaan refutes this suggestion. It seems quite plausible that hunter-gatherer people would have occupied a suitable site no matter how large or small it was. It is also difficult to understand what Parkington means by small. How small is small and when is a site defined as large ? Alternatively, BSC at Renbaan Cave may repesent a short 'burst' of occupation, possibly a hunting party.

The farmer who owns the land on which Klipfonteinrand is located, had removed a substantial amount of deposit from the surface so that he could keep his sheep in the cave. Possibly the last 3000 years of late Holocene deposit was destroyed. (PTA-1642) 3540 ± 60 BP is dated from a human skeleton in Brown Sandy Soil just below the surface and in time is intermediary between BSC and OSP at Renbaan cave.

This section has considered the dates from Renbaan Cave in relation to three dated sites in the Cape fold belt mountains, and compares them. The 5430 ± 70 BP date from the Renbaan Cave falls clearly within the hiatus at Elands Bay Cave (Parkington 1976a) and Tortoise Cave (Robey 1984). It is felt that from 8000 BP - 4000 BP, conditions at this part of the West coast were considerably more arid than today and that the sea level stood two to three metres higher than it does today. The coast and Sandveld would therefore have not been attractive zones for hunter-gatherer settlement and that prehistoric people responded to these circumstances by intensifying their exploitation of the Cape fold belt plant and animals. The date for the basal level (BL) at Renbaan cave falls within the hiatus and adds credence to the suggestion that the Cape fold belt mountains were occupied during this time. The Klipfonteinrand 5570 ± 70 BP date from spit 1 also falls within the hiatus at Elands Bay Cave (Parkington 1976a) and Tortoise Cave (Robey 1984). More dates are needed to reliably confirm this suggestion.

Renbaan Cave dates also show that the site was occupied earlier than De Hangen. The deposits from Andriesgrond Cave (particularly

'Charcoal Flecked'), forces us to question the stratigraphic associations between the 'sleeping area' and the 'cooking area' at Renbaan Cave. The structural differences between OSP at Renbaan Cave and Main Ash Concentration at De Hangen has also been considered earlier and Klipfonteinrand, a large cave site in the Cape fold belt, reveals a dated assemblance to Renbaan Cave, a small cave site, especially the earliest date. Parkington's suggestion that small cave sites were only occupied after 2000 as a response to the introduction of pastoralism is also questioned. Finally, a plausible explanation of possibly most cave/shelter sites in the southwestern, southern and eastern Cape, is that they represent short bursts of occupation rather than continuous occupation.

TABLE 3:1

Radiocarbon determinations from Renbaan Cave, De Hangen, Andriesgrond Cave and Klipfonteinrand.

RENBAAN CAVE

Lab.No:	Date BP:	Material:	Levels:
PTA-3768	1150 ± 50	Grass Bedding	Bedding Patch
PTA-3783	1910 ± 60	Charcoal	Orange Speckled
PTA-3766	5430 ± 70	Charcoal	Brown Sand with Charcoal

DE HANGEN

Lab.No:	Date BP:	Material:	Levels:
PTA-127	1850 ± 50	Charcoal	Hearth Above Bedrock
PTA-125	380 ± 45	Charcoal	Main Ash Concentration
PTA-167	90 ± 50	Charcoal	Grass Layer
PTA-188	458 ± 45	Charcoal	Main Ash Concentration
PTA-126	350	Charcoal	Main Ash Concentration
PTA-346	390 ± 45	Grass Bedding	Grass Layer

ANDRIESGROND CAVE

Lab.No:	Date BP:	Material:	Levels:
PTA-2480	1640 ± 50	Charcoal	Charcoal Flecked
PTA-2482	430 ± 50	Charcoal	Main Ash Concentration

KLIPFONTEINRAND

Lab.No:	Date BP:	Material:	Levels:
PTA-2475	5570 ± 70	Human Bone	Spit 1
PTA-1642	3540 ± 60	Charcoal	Brown Sandy Soil

CHAPTER FOUR

CULTURAL MATERIAL FROM RENBAAN CAVE

A. THE STONE TOOL ASSEMBLAGE

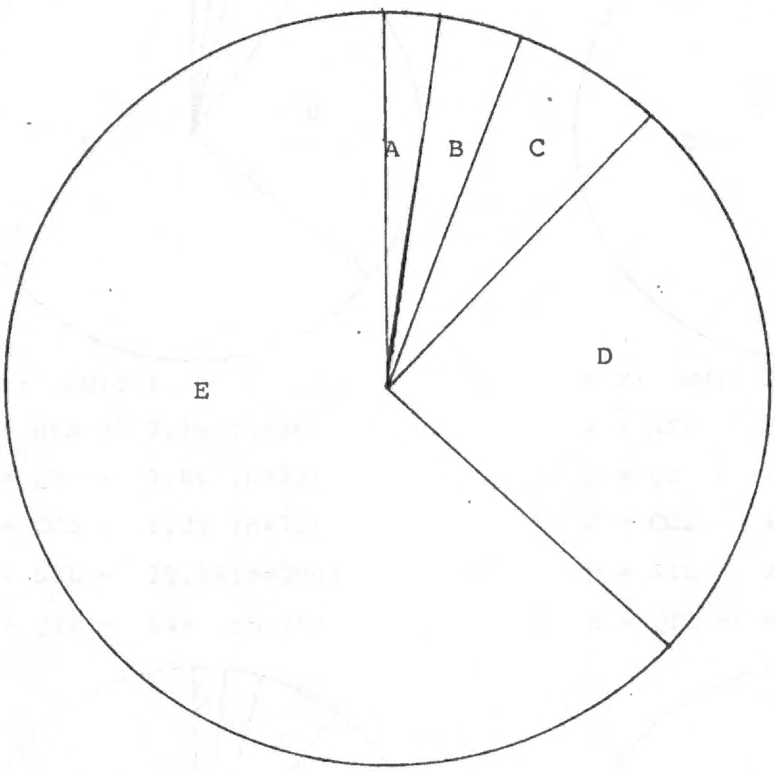
It should be noted at the outset, that the lithic assemblage from Renbaan Cave has been subjected to detailed metrical analysis and discussions of the results will be presented in Chapter Five. In this chapter a description and analysis of the lithic assemblage from the Renbaan Cave excavation is presented. In the analysis, four levels are identified : Surface Deposits (SD), Bedding Units (BU), Ash Deposits (AD) and Basal Unit (BL). Each will be described seperately and compared - thus placing the levels into perspective.

Figure 7:1 represents the overall raw material frequencies from Renbaan Cave and Figure 7:2, the raw material frequencies from each level. The frequency of formal tool types from the respective levels is depicted in Figure 7:3. Figure 7:4-7:7 illustrates the percentage frequency of formal tool types from each level in the Renbaan Cave excavation.

SURFACE DEPOSITS

Table 4:1 depicts the stone tool classes and raw material categories. Figure 8:1 illustrates the utilization tendencies within the raw material categories and Figure 8:2 the raw material component of the artefact classes.

FIGURE 7:1 RENBAAN CAVE : RAW MATERIAL FREQUENCIES



KEY:

A = HFS - 2,5% (n=74)

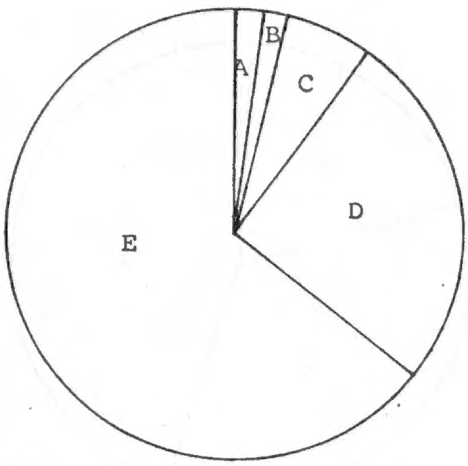
B = QZ - 3,2% (n=96)

C = CCS - 6% (n=166)

D = SIL - 25% (n=755)

E = QTZ - 63% (n=1894)

FIGURE 7:2 RENBAAN CAVE : RAW MATERIAL FREQUENCIES FOR EACH UNIT



KEY: UNIT 1

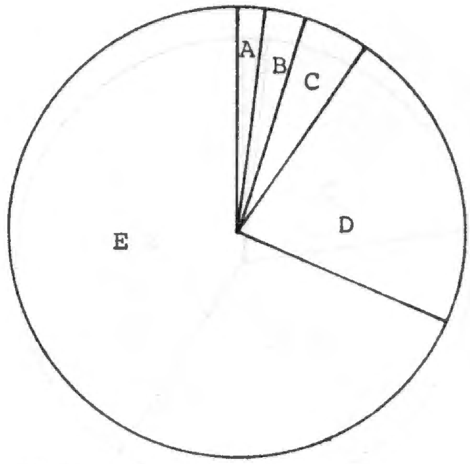
A = HFS - 2,1% (n=26)

B = QZ - 1,8% (n=22)

C = CCS - 6,3% (n=75)

D = SIL - 25,9% (n=306)

E = QTZ - 64% (n=753)



KEY: UNIT 2

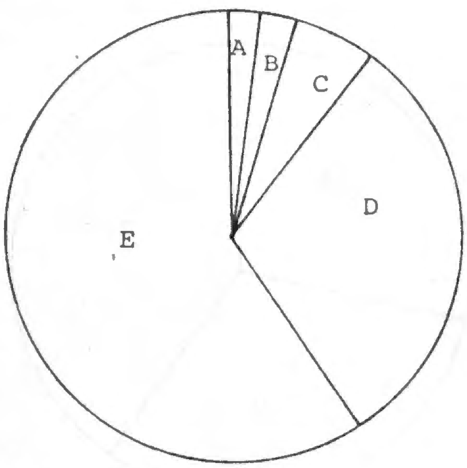
A = HFS - 2% (n=22)

B = QZ - 2,8% (n=30)

C = CCS - 4,6% (n=49)

D = SIL - 22,2% (n=233)

E = QTZ - 68% (n=715)



KEY: UNIT 3

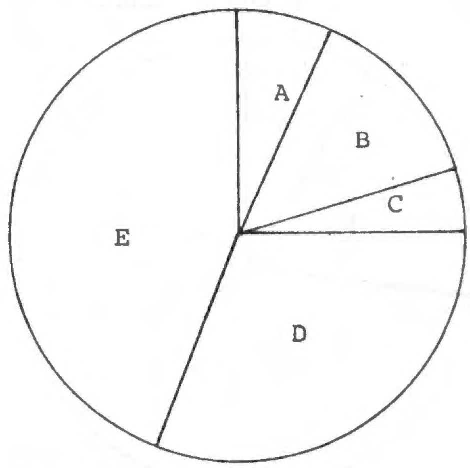
A = HFS - 2% (n=11)

B = QZ - 2,5% (n=14)

C = CCS - 5,8% (n=32)

D = SIL - 30,3% (n=169)

E = QTZ - 59,3% (n=330)



KEY: UNIT 4

A = HFS - 6,8% (n=15)

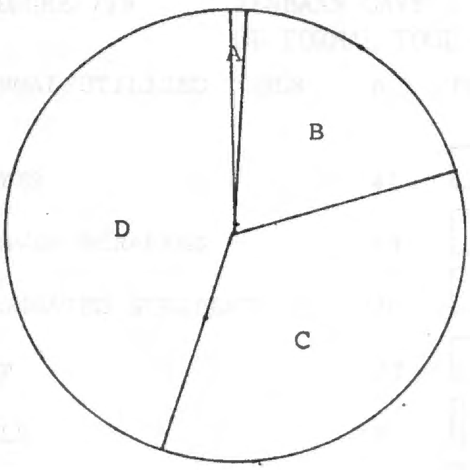
B = QZ - 13,6% (n=30)

C = CCS - 4,5% (n=10)

D = SIL - 31% (n=68)

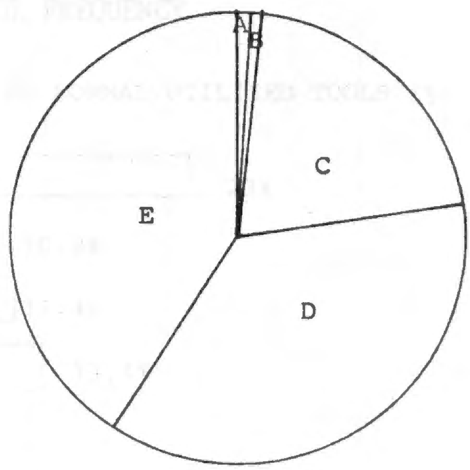
E = QTZ - 44% (n=96)

FIGURE 7:3 RENBAAN CAVE : FORMAL TOOL FREQUENCIES FOR EACH UNIT



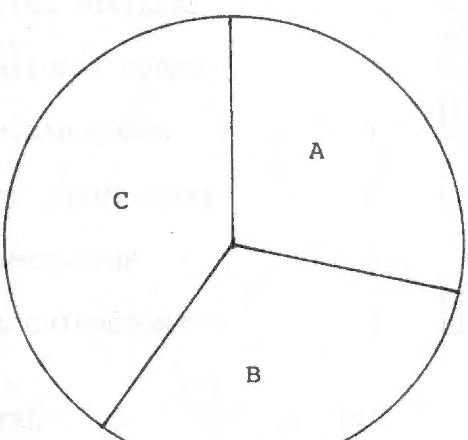
KEY: UNIT 1 (n=96)

A = BACKED POINT 1%
B = MRP 19,7%
C = SCRAPERS 34,3%
D = ADZES 45%



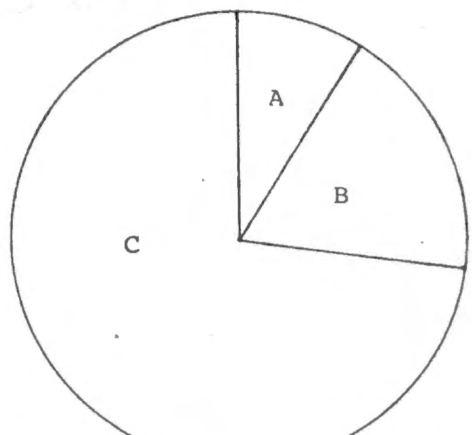
KEY: UNIT 2 (n=104)

A = DRILL 0,96%
B = AWL 0,96%
C = MRP 21,1%
D = SCRAPERS 36,5%
E = ADZES 40,3%



KEY: UNIT 3 (n=35)

A = ADZES 28,5%
B = MRP 31,4%
C = SCRAPERS 40%



KEY: UNIT 4 (n=11)

A = SEGMENT 9%
B = ADZES 18,1%
C = SCRAPERS 72,7%

FIGURE 7:4 RENBAAN CAVE : PERCENTAGE FREQUENCY OF FORMAL TOOL IN SD

FORMAL/UTILIZED TOOLS	n	FREQUENCY OF FORMAL/UTILIZED TOOLS (%)
ADZES	41	23%
CONVEX SCRAPERS	18	10,2%
ELONGATED SCRAPERS	20	11,4%
MRP	23	13,1%
AWLS	1	0,6%
DRILL	1	0,6%
SEGMENTS	0	
BACKED POINT	0	
UTILIZED FLAKES	34	19,4%
OUTILS ECAILLES	22	12,6%
IRREGULAR CORES	7	4%
BIPOLAR CORES	1	0,6%
RICE GRAIN CORES	5	2,9%
HAMMERSTONE	0	
U/L GRINDSTONE	2	1,1%
TOTAL	175	

FIGURE 7:5 RENBAAN CAVE : PERCENTAGE FREQUENCY OF FORMAL TOOLS IN BU

FORMAL/UTILIZED TOOLS	n	FREQUENCY OF FORMAL/UTILIZED TOOLS (%)
ADZES	43	26,5%
CONVEX SCRAPERS	19	11,7%
ELONGATED SCRAPERS	14	8,6%
MRP	19	11,7%
AWLS	0	
DRILLS	0	
SEGMENTS	0	
BACKED POINT	1	0,6%
UTILIZED FLAKES	32	19,7%
OUTILS ECAILLES	15	9,2%
IRREGULAR CORES	6	3,7%
BIPOLAR CORES	2	1,2%
RICE GRAIN CORES	9	5,5%
HAMMERSTONE	1	0,6%
U/L GRINDSTONE	3	1,8%
TOTAL	164	

FIGURE 7:6 RENBAAN CAVE : PERCENTAGE FREQUENCY OF FORMAL TOOLS IN AD

FORMAL/UTILIZED TOOLS	n	FREQUENCY OF FORMAL/UTILIZED TOOLS (%)
ADZES	10	12,3%
CONVEX SCRAPERS	10	12,3%
ELONGATED SCRAPERS	4	4,9%
MRP	11	13,6%
AWLS	0	
DRILLS	0	
SEGMENTS	0	
BACKED POINT	1	1,2%
UTILIZED FLAKES	26	32%
OUTIL ECAILLES	6	7,4%
IRREGULAR CORES	2	2,5%
BIPOLAR CORES	3	3,7%
RICE GRAIN CORES	7	8,6%
HAMMERSTONE	1	1,2%
U/L GRINDSTONE	0	
TOTAL	81	

FIGURE 7:7 RENBAAN CAVE : PERCENTAGE FREQUENCY OF FORMAL TOOLS IN BL

FORMAL/UTILIZED TOOLS	n	FREQUENCY OF FORMAL/UTILIZED TOOLS (%)
ADZES	2	6%
CONVEX SCRAPERS	8	24,2%
ELONGATED SCRAPERS	0	
MRP	0	
AWLS	0	
DRILLS	0	
SEGMENTS	1	3%
BACKED POINT	0	
UTILIZED FLAKES	18	55%
OUTILS ECAILLES	1	3%
IRREGULAR CORES	3	9%
BIPOLAR CORES	0	
RICE GRAIN CORES	0	
HAMMERSTONE	0	
U/L GRINDSTONE	0	
TOTAL	33	

The majority of the stone pieces, 1182 (39.3%) from the Renbaan Cave excavations comes from SD. Within this level, quartz comprises 63.6%, silcrete 25.9%, CCS 6.3%, quartzite 1.8% and hornfels 2.2%. The level is therefore overwhelmingly dominated by quartz and silcrete, but with a definite inclination towards quartz. The large discrepancy, nearly 40% between quartz and silcrete is markedly reversed when we examine the use of the materials in each artefact class. There is now a pronounced emphasis on silcrete for formal tools, but less so for utilized pieces where quartz dominates. Out of 96 formal tools in Level 1, 58 (60.4%) are in silcrete, 26 (27%) are in quartz, 6 (6.25%) in CCS, 1(1%) in quartzite and 5 (5.2%) in hornfels. Of the 42 utilized pieces,22 (44.8%) are quartz, 15 (30.6%) are silcrete, 8 (16.3%) CCS, 3 (6.1%) quartzite and 2 (4.08%) are hornfels.

Quartz is readily available in the Cape fold belt mountains. Together quartz and silcrete dominate the waste, utilized and formal classes. Out of 1025 waste pieces, 703 (68%) are quartz, 233 (22.7%) silcrete, 61 (5.95%) CCS, 18 (1.75%) quartzite and 20 (1.95%) hornfels.

Binford and Sabloff (1982) have recognised the role that raw material boundries play in the manufacture of stone tools. The use of quartz, they argue, is a response to the relative unavailability of preferred raw materials. However, despite the dominance of quartz in the assemblage, there is a definite preference for the use of silcrete in formal tools, whose predictably conchoidal fracture makes it ideal for stone tool manufacture.

The emphasis on quartz as the dominant raw material in the lithic assemblage from level 1, is reflected in the total lithic assemblage from the excavation. Quartz also dominates the waste classes in all four levels.

In level 1, there is a distinct pattern in the kinds of tools made from the different raw matrials. Of the 58 silcrete formal tools, 36 are adzes and 9 are scrapers. Of the 26 formal quartz tools, 22 are scrapers and 1 is an adze. Adzes dominate the formal tool class in level 1. There are 41 adzes opposed to 38 scrapers. Adzes are preferentially made in silcrete and scrapers in quartz. There are 3 CCS adzes and 1 scraper. There is only 1 quartzite formal tool which is an adze. Two adzes and one scraper are made in hornfels. One backed point is made in fine-grained quartz rock crystal.

In appendix II, a distinction is made between elongated scrapers and convex scrapers. Further observation revealed that all elongated scrapers are made in quartz and almost all convex scrapers in silcrete including some in CCS, quartz and hornfels. Scrapers therefore seemed to be made in a preferrential raw material. This observation prevails in levels 1,2 and 3.

TABLE 4:1 STONE TOOL CLASSES AND RAW MATERIAL CATEGORIES IN SURFACE DEPOSITS

	QUARTZ	SILCRETE	CCS	QUARTZITE	HORNFELS	TOTAL
Scrapers	22	9	1	0	1	33
Adzes	1	36	3	1	2	43
MRP's	2	13	2	0	2	19
Backed Points	1	0	0	0	0	1
Segments	0	0	0	0	0	0
Awls	0	0	0	0	0	0
Drills	0	0	0	0	0	0
Utilized Flakes	10	11	8	2	1	32
Pieces Esquillees	12	3	0	0	0	15
Cores	9	4	3	0	1	17
Hammerstone	0	0	0	1	0	1
Uil. Grindstone	2	1	0	0	0	3
Flakes	78	34	14	4	4	134
Broken Flakes	114	80	19	10	6	229
Bladelets	22	9	4	0	0	35
Chips	447	89	20	3	7	566
Chunks	33	17	1	1	2	54
Total	753	306	75	22	26	1182

FIGURE 8:1 UTILIZATION TENDENCIES WITHIN RAW MATERIAL CATEGORIES IN SD

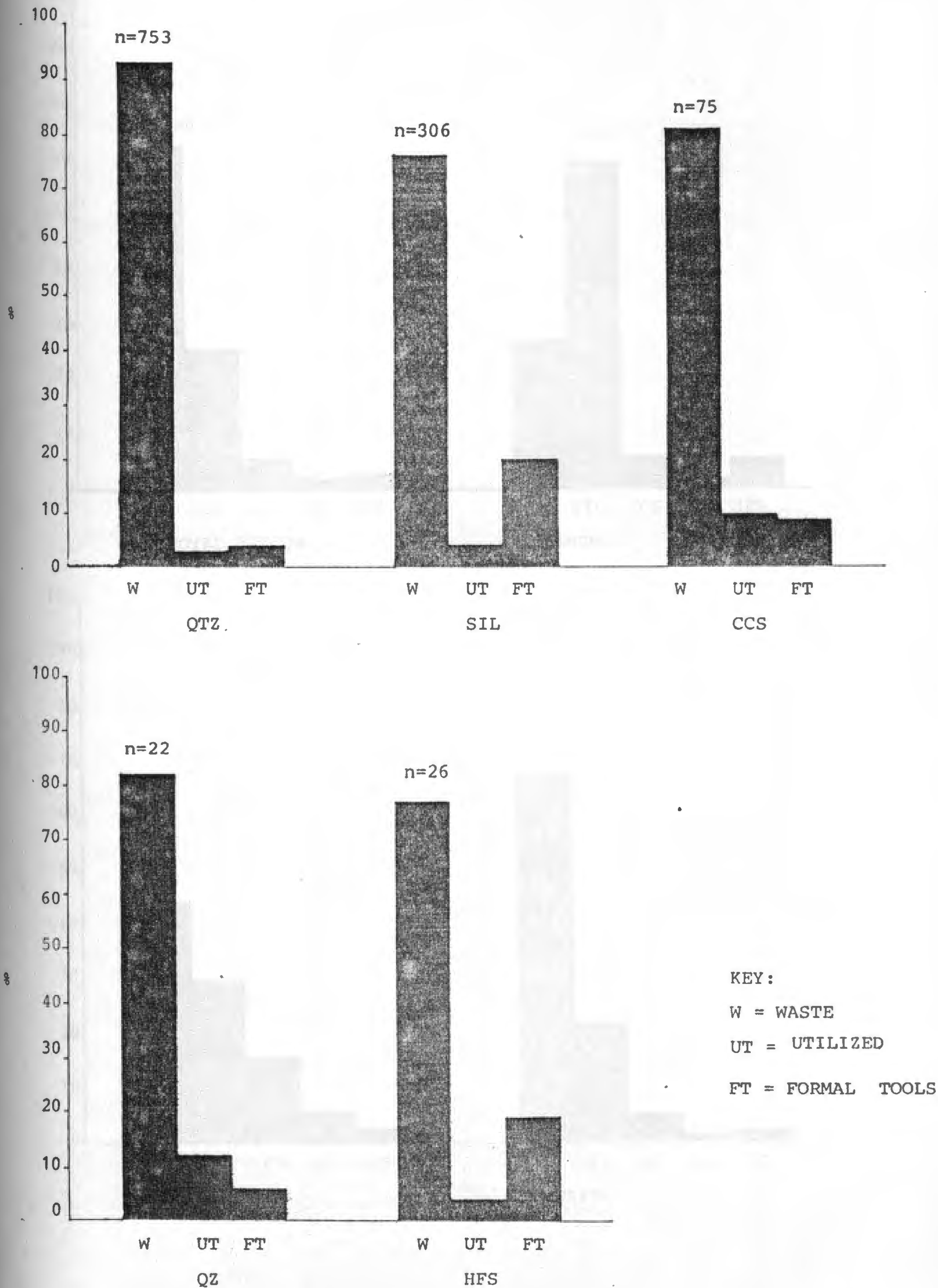
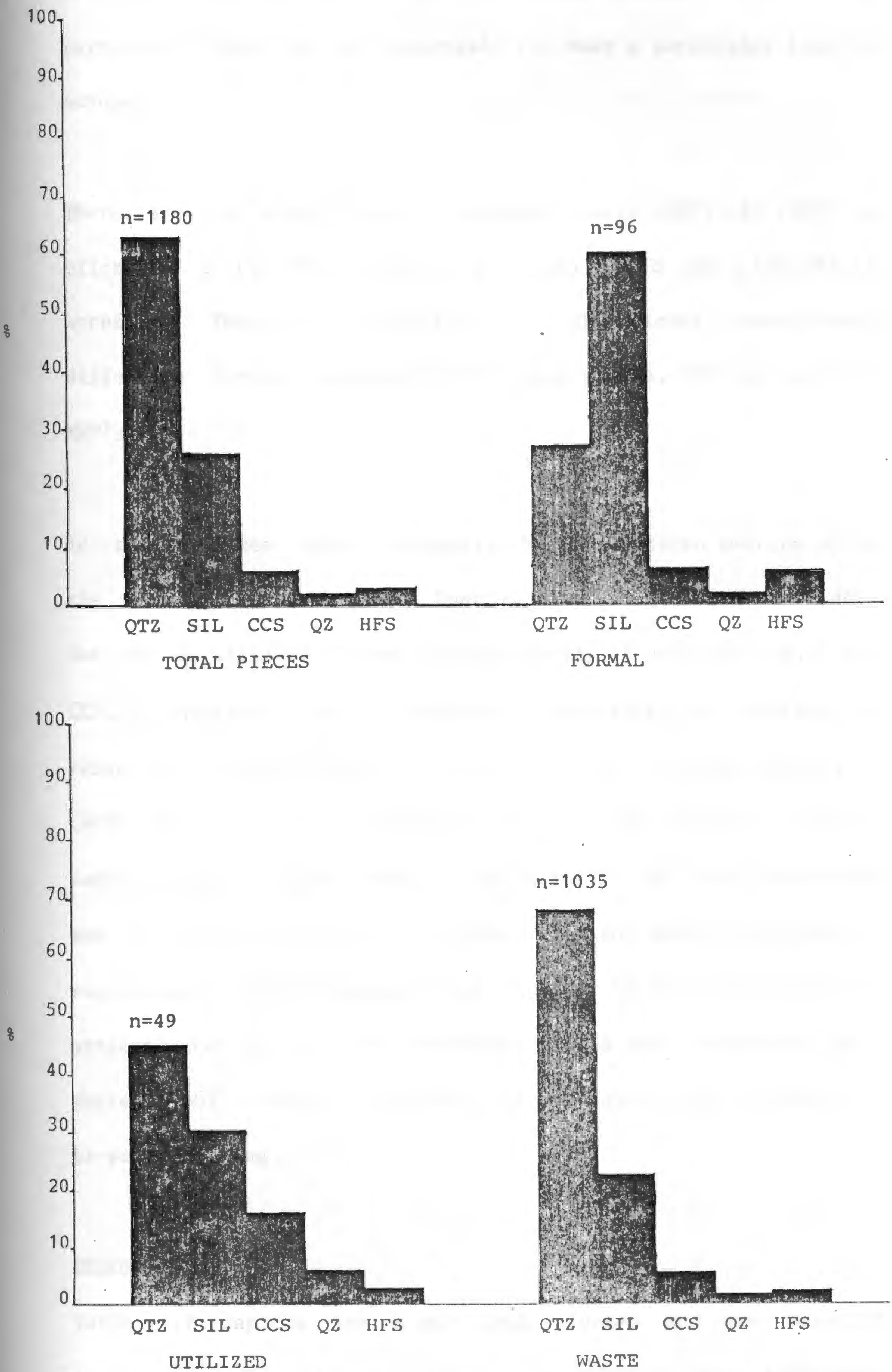


FIGURE 8:2 RAW MATERIAL COMPONENTS OF ARTEFACT CLASSES IN SD



Prehistoric stone tool makers therefore seemed to prefer a particular type of raw material to make a particular type of scraper.

There are 19 miscellaneous retouched pieces (MRP), 13 (68%) in silcrete, 2 (10.5%) in quartz, 2 (10.5%) in CCS and 2 (10.5%) in hornfels. There is therefore a significant proportional difference between silcrete MRP's and quartz, CCS and hornfels MRP's.

In the utilized flake category, the same pattern emerges as in the formal tool category. Quartz, silcrete (CCS) are dominant. Out of 32 utilized flakes, 10 are quartz, 11 are silcrete, 8 are CCS, 2 quartzite and 1 hornfels. Quartzite and hornfels are relatively insignificant. The rest of the utilized pieces, 12 (80%) quartz pieces esquilees and 3 (20%) silcrete. Pieces esquilees are visibly dominated by quartz in the total assemblage and the close association between them and quartz bi-polar and rice-grained cores suggest that they may be the result of final attempts to remove more bladelets from a core (Vanderwal 1977, White 1968). Pieces esquilees are probably the products of bi-polar flaking.

BEDDING UNIT

Table 4:2 depicts the stone tool classes and raw material categories in Level 2. Figure 9:1 depicts the utilization tendencies within the respective raw material categories and Figure 9:2 the different raw material components of the artefact classes. Level 2 comprises the second highest amount of stone tools from the Renbaan Cave excavation, 1049 pieces, which is 34% of the total assemblage.

Level 2 reflects a similar pattern to level 1, which may suggest that the two levels are complimentary and contemporary. There are, however, a few noticeable differences. Quartz scrapers increase by 13 and silcrete scrapers by 6. Adze frequencies are markedly similar. In this level quartz constitutes 715 pieces, which is 8% of the assemblage, silcrete 233 (22.2%), CCS 49 (4.6%), quartzite 30 (2.8%) and hornfels 22(2%).

Adzes dominate the formal tool class in level 2. Out of 41 adzes, 36 (87.8%) are silcrete, 2 (4.8%) in quartz, 2 (4.8%) in CCS and 1 (2.4%) in hornfels. Out of 38 scrapers, 35 (92%) are in quartz and 3(7.8%) silcrete. Twenty are elongated quartz scrapers. The pattern in silcrete and quartz formal tools described in level 1, prevails in level 2. Adzes are preferred in silcrete and scrapers in quartz.

In level 2, the MRP class is very similar to level 1, with some minor differences. There are 5 quartz MRP's opposed to two in level 1. Twelve are in silcrete and six in CCS opposed to 13 and two in level 1. There are 2 hornfels MRP's in level 1, where there are none in level 2. There are no quartzite MRP's in level 1 or 2. The rest of the formal tools in level 2 are 1 silcrete awl and one hornfels awl.

In the utilized flake class in level 2, the proportions of sub-types are similar to level 1. There are 10 quartz utilized flakes in level 2 and 10 in level 1. There are 14 silcrete utilized flakes in level 2 opposed to 11 in level 1. However, there is a significant difference in CCS utilized flakes. There are 3 in level 2 and 8 in level 1. Four are in quartzite in level 2 and two in level 1. In level 2 there are 3 utilized hornfels flakes and only 1 in level 1.

There is a significant difference in the number of pieces esquilees in level 2 as opposed to level 1. In level 2, 18 are quartz and 1 each of silcrete, CCS, quartzite and hornfels opposed to 12 quartz and 3 silcrete in level 1. In level 2 and level 1, quartz comprises 80% of the pieces esquilees.

Level 2 like level 1, is dominated by quartz and silcrete, both quantitavely and in the utilized and formal tool classes. Scrapers are preferred in quartz and adzes in silcrete. Despite some anomalies in the utilized class, the assemblage is very similar to level 1.

TABLE 4:2 STONE TOOL CLASSES AND RAW MATERIAL CATEGORIES IN BEDDING UNITS

	QUARTZ	SILCRETE	CCS	QUARTZITE	HORNFELS	TOTAL
Scrapers	35	3	0	0	0	38
Adzes	2	36	2	0	1	41
MRP's	5	12	6	0	0	23
Backed Points	0	0	0	0	0	0
Segments	0	0	0	0	0	0
Awl	0	1	0	0	0	1
Drills	0	0	0	0	1	1
Utilized Flakes	10	14	3	4	3	34
Pieces Esquilees	18	1	1	1	1	22
Cores	10	2	1	0	0	13
Hammerstone	0	0	0	0	0	0
Uil. Grindstone	0	0	0	2	0	2
Flakes	86	55	6	11	2	160
Broken Flakes	173	60	14	7	10	264
Bladelets	29	4	10	1	1	45
Chips	311	35	5	0	2	353
Chunks	36	10	1	4	1	52
Total	715	233	49	30	22	1049

FIGURE 9:1 UTILIZATION TENDENCIES WITHIN RAW MATERIAL CATEGORIES IN BU

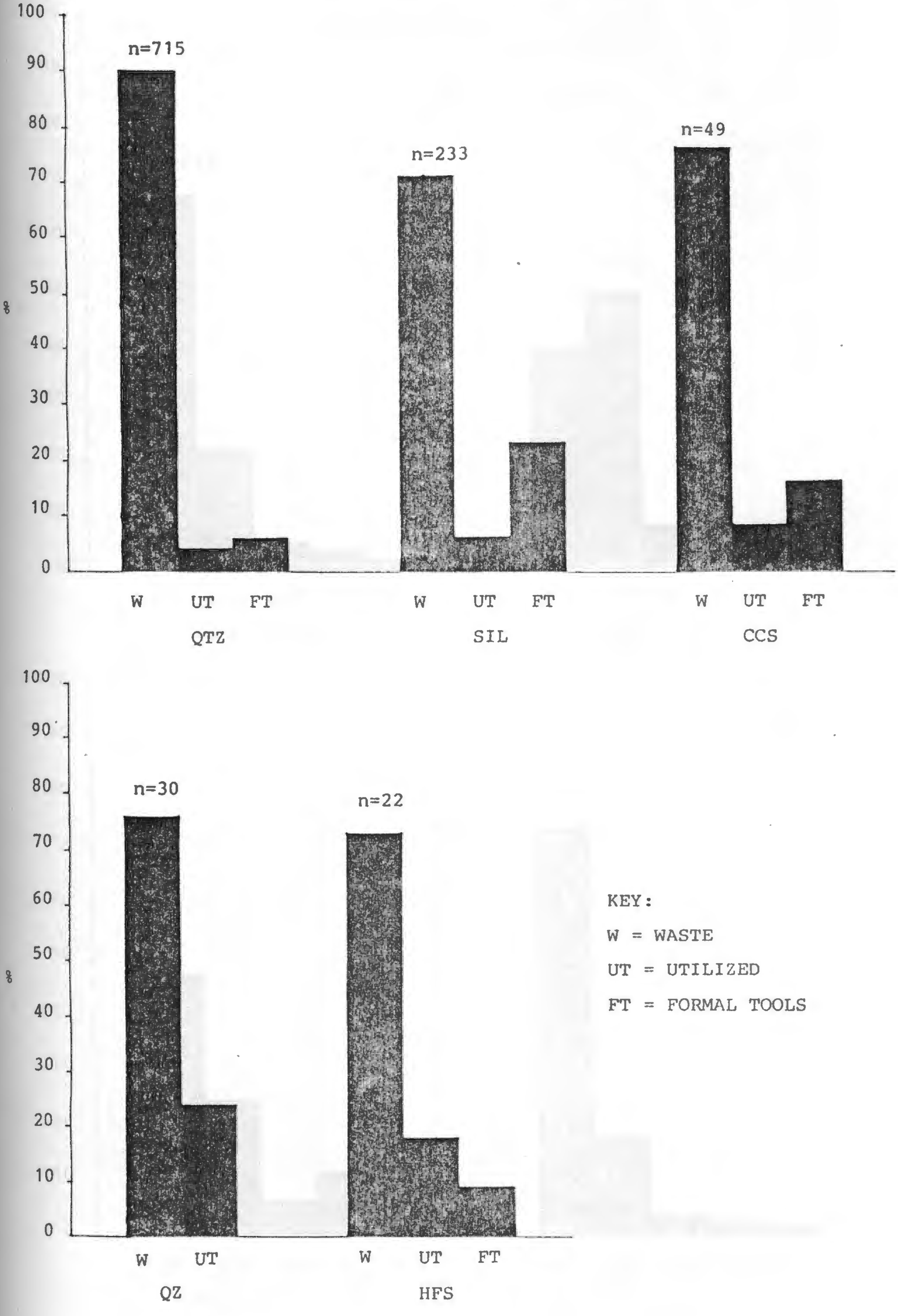
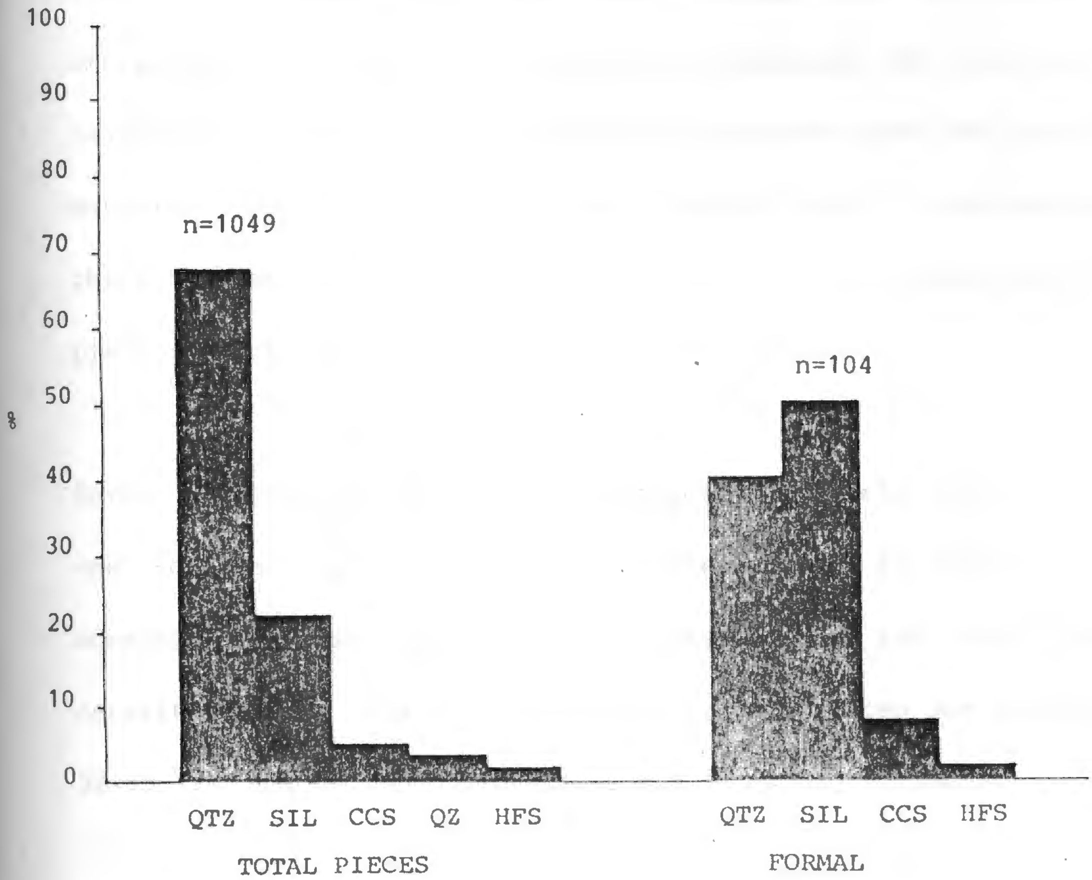
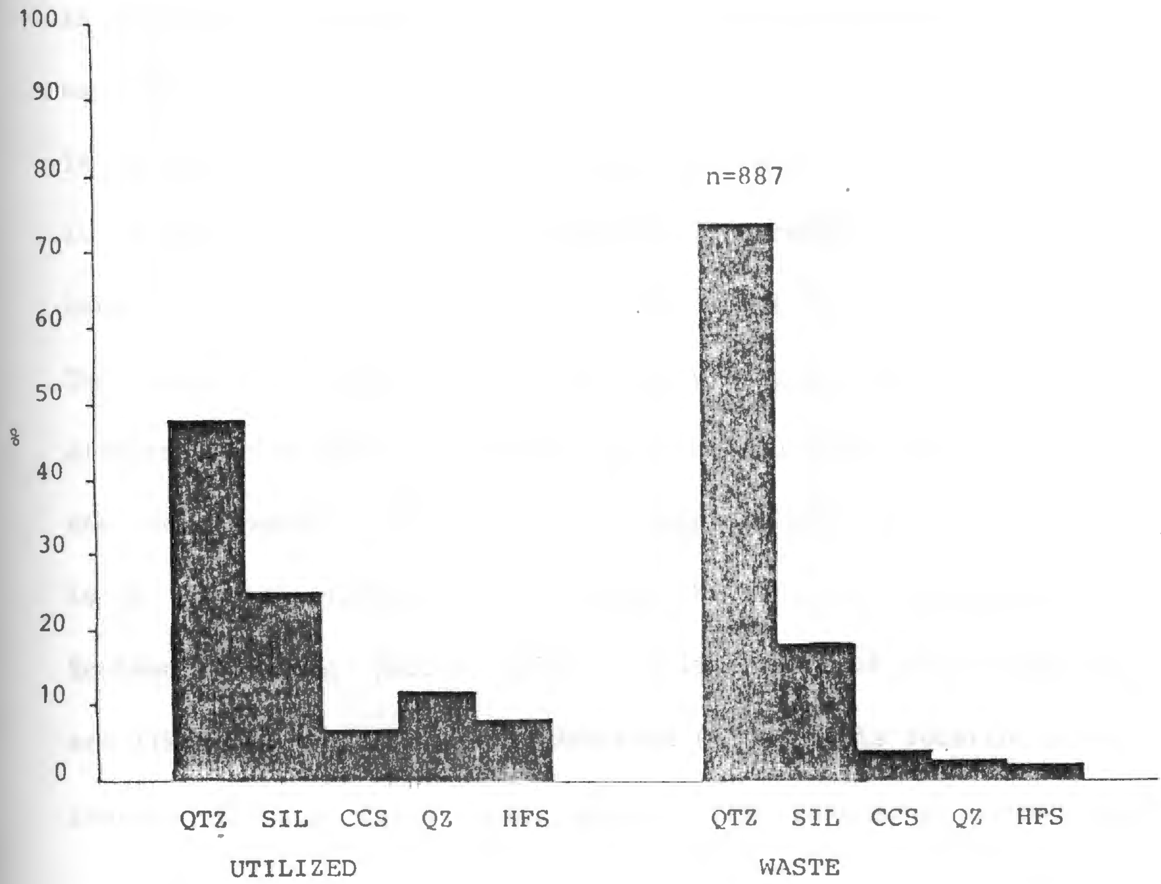


FIGURE 9:2 RAW MATERIAL COMPONENTS OF ARTEFACT CLASSES IN BU





ASH DEPOSITS

Table 4:3 depicts the stone tool classes and raw material categories in level 3. Figure 10:1 illustrates the utilization tendencies within the raw material categories and 10:2 the raw material component of the artefact classes. Level 3 comprises the third highest amount of stone tools from the excavation, 556 pieces, which is 18.4% of the entire assemblage.

Level 3 reflects the general character of levels 1 and 2, with one notable exception, which is the increase in proportion of scrapers to adzes. Quartz is still the dominant raw material and constitutes 330 (59.3%) pieces. 169 (30.5%) pieces are silcrete, 32 (5.7%) CCS, 14 (2.5%) quartzite and 11 (1.9%) hornfels.

As already mentioned, the emphasis in the formal tool category has switched from adzes to scrapers. The number of formal tools is markedly reduced from those in level 1 and 2. There are only 14 scrapers and 10 adzes compared to 38 scrapers and 41 adzes in level 2 and 33 scrapers and 43 adzes in level 1.
The change in formal tool frequency may possibly reflect the different activities performed within the cave. Level three is the Ash Deposit (and possibly the main ash concentration). There is a spatial distinction between the deposits in the cave at Renbaan. Bedding patches (level 2) line the back of the cave in arc-like patterns and Orange Speckled (level 3) is located in the centre. If one takes into account the functional element of

scrapers and adzes, the possible spatial distribution within the cave becomes clear.

Adzes, we assume, are woodworking tools. The majority of adzes in the total assemblage came from level 1 and 2 and are associated with more than 1000 woodshavings. There are numerous ethnographic accounts for the use of adzes as woodworking tools (Dunn 1880; Clark 1958; Gooch 1881; Gould 1977; White 1966) and scrapers as tools to clean fat off animal skins (Dunn 1931; Gallagher 1977; Deacon H.J. and Deacon J. 1980; Kannemeyer 1896).

The spatial distribution of the deposit and associated formal tools may possibly reflect activity related zones within the cave. Alternatively, what we might be seeing, is the result of discarded tools in the 'cooking area'. After the limited use-value of a tool was exhausted, it was discarded. Considering the practical implications of scraping fat from animal skins, it would seem likely that this activity would be performed outside the cave. It is merely a suggestion previously proposed by Mazel (1977) for Andriesgrond cave.

Again there is a definite relationship between tool type and raw material. Quartz dominates the scraper class, as it did in level 1 and 2. Of 14 scrapers, 9 (64.2%) are in quartz, 4 (28.5%) in silcrete and 1 (7.1%) in CCS. Silcrete overwhelmingly dominates the adze class. There are 9 (90%) silcrete adzes and 1 (10%) in

TABLE 4:3 STONE TOOL CLASSES AND RAW MATERIAL CATEGORIES IN ASH DEPOSITS

	QUARTZ	SILCRETE	CCS	QUARTZITE	HORNFELS	TOTAL
Scrapers	9	4	1	0	0	14
Adzes	0	9	1	0	0	10
MRP's	1	7	2	0	1	11
Backed Points	0	1	0	0	0	1
Segments	0	0	0	0	0	0
Awls	0	0	0	0	0	0
Drills	0	0	0	0	0	0
Utilized Flakes	6	14	4	0	2	26
Pieces Esquilees	5	0	0	0	1	6
Cores	7	3	0	0	2	12
Hammerstone	0	0	0	0	0	0
Uil. Grindston	0	0	0	0	0	0
Flakes	38	24	6	5	2	75
Broken Flakes	74	56	12	8	1	151
Bladelets	7	12	2	0	0	21
Chips	174	37	3	1	2	217
Chunks	9	2	1	0	0	12
Total	330	169	32	14	11	556

FIGURE 10:1 UTILIZATION TENDENCIES WITHIN RAW MATERIAL CATEGORIES IN AD

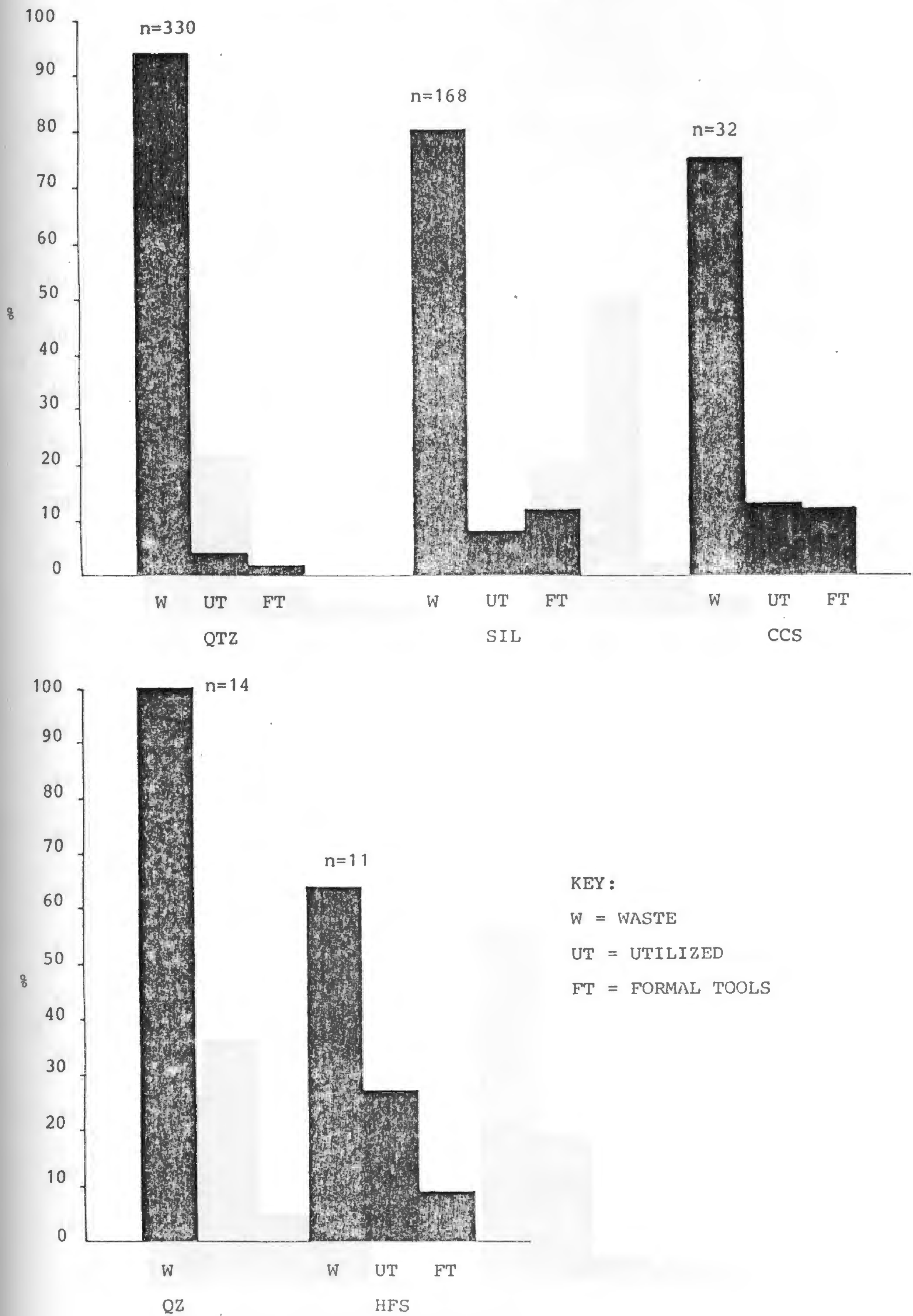
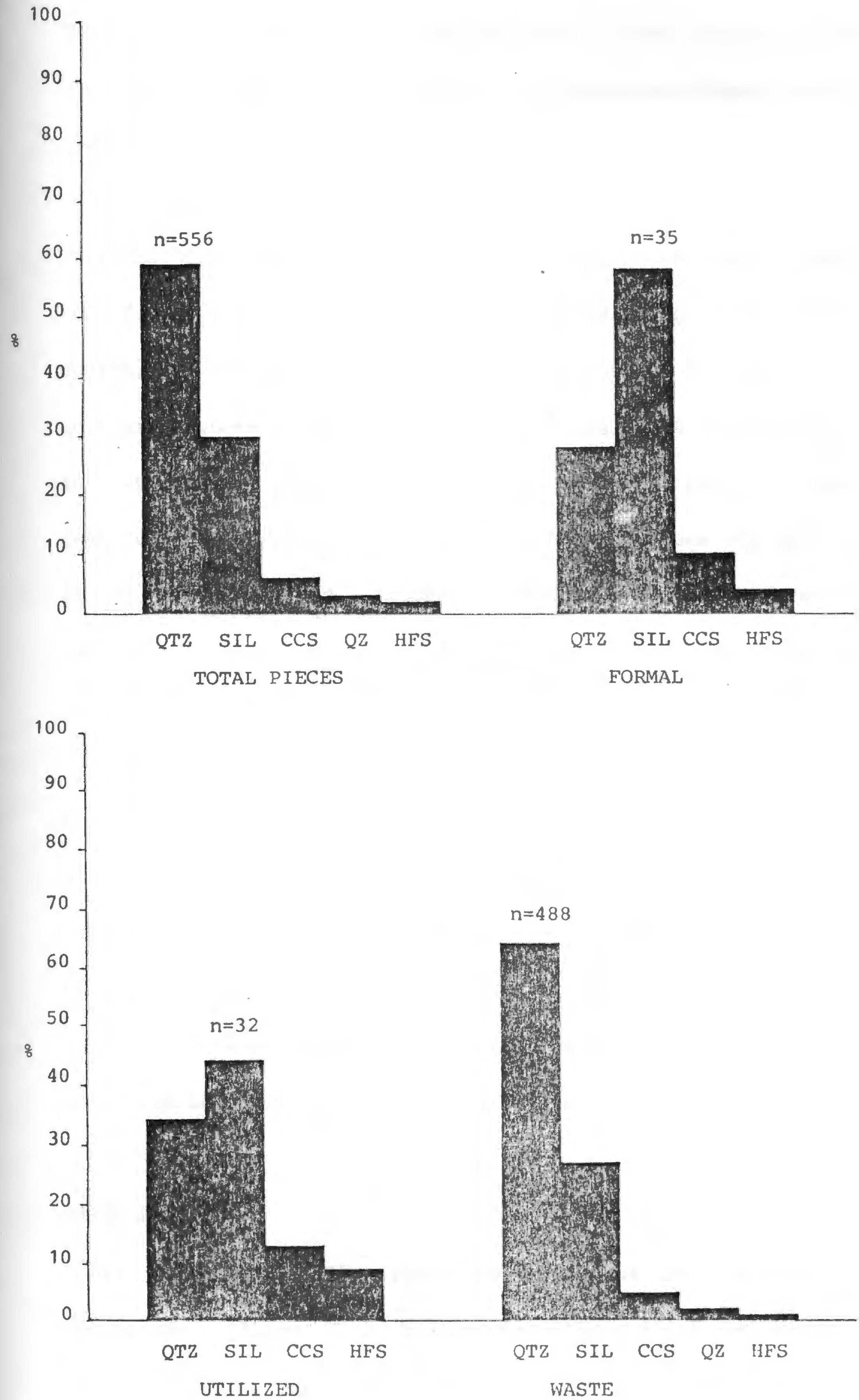


FIGURE 10:2 RAW MATERIAL COMPONENTS OF ARTEFACT CLASSES IN AD



CCS. Scrapers are therefore prefered in quartz and adzes in silcrete. The remaining formal tools in level 3 are negligible. There are 11 MRP's, 7 (63.6%) silcrete, 1 (9%) quartz, 2 (18%) CCS and 1 (9%) hornfels. There are no quartzite formal tools in level 3.

Utilized flakes in level 3 reflect the same pattern as in level 1 and 2. There are 26 utilized flakes, 14 (53.8%) silcrete, 6 (23%) quartz, 4 (125.3%) CCS and 2 (7.1%) hornfels. None are made in quartzite whereas in levels 1 and 2 the are 2 and 3 respectively. An interesting feature in level 3, is the small number of pieces esquilees as opposed to level 1 and 2. There are only 6, 5 (83.3%) in quartz and 1 (16.6%)in hornfels, whereas there were 15 and 22 in levels 1 and 2 respectively. However, as in levels 1 and 2, quartz dominates in level 3.

If we ignore the small size of the level 3 assemblage and compare it to levels 1 and 2, a similar pattern is reflected, except that scrapers dominate the formal tool class. Once again this unit is numerically dominated by quartz and silcrete, with quartz further establishing its ascendency. Scrapers are preferred in quartz and adzes in silcrete.

BASAL LEVEL

Table 4:4 depicts the stone tool classes and raw material categories. Figure 11:1 illustrates the utilization tendencies within the raw material categories and Figure 11:2, the raw material component of the artefact classes.

The sample from level 4 is exceedingly small. It constitutes only 7.2% (219) of the total site assemblage. However, if we consider that only one square meter was excavated, the sample is particularly abundant. As in the previous three levels, quartz and silcrete quantitavely dominate the sample, quartz comprising 196 (43.8%) pieces, silcrete 68 (31%), CCS 10 (4.5%), quartzite 30 (13.6%) and hornfels 15 (6.8%). Quartz and silcrete make up nearly 75% of the assemblage. The pattern of formal tool classes in level 4 reflects that in level 3. There is a definite inclination towards scrapers and concomitant numerical inferiority of adzes (8-2). Out of 8 scrapers in this unit, 5 (62.5%) are silcrete, 2 (25%) quartzite and only 1 (12.5%) quartz. The raw material scraper pattern is reversed where quartz dominated the scraper class in the previous three levels, silcrete dominates in level 4. Scrapers are now preferred in silcrete.

Adzes are almost absent in level 4. There are only 2, which constitutes 18% of the formal tool assemblage. One is silcrete and one hornfels. An interesting observation, is that MRP's are totally absent, whereas in levels 1,2 and 3 there were 19,22 and 11 respectively. There is also one quartz segment, the only one in the total assemblage. There are no CCS formal tools in level

TABLE 4:4 STONE TOOL CLASSES AND RAW MATERIAL CATEGORIES IN BASAL LEVELS

	QUARTZ	SILCRETE	CCS	QUARTZITE	HORNFELS	TOTAL
Scrapers	1	5	0	2	0	8
Adzes	0	1	0	0	1	2
MRP's	0	0	0	0	0	0
Backed Points	0	0	0	0	0	0
Segments	1	0	0	0	0	1
Awls	0	0	0	0	0	0
Drills	0	0	0	0	0	0
Utilized Flakes	2	8	2	1	5	18
Pieces Esquilees	1	0	0	0	0	1
Cores	0	3	0	0	0	3
Hammerstone	0	0	0	0	0	0
Uil.Grindstone	0	0	0	0	0	0
Flakes	16	9	2	12	5	44
Broken Flakes	14	20	4	12	3	53
Bladelets	4	4	0	0	0	8
Chips	53	17	1	3	1	75
Chunks	4	1	1	0	0	6
Total	96	68	10	30	15	219

FIGURE 11:1 UTILIZATION TENDENCIES WITHIN RAW MATERIAL CATEGORIES IN BL

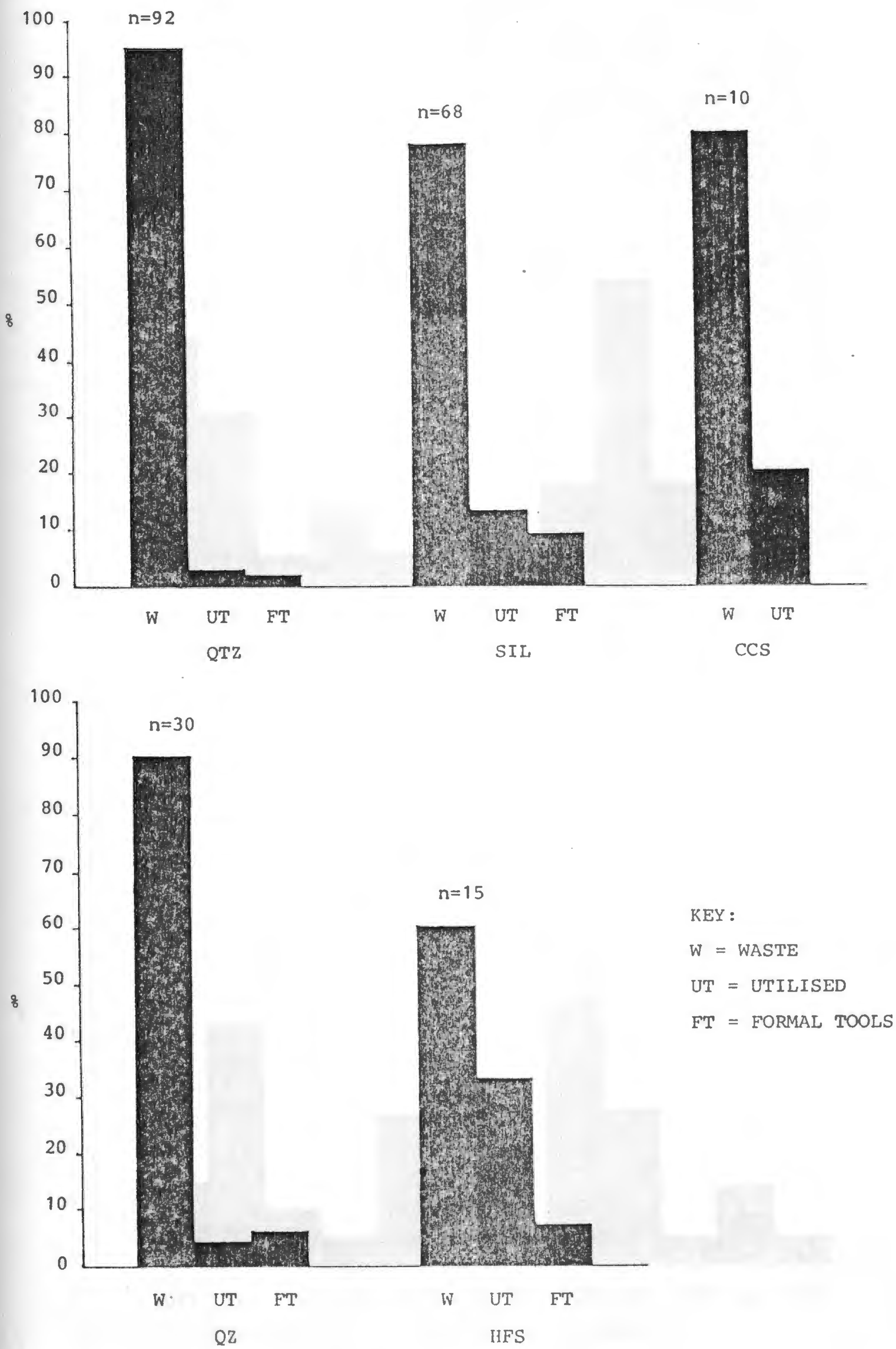
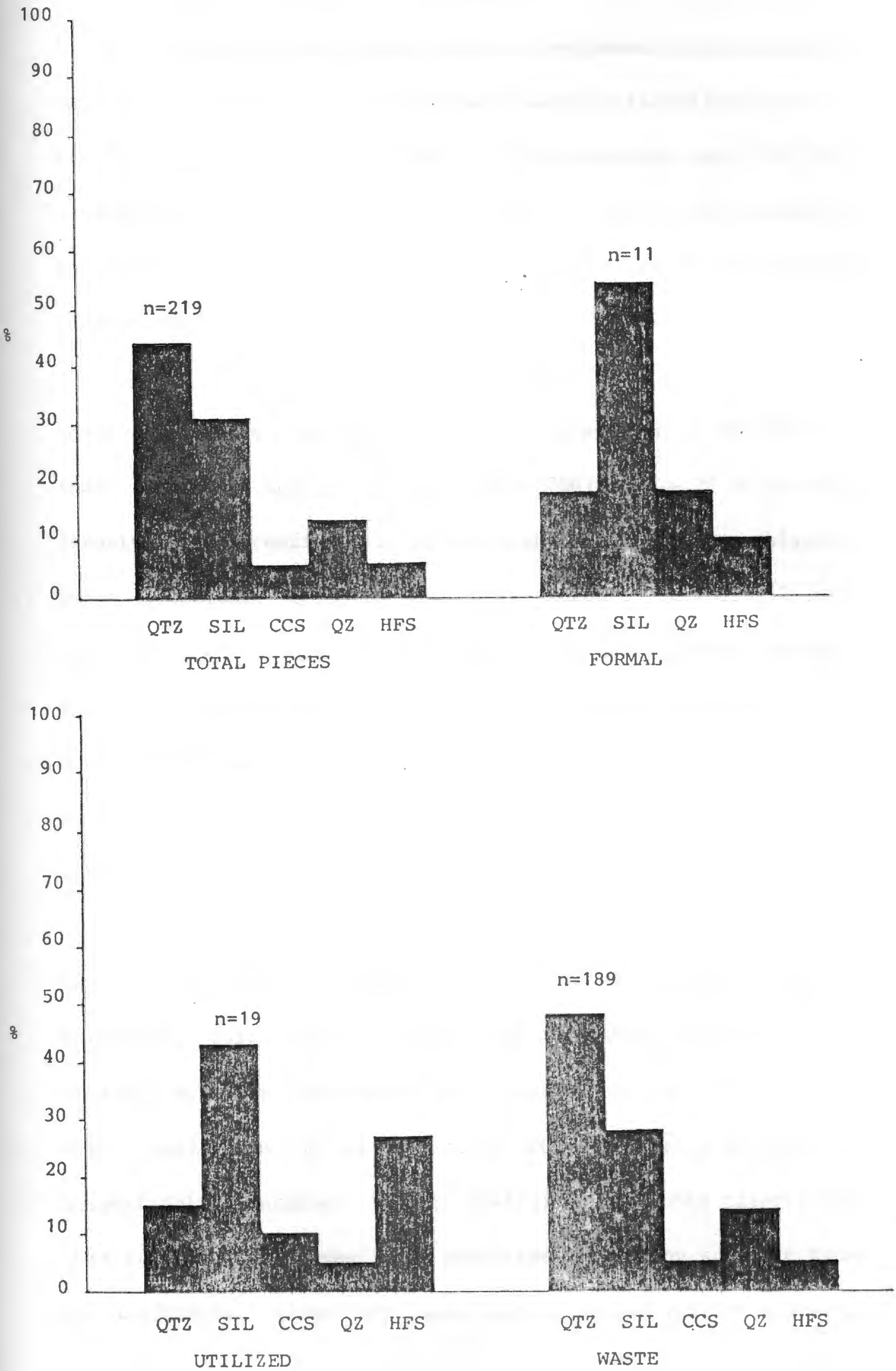


FIGURE 11:2 RAW MATERIAL COMPONENTS OF ARTEFACT CLASSES IN BL



4.

In the utilized flake class, silcrete continues to establish its dominance. There are 18 utilized flakes, 8 (44.4%) silcrete, 2 (11.1%) quartz, 2 (11.1%) CCS, 1 (5.5%) quartzite and 5 (27.7%), interestingly, hornfels. There is only 1 quartz piece esquilees in level 4, whereas in levels 1,2 and 3, there are 15,22 and 6 respectively.

Level 4 seems to represent an earlier occupation at Renbaan Cave than levels 1,2 and 3. The date (PTA-3766) 5430 ± 70 BP for this deposit (BSC) confirms it. In addition, the lithic assemblage is quite different. Scrapers are much larger, including 2 large quartzite convex and 1 end scraper. The total absence of MRP's and the presence of a quartz segment attest to the non-complimentary nature of level 4 to levels 1,2 and 3. The sample is small, but its featues reveal its differences to the other three.

Table 4:1-4:4 which summarises the data on stone tools and raw materials, quite clearly show that more than half of the stone working activity at Renbaan Cave involved the use of quartz, the other half made up of silcrete, CCS, quartzite and hornfels respectively. Detailed lithic analysis show quite clearly that particular stone types were preferred for making specific types of implements. Adzes are made almost exclusively in silcrete, probably related to its durability and sharpness of edge. They are made on large silcrete flakes, some which display the characteristic faceted platform of Middle Stone Age type flakes. Convex scrapers are made mainly in silcrete and some in chalcedony, quartz and hornfels (Fig 12:1) Elongated scrapers are made exclusively in quartz (Fig 12:2). Parkington and Poggenpoel (1971:12) made this same observation at De Hangen. Heavy utilized pieces and formal tools, such as upper and lower grindstones and bored stones are made from quartzite. Miscellaneous retouched pieces are dominated by silcrete, and pieces esquilees visibly by quartz. Utilized flakes are dominated by silcrete, but display also a preference towards quartz.

Possibly all the formal microlithic tools including adzes and some utilized flakes, were presumably hafted, a conclusion supported by the observation of traces of mastic adhering to many of the formal retouched tools and some utilized flakes. Twenty nine tools with mastic was found in the assemblage. Mastic adhering to formal tools has also been described from Melkhoutboom (Hewitt 1931; Deacon H.J. 1966), Wilton (Hewitt 1921), Boomplaas (Deacon H.J. 1979), Andriesgrond, De Hangen (Parkington and Poggenpoel 1971), Eland Bay Cave (Parkington 1976a), Plettenberg Bay and Knysna (Walker 1974) and sites in Zambia (Phillipson 1976). Clark (J.D. 1977) and Gallagher (1977) have described hafted tools from ethnographic contexts.The evidence seems overwhelming that most formal tools and some

FIGURE 12:1 FREQUENCY DISTRIBUTION OF CONVEX SCRAPER LENGTHS

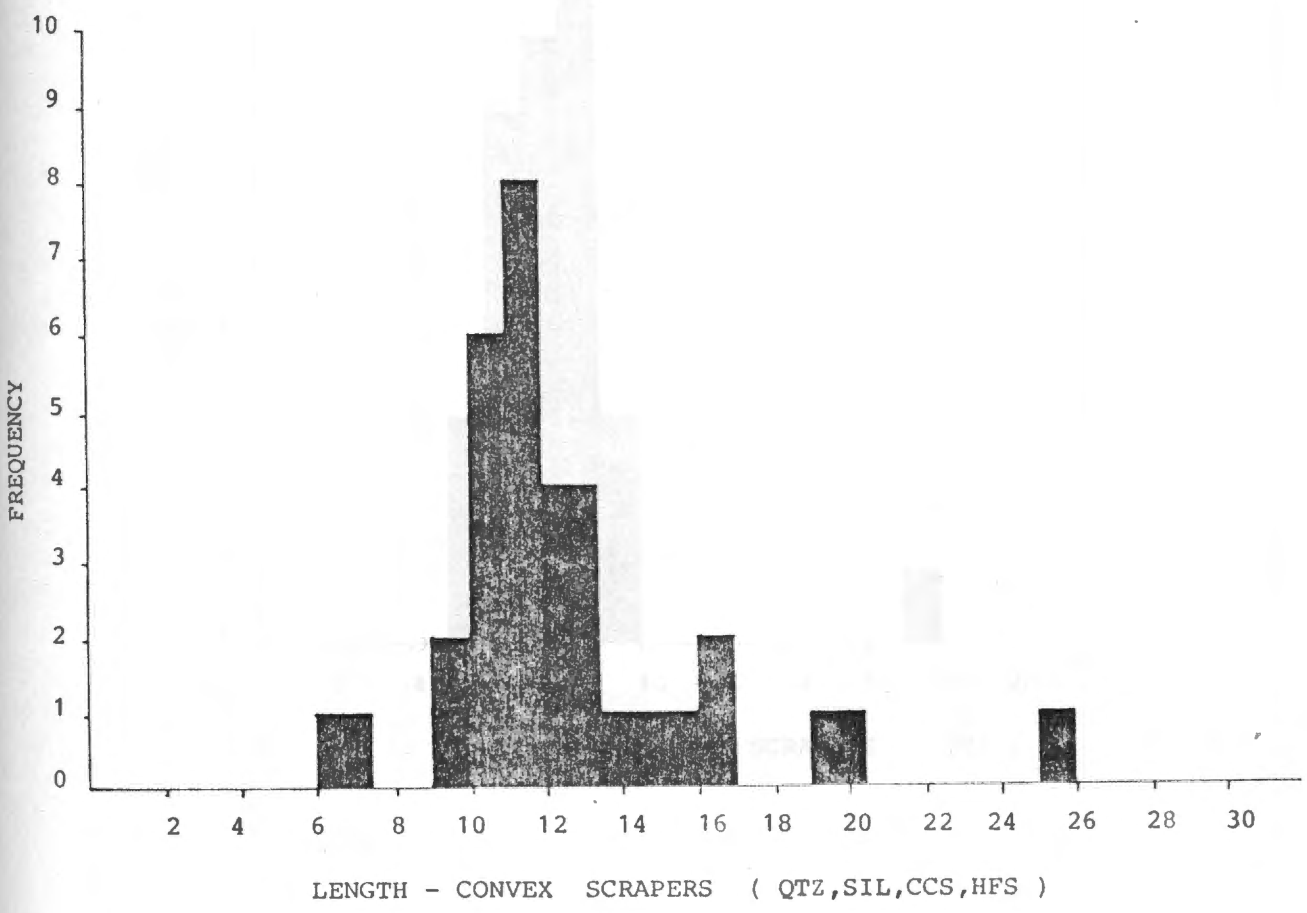
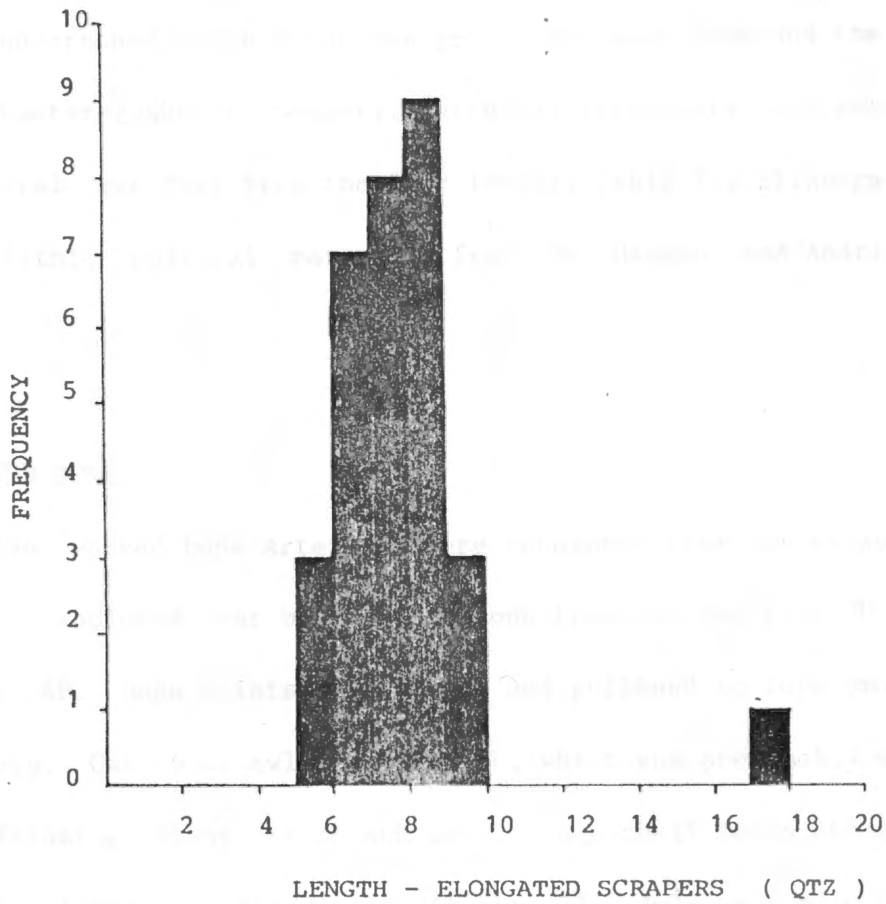


FIGURE 12:2 FREQUENCY DISTRIBUTION OF ELONGATED SCRAPER LENGTHS



utilized flakes were mounted, either onto wood or bone.

B. NON-LITHIC CULTURAL MATERIAL

The non-lithic cultural material from Renbaan cave represents an integral part of the total asemblage from the excavation. Thus we need to examine the total assemblage from Renbaan cave, in order to understand more about the people who made them and the nature of hunter-gatherer society. Table 5:1 illustrates the non-lithic cultural material from the four levels. Table 5:2 illustrates the non-lithic cultural material from De Hangen and Andriesgrond Cave.

WORKED BONE

Twelve worked bone artefacts were recovered from the excavations. These included four bone points, one from SD, two from BU and one from AD. Bone points were shaved and polished to form projectile points. One bone awl came from BU, which was presumably used for perforating skins to attach ostrich egg-shell beads and possibly other forms of decoration (Plate 3). Awls were also used for stitching leather, bags karosses, aprons and oter clothing. Three elongated polished bone tubes from the long bones of birds came from BU and these were also likely to have been used for decorative purposes, either on clothing or strung around the neck on a leather sling (Plate 4). Four miscellaneous worked bone pieces were found, one from SD, two from BU and one from AD.

TABLE 5:1 NON-LITHIC MATERIAL CULTURE FROM RENBAAN CAVE

RENBAAN CAVE - ALL UNITS	SD	BU	AD	BL	TOTAL
Woodshavings	136	924	31	-	1091
Worked wood (misc)	1	5	1	-	7
Pegs	1	-	-	-	1
Drill bit	-	3	-	-	3
Quiver Fragments	-	1	-	-	1
Marine shell - black mussel fragments	60	79	77	4	220
Scratched/ground mussel	1	15	2	-	18
Donax fragments	-	8	6	6	20
Limpet	-	1	-	-	1
Bullia	1	-	-	-	1
Pendants	1	1	-	-	2
Nassa	2	4	2	-	8
Donax scrapers	-	3	-	-	3
Bone points	1	2	1	-	4
Awls	-	1	-	-	1
Tubes	-	3	-	-	3
Misc. worked	1	2	1	-	4
Seed beads	2	-	-	-	2
Ostrich eggshell pieces	26	35	22	17	100
Ostrich eggshell beads	14	35	9	6	64
Unfinished ostrich eggshell beads	5	1	2	1	9
Fibre - string	1	-	-	-	1
Leather	1	-	-	-	1
Potsherds	6	2	-	1	9
Ochre					

TABLE 5:2 NUMBERS OF ARTEFACTS MADE FROM ORGANIC RAW MATERIALS AT DE HANGEN AND ANDRIESGROND CAVE.

	DE HANGEN	ANDRIESGROND CAVE
Bone awls	14	4
Points - wood or bone	8	5
Woodshavings	± 400	1620
Pendants - worked marine shell	31	1
Seed beads	40	3
Ostrich eggshell beads	± 300	115
Fire sticks	5	1
Digging sticks	2	-
Perforated reeds	76	87
Reed arrow parts	1	4
Leather	8	-
Tortoise carapace bowl fragments	226	1 bowl
String or fibre knots	15	6
Wooden pegs, discarded lengths	46	28
Marine shell pieces	0.1kg	unknown

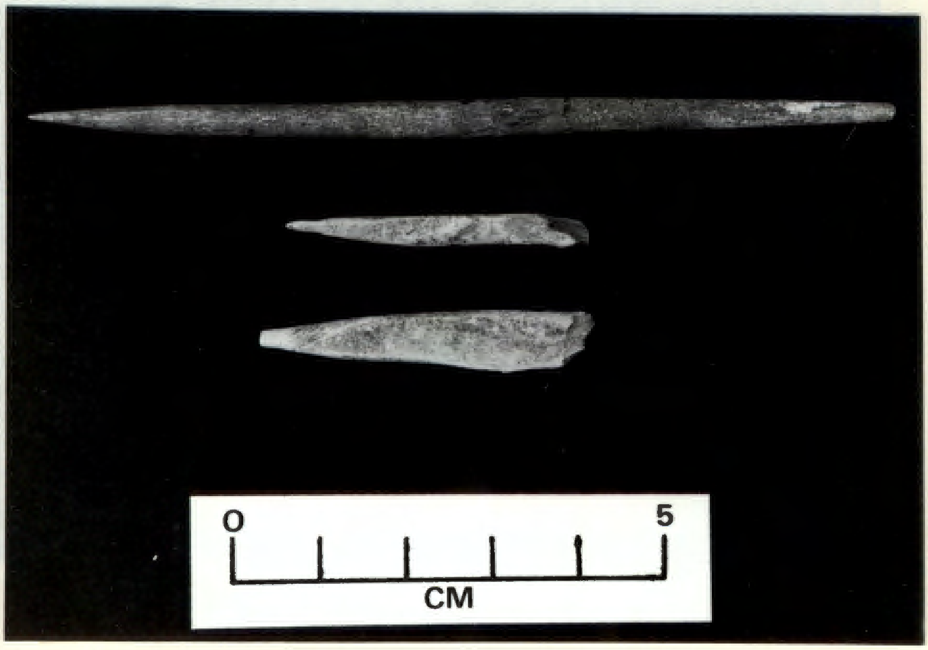


PLATE 3: Bone awls, bone point

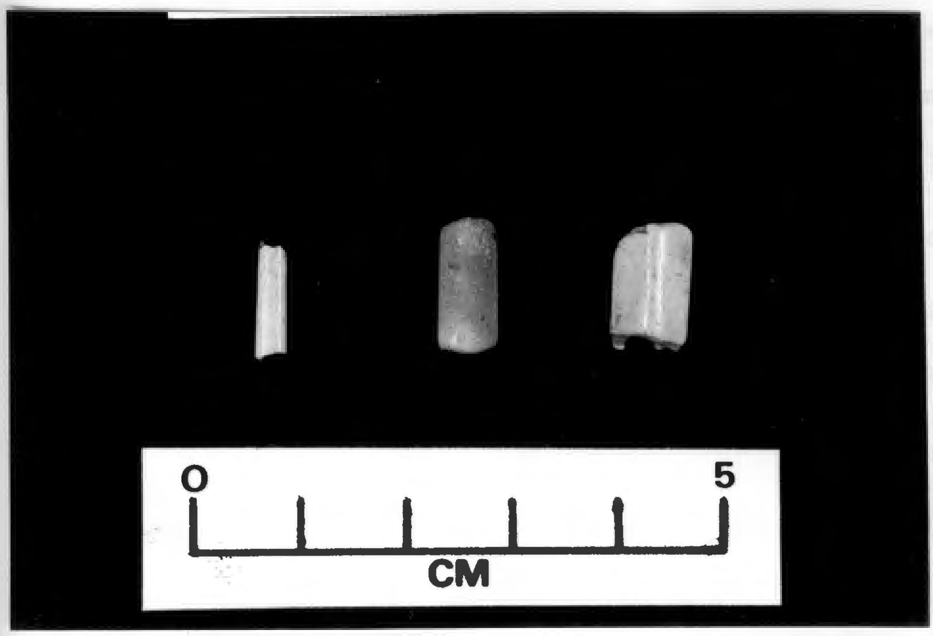


PLATE 4: Bone tubes

One is clearly a broken bone point, the other three are broken and have slight polishing and grooves. In BL, no worked bone was found, which further implies the difference between this level and the other three. Bone implements and utilized bone assemblages are also found at sites in other areas, such as at Scott's Cave in the eastern Cape (Deacon H.J. and Deacon J. 1963), Big Elephant shelter in Namibia (Wadley 1977), Windhoek Cave (Grobbelaar and Goodwin 1952) as well as from De Hangen (Parkington and Poggenpoel 1971), Diepkloof (Parkington 1976a) and Tortoise Cave (Robey 1984) in the southwestern Cape. Worked bone has also been found in sites in the Tugela Basin in Natal (Mazel pers. comm). At one site, Nkupe shelter, over 400 worked bone pieces were recovered. One complete tortoise carapace bowl was found in Iridacea patch with charcoal (IP), which forms part of BU (Plate 5). The manufacturing process of tortoise bowl has been described by Parkington and Poggenpoel (1971:13) at De Hangen. "The carapaces were systematically separated from plastron and the jagged sutures were ground and smoothed to form a servicable rim".

SHELL

A large number of black mussel (choroymitilis meridionalis) fragments were recovered from the excavations. Eleven came from SD, ninety four from BU, seventy eight from AD and four from BL. So few shells from BL is more likely the result of vertical dispersal (Villa 1982). Marine shell represents an obvious

PLATE 5: Tortoise carapace bowl

contact with the coast, but it is unlikely that they were utilized as a food supply because of the small size of the sample and their low kilojoule content, as well, that by the time they reached Renbaan Cave, they would have been inedible. They were therefore probably kept as a raw material for making implements such as spoons or pendants. Shells wrapped in a large leaf found at De Hangen (Parkington and Poggenpoel 1971), may represent a cache "for future use" as implements. White mussel (Donax serra) fragments were found, eight from BU, six from AD and six from BL. Three Donax (Donax serra) scrapers came from BU (Plate 6). One whole limpet (Patella granatina) came from BU and one Bullia (Bullia sp) from SD. Two Nassa (Nassa sp) fragments came from SD, four from BU and two from AD. Two beautifully made Turbo (Turbo samaticus) pendants or buttons were found, one from SD and one broken one from BSV (Plate 7). They have been ground and polished at the edges and the edge of one is milled. It is obvious that a lot of care was taken in their manufacture. The pendants are interesting in that the limits of turbo distribution up the west coast is known only to extend as far north as Ysterfontein (Halkett pers.comm). Furtermore, none of the shell books, (Kilburn and Rippey 1982; Richards 1981), record it as being that far. However it is not known where the limits of distribution were in prehistoric times, so their distribution cannot be made with unequivocable clarity. Turbo and other marine shell was either collected at the coast and brought back to the site, possibly traded, or may have been a gift from a reciprocal

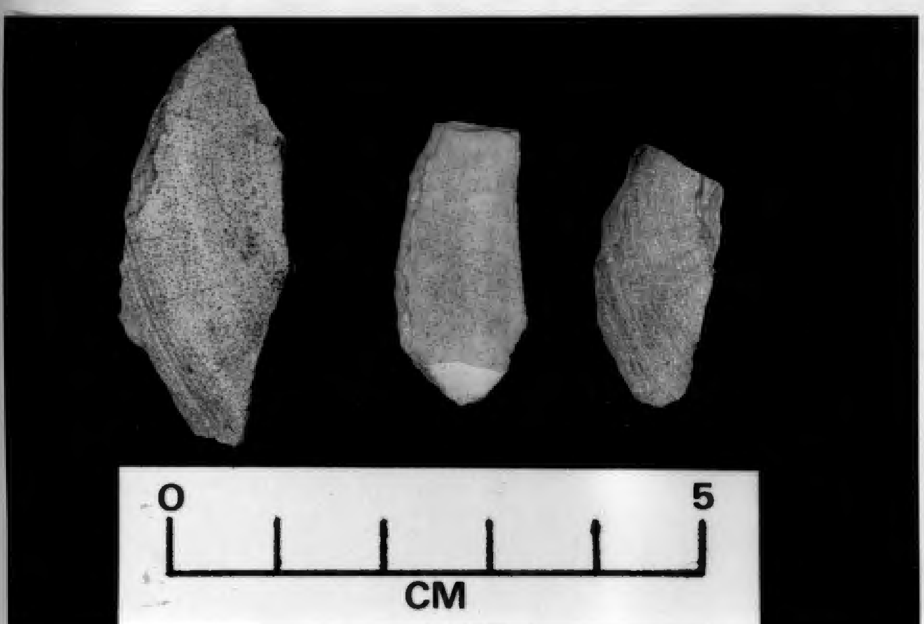


PLATE 6: Donax scrapers

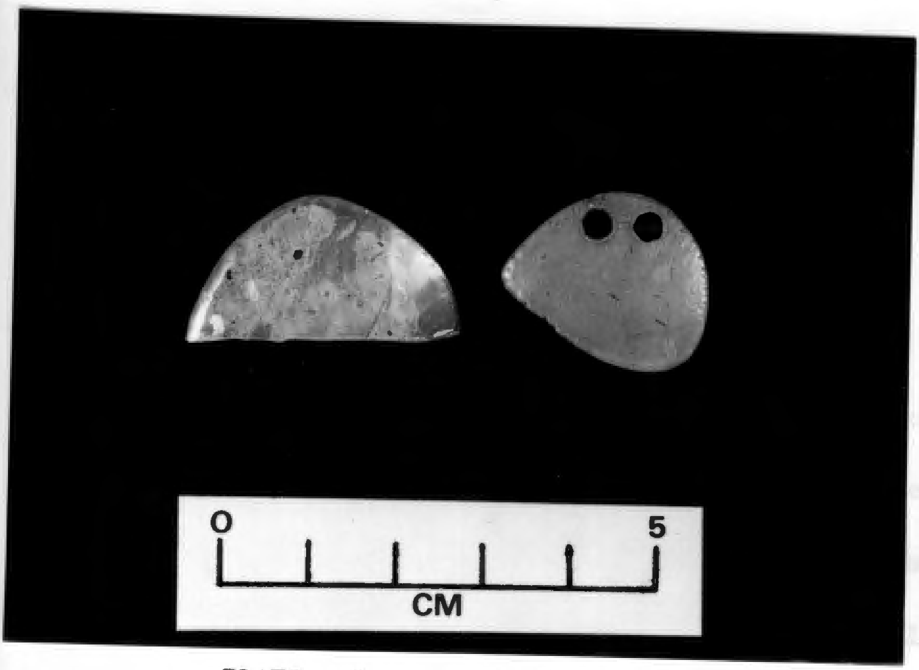


PLATE 7: Shell pendants

arrangement when San camps came together (Lee 1968,1982). The distance from Renbaan cave to Ysterfontein is more than 150 kilometers and their presence at the site may indicate that they were highly valued by the inhabitants. Haliotus, turbo and black mussel buttons and pendants were also recovered from De Hangen (Parkington and Poggenpoel 1971). A necklace of twenty seven turbo samaticus shell pendants was found in association with a skeleton in a midden at Cape St Francis on the south coast (Thackery, F and Feast 1974).

Ostrich egg-shell was an important raw material to make beads, but the eggs were also perforated and used as water containers for storage. Some pieces with enigmatic designs may also have been used as game pieces. Numerous ostrich egg-shell beads were found at Renbaan Cave, fourteen from SD, thirty five from BU, nine from AD and six from BL. Nine unfinished beads and one hundred pieces of ostrich-eggshell were found distributed throughout the layers. Geometric designs of light striations was found at De Hangen and may represent game pieces (Martens 1963, photograph S.A. Musuem 1791). Three seed beads were also discovered from Renbaan Cave, two from SD and one from BP.

Beads were obviously made for decoration or as gifts. For example, sewn onto leather garments, or strung onto leather or string and worn as necklaces, headbands or bracelets. Historical and contemporary ethnographic accounts support this. Some rock art in the Natal Drakensberg and even the southwestern Cape, shows white dots, possibly egg-shell beads, on bags or round the legs of figures. Ostrich egg-shell seems to have been a highly valued commodity amongst the San. Manufacture is also time consuming.

WORKED WOOD

A number of wooden implements were found at Renbaan cave. These included miscellaneous worked pieces which were shaved and notched, including one shaved and polished wooden point from BU (Plate 8). One peg was found in SD, which was perhaps inserted into a crack in the cave wall and used to hang bags, quivers, bows and clothing. It could also have been one of the number of pegs for stretching out skins to clean and prepare. Three drill bits came from BU and are interpreted as fire drills. One quiver fragment came from BU. Worked wood implements have been found at other sites, such as De Hangen (Parkington and Poggenpoel 1971), Diepkloof (Parkington 1976a) and Tortoise Cave (Robey 1984), Scott's Cave (Deacon H.J. and Deacon J. 1963), Melkhoutboom (Hewitt 1931, Deacon H.J. 1976), Spitzkop (Hewitt 1921), Windhoek Cave (Grobbelaar and Goodwin 1952), Big Elephant Shelter (Wadley 1977) as well as many other Later Stone Age sites in southern Africa.

Besides wood implements, 1014 woodshaving were collected, 136 from SD, 924 from BU and 31 from AD. No wood implements or

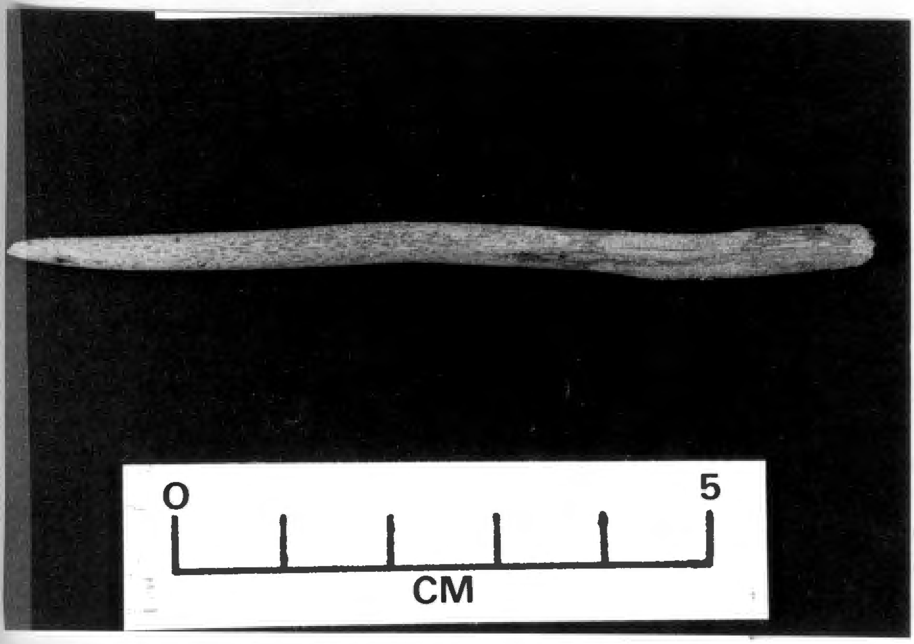


PLATE 8: Wood point

woodshavings came from BL, again suggesting its non-association with the other three levels. Woodshavings are probably the waste debris from shaving and shaping digging sticks, bows, pegs, clubs and spears. An ethno-archaeological experiment by Johan Binneman and UCT students in 1981 to test the effect of woodshaving on the retouched edge of a hafted 'adze' produced a substantial amount of woodshavings which provided a comparative sample for the Renbaan Cave woodshavings. Two kinds of woodshavings are recognized. Primary woodshavings are long slivers, some with tear marks and small coiled woodshavings can be called secondary woodshavings. Primary woodshavings was the result of preparing the implement and secondary wood shaving the result of shaping and planing the implement. An interesting observation, is that the bulk of the experimental woodshavings were tiny and very fluffy, which would never survive in the deposits, or not be recognized. There are undoubtedly the debris from final smoothing of the implement. None were found at Renbaan Cave. Time constraints have limited a detailed analysis and comparison of the woodshavings.

FIBRE

One piece of string, 9cm long and probably made from the fibres of grass or rush, was found in SD. It is tightly and intricately knotted, the strands over and underlaying each other (Plate 9). Thick, twisted string fibre was found at sites such as Melkhoutboom (Deacon H.J. 1976), Spitzkop Cave (Hewitt 1921),

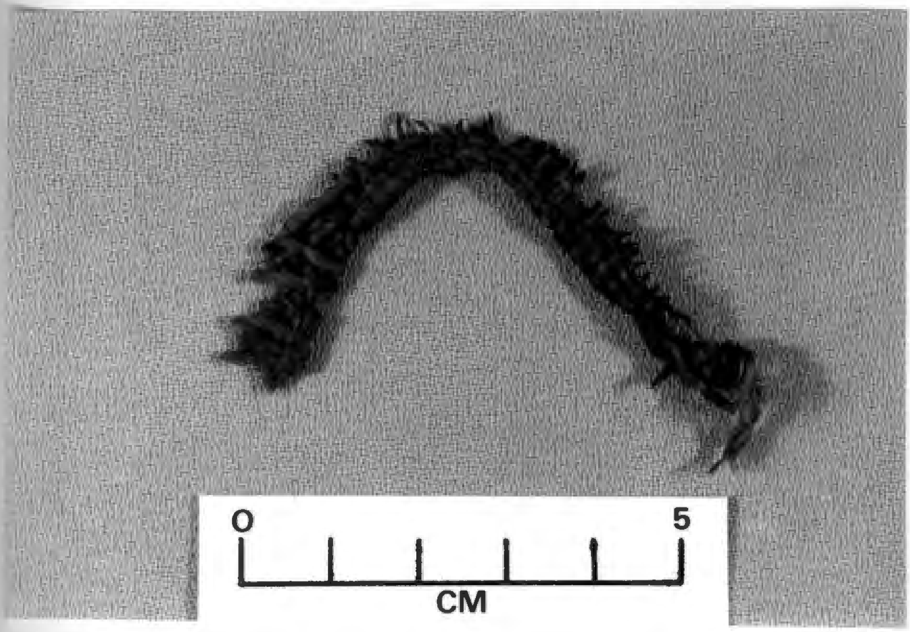


PLATE 9: String

Windhoek Cave (Grobbelaar and Goodwin 1952), Scott's Cave (Deacon H.J. and Deacon J. 1963, Big Elephant Shelter (Wadley 1977), De Hangen (Parkington and Poggenpoel 1971), Diepkloof (Parkington 1976a) Tortoise Cave (Robey 1984) and was probably used as handles to suspend pots or for making traps, snares and nets (Deacon H.J. and Deacon J. 1963; Parkington 1976a). A possible net bag made of vegetable cordage. is illustrated in a rock painting (Paterson 1789) and may have been used to carry ostrich egg shell water containers. Rock art which display possible net scenes have been discovered in the southwestern Cape (Manhire et.al 1984) and the Natal Drakensberg (Vinnicombe 1976). A rather vague and unsubstantiated ethnographic account of net hunting comes from Lesotho (Manhire pers.comm). Nets may therefore indicate a hunting strategy not previously recognized or acknowledged by archaeologists.

LEATHER

One large piece of sewn leather was found in SD (Plate 10). It consists of four pieces sewn together with sinew thread. A bone awl was probably used to perforate holes in it and then possibly sewn together with a bone eye needle. Eight pieces of leather were preserved in the De Hangen deposit (Parkington and Poggenpoel 1971) five pieces at Diepkloof (Parkington 1976a) and one piece from Tortoise Cave (Robey 1984). One piece of leather from De Hangen consists of four seperate panels stitched together with sinew thread. Worked leather was also found at Scott's Cave

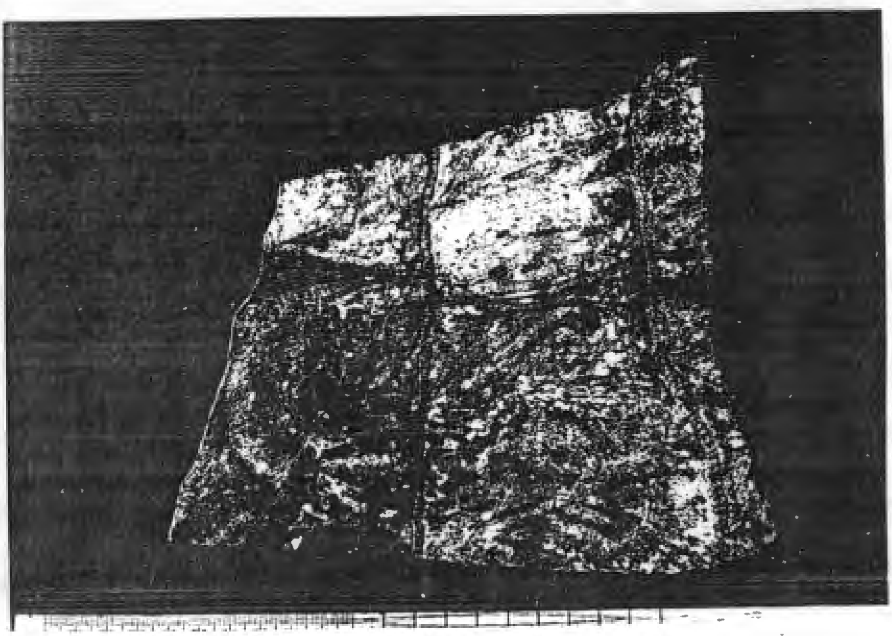


PLATE 10: Leather

(Deacon H.J. and Deacon J. 1963), Melkhoutboom (Deacon H.J. 1976), Spitzkop Cave (Hewitt 1921), Windhoek Cave (Grobbelaar and Goodwin 19052), Big Elephant Shelter (Wadley 1977) and other Later Stone Age sites.

POTTERY

Nine undecorated, ochre-stained potsherds were recovered from the Renbaan Cave excavation. They are all burnished body-sherds. Six came from SD, two from BU and one from BL. The sherd from BL is possibly the result of post-deposition disturbance. Most of the sherds are blackened on the outside and inside and coated with a sooty layer from prolonged use in fire. Two of the sherds have encrustations on the inner face and may reveal the contents of the pot. It is obvious that pots were used for cooking or possibly, storage of water. The matrix of the sherd is sand and grit. No grass temper is visible. The sherds are not suitable for illustration. One almost complete pot was found by a Mr Miller at the back of the cave. This pot is now lost and therefore impossible to describe. It would have potentially revealed the same interesting information about manufacture, for example, if it had lugs, how large it was, if it had a nipple bottom, rim thickness etc. It is quite likely though, that the Renbaan Cave pottery is similar to pottery described as Cape Coastal Midden by Rudner (1968).

FAUNA AND FLORA

FAUNAL REMAINS

The macro fauna from Renbaan Cave have been identified by Richard Klein from the Department of Anthropology at the University of Chicago. The number of identified species (NISP) and minimum number of individuals (MNI) which illustrates the relative abundance, is indicated in Table 6:1. A large portion of the assemblage is charred and fragmented and therefore impossible to identify. The faunal list would have been greater if these undiagnostic features were identified. The sample is noticeably small, but this in itself is informative. It is clear that the majority of the exploited food sources was tortoise, which were small animals containing little edible meat. Tortoise was probably collected by all memebers of the family. Dassie (Hyrax or rock rabbit) is also present and these represent the bulk of the animals hunted or snared on a large scale in the mountain terrain.

It is also very likely that some of the bone was introduced in the site by scavengers or carnivores and possibly even taken away by the latter. One leopard is identified and this individual may have been responsible for part of the faunal contribution. Also, meat from large animal hunted may have been cut up on the spot and therefore their bones are not represented at the home base. An overemphassis of smaller animals is therefore possible. Thus

TABLE 6:1 MINIMUM NUMBER OF ANIMALS IN THE DEPOSIT AT RENBAAN CAVE.

	SD	BU	AD	BL	PI	ALL
Lepus sp. (hare)	1/1/	2/1/	-	-	-	3/1
Hystrix africaeaustralis (porcupine)	1/1/	-	-	-	-	1/1
Bathyergus suillus (mole rat)	-	4/2	1/1	-	-	5/2
Papio ursinus (baboon)	-	-	-	1/1	-	1/1
Mellivora capensis (ratel)	-	1/1	-	-	-	1/1
Herpestes pulverulentus (grey mongoose)	3/1	6/1	-	-	-	9/1
Panthera pardus (leopard)	1/1	-	-	-	-	1/1
Orycteropus afer (aardvark)	-	2/1	-	-	1/1	3/1
Procavia capensis (rock hyrax)	26/3	35/4	16/3	1/1	6/1	84/5
Raphicerus sp. (grysbok/steenbok)	2/1	6/1	-	-	-	8/1
Bovidae - general						
small	15/1	43/2	6/1	5/1	-	69/3
small/medium	2/1	4/1	-	-	1/1	7/1
large/medium	-	-	-	1/1	-	1/1
large	-	1/1	-	-	-	1/1
Chersine angulata (tortoise)	?/5	?/6	?/2	?/1	?/-	?/12 *

* For tortoises MNI calculates from humerus only.

the list of faunal remains should thus not be seen as representative of the total animal consumption of the prehistoric diet at Renbaan Cave.

A workshop on Taphonmy at the Southern African Association of Archaeologists in Gaborone, Botswana, 1983, pointed out the many problems of bone accumulations and the multi-agent processes involved in their distribution. It is accepted that it is difficult to identify all the multiple agencies in bone accumulation, but at least recognition of the "complexity of faunal assemblage will lead to a more reliable interpretive basis..." (Avery G, 1984:332). The need for larger samples was also expressed, to try and identify the agencies involved in bone accumulation, and also to compare modern processes of bone accumulation and the agencies involved to prehistoric assemblages.

The least we can say then, is that a portion of the faunal assemblage (including the fragmented bone), represented at Renban Cave reflects human activity and subsistence. Cut marks on some of the bones attest to this relationship.

Ethnographic accounts of the diet of the San (or Souqua) hunter-gatherers is recorded by various travellers. Simon van der Stel, on his travels into the interior (Waterhouse 1932), recorded the diet of the inhabitants. Besides the bulbs of flowers, tortoise, dassie and other animals, caterpillars, locusts, termites and honey were important components of their diet. Their remains would not easily survive or be represented in the deposit. The faunal list may therefore overemphasise some parts of the diet at the expense of the others.

The micro-fauna from Renbaan cave was identified by Margaret Avery from the South African Museum in Cape Town and the results are presented in Table 6:2. On a fieldtrip to Renbaan Cave, the writer noticed an owl or other hunting bird's nest very close to the site and a nest immediately obove the cave. Micro fauna was abundant in the nests, including the skulls of some small animals, and body parts, possibly mole, shrew, rat, birds and lizard. This sample could be used as a comparative sample for the Renbaan cave micro-fauna, as well as other sites, to assess the agencies involved in accumulation and even past environmental conditions. The bird remains from Renbaan Cave was identified by Graham Avery from the South African Museum (see Appendix I).

FLORA

Botanical material was recovered in substantial quantities from the Renbaan Cave Deposits. These are presently being identified by Christine Liengme from the Archaeology department at UCT. No detailed discussion is presented here, but it seems fairly obvious that the majority of the botanical remains, especially corm casings, bulbs and seeds represent food debris. An

TABLE 6:2 RENBAAN CAVE - MICROMAMMALIAN FAUNA

	Percentages:				MNI	
Levels:	1	2	3	4	Total	%
INSECTIVORA	13.27	16.59	17.65	10.75	76.00	14.90
Chlorotalpa sclateri - Sclater's golden mole	0.00	0.00	0.00	1.08	1.00	0.20
Chryochloris asiatica - Cape golden mole	0.00	0.42	0.00	0.00	1.00	0.20
Elephantulus of edwardii - Cape rock elephant shrew	5.31	8.05	8.82	3.23	34.00	6.67
Crocidura cyanea - reddish-grey musk shrew	1.77	3.39	4.41	0.00	13.00	2.55
Crocidura flavescens - giant musk shrew	0.00	0.00	0.00	2.15	2.00	0.39
Myosorex varius - forest shrew	5.31	2.54	2.94	4.30	18.00	3.53
Suncus varilla - lesser dwarf shrew	0.88	2.12	1.47	0.00	7.00	1.37
CHIROPTERA						
Nycteris Thebaica - common slit faced bat	0.00	0.85	0.00	0.00	2.00	0.39
RODENTIA	86.73	82.63	82.35	89.25	432.00	84.71
Mystromys albicaudatus - white tailed rat	6.19	2.12	4.41	5.38	20.00	3.92
Dendromus melanotis - grey pygmy climbing mouse	1.77	1.69	0.00	1.08	7.00	1.37
Steatomys krebsii - Krebs' fat mouse	2.65	3.81	8.82	7.53	25.00	4.90
Gerbillurus paeba - hairy footed gerbil	11.50	12.71	7.35	13.98	61.00	11.96
Tatera afra - Cape gerbil	6.19	7.63	1.47	2.15	28.00	5.49
Acomys subspinosus - Cape spiny mouse	0.88	2.54	2.94	3.23	12.00	2.35
Aethomys namaquensis - Namaqua rock mouse	14.16	16.10	14.71	17.20	80.00	15.69
Mus minutoides - pygmy mouse	0.00	0.85	1.47	1.08	4.00	0.78
Praomys verreauxii - Verreaux's mouse	0.00	0.00	0.00	1.08	1.00	0.20
Rhabdomys pumilio - striped field mouse	6.19	4.24	1.47	3.23	21.00	4.12
Otomys irroratus - vlei rat	2.65	2.12	1.47	1.08	10.00	1.96
Otomys saundersiae - Saunders' vlei rat	6.19	4.24	13.24	8.60	34.00	6.67
Otomys unisulcatus - bush Karoo rat	21.24	20.34	11.76	7.53	87.00	17.06
Graphius ocularis - spectacled dormouse	0.88	0.42	0.00	0.00	2.00	0.39
Cryptomys hottentutus - common molerat	5.31	2.97	13.24	12.90	34.00	6.67
Georychus capensis - Cape molerat	0.88	0.85	0.00	3.23	6.00	1.18
TOTAL MINIMUM NUMBER OF INDIVIDUALS (MNI)	113.00	236.00	68.00	93.00	510.00	

interesting observation is that the corm casings are dominated by Hexaglotis . Ethnographic accounts by travellers into the interior confirm this, including roots, berries, fruits which were also eaten but which may not survive in the deposit. Corms and bulb casings are most numerous, especially in the BP, IP and VP. Corms, bulbs and tubers grow underground and these were probably collected with the aid of the (weighted) digging stick. They were ground and roasted before being eaten.

The grass bedding is interesting in that it can be compared with bedding found at De Hangen (Parkington and Poggenpoel 1971) and Andriesgrond Cave. The Renbaan and Andriesgrond bedding is similar, comprising mostly corm casings, sticks, seeds, woodshavings and fibres. There is in fact very little of what can be called 'typical' grass bedding. The De Hangen bedding on the other hand is totally different. It is typical grass bedding and was taken out of the deposits in thick wads by hand. The former was very loose and fragmented and it is tenuously suggested that this is due to termite activity. Fragmentation may also be due to the age of the bedding. Bedding at De Hangen was dated 390 ± 45 BU (PTA-346) and at the Renbaan Cave 1150 ± 50 BU (PTA-3768). The bedding at Renbaan may therefore have become fragmented with time. The possibility that the inhabitants took the grass bedding away with them is not accepted.

The inhabitants of Renbaan Cave were undoubtedly gatherers and hunters. Plant food, particularly underground corms, roots and bulbs formed the bulk of the ditet. The collection of bulbs and flowers (uintjies) and corms was identified as an important food base by early travellers in the frontier. Among residual hunting and gathering people living in Botswana today, plant food constitutes at least 80% of their diet and over 85 edible plant foods are identified by the people (Lee 1965:72). Although direct association between the prehistoric past and the ethnographic present is realised as being tenuous, it does show to some extent the relative importance of plant food in the diet of the San. Plant food was also supplemented by tortoise, dassie, small bovids, caterpillars, termites and honey. Larger birds were occasionally hunted.

CHAPTER FIVE

RESULTS OF THE METRICAL ANALYSIS OF STONE ARTEFACTS FROM RENBAAN CAVE

Unfortunately, no metrical analysis has yet been attempted on the De Hangen and Andriesgrond Cave lithic assemblages and comparisons between the three sites is therefore not possible. In effect then, one can only describe and compare the results without making any meaningfull statements. The advantage however, is that the metrical results from Renbaan Cave will serve as a reference for future comparative analysis.

The method of analysis is outlined in Appendix II. The results are presented graphically, in the form of bar-charts and modified Dice-Leraas diagrams, the latter including arithmetic means and standard deviations. The arithmetic means, standard deviations and modes are tabulated in Appendix VI. The discussion is presented relative to each figure, highlighting any salient observations. Constraints of time, the smallness of the sample and lack of precise spatial plotting of artefacts, has not made it possible to subject the data to statistical hypothesis testing.

I will first outline the results of the untrimmed flakes in quartz and silcrete in each level. I will then consider the results of the adze lengths. Finally, the results of the scraper lengths and the results of the length measurements of the retouched edge of scrapers will be outlined. Untrimmed flakes, adzes and scrapers were metrically analysed according to the identified levels and raw materials in order to appreciate the possible differences and similarities.

It must also be appreciated by the readers, that although graphic representations of bar-charts and modified Dice-Leraas diagrams of some of the results of the analysis are represented, the sample was considered too small for any meaningful discussion. The value of graphic representation however, is that they speak for themselves and we can therefore compare graphs and make critical observations. The mind can assimilate graphs and make comparisons quicker than it takes to write. Writing in fact, can be somewhat confusing at times. To have effect, the results of an investigation must be communicated. Graphs, I believe, fulfill this function better than writing.

We, as archaeologists, are looking at the products and remnants of stone tool manufacture and discard and not the actual tools which were first manufactured. This obviously influences statistical distribution, especially if the sample is small. I have therefore tried to develop a set of criteria which might limit, or at least, influence the results, and which we might therefore be aware of when assessing metrical results.

- Nearly all the bar-charts skew to the left in terms of their distribution. One would logically expect this type of distribution for the following reasons:

a) The physical limitations of the raw material (re: size), determines the length of the flake.

b) Flaking properties. The degree of workability is important and is directly related to the type of raw material in use.

c) Method of manufacture.

d) Retouch is a physical limitation determined by the size and type of raw material available.

e) The length of a scraper is narrow because of repeated retouch. The width is more constant. This is important to consider especially when comparing a particular dimension.

In discussing the results of the metrical analysis, samples less than 15 are ignored, but are graphically illustrated in bar-chart form and Dice-Leraas diagrams for comparative purposes. Distribution is influenced by the smallness of the sample. One cannot discuss any consistency if you have a small sample.

The results of the untrimmed quartz flake lengths in SD is illustrated in bar-chart form in Figure 13:1. Modified Dice-Leraas diagrams in Figure 13:2 include all four levels. This format is applied throughout the chapter. The length of the quartz flakes appear to be reasonably normally distributed. The range of measurements is between 5mm and 25mm. The most frequently encountered flake size is between 6mm and 15 mm. There does not seem to be any significant variability. Length is skewed to the left.

The lengths of untrimmed quartz flakes in BU is illustrated in bar-chart form in Figure 13:3. Length appears to be normally distributed, the range of measurement between 5mm and 35mm. The most frequently encountered flake size is between 6mm and 20 mm and resembles length measurements of quartz flakes in AD. Lengths is skewed to the left.

In AD, the length mesurements of untrimmed quartz flakes is illustrated in bar-chart form in Figure 13:4. The range is between 6mm and 25mm, peaking between 6mm and 10mm. The most frequently encountered flake size is 6mm to 20mm. Length is skewed to the left.

In BL, the length of untrimmed quartz flakes is illustrated in bar-chart form in Figure13:5. The range of measurements is between 6mm and 25 mm. The most frequently encountered flake size is from 6mm to 20mm, peaking between 6mm and 10mm.

The results of the length of untrimmed silcrete in AD, flakes is illustrated in bar-chart form in Figure 13:6. Modified Dice-Leraas diagrams in figure 13:7 include all four levels. The length of the silcrete flakes appear to be normally distributed.

FIGURE 13:1 FREQUENCY DISTRIBUTION OF QUARTZ FLAKE LENGTHS

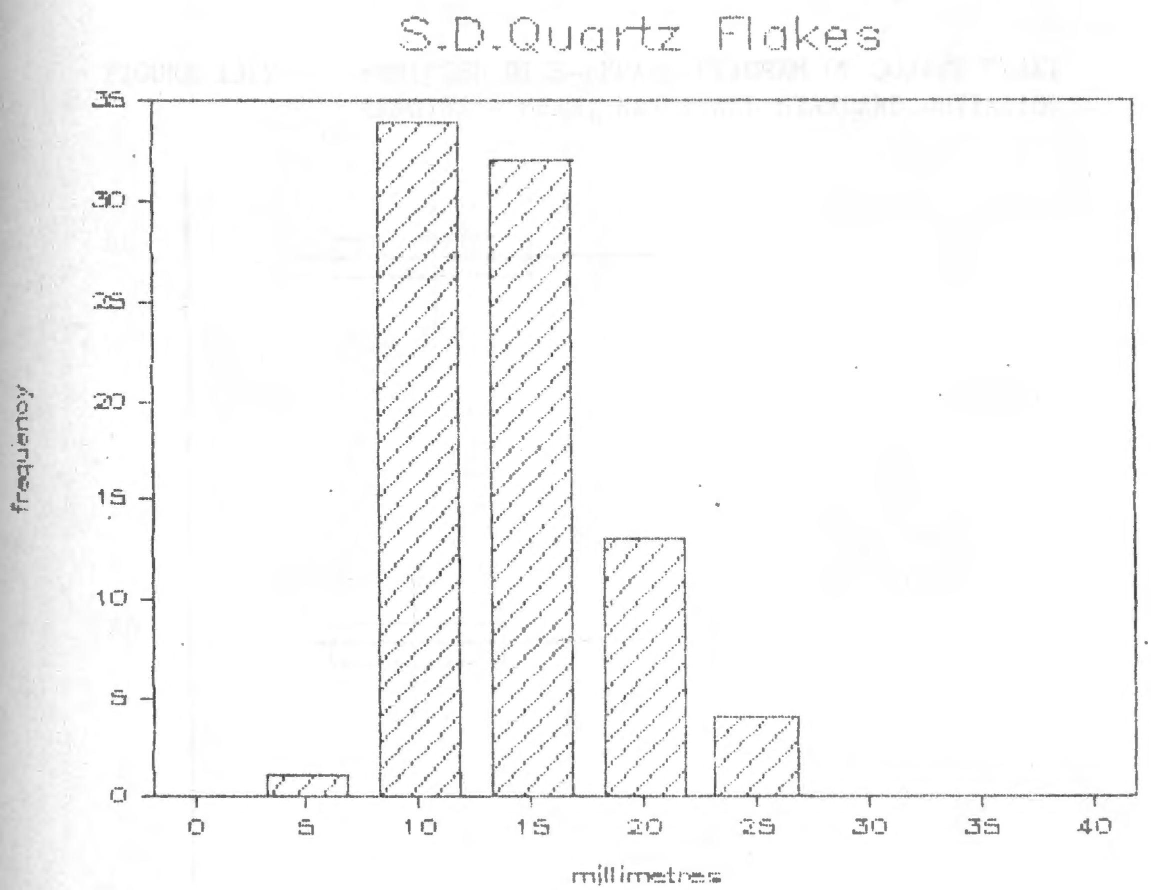


FIGURE 13:3 FREQUENCY DISTRIBUTION OF QUARTZ FLAKE LENGTHS

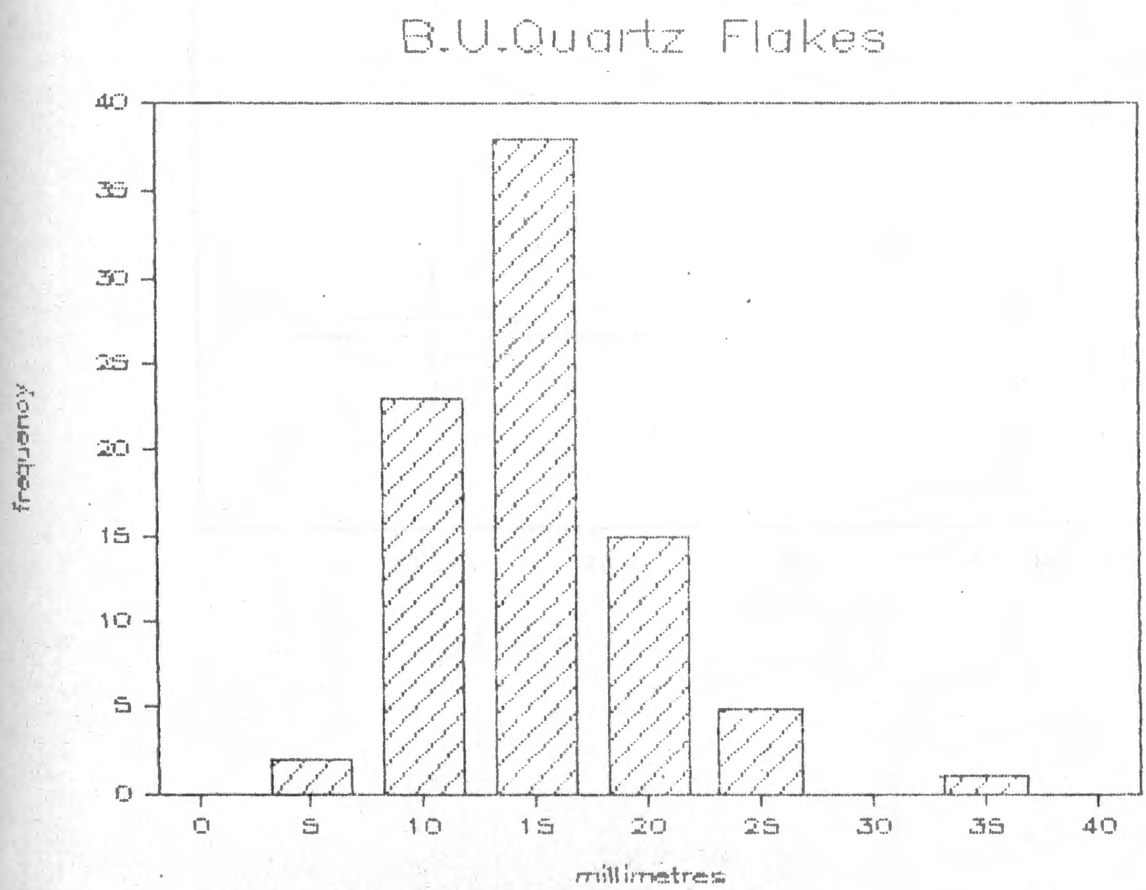


FIGURE 13:2 MODIFIED DICE-LERAAS DIAGRAM OF QUARTZ FLAKE LENGTHS - MEAN, RANGE AND STANDARD DEVIATION

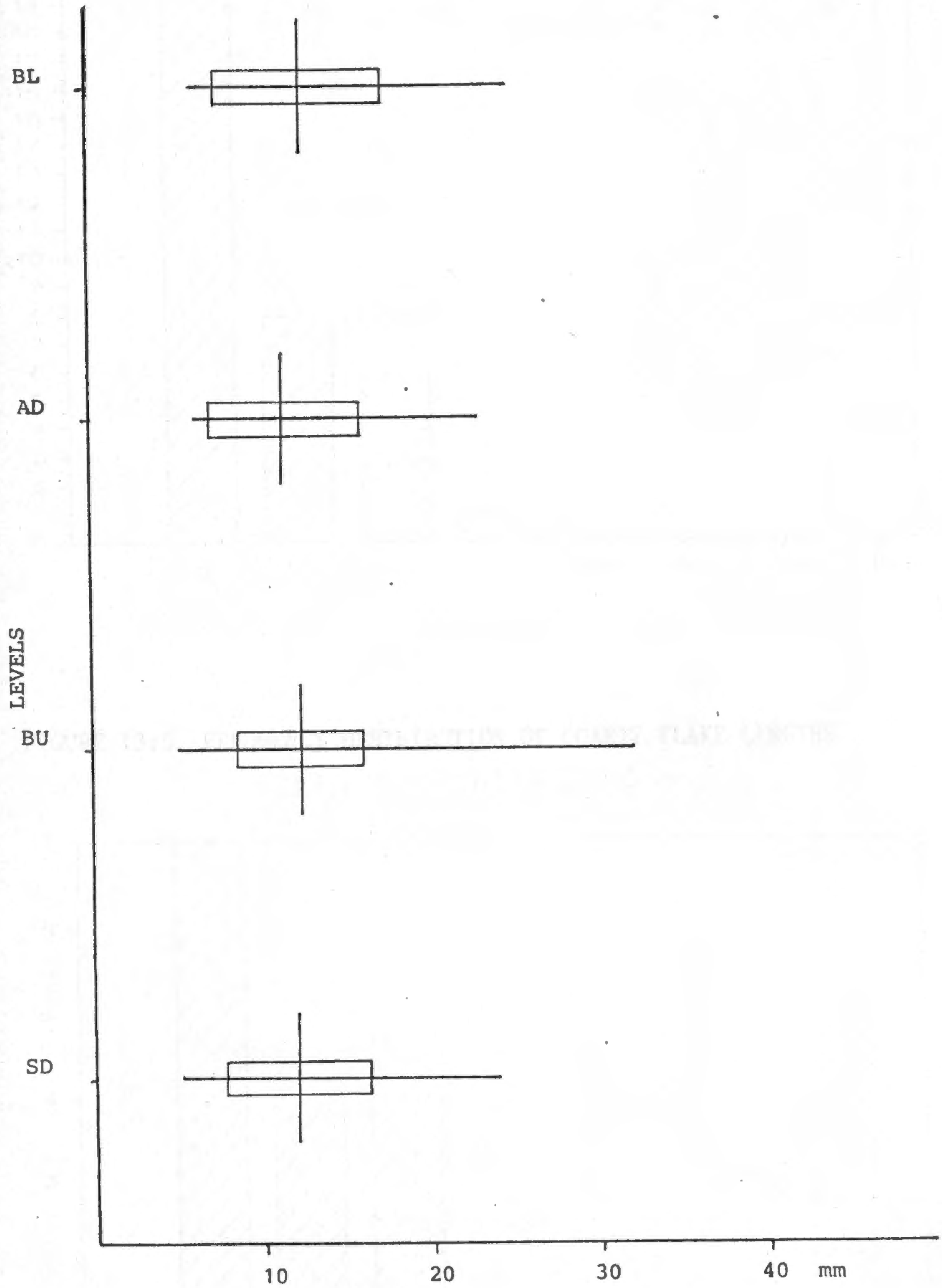


FIGURE 13:4 FREQUENCY DISTRIBUTION OF QUARTZ FLAKE LENGTHS

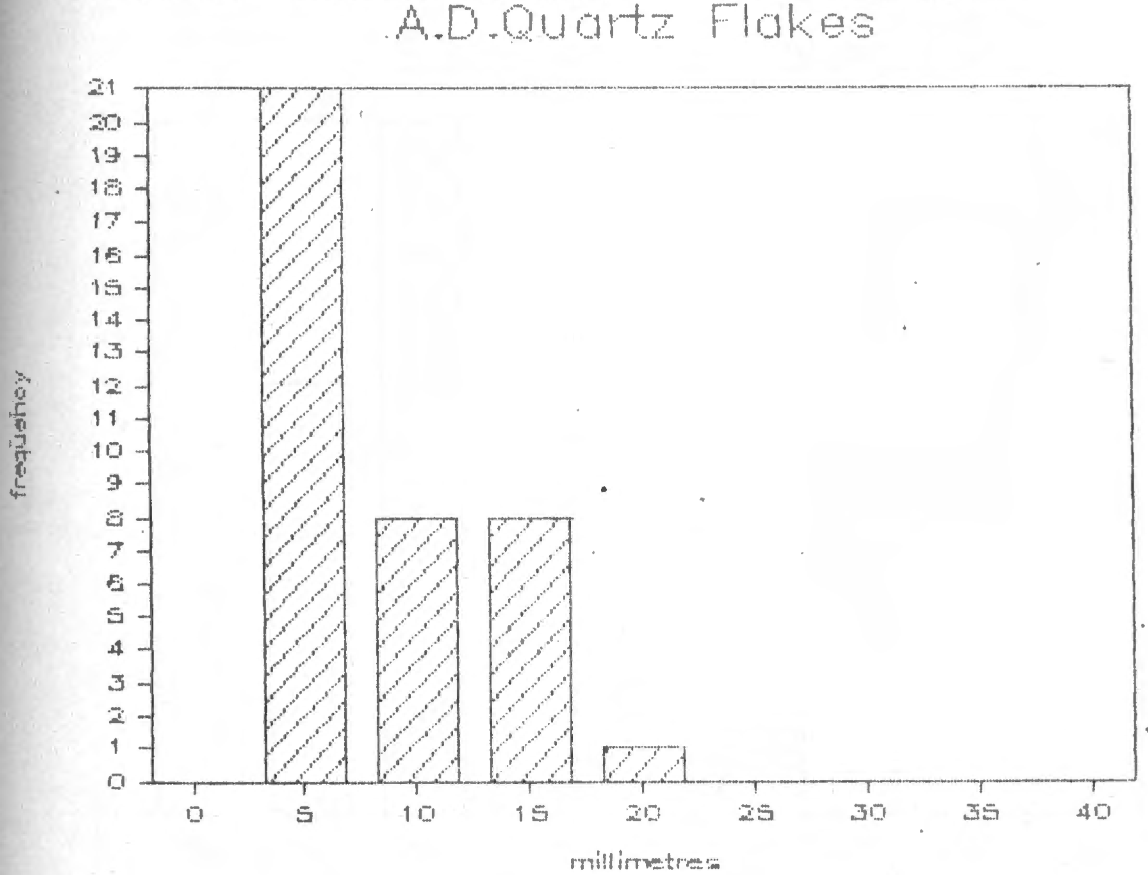


FIGURE 13:5 FREQUENCY DISTRIBUTION OF QUARTZ FLAKE LENGTHS

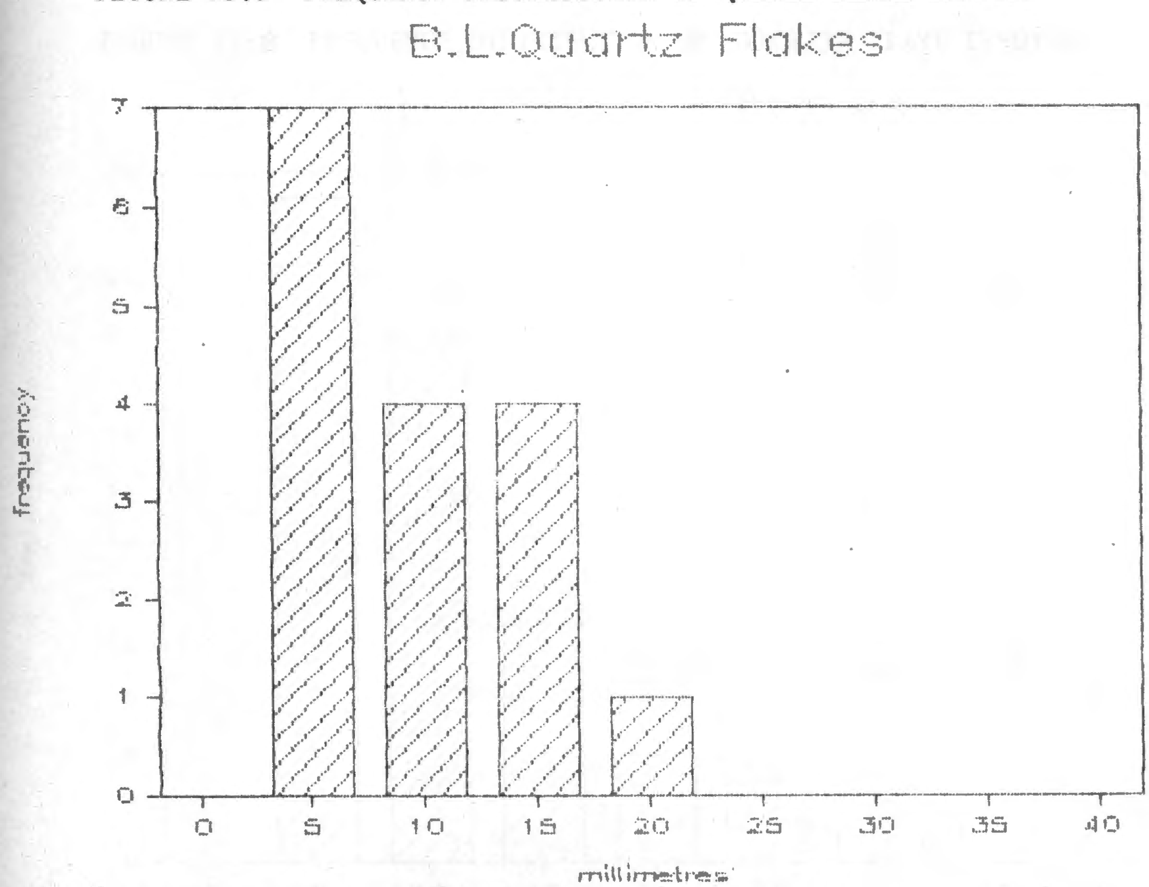


FIGURE 13:6 FREQUENCY DISTRIBUTION OF SILCRETE FLAKE LENGTHS

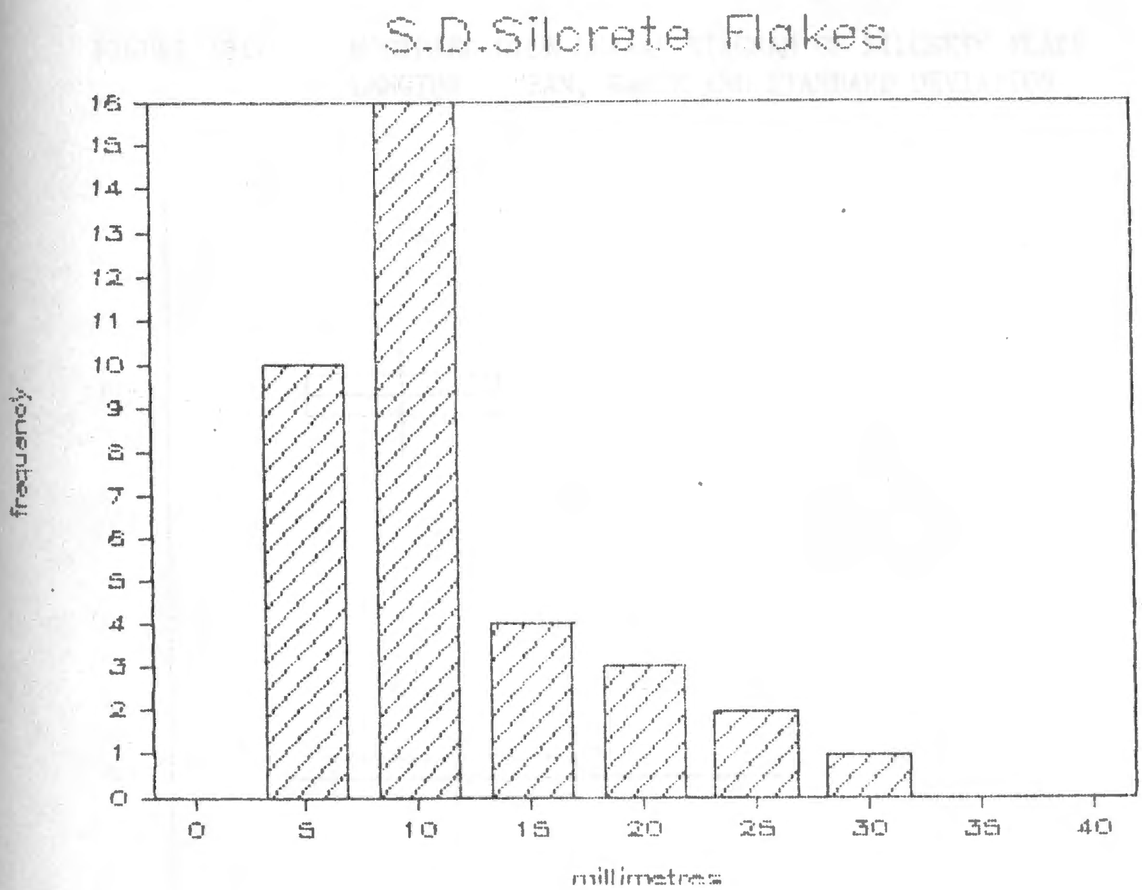


FIGURE 13:8 FREQUENCY DISTRIBUTION OF SILCRETE FLAKE LENGTHS

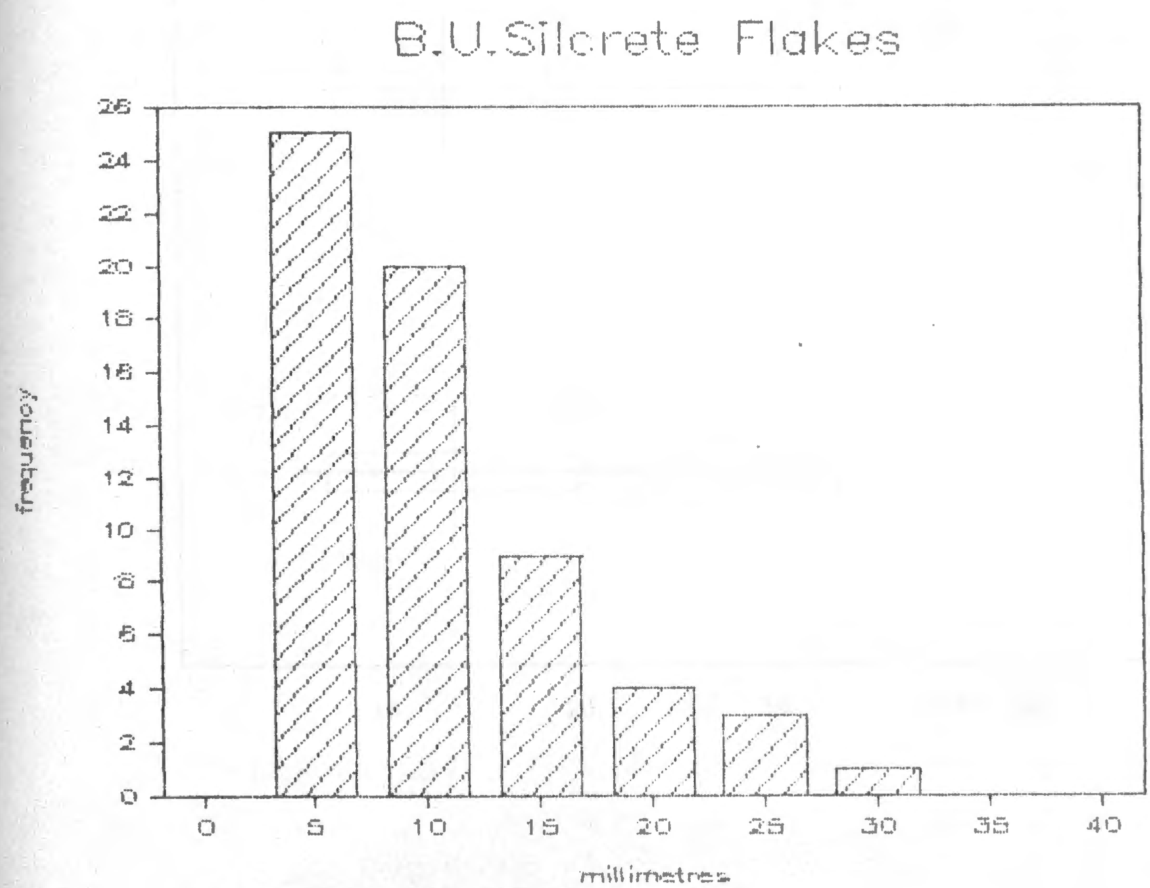
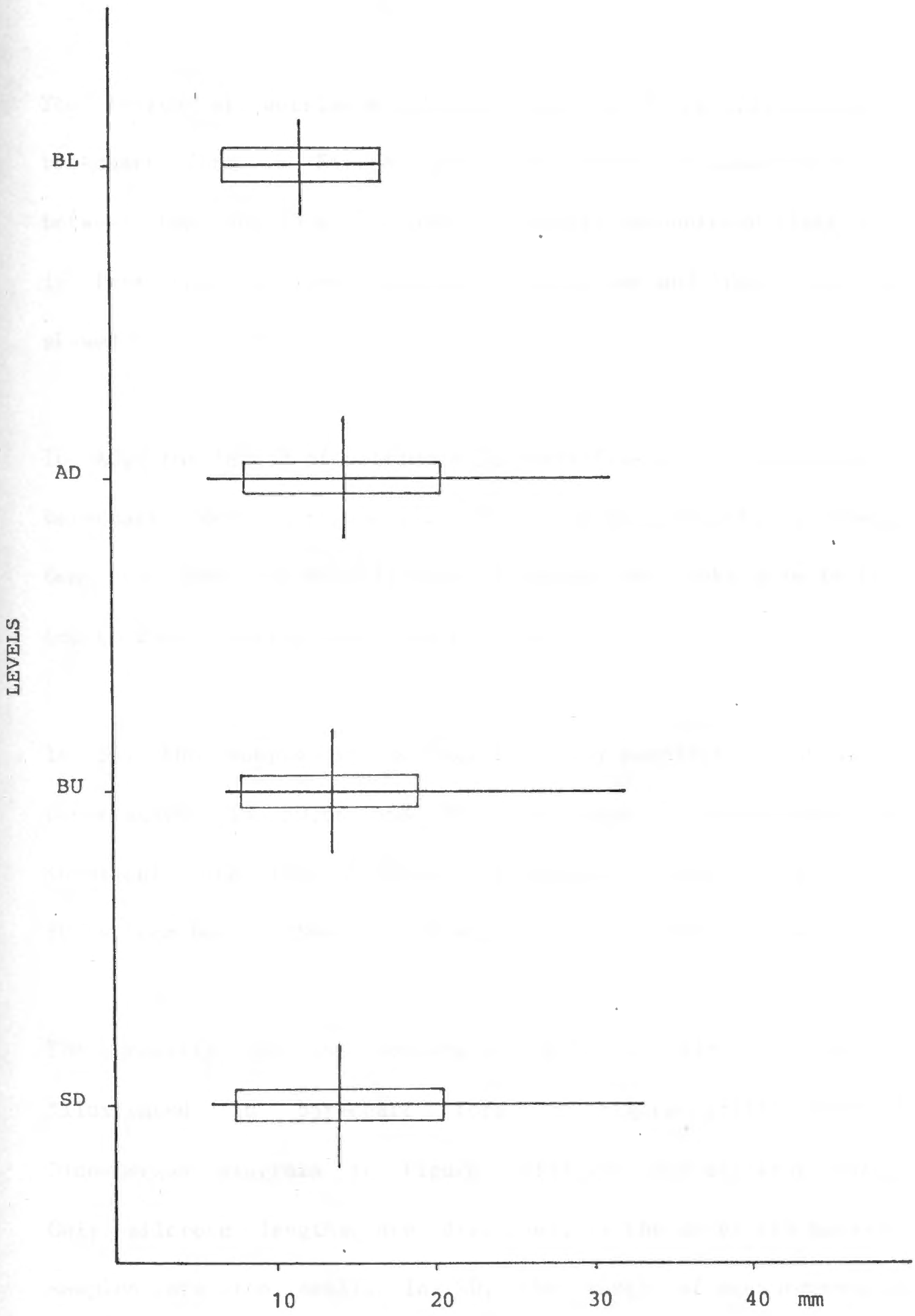


FIGURE 13:7 MODIFIED DICE-LERAAS DIAGRAM OF SILCRETE FLAKE LENGTHS - MEAN, RANGE AND STANDARD DEVIATION



The range of measurements is between 6mm and 35mm. The most frequently encountered flake size is from 6mm to 15mm, peaking between 11mm and 15mm. Length is skewed to the left.

The length of untrimmed silcrete flakes in BU is illustrated in bar-chart form in Figure 13:8. The range of measurements is between 6mm and 35mm. The most frequently encountered flake size is from 6mm to 15mm, peaking between 6mm and 10mm. Length is skewed to the left.

In AD, the length of untrimmed silcrete flakes is illustrated in bar-chart form in Figure 13:9. The range measurements is between 6mm and 35mm. The most frequently encountered flake size is from 6mm to 20mm, peaking from 11mm to 15mm.

In BL, the sample is to small for any meaningful statistical observation. In SD,BU and AD, the range of measurements are identical. The most frequently encountered flake size in SD and BU is from 6mm to 15mm, and in AD, from 6mm to 20mm (Fig:13:10).

The results of the lengths of silcrete adzes in SD, is illustrated in bar-chart form in Figure 13:11. Modified Dice-Leraas diagrams in Figure 13:12 includes all four levels. Only silcrete lengths are discussed, as the other raw material samples are too small. In SD, the range of measurements is between 11mm and 40mm. The most frequently encountered flake size

FIGURE 13:9 FREQUENCY DISTRIBUTION OF SILCRETE FLAKE LENGTHS

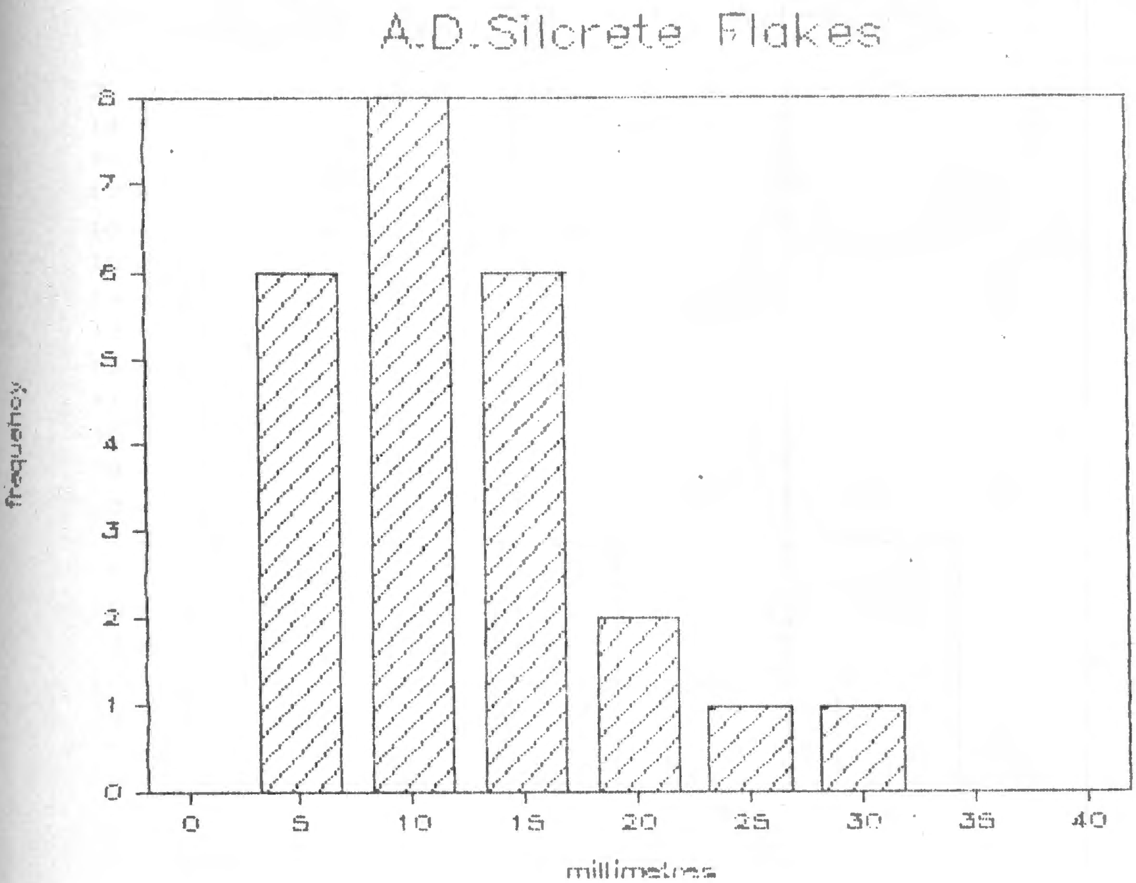


FIGURE 13:10 FREQUENCY DISTRIBUTION OF SILCRETE FLAKE LENGTHS

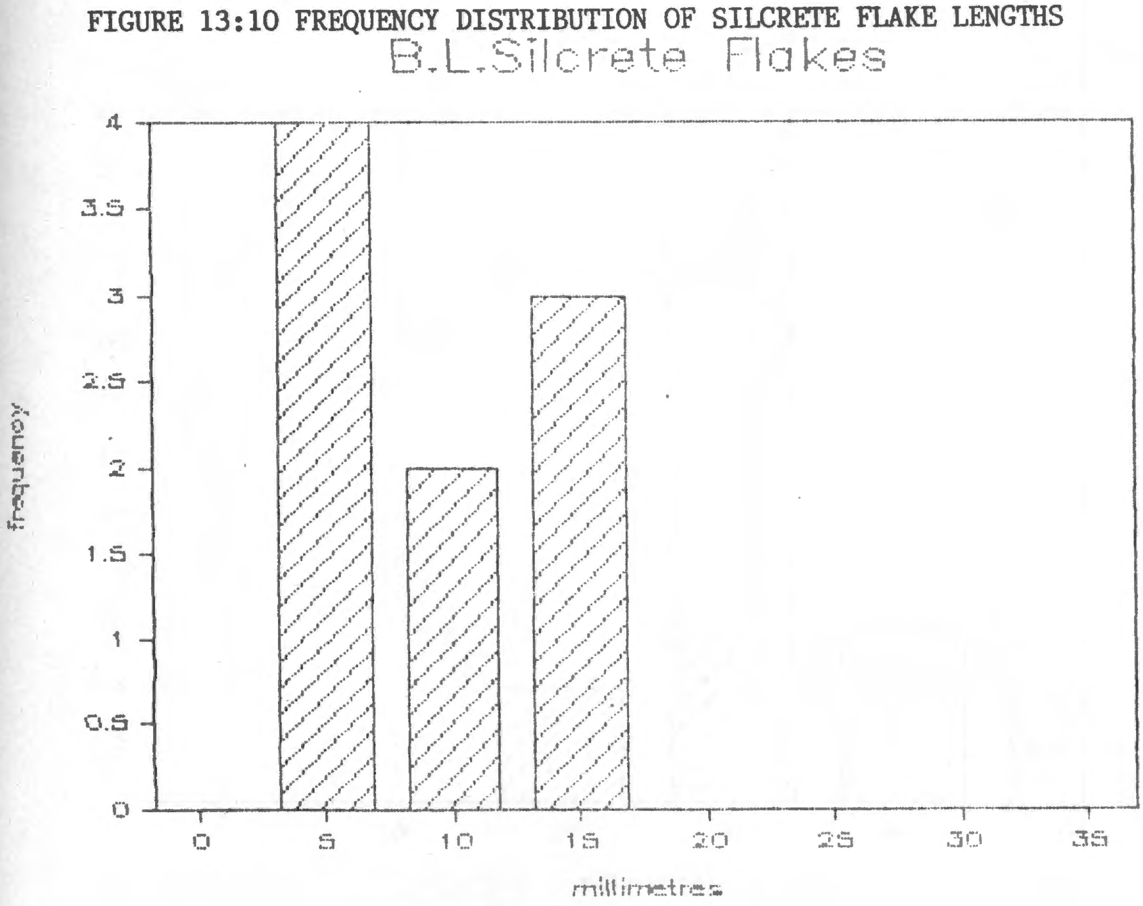


FIGURE 13:11 FREQUENCY DISTRIBUTION OF SILCRETE ADZE LENGTHS

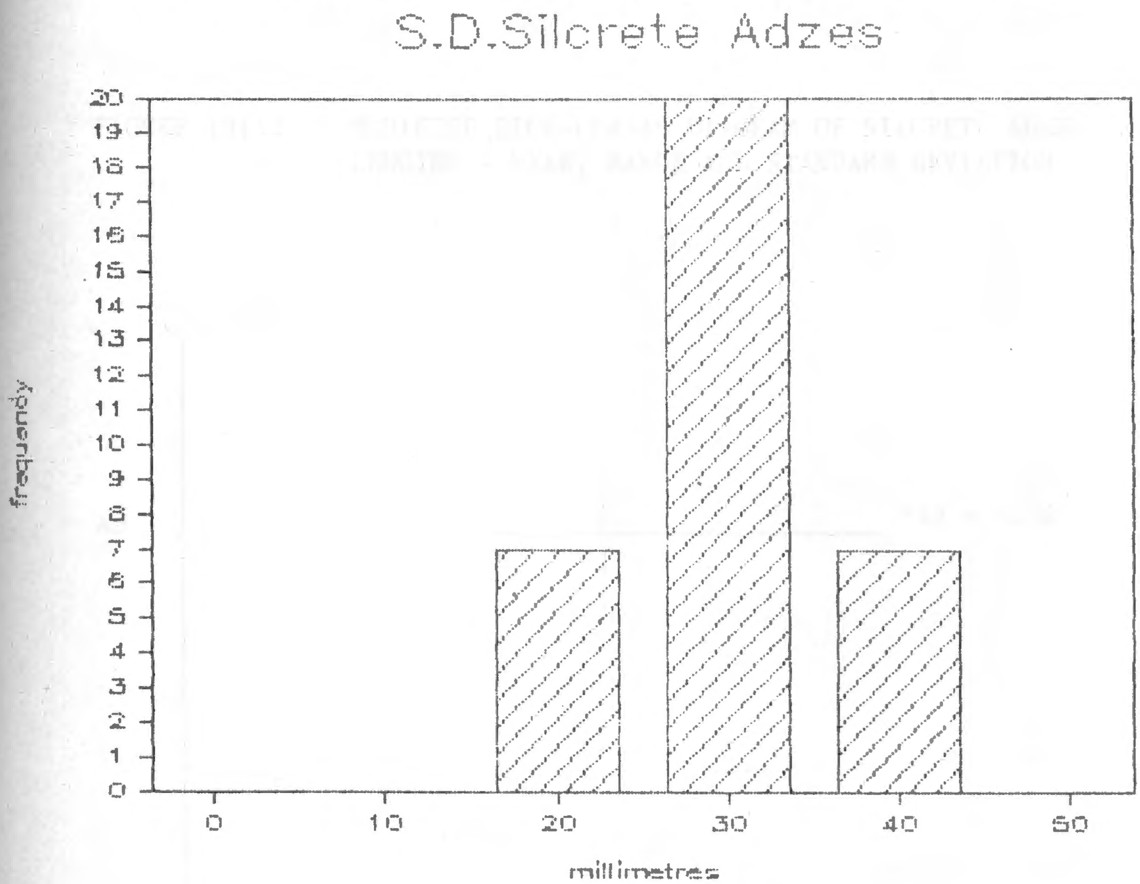


FIGURE 13:13 FREQUENCY DISTRIBUTION OF SILCRETE ADZE LENGTHS

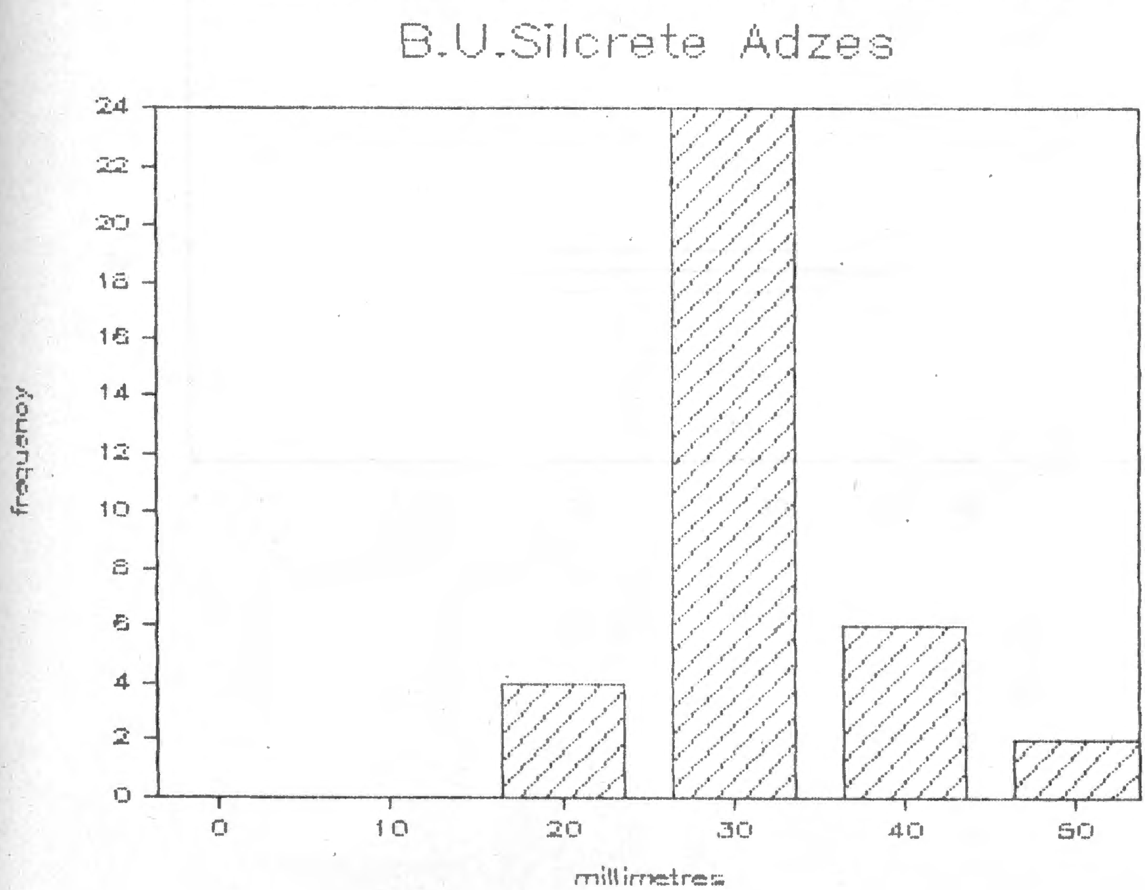
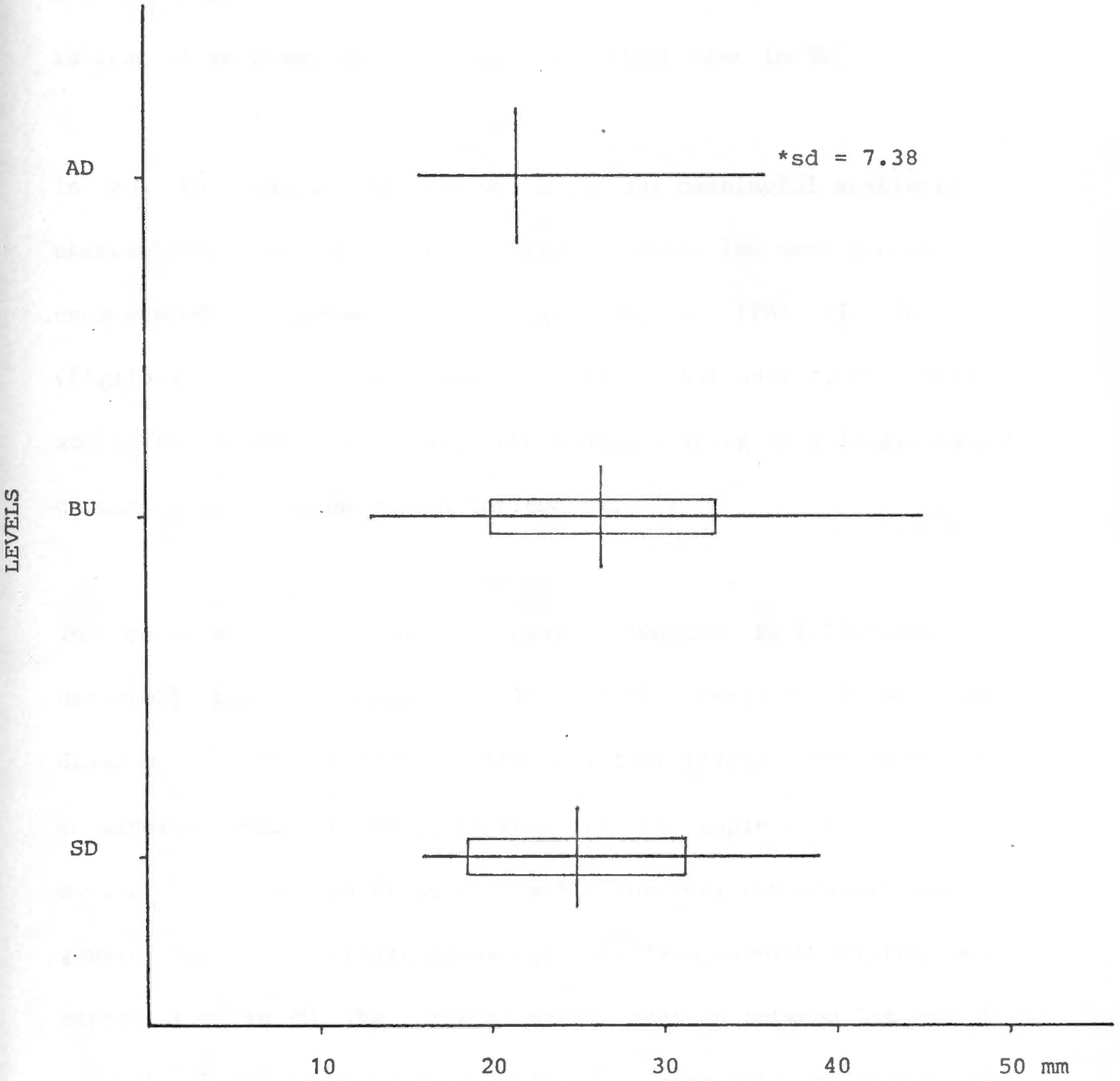


FIGURE 13:12 MODIFIED DICE-LERAAS DIAGRAM OF SILCRETE ADZE LENGTHS - MEAN, RANGE AND STANDARD DEVIATION



is from 11mm to 30mm.

The results of the length of silcrete adzes in BU is illustrated in bar-chart form in Figure 13:13. The range of measurements is between 11mm and 50mm. The most frequently encountered flake size is from 21 to 30mm, and replicates the flake size in SD.

In AD, the sample is too small for any meaningful statistical observation, and in BL it is unrepresented. The most frequently encountered measurement in SD and BU, is from 21mm to 30mm (Fig:13:14). One would logically assume that adze flake lengths would be relatively large, the emphasis being on a long, sharp cutting edge to shape wooden implements.

The results of the quartz scraper lengths is illustrated in bar-chart form in Figure 13:15 -13:17. Modified Dice-Leraas diagrams in Figure 13:18 include all four levels. Only quartz is considered, and is best represented in sample size in BU. The sample in SD, AD and BL is too small. However, comparisons can be gauged by the bar-chart illustrations. Twenty-seven scrapers are represented in BU. The range of measurement is between 5mm and 20 mm. The most frequently encountered scraper size measurement is from 6mm to 10mm. Length is skewed to the left. In SD and AD, the sample is small, but the most frequently occurring size measurement is identical to BU. In BL, the sample only includes one scraper.

FIGURE 13:14 FREQUENCY DISTRIBUTION OF SILCRETE ADZE LENGTHS

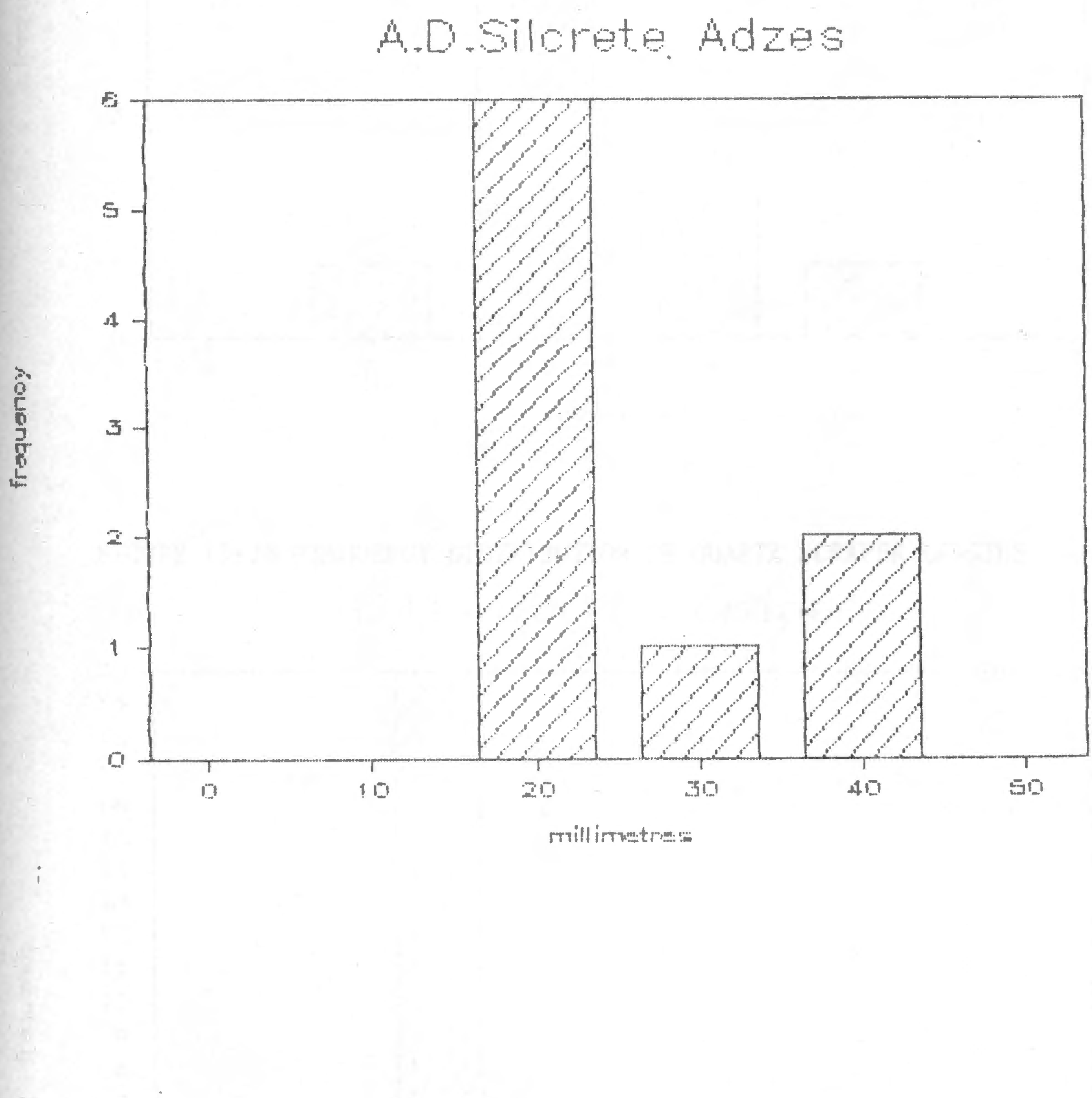


FIGURE 13:15 FREQUENCY DISTRIBUTION OF QUARTZ SCRAPER LENGTHS

FIGURE 13:16 FREQUENCY DISTRIBUTION OF QUARTZ SCRAPER LENGTHS

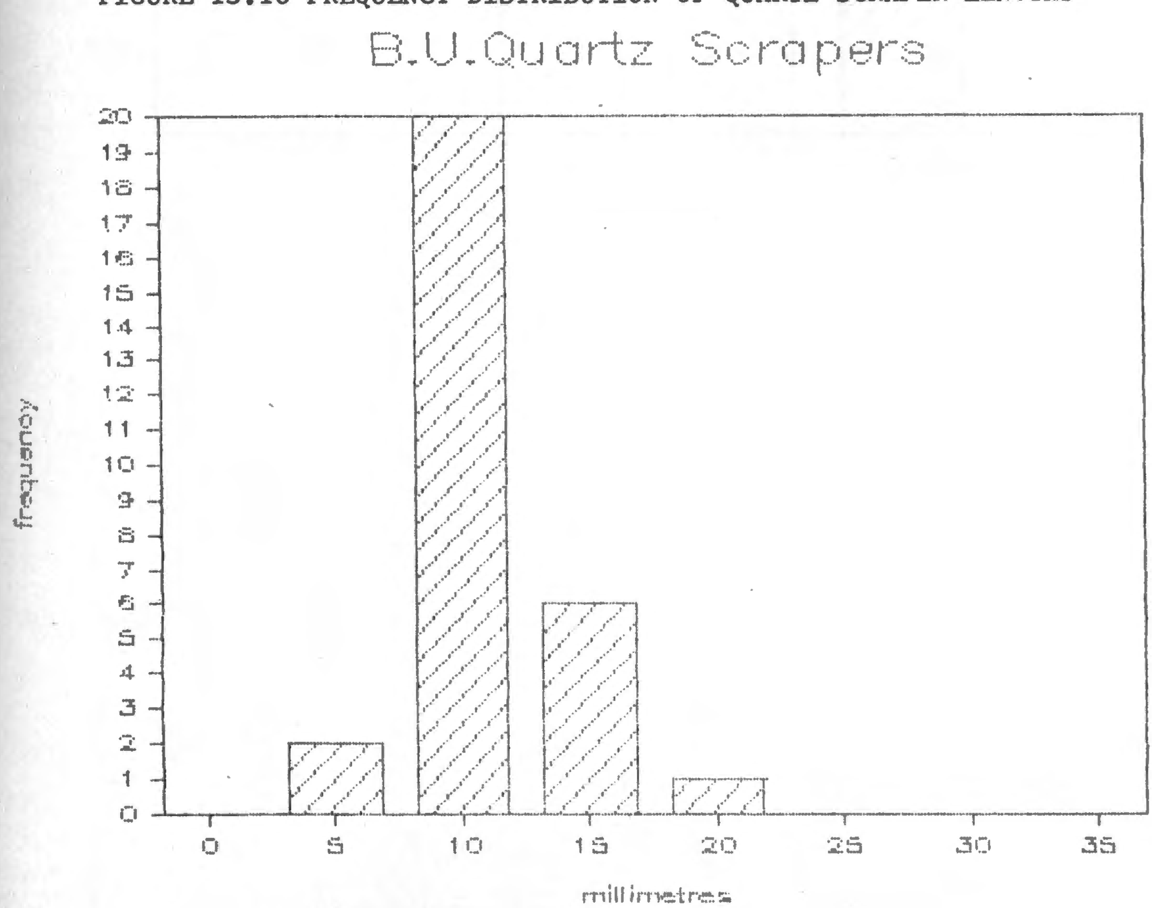


FIGURE 13:17 FREQUENCY DISTRIBUTION OF QUARTZ SCRAPER LENGTHS

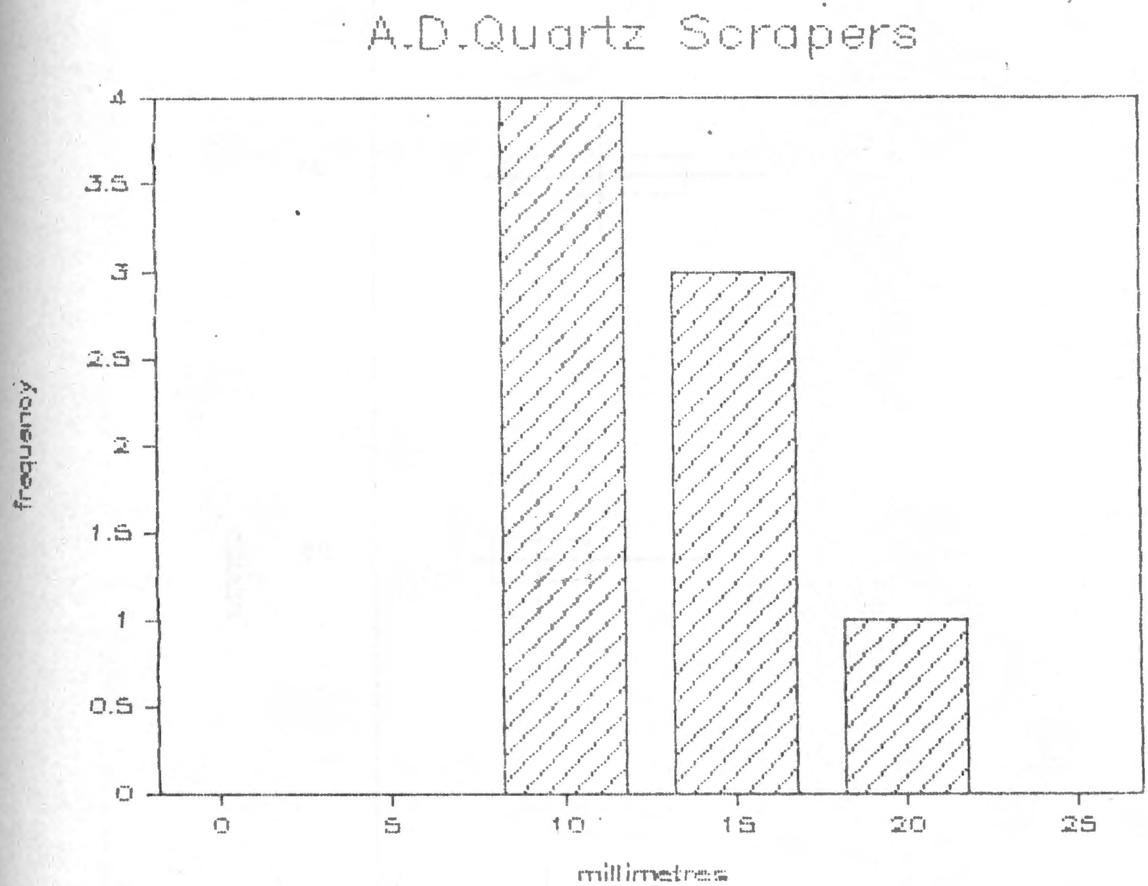
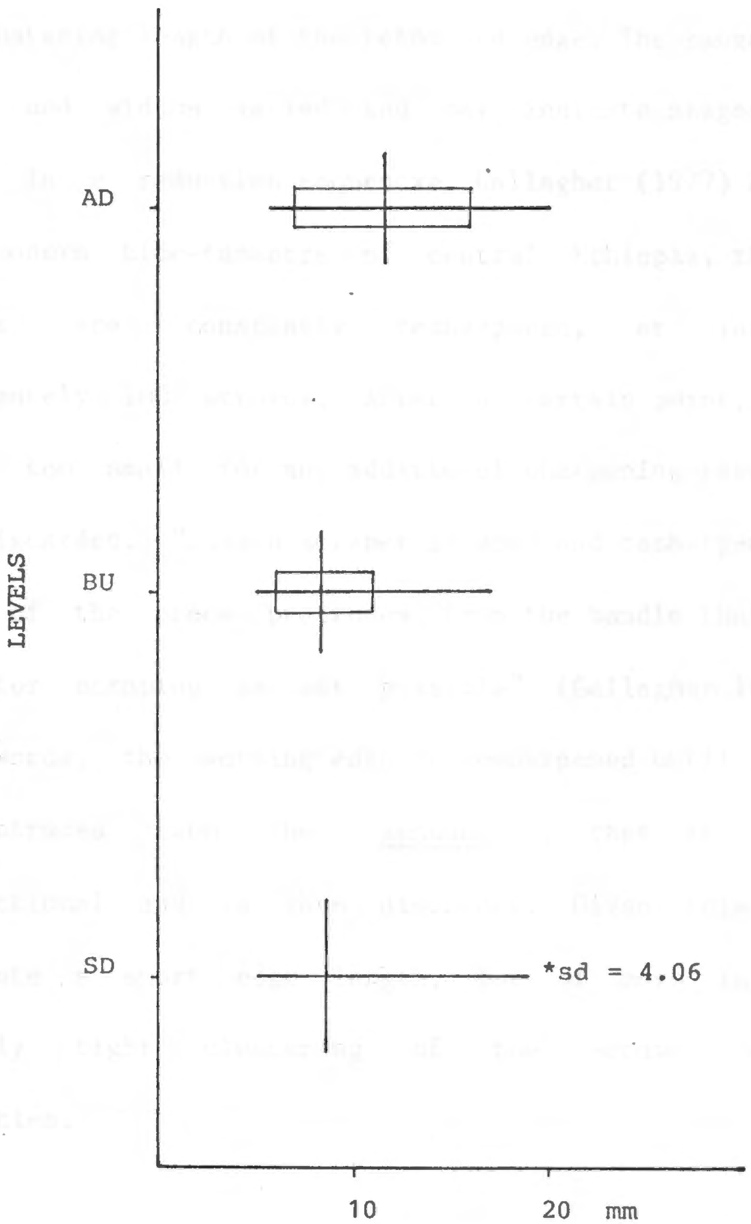


FIGURE 13:18 MODIFIED DICE-LERAAS DIAGRAM OF QUARTZ SCRAPER LENGTHS - MEAN, RANGE AND STANDARD DEVIATION



Unconventional attributes were measured on scrapers and these included the length and width measurements of the retouched edge. This followes closely a method developed by Mazel (1978), to test the clustering length of the retouched edge. The range of scraper lengths and widths varied and may indicate stages of use and discard in a reduction sequencxe. Gallagher (1977) has observed among modern hide-tannerrs of central Ethiopia, that obsidian scrapers are constantly resharpened, at intervals of approximately 100 strokes. After a certain point, the scraper becomes too small for any additional sharpening retouch and are then discarded. "..each scraper is used and resharpened until so little of the piece protrudes from the handle that the proper angle for scraping is not possible" (Gallagher 1977:411). In other words, the working edge is resharpened until so little of it protrudes from the gundane , that it is rendered non-functional and is thus discarded. Given this, one would anticipate a short edge length, but of more importance, an extremely tight clustering of the scraper edge length frequencies.

In this analysis, only the edge length measuremets are considered. In SD, the length of the retouched edge of scrapers is illustrated in bar-chart form in Figure 14:1, in BU (Figure 14:2), in AD (Figure 14:3) and in BL (Figure 14:4).

FIGURE 14:1 FREQUENCY DISTRIBUTION OF SCRAPER EDGE LENGTHS

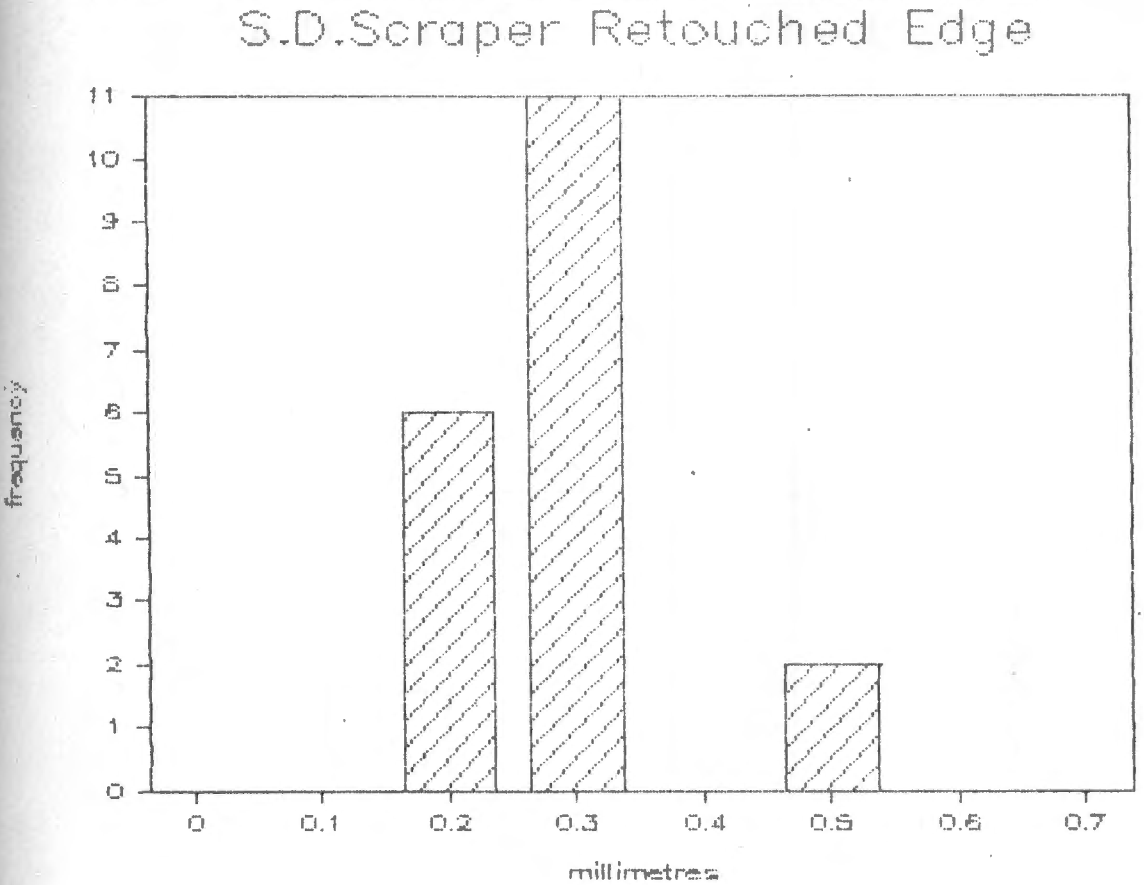


FIGURE 14:2 FREQUENCY DISTRIBUTION OF SCRAPER EDGE LENGTHS

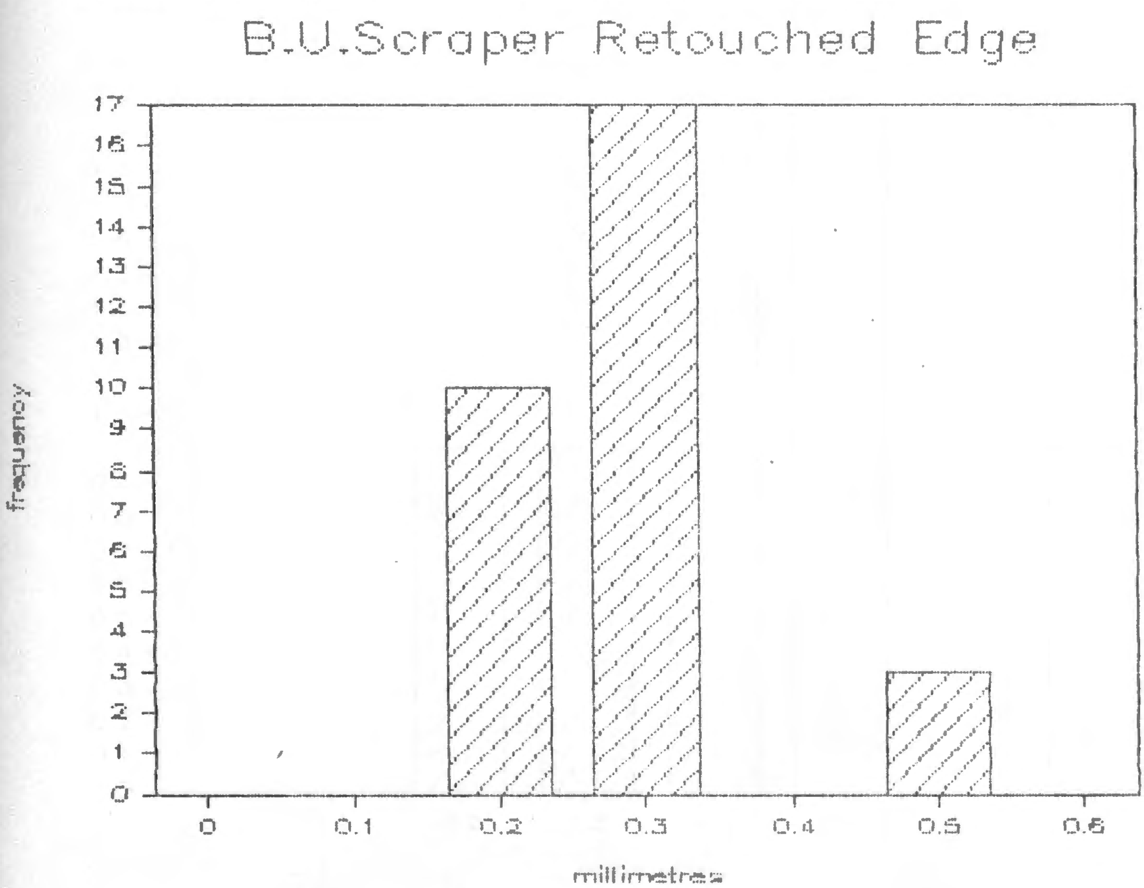


FIGURE 14:3 FREQUENCY DISTRIBUTION OF SCRAPER EDGE LENGTHS

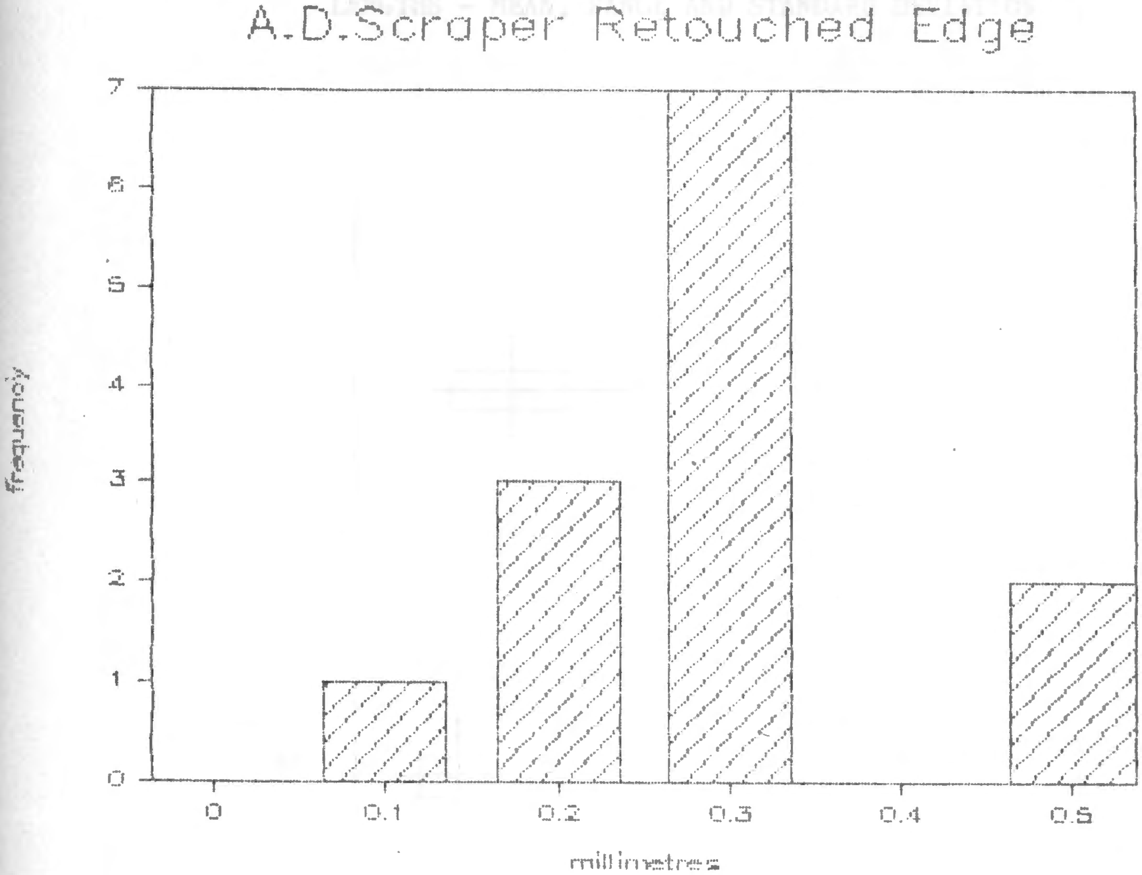


FIGURE 14:4 FREQUENCY DISTRIBUTION OF SCRAPER EDGE LENGTHS

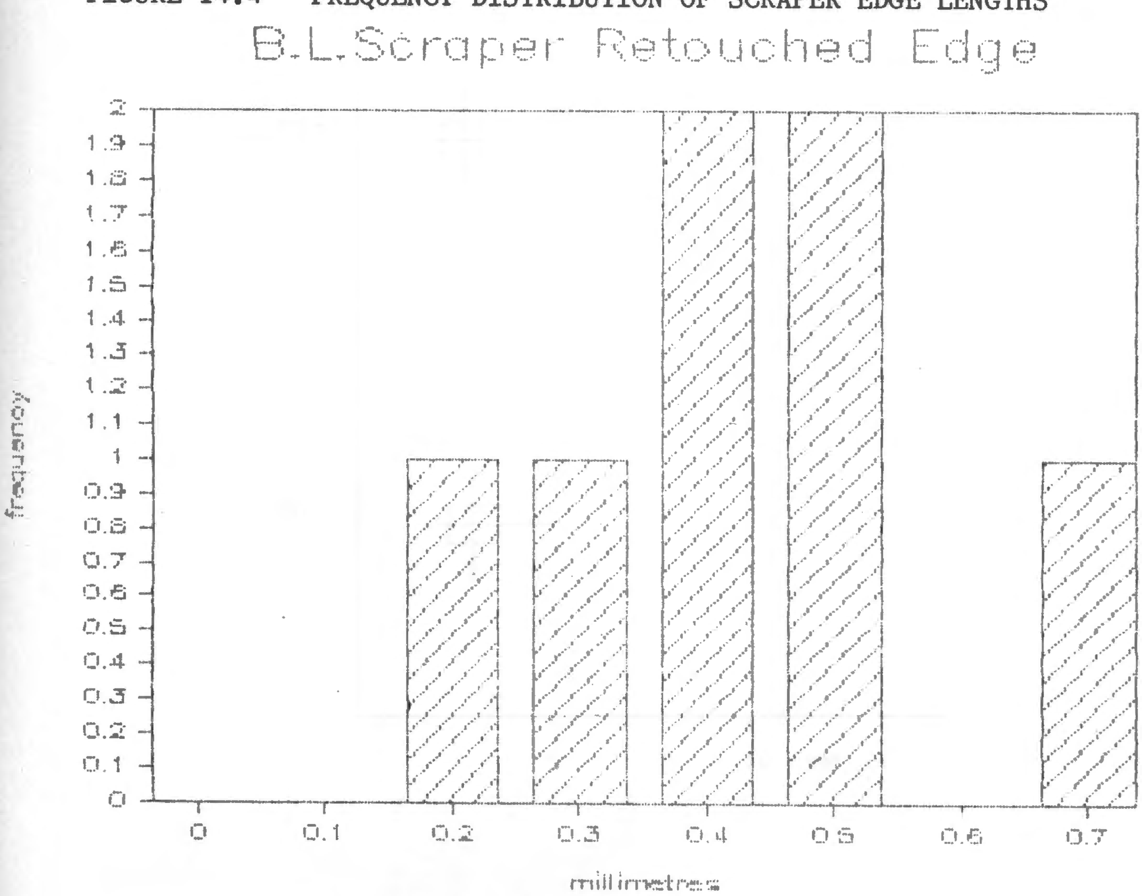
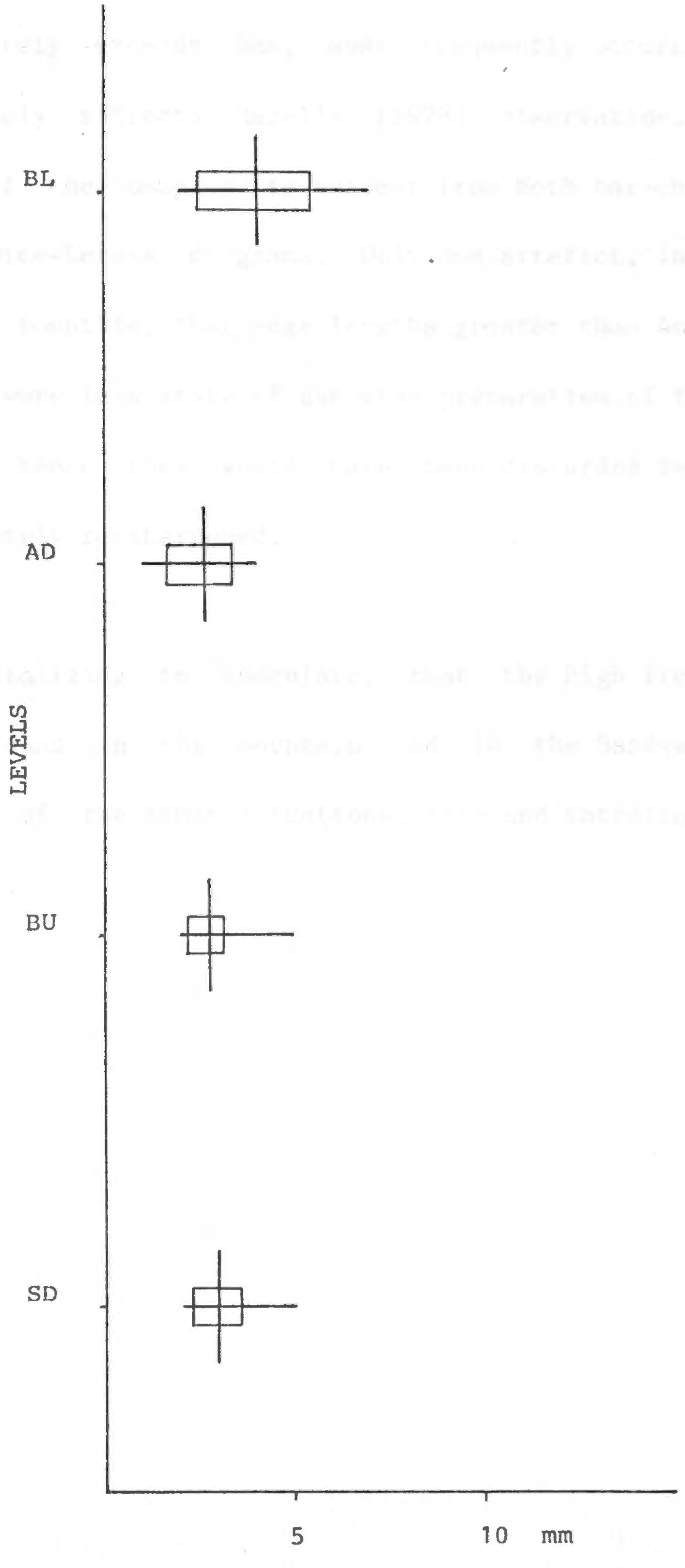


FIGURE 14:5 MODIFIED DICE-LERAAS DIAGRAM OF SCRAPER EDGE LENGTHS - MEAN, RANGE AND STANDARD DEVIATION



Modified Dice-Leraas diagrams are illustrated in Figure 14:5 and include all four levels. The study of the lengths of the retouched edge reflects a remarkably tight clustering. The edge lengths rarely exceeds 5mm, most frequently occurring at 3mm, which closely reflects Mazel's (1978) observation. The close grouping of the samples is evident from both bar-chart and the modified Dice-Leraas diagrams. Only one artefact, in BL exceeds 5mm. It is possible, that edge lengths greater than 4mm, could be that they were in a state of use when preparation of the skin was completed, hence they would have been discarded before having been completely re-sharpened.

It is tantalizing to speculate, that the high frequencies of scrapers found in the mountain and in the Sandveld may be a reflection of the limited funtional life and intentional discard by the user.

CHAPTER SIX

DISCUSSION

This final chapter takes the form of two parts.

The initial emphasis of this report was designed around an indepth analysis of the stone artefact assembalge from Renbaan Cave and although the assemblage has been described, metrically analysed and compared in previous chapters, other features are discussed here. The first section of this chapter, will therefore describe three interesting features of the lithic assemblage from Renbaan Cave. The second section will attempt to define the nature of the hunting and gathering camp(s) that occupied Renbaan Cave. In effect, the economic base of the Later Stone Age people of the southwestern Cape during the last 2000 years - settlement and subsistence.

A - PATTERNS IN STONE

The formal tool assemblage from Renbaan Cave, although relatively small, displays some interesting features. By far the most impressive feature of the assemblage, is the range of tools which display mastic, or traces of mastic remains. Tools with mastic have been identified from numerous sites in South Africa, including Melkhoutboom (Hewitt 1931., Deacon H.J. 1976), Wilton (Hewitt 1921), Boomplaas (Deacon H.J. 1979), De Hangen (Parkington and Poggenpoel 1971), Andriesgrond Cave (Parkington pers.comm.), Elands Bay Cave (Parkington 1976a), as well as sites in Plettenberg Bay and Knysna (Walker 1974). Clark (J.D.1959:232-234) describes a small thumbnail scraper mounted in mastic from Melkhoutboom, as well as tools mounted in wood and bone handles from sites in the southwestern Cape . He also describes stone-tipped arrows mounted in resin in the end of wooden handles from ethnographic contexts in the Cape (Clark, J.D. 1977). Mounted stone tools are described by Goodwin and van Riet Lowe (1929) in their pioneering work on the stone tool assemblages from southern Africa. X-ray photographs of two mounted stone implements from sites in South Africa are described by Hilary Deacon (1966). Phillipson (1976:215-218) describes stone tools with mastic adhering from Makwe and Kalemba, two Stone Age sites in eastern Zambia, and Gallagher (1977) details the manufacture, use, re-sharpening and discard of mounted obsidian scrapers made by hide tanners in central Ethiopia, but these are hafted in wooden handles, without resin.

The feature is therefore widespread.

Walker (1974) built up a comprehensive sample of resins and compared these to mastic retained on pre-historic stone tools from sites in the southwestern and southern Cape. He concluded that the mastic/resin was composed of tree resin, possibly mixed with other vegetable materials as a binder. Unfortuntely he did not specify what these vegetable components were. Mastic from

Renbaan Cave is being analysed in the Chemistry Department (University of Cape Town), but the results are not yet available. It is hoped that the vegetable components will be identified eventually.

Lumps of mastic were found in the deposits at Boomplaas Cave in the southern Cape and Janette Deacon (1982:221) suggests that they may have been stored for future use.

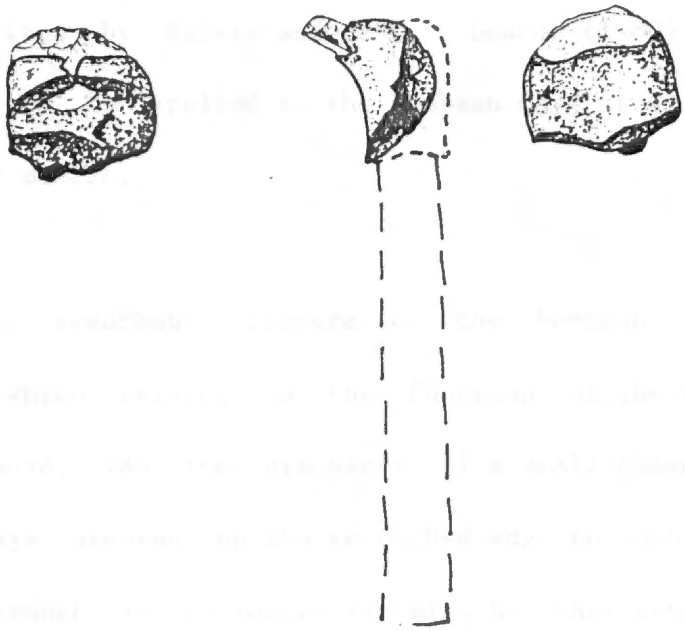
At Renbaan Cave, 29 tools which display mastic have been identified, three from the Surface Deposits, twenty from the Bedding Units, three from the Ash Deposits and three from the Basal Units. These included scrapers, adzes, miscellaneous retouched pieces (MRP's), a backed point, utilized flakes and blades (see Appendix III). The retention of mastic on such a wide range of tools suggests that most stone tools were hafted onto wood and bone handles.

The use of mastic to mount tools onto handles may have been an important development coinciding with the manufacture of microlithic tools and may reflect greater work efficiency.

Adzes were hafted at the end of a handle like a chisel, rather than at right angles to the working edge. Retouch on opposing ends also suggests that adzes were sometimes reversed in the mount (Deacon, J. 1982:557). The hafting of adzes at the end of a handle suggests that adzes were more durable tools than scrapers (which were side mounted) and were used for heavier work like shaving, shaping and planing digging sticks, pegs, bows, spears and clubs. Micro-wear studies and comparisons of polish under controlled experimental conditions reveal that woodpolish is an easily identifiable diagnostic feature and typical of the Late Stone Age adzes (Binneman 1984). Side mounting of adzes and heavy shaving pressure would render adzes useless, as they would probably break out of the mastic and the handle. Ethno-archaeological experiments by Binneman and students at the University of Cape Town in 1981 used adzes hafted at the end of a handle to shape digging sticks and pegs. Hafted adzes from Australia, described by Clark (J.D. 1958) are also end mounted and used as woodworking tools.

The hafting and function of a small convex scraper from Boomplaas Cave in the southernn Cape is described by Hilary and Janette Deacon (1980). Comparisons between the Boomplaas specimen (mounted in resin) and a handle and resin intact but which lacks a stone tool, from a site in Plettenberg Bay, enables them to describe the mode of hafting. They argue (Deacon and Deacon 1980:33), that there is strong evidence that "small convex scrapers are side mounted" and by contrast, that large, heavy scrapers seem to be end-mounted like adzes, or hand-held. Janette Deacon (1982:221) provides an illustration of the suggested mounting technique of small convex scrapers (Table 15:1). Small

FIGURE 15:1 SUGGESTED MOUNTING TECHNIQUE OF SMALL CONVEX SCRAPER (REFERENCE: DEACON 1982)



mounted scrapers are linked primarily to the working of light skins from small bovids such as duiker and steenbok, fashioned for clothing, bags, quivers or aprons. Large scrapers were used for scraping heavier hides from large bovids such as hartebeest or eland, their hides used for sleeping mats and sandals (Deacon and Deacon 1980:35).

What is described above is a 'functional model' for hafted stone tools. I suggest that the mode of hafting and function of mounted tools described by Hilary and Janette Deacon (1980) and Deacon (J. 1982), can be applied to the Renbaan Cave stone implements which display mastic.

Another quite remarkable feature of the Renbaan Cave lithic assemblage, which relates to the function of the stone tools described above, was the discovery of a small convex scraper, which displays use-wear on the retouched edge to such an extent, that the retouch is no longer visible. No other artefact which displays use-wear to such a high degree has been found in the southwestern Cape. The implement was sent to Johan Binneman at the Albany Museum, Grahamstown, for micro-wear analysis.

The scraper is a typical microlithic Later Stone Age convex scraper, 11.5 x 10.4 x 4.5mm, made from chert, with a prominent rounded working edge (Appendix IV). The scraper came from square C3in OSP (AD). It was examined under a special microscope fitted with bright field and dark field illuminations with magnifications ranging from 50x to 400x. Photomicrographs were taken.

The micro-wear on the scraper consists of a hide-polish, which is well developed and occurs predominantly in a broad band along the scraper edge on both the ventral and dorsal surface. The polish displays typical hide characteristics in that it has a rough, uneven look and is pitted (see plates in Appendix IV). The polish also has a greasy appearance which suggests that the scraper was used to process fresh hides. An interesting observation is that small areas of wood polish are present, approximately in the middle of the scraper's ventral surface (see plate in Appendix IV). The presence of wood polish may be linked to hafting. Striations are clearly visible on the rounded edge of the tool. What is particularly interesting, is that a large number of striations are mainly parallel to the working edge, while only a few are at right angles to the working edge (see plates in Appendix IV).The striations present on the rounded working edge show that the scraper was not only involved in scraping actions, but also lateral actions.

There is no doubt that the scraper was used extensively in scraping hides. The polish present on the scraper compares closely with polish created under controlled experimental conditions (see plates in Appendix IV). The round working edge suggests that it was used at a high angle, about 45°. The presence of wood polish and traces of mastic suggests that the scraper was hafted, probably side-hafted. This supports the observations by Deacon and Deacon (1980), that small convex scrapers were side hafted and used to process hides. The higher degree of polish, visible even to the naked eye and its presence in the Ash Deposit may also suggest that it was no longer usable and was discarded. Binneman (pers.comm.) has suggested that the high degree of polish on <u>this</u> particular scraper , may possibly result from the scraper being carried around in a skin bag and rubbing against the sides.

Micro-wear studies, comparisons with polish created under experimental conditions, as well as ethnographic observations, irrefutably reveal the functional aspects of hafted stone tools.

During the preliminary analysis of the Renbaan Cave lithic assemblage, it was noted that some of the formal tools displayed the 'typical' characteristics of Middle Stone Age (MSA) flakes, that is, a faceted platform. These included mainly adzes, and to a lesser extent, miscellaneous retouched pieces (MRP's). Subsequently all silcrete adzes, scrapers, MRP's and utilized flakes were re-analysed in order to locate the precise proportion of Later Stone Age type tools made on MSA flakes. Table 7:1 illustrates the number and percentage of formal and utilized silcrete tools on older flakes and Table 7:2, the number and

TABLE 7:1 NUMBER AND PERCENTAGE OF FORMAL AND UTILIZED SILCRETE TOOLS ON OLDER FLAKES

TYPE	TOTAL	NO. ON OLDER FLAKES	% ON OLDER FLAKES
Adzes	82	45	54.8
Scrapers	21	1	4.8
MRP's	32	6	18.8
Utilized	47	2	4.3

TABLE 7:2 NUMBER AND PERCENTAGE OF FORMAL AND UTILIZED SILCRETE TOOLS ON OLDER FLAKES IN EACH LEVEL

LEVELS	TOOL TYPE	NUMBER EXAMINED	NUMBER ON OLDER FLAKES	% ON OLDER FLAKES
SD	Adzes	36	22	61.1
	Scrapers	9	0	0
	MRP's	13	3	23
	Utilized	11	0	0
BU	Adzes	36	19	52.8
	Scrapers	3	0	0
	MRP'S	12	3	25
	Utilized	14	2	14.3
AD	Adzes	9	5	55.6
	Scrapers	4	0	0
	MRP's	7	0	0
	Utilized	14	0	0
BL	Adzes	1	0	0
	Scrapers	5	1	20
	MRP's	0	0	0
	Utilized	8	0	0

percentage of formal and utilized silcrete tools on older flakes in each level.

The majority of adzes and some of the MRP's also showed patination which had been broken through by secondary retouch, suggesting that the flakes were older than their subsequent re-use by Later Stone Age people. For purposes of the following discussion, an 'older flake' is defined as a flake which is patinated or shows signs of having been struck prior to the occupation of Renbaan Cave.The implication of these observations are quite profound as they reveal other forms of behavioural information not previously recognized be researchers working on stone tools (Parkington 1980).

Out of a total of 82 silcrete adzes from the Renbaan Cave assemblage, 45 (54.8%) displayed faceted platforms and/or patination damage. This raises questions about hunting and gathering people's response to available raw material. It suggests that large MSA flakes were reserved mainly for adze mnufacture, the emphasis being on a sharp cutting edge for working wood.

The percentage of silcrete adzes made on 'older' flakes by each level is as follows: In the Suface Deposits, 61.1% (n=36), in the Bedding Units, 52.8% (n=31) and in the Ash Deposits 55.6% (n=9). In the Basal Units none were found. Over 50% of all the silcrete adzes in the first three levels are made on MSA flakes. There thus seems to be definite tendency on the part of the Renbaan Cave gatherers and hunters toward making adzes on MSA flakes. Scrapers on the other hand are predominantly quartz, especially the elongated scrapers. There seems to have been a conscious preferrence on the part of the tool makers to select a particular raw material for making stone tools. Large silcrete (MSA) flakes were reserved for adze manufacture and quartz for scrapers. These observations locate a relationship between the people and raw materials, a relationship which I will argue changed through time in accordance with changing settlement patterns and the availability of preferred raw materials.

Only one (out of 21) silcrete scrapers was made on an MSA type flake and came from BP. This tentatively suggests that all (or most) of the silcrete flakes used for scrapers were struck from cores by Later Stone Age people. MSA flakes on the other hand, were struck off large cores by Middle Stone Age people, used and discarded.

We can therefore demonstrate a chronological gap between striking the flake and producing the adze retouch, between the manufacture, use and discard, and subsequent re-use of older flakes as adzes. The period between discard and re-use is when the surface of the flake became patinated and dulled. The important point here, is that the bulbar surface of the adzes are not similarly dull as the retouch is. I must emphasise also, that the flakes may not be coming from MSA sites, or even MSA flakes, but they are definitely older and this is trhe crucial point.

The utilized category was difficult to evaluate as scarring was small, but of note was the large number of flakes which looked MSA'ish and could even have utilization damage similar to those earlier manufacturing periods. Re-analysis of all utilized flakes show that only 2 (out of 110) definitively displayed a facetted platform. These two pieces came from the Surface Deposits and are both in silcrete. However, if we look at the number of silcrete utilized flakes made on MSA flakes, the result is more revealing. Two out of 47 represents 4.3 %. Eleven utilized flakes were MSA looking, large, chunky and patinated.

Six out of 53 (11.3%) MRP's displayed typical MSA characteristics. All are in silcrete. Three came from the Surface Deposits and three from the Bedding Units. Six out of 32 silcrete MRP's represent 18.8% of the assemblage.

The untrimmed silcrete flakes were not re-analysed, but it is felt that very few displayed MSA type characteristics. Only three silcrete flakes exceed 33mm in length. It is felt that the majority of the silcrete flakes were struck from smaller cores by Later Stone Age people.

We may therefore suggest that Later Stone Age people needn't have located a primary source of silcrete to manufacture some tools, as they were already available on MSA or earlier Later Stone Age sites.Later Stone Age hunter-gatherers thus recognized the potential use of MSA or 'older' flakes to make tools required for a specific purpose. Scrapers however present difficulties in evaluating their originating flakes as they are most frequently made of quartz which is abundant in the Cape fold belt mountains. Silcrete convex scrapers are small and could have been made on flakes struck from MSA pieces thereby losing any characteristic patina. However, it is felt that most silcrete convex scrapers were struck off small cores by Later Stone Age people. Adzes on the other hand, might all have been used 'as found'.

Cores are the primary source of flaked tools. Out of the total assemblage from Renbaan Cave, only twelve silcrete cores were found, suggesting that they may have been used mainly for manufacturing small convex scrapers and other microlithic tools such as backed points, drills and awls.

It is suggested that Later Stone Age people were re-using most MSA flakes found on sites in the mountains, or located on sites elsewhere. No information on MSA or early sites in the mountains has yet bee located. Hunter-gatherers may have 'excavated' MSA sites, realizing that these flakes were available and therefore need not have located them from a primary source. The source of silcrete to make small convex scrapers and other microlithic stone tools may indeed have been located in the rafts in the Sandveld, or possibly even traded (or exchanged).

Roughly 2000 years BP pastoralists entered the southwestern Cape, bringing with them domestic stock. It is argued (Buchannan et al 1984., Manhire et al 1984), that there was competition between hunters and gatherers and pastoralists for resources, and conflict situations may have occured, forcing the former group to locate more sheltered and secure living sites elsewhere from their deflation hollow sites. There is a dramatic increase in site numbers at the coast and in the Sandveld kopjes after 2000 BP (Buchannan et al 1984:121). Many of the Cape fold belt mountain sites display similar features, that is, a formal tool assemblage dominated by adzes in the upper levels, an arc of bedding around the back of the cave and a main ash concentration towards the centre.

As a result of conflict and competition, hunters and gatherers had to re-organize their response to less attractive subsistence resources, intensifying their exploitation of underground plant food, (shellfish) and small bovids. Strategies were therefore re-defined and the re-use of MSA flakes to make tools, especially adzes, was one response. Previously exploitable quarries in the Sandveld were now abandoned. Territorial boundaries were now strictly defined, whereas before hunters and gatherers scheduled their settlement patterns in response to available resources and moved seasonally across the landscape. They now lived permanently in the mountains and the Sandveld kopjes.

If it is given that San hunters and gatherers were moving seasonally across the landscape between 4000 and 2000 BP. We might then assume that they were maintaining network relations between camps, that they were involved in exchange relationships of positive interaction and mutual economic benefit. Therefore a quasi-economic system based on reciprocity, sharing and freedom of movement probably existed before the introduction of pastoralism. In other words, a kinship system with loose territorial boundaries.

At 2000 BP these network links and exchange relationships were severed and the San were forced into isolated sites and therefore had to respond to new opportunities. New responses to raw materials and food developed, which were before less attractive, but were now of necessity, especially if seasonal migration no longer occured. These responses may be seen in the stone tool assemblages. In the Sandveld, silcrete scrapers dominate quartz scrapers by at least 2:1 (Manhire 1984). In the mountains, quartz scrapers overwhelmingly dominate silcrete scrapers. And high adze frequencies are late. The manufacture of quartz elongated scrapers (at Renbaan Cave and De Hangen, but increasingly absent at Andriesgrond Cave) at post 2000 BP reflect a response to raw material not previously selected.

Silcrete scrapers in the Sandveld and quartz scrapers in the mountains may indicate a chronological sequence, reflecting the introduction of pastoralist. It is hoped that these suggestions will be developed in the future and demonstrate changing relations and exchange networks between San camps through time.

The working edge is the most critical variable in larger tools and all the available MSA flakes were reserved for making adzes, the emphasis being on a sharp cutting edge. This observation also raises the questions about the credibility of a 'reduction sequence', from unworked nodules of raw material to finished formal tool (Deacon, J. 1982). The MSA flake observation tests the hierachieal classification developed by Janette Deacon (1982) and I argue that Later Stone Age stone tool makers need not have made formal tools by going through a strictly defined sequence. A flake was retouched for a particular purpose.

The above observation locates a behavioural response by Later Stone Age hunter and gatherers to stone tools. Behaviour is not fixed and there is no sequence, especially if you are a member of the hunter-gatherer camp(s), responding to many environmental variables (Lee 1965., Lee and Devore 1968., Leacock and Lee 1982). Behaviour is flexible and I believe that stone tool manufacture was also flexible, responding to particular opportunities (which may not be consistent). The availability of raw materials is one opportunity that would invoke a response. Some raw materials may be available in only small quantities, so manufacturers would have to be careful in flaking them, for example, silcrete, CCS and hornfels. Other raw materials however, may be available in larger quantities but less attractive, so you could flake them more, thus producing a greater amount of waste, for example quartz. In this respect one would also need to look at the physical properties of the different raw materials. For example, quartz is more brittle and shatters easily. A mesh of interaction therefore seems plausible. A hierachieal system is closed and does not allow for interaction. The above reflects behavioural responses by hunters and gatherers to preferred and less preferred raw materials.

Overall, the silcrete formal and utilized tools from Renbaan Cave do look coarser than those which would commonly be associated with the Sandveld deflation hollow tools made in silcrete and some of the Olifants River Valley sites. Untrimmed silcrete flakes are very similar at all these sites.

This analysis has located some interesting features about the Renbaan Cave lithic assemblage. There seems to be a definite preference for adzes to be made on MSA flakes, the determining factor being the need for a sharp cutting edge to make wooden tools, such as digging sticks, pegs, clubs, bows and spears. MSA flakes also seem to have been selected to make MRP's and utilized flakes, but not to the extent as adzes were.

The behavioural implications of these observations are critical for undersdtanding Later Stone Age hunters and gatherers' changing responses to raw material availability, as well as a possible response to the introduction of pastoralism. We might eventually be able to deonstrate changing relations of production and social organization through time.

It goes without saying, that a re-examination of the De Hangen and Andriesgrond Cave (Parkington and Poggenpoel 1971), lithic assemblage is essential to test these observations. If the results are 'positive', those are important implications for understanding Later Stone Age hunters and gatherers' changing subsistence nd settlement strategies during the late Holocene. It is felt that important behavioural information has been located through this analysis. It is an exciting new prospect in stone tool studies and shows how much information is contained within them.

B - SETTLEMENT AND SUBSISTENCE

This section situates Renbaan Cave in the context of contemporary archaeological research in the southwestern Cape and offers possible new avenues of enquiry.

From excavated archaeological material and historical and ethnographic accounts, we can confidently assume that the prehistoric inhabitants of the southwestern Cape, the San (or Soaqua), were gatherers, hunters, fishers and collectors. Gathering and hunting groups have always been analysed within an ecological framework - that is - they are people who live directly off the land. They are not food producers. Their economic and social organization can be seen as the direct product of their interaction with their environment - Mode of production based on hunting and gathering. We have to see those societies as the product of their environment and all aspects which govern their lives determined by it. Although ecological studies do provide important insights into the hunting and gathering way of life, it is becoming increasingly evident that they yield only a partial understanding of the gathering and hunting economy and social organization. An ecological model is useful in revealing aspects of the environment which prehistoric people would directly respond to. But they only ask and answer questions about the ecology and not about the people and how they lived."Only part of the behaviour of gatherer-hunters can be accounted for by even the most fine-grained ecological analysis" (Leacock and Lee 1982:61).

Settlement and subsistence at Renbaan Cave (in the Olifants River Valley) is seen as one segment of the wider picture of prehistoric people-environment relations during the last 2000 years. Excavations at De Hangen (Parkington and Poggenpoel 1971) and Andriesgrond Cave, Tortoise Cave (Robey 1984) and Diepkloof (Parkington 1976a), the systematic recording of rock art sites, plant food monitoring programmes, the detailed plotting of surface scatters of artefacts on open sites and grassy swards and shell middens, are all directed towards understanding changing settlement and subsistence strategies in the southwestern Cape.

Archaeological analysis of the associated data (including the emerging patterns in the Sandveld and at the coast) suggest that settlement and subsistence patterns were continually changing through time. In other words, an evolving relationship between populations and resources in what might be termed "dynamic equilibrium". These patterns however, only reflect changing environmental circumstances. We need to build alternative models to assess the changing relations of productions and social organization through time. For the last 2000 years, some of these changes may be seen in relation to the introduction of pastoralism.

In essence, the archaeological content and context of Renbaan Cave is fairly explicit - a small, isolated cave site with a shallow deposit, a formal tool assemblage rich in adzes in the upper levels associated with numerous woodshavings, pottery, a subsistence base dominated by underground plant foods, an arc of bedding lining the back of the cave and an ash deposit towards the centre and rock art.

This emerging pattern is widespread. De Hangen (Parkington and Poggenpoel 1971) and Andriesgrond Cave demonstrate the same features, except that at Renbaan Cave and De Hangen, the majority of quartz scrapers are elongated, whereas at Andriesgrond, silcrete convex scrapers dominate and quartz elongated scrapers are noticeably absent. This pattern is as yet unexplained (but is not the concern of this project).

Diepkloof (Parkington 1976a) in the Sandveld and Tortoise Cave (Robey 1984) only 5km inland from the coast contain the same features, as do numerous small isolated cave sites dotted around the Sandveld kopjes (Manhire 1984). All are dominated by adzes in the upper levels and on the talus slope, contain pottery, and share the same occupation debris. In contrast, Manhire's (1984) deflation hollow sites in the Sandveld are dominated by scrapers and backed pieces and contain little pottery.

We can therefore confidently demonstrate similar settlement and subsistence patterns across space, between the small cave sites in the mountains and in the Sandveld. In addition, these sites are chronologically linked. The adze rich, plant-food and pottery levels all post date 2000 BP and therefore indicate a late development. Taken together, it is argued that these patterns represent a response to the introduction of pastoralism.

After 2000 BP, small camps of gatherers and hunters were occupying small, isolated cave sites, with greater emphasis than before on gathering plant foods, collecting shellfish, and snaring and trapping small mobile game. The Mode of Production need not have changed, merely its emphasis. The status of women may therefore have changed too. It is hypothesised that the majority of the San in the southwestern Cape at this time, were living in the Cape fold belt mountains. Rock art studies may be one way of testing this. It is emphasised however, that this hypothesis must be seen as purely speculative, untill more data is generated. We can only deal with what is available now.

Manhire <u>et al</u> (1983) have studied the spatial distribution of selected rock paintings in the southwestern Cape and have identified types of paintings which they argue, relate to settlement patterns and social issues. The distribution of cave scenes and depictions of large groups they suggest, represent patterns of aggregation and dispersal of San gatherers and hunters. Manhire <u>et al</u> (1983) were not temporally explicit and

I will therefore assume that they are refering to the post 2000 BP period. Similarly in Natal, Mazel (1983) is also concerned with settlement patterns, and suggests that painting of eland and blue crane represent the seasonal movements of animals between the Drakensberg and the midlands. Rheebuck do not migrate but have seasonal behavioural changes. Paintings of these two animals and rheebuck, Mazel (1983) argues, emphasise a summer occupation in the mountains, but again the time dimension was not explicit. Mazel (1983) and Manhire (et al 1983) thus show the valuable role that rock art can play in elucidating settlement patterns and seasonal movements.

Manhire, Parkington and Yates (1984 in prep.) locate other information inherent in the rock art. "Painted images are essentially part of the archaeological record and their analysis and interpretation should be intergrated with that of other kinds of archaeological remains left by the painters themselves" (Manhire et al 1984:1). Through their interpretation of the 'net scenes' of the southwestern Cape, Manhire (1984 et al) demonstrate that a literal (functional), as well as 'symbolic' interpretation can be contained in the art (Lewis-Williams 1981a,1983). Net scenes are important in that they include a hunting strategy (and technology) not found in the local historical ethnography. Pieces of netting have been found in numerous archaeological context dating to the late Holocene. Remains of string nets and knotted pieces of twine have been found at Scotts Cave (Deacon and Deacon 1963), Melkhoutboom (Deacon 1970), Windhoek Cave (Grobbelaar and Goodwin 1952), De Hangen (Parkington and Poggenpoel 1971), Diepkloof (Parkington 1976a), Tortose Cave (Robey 1984) and Big Elephant Shelter (Wadley 1977). I suggest that paintings of net scenes and pieces of netting found in archaeological deposits post dating 2000 BP reflect a hunting strategy confined to small mountain kloofs and rocky terrain.

Lewis-Williams (1981a) suggests that the majority of the more explicit San rock art in the Drakensberg, is recent in age, and reflects a response to conflict caused by contact with white colonialists and Bantu speaking people. His theory of violence and stress which led to trancing and nosebleeding (Lewis-Williams 1981a,b,1982), is reflected in the art as a result of this conflict. Similarly, in the mountains of the southwestern Cape, the mosaic of 'explicit' images may reflect stress brought about by the emergence of pastoralism. Large group scenes (of up to 25 figures), 'cave scenes'. paintings of conflict, net scenes and paintings which reflect trance (Golson 1983,1984) are concentrated in the mountains.

Lewis-Williams (1982) considers the role that medicine people and art played in the economic and social relationships of San hunter gatherer groups during periods of stress, and how these roles reinforced relations of production between and within San camps.

He identifies a link between the cognitive system and the economic and social system, expressions which he argues, are represented in the art. I suggest then, that the paintings in the southwestern Cape may be contained within an explanation of changing social relations of production and alternative hunting strategies and settlement patterns during periods of aggregation or permanent settlement, (indirectly) reflected in the archaeological record.

We can therefore demonstrate a tenuous link between selected rock art images and the occupation of small cave sites, which reflects stress brought about by changing settlement patterns during the last 2000 years. Strain on exchange networks reflected in the rock art may alleviate restrictions on movement. The rock art thus reflects group unity and cohesion . The majority of rock paintings are in the mountain kloofs, as are the adze rich assemblages and small cave sites, and therefore include a late development. An explanation to indicate those isolated small cave sites in the Sanveld kopjes, is that they reflect periods of dispersal during seasons of scarce resources, or even permanent settlement - "residual hunter-gatherers" (Parkington 1983:10).

One way of testing this provocative hypothesis, is by excavations and clearly understanding the temporal relationship of the small mountain and Sandveld kopje sites. Only Tortoise Cave (Robey 1984) and Diepkloof (Parkington 1976a)(which is a fairly large shelter) in the Sandveld have been excavated. The temporal framework is critical for reliable archaeological reconstruction. We need dates and lots of them. We can only begin to understand 'space' once we understand the 'time' dimension. We in fact need to consider the articulation of time and space and the formal dimensions of stone tools. It is essential that we excavate at least two of Manhire's (1984) Sandveld kopje sites in order to demonstrate the spatial and temporal relationship of these small cave sites. It is hypothesised that they contain a shallow (cultural) sequence, bedding and ash deposits, plant food remains and a faunal assemblage dominated by small browsers.

Are the use of mastic, poison, nets, snares, bows and digging sticks, the institutions of food sharing and periodic fission and fusion , and the role of rock painting in social and economic life a late development in the archaeological record? (Parkington 1983). Once we understand this, we can ask the questions which Parkington suggests:

1. If there was a shift fom hunting to gathering, how would this have affected the relative status of men and women?
2. What changes in the social relations of production are reflected in the technological and organizational changes in the archaeological record?
3. Is there evidence for the re-allocation of specific tasks to different segments of the community or to different

locations in the movement schedule?

To this I would add:

4. Can we locate changing modes and relations of production in stone tool assemblages?

5. Is the occupation of small cave sites a direct response to the introduction and emergence of pastoralism?

And if so:

6. What are the possibilities of the emergence of class distinctions between gatherer-hunters and herders?

"Clearly if dates are used to track the changing site choices as reflected in variable volumes of accumulated debris, rather than as pegs onto which to hang sequences, we can hope to turn dates into events"(Parkington 1984b:14 in prep.). In the southwestern Cape, we must establish an explicit regional culture-history sequence in order to understand the temporal, sequential composition of accumulating deposits, only then can we begin to understand Time and Space. Without understanding 'time', we cannot hope to understand 'space' and prehistoric behaviour.

Archaeological reconstruction requires a positive act of imagination.

CONCLUSION

This project has been concerned with both the description and interpretation of the excavation of Renbaan Cave. The emphasis was initially intended to concentrate on an indepth analysis of the stone artefacts assemblage, but was broadened to include all the material culture. The encompassing objective is to situate Renbaan Cave in the context of contemporary Later Stone Age research in the southwestern Cape.

Renbaan cave exhibits the patterns of subsistance and settlement found in other small cave/shelter sites in the southwestern Cape. A hypothesis has been articulated, which tests the model, that small cave sites with high adze frequencies, pottery, bedding, main ash deposit, plant food and shellfish remains are late, and reflects a response to the introduction of pastoralism about 2000 years ago. It is felt that the majority of gatherers and hunters in the southwestern Cape at this time, were living in the Cape fold belt mountains and that rock art, particularly images which reflect trance, conflict and large group scenes reflect stress and restrictions of movement as a result of herder population incursion.

Important behavioural information has also been located in the analysis of the stone artefact assemblage, particularly the use of Middle Stone Age or 'older' flakes, which were re-used to fashion adzes. A tentative associaton between adzes, small cave/shelter sites and rock art, is suggested.

Taken together, there is a need to develop models which locate economic strategies, changing social relations of production and group organization in gatherer-hunter society. It is argued that an ecological approach is valuable, but has limitations in archaeological reconstruction, and we must therefore develop alternative models which describe the nature of prehistoric gathering and hunting society. A consideration of social theory is called for. Although the study of stones, shell, bone, plant and material cultures are important, they must be used as a means to an end, and that end is the study of people and society.

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APPENDIX I

REPORT ON AVIAN REMAINS FROM LATE STONE AGE ACCUMULATIONS AT THE RENBAAN SHELTER, OLIFANTS RIVER VALLEY, SOUTH WESTERN CAPE.

Species were identified with the aid of comparative specimens. It should be noted, however , that available comparative material does not represent all of the species which could occur in the Olifants River area and some bones have not been included. Identification was limited by this factor as well as sample size, fragmentation and the diagnostic qualities of different skeletal elements. Counts of individuals per species could change therefore, if greater accuracy could be achieved. The latter point is not a significant factor, however, in the numbers arrived at from the present sample.

Twenty one taxa, all of which could occur in the region of the site, were identified. With the exception of Francolinus africanus Greywing Frankolin, Eupidotis afra Black Korhaan and Corvus albus Pied Crow, all taxa represented (Table 1) are small and fall within the size range readily taken by Tyto alba Barn Owl which still uses the site (J. Kaplan pers. comm.). Hirundo fuligula Rock Martin and Onychgnathus morio Redwing Starling utilize rock shelters for breeding. In view of the above it is assumed that remains of small birds were introduced to the deposits by agencies other than human activity and are not therefore relevant to that aspect. The larger species may well have been taken by people although other mammalian predators and *Corvus alba* could have used the shelter from time to time and contributed bones. Birds were, however, clearly unimportant in any human activity reflected at Renbaan.

The main excavated units used in Table 1 have been lumped from the following minor units.

1) SURFACE DEPOSITS (SD) includes:

   Surface Cleanings

   Coarse Brown Sand

   Hearth Above Coarse Brown Sand

   Hearth in Coarse Brown Sand

   Brown Sand

2) BEDDING UNITS (BU) includes

   Bedding Patches 1 to 7

   Brown Sand with Vegetation

   Fragmented Bedding

   Brown Sand with Fragmented Bedding

   Hearth in Brown Sand

   Iridaceae Patch with Charcoal and Bottom of Iridaceae Patch

   Pit below Bedding Patch 5

   Vegetation Patch

3) ASH DEPOSITS (AD) includes:

   Orange Speckled

   Grey-Brown Sand

   Grey Ashy Soil

Grey Ash with Vegetation

Grey Ash

4) BASAL LAYER (BL) includes:

Brown Sand with Charcoal

Mottled Brown Sand

5) PIT INFALL (PI) - Disturbed

TABLE 1

SPECIES AND MINIMUM NUMBER OF INDIVIDUALS IDENTIFIED FROM THE RENBAAN SAMPLE

SPECIES	SD	BU	AD	BL	PI	ALL
Francolinus Africanus Greywing Francolin	0	0	1	0	0	1
Eupodotis afra Black Korhaan	0	1	0	0	0	1
Colius colius Whitebacked Mousebird	1	0	0	1	0	2
Colius sp. Mousebird	0	2(1)	0	0	(1)	3
Alaudidae Gen.et sp. indet. Lark	1	0	0	0	1	2
Hirundo fuligula African Rock Martin	1	1	0	0	1	3
Corvus albus Pied Crow	0	1	0	0	0	1
Pycnonotus capensis Cape Bulbul	1	0	1	1	0	3
Cermomela sp. Chat	0	0	0	2	0	2
Cossypha caffra Cape Robin	0	0	0	?1	0	1
Erythropygia coryphaeus Karoo Shrub Robin	0	0	1	0	0	1
Turdidae Ge.et sp.indet.Chat/Robin	1	1	1	0	0	3
Prinia sp Prinia	0	1	0	0	0	1
Musiapidae Gen.et sp.indet.Flycatchers	1	?1	0	0	0	2
Macronyx capensis Orangethroated Longclaw	1	0	0	0	0	1
Onychognathus morio Redwing Starling	0	(1)	0	0	0	1
Passer melanurus Cape Sparrow	0	1	0	0	0	1
Ploceus capensis Cape Weaver	0	1	0	0	0	1
Ploceus sp. Weaver	0	0	0	1	0	1
Euplectes capensis Yellowrumped Bishop	0	1	0	0	0	1
Ploceidae gen.et sp. indet	0	0	1	0	0	1
Serinus flaviventris Yellow Canary	0	0	0	1	0	1
Serinus sp. Canary	0	1	0	0	0	1
Serinus albogularis Whitethroated Seedeater	1	0	0	0	0	1
Emberiza capensis Cape Bunting	0	1	0	1	0	2
TOTAL	8	14	5	8	3	38

*() Number of juvenile individuals in the total

APPENDIX II

METRICAL ANALYSIS AND DEFINITIONS

ORIENTATION

The metrical analysis and classification of the stone tool assemblage of Renbaan Cave follows the system developed by Janette Deacon in 1969 and refined in 1982 for her Phd thesis. Mazel's (1978) classification system is also recognised. Manhire (1984) follows closely the same method. It is only when similar analytical methods are used that inter-assemblage comparisons become possible. Deacon's (1982) classification system should be developed, refined and made more explicit. It could then serve as a future standardized model for all Stone Age researchers in the country. Reference in this case is made to the stone tool workshop at the Southern African Association for Archaeologists in Gaborone, Botswana 1983.

"Sub-classes of scrapers have been recognized either on the position of the working edge in relation to the bulb of percussion and the long axis of the piece, or on the basis of size. A size classification is preferred..."(Deacon 1982:543). I disagree with this arbitrary division of scrapers into small, medium and large types based on mm attributes. Rather, I have preferred to use a system of classification in the tradition of the work done at the University of Cape Town. Scrapers are divided into types, based on morphology, which closely relates to the position of the working (retouched) edge. Implicit in this distinction is that scrapers (and other tool types) reflect functional attributes, not cultural (or stylistic) attributes. In the Renbaan Cave analysis, scrapers are divided into two main types: convex scrapers and elongated scrapers. Two side scrapers and one large quartzite end-scraper were identified. It also became clear in the process of analysis, that each type of scraper is made preferentially in some raw material.

My definition of chips and chunks also differs from that proposed by Janette Deacon (1982). She defines chips as pieces less than 10mm and chunks greater than 10mm. Within the chip class, flakes less than 10mm are included. This arbitrary division excludes bulb of percussion on 'chips' less than 10mm, which surely is identified as a flake, of which a number are represented in the Renbaan Cave Sample. Flakes of less than 10mm have also been identified by Manhire (1984). Jacobsen (1984:318) believes that "local circumstances" should dictate how one classifies waste in certain categories. I have therefore defined a chip as a piece of broken flake or discarded piece, where the bulb of percussion is absent. Chunks are pieces of non-flake origin greater than 10mm. One or two small negative flake scars may be visible.

The role of raw material also receives emphasis in this report.

AIM

The aim of this Appendix then, is to present definitions of artefact classes, types and sub-types, and raw material. Only those artefacts which were recovered from Renbaan Cave are defined.

METHOD

The method of analysis is based on the definitions below. Artefacts were divided into classes with types and sub-types. The morphology and position and extent of working edge were the attributes which formed the basis of the definitions. Over 3000 stone artefacts were examined, measured and weighed.

Maximum length and width measurements were recorded on adzes, scrapers, utilized flakes and untrimmed flakes, with the metrical analysis devised by Deacon (J.1982). Convex scrapers and elongated scrapers were kept separate for the purpose of this analysis. Not all are graphically represented in the results as the sample was considered too small. Broken tools were not measured, although they were counted and weiged. The total assemblage was weighed on a triple beam balance. The weight of the raw material debitage closely reflected the dominant raw material in the assemblage. Unconventional attributes were also measured and these involved the length and width measurements of the retouched edge of scrapers. This follows closely a method developed by Mazel (1978) to test the clustering of the length of the retouched edge. The reasons for Mazel's (1978) measurements was to explain the almost bizarre proliferation of scrapers in Sandveld deflation hollow sites. Mazel's (1978) objective was to test a hypothesis that scrapers were continually retouched until such a point their use-value was diminished and they were then discarded. This analysis is based on an ethno-archaeological study by Gallagher (1977). A remarkably tight clustering was noticeable on the length of the retouched edge of scrapers at Renbaan Cave, which closely reflected the results of Mazel's (1978) Sandveld scrapers.

MEASUREMENT

The metrical methods are briefly outlined below.

Scrapers were placed dorsal surface up, with the working edge centred in the top mid-point of a rectangle on a piece of graph paper. The length and width was determined by the dimensions of the surrounding box .

Adzes were measured dorsal surfaces up, in an enclosing rectangle. Length was the maximum dimension and width the dimension at right angles to the width .

Flakes were placed dorsal surface up, as close to the edge of the 'box', with the striking platform (and bulb of percussion) centred at the bottom. Length and width measurements were determined by the dimensions of the box.

Utilized flakes were measured in exactly the same way as flakes.

Length and width measurements of the retouched edge were also

FIGURE 1

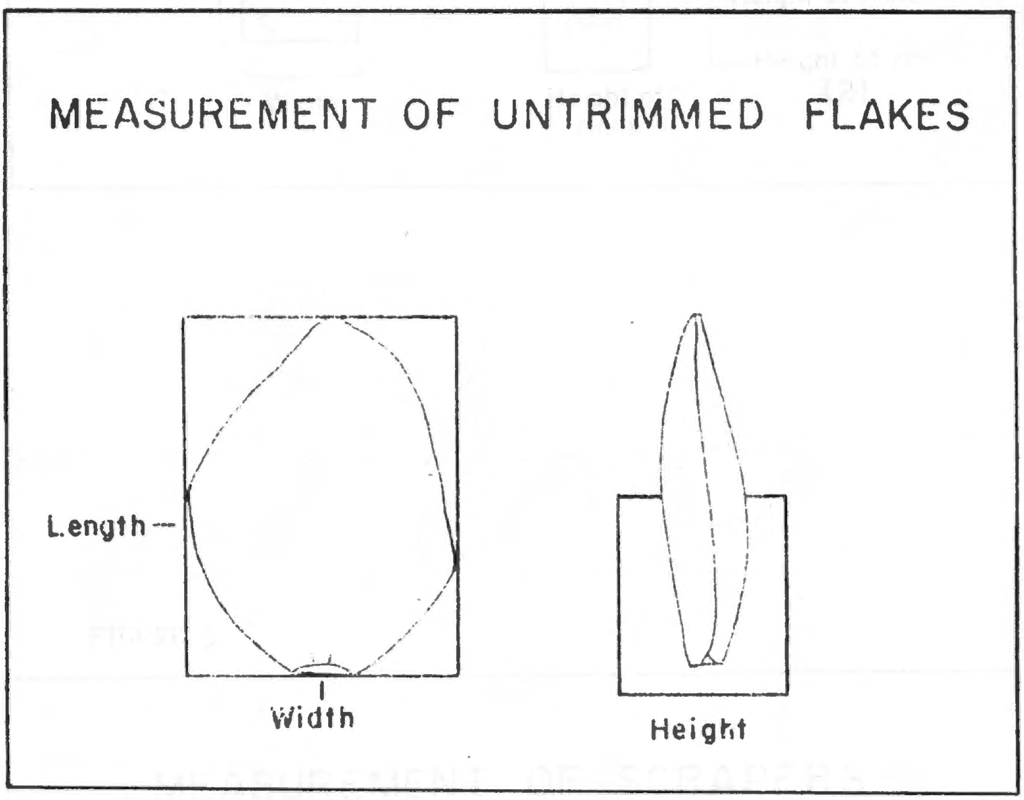


FIGURE 2

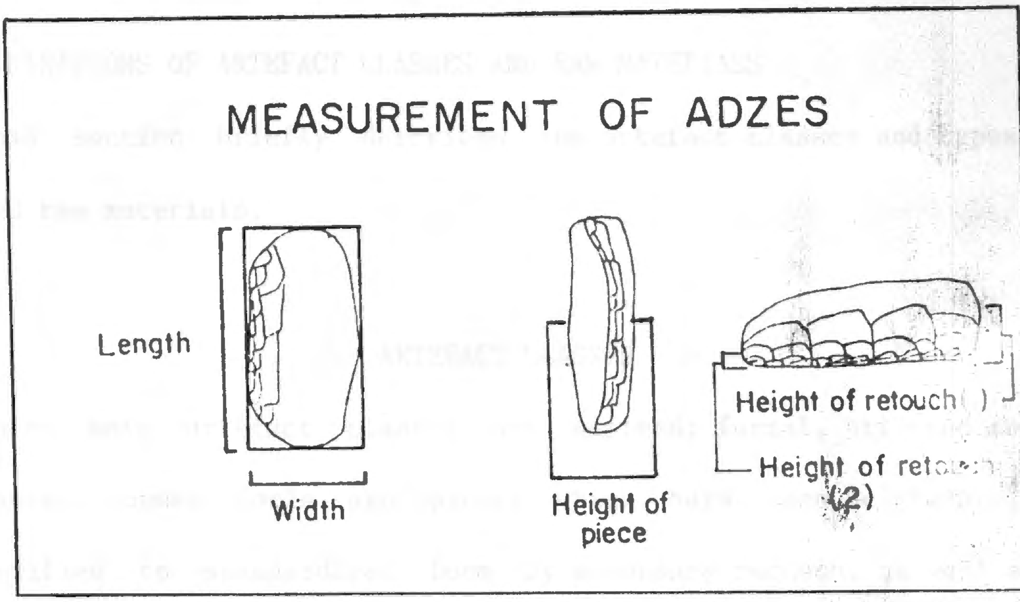
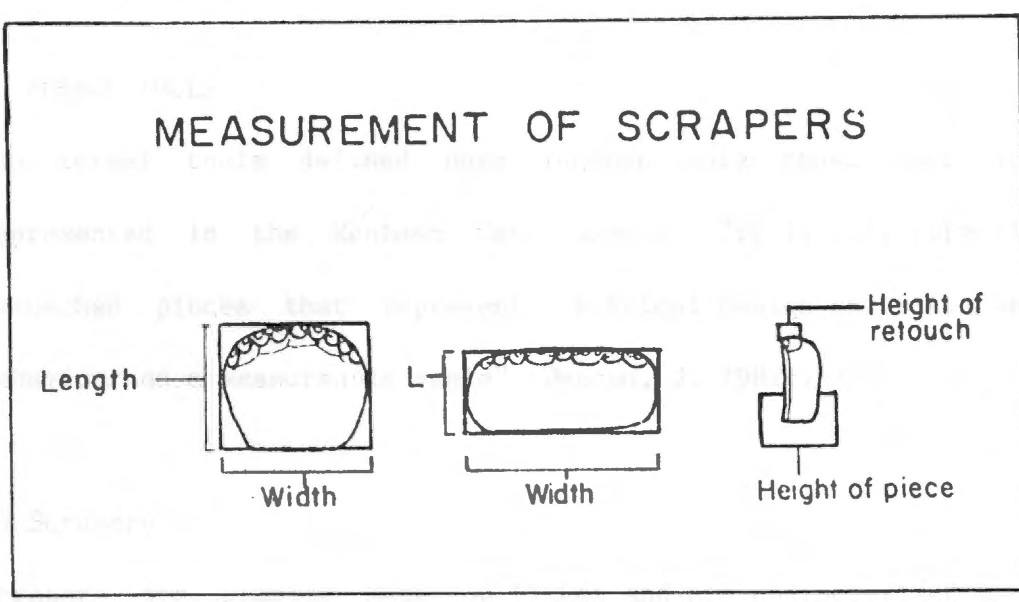


FIGURE 3



measured .

DEFINITIONS OF ARTEFACT CLASSES AND RAW MATERIALS

This section briefly describes the artefact classes and types, and raw materials.

ARTEFACT CLASSES

Three main artefact classes are defined; formal, utilized and waste. Formal tools are pieces which have been deliberately modified to standardized form by secondary retouch, as well as pieces with secondary retouch which does not conform to a standardised form. These are miscellaneous retouch pieces (MRP's).

Utilized pieces show signs of utilization distinct from secondary retouch. Waste includes all pieces without deliberate retouch or utilization damage.

A. FORMAL TOOLS

The formal tools defined here include only those which are represented in the Renbaan Cave sample. "it is only formally retouched pieces that represent technical design and patterned behaviour on a measureable scale" (Deacon, J. 1982:15).

a) Scrapers

Scrapers are usually made on flakes and are characterized by a convex retouched working edge. They display regular secondary retouch on one surface only. Usually the working is struck from

the ventral and appears on the dorsal surface.The angle of the retouched edge is not consistent and varies between 30° and 90°. The angle of retouch might reflect the degree of use, or the process of production. Scrapers were selected for detailed metrical analysis in order to ascertain the change in morphology through time. Scrapers are made in
all raw materials. Scrapers are illustrated in Appendix III.

b) Adzes

Adzes are made on flakes. They have one or more straight or slightly concave working edge. The retouched edge is steeper than that of scrapers and characterised by step flaking. Adzes often display a small conchoidal flake scar on the ventral surface opposite the working edge. They are larger than scrapers, the mean length ranging between 25mm and 40 mm. Adzes, unlike scrapers, show less variability in size through time. Technically, adzes may be part utilized, part formal in terms of the above classificatory remarks. They are however, included in formal tools because of the patterned discard form encountered.

Adzes are found in all raw materials but visibly dominated by silcretė. Some are made on MSA flakes which have a facetted platform. Adzes are illustrated in Appendix III

c) Miscellaneous Retouched Pieces (MRP's)

These are pieces which display secondary retouch, but do not conform to any standardized shape. They are formally retouched and therefore appear in the formal tool class category. At Renbaan Cave, three MRP's display mastic tracings which suggest that they were also hafted.

MRP's occur in all raw materials but are dominated by silcrete. They form a relatively large proportion of the formal tool assemblage. MRP's are illustrated in Appendix III.

d) Backed Pieces

These tool exhibit a characteristically regular, abrupt retouch along one or more edges. It is possible that these tools were hafted, the backing facilitating the hafting. Three types of backed tools have been identified.

i. SEGMENTS

These tools are arc-shaped in form and display abrupt backed retouched along the arc and have a straight, sharp cord. Only one quartz segment is identified from the basal units.

ii. BACKED POINTS

These are triangular tools which display abrupt backing along one straight margin and taper to a point. The other margin is a straight cutting edge. The butt is also blunted with retouch. Two backed points are identified at Renbaan Cave, one in quartz rock crystal from SC and one in silcrete from OSP.

iii. BORER (OR DRILL)

These are tools which have abrupt retouch on two sides with a polished tip. They are made on small bladelet flakes and were perhaps used for making ostrich egg-shell beads. One hornfels borer was identified. Borers are not known from Earlier or Middle Stone Age sites (Deacon, J. 1982:566).

e) Awl

Awls are made on flakes and a portion of the piece has been retouched and shaped on both sides to form an elongated point. The rest of the flake in unretouched. One silcrete awl is identified from BP. Awls are known from Earlier, Middle and Later Stone Age sites (Deacon, J. 1982:565).

e) Bored Stone (or !Kwe)

These are large spherical stones, usually of quartzite which have been perforated at both ends. Bored stones were used as weights on digging sticks to procure underground plant foods. Rock art in the mountains of the southwestern Cape show women with weighted digging sticks. Only one bored stone was recovered from the surface. Recently, the functional use of the bored stone has been questioned. Cyril Hromnik(1984:1) suggests that there is no explicit evidence for the use of the bored stone as a weight for digging sticks and goes to great lengths to critisize its accepted use ... but offers no alternative explanation. Goodwin (1947:12) ackowledges that the bored stone was "one of the ordinary everyday tools of a woman's life", and also suggests that it may have some socio-sexual connotation, or in his words, a "secondary phallic significance". However, historical accounts explicitly define the bored stone as a weight for digging sticks (Sparrman 1785:306). Hromnick's (1984) questioning of the use of the bored stone is therefore unjustified.

B. UTILIZED PIECES

a. Utilized Flakes

These are flakes or flake fragments with a sharp edge which presumably served as a cutting tool. They display patterns of damage caused by deliberate utilisation. The visible damage is in the form of a series of small flake scars removed along the cutting edge. They are easily distinguished from formal patterned retouch. Utilization is not always visible to the naked eye. Binneman (1984) has shown with micro-wear studies that approximately 70% of 'untrimmed flakes' from Melkhoutboom and Boomplaas Cave exhibit patterns of utilization damage. We might have to re-question the importance of utilized flakes in the stone tool-kit of hunters and gatherers. They could have been utilized for a variety of reasons, unlike scrapers and adzes which are mono-funtional. They occur in all raw materials.

Two utilized flakes display mastic tracings, which suggests that some were hafted. A utilized flake/blade with slight miscellaneous retouch on the tip and displaying mastic was identified from SC. Utilized flakes are illustrated in Appendix III.

b. Pieces Esquilees

These are triangular or square-shaped pieces which have crushing or splintering along the striking platform as well as at the opposing end. Deacon (J. 1969) tentatively suggests that they may be the result of final attempts to remove more bladeletts from a core. A recent re-assessment of the De Hangen lithic assemblage (Yates 1984), found that quartz bi-polar and rice-grain cores are found in substantial association with pieces esquilees and suggests that they are the end product of bi-polar flaking. Replication studies by Yates (pers. comm.) adds support to this suggestion. Pieces esquilees are also recognised by Vanderwal (1967:103) who call them "fabricators" and believes that they are the residue of bi-polar flaking. White (1968) calls them "scalar cores" and describes them as waste products in the manufacture of small flakes - blunted and battered at opposing ends as the final result of the process of bi-polar flaking.

Pieces esquilees appear in silcrete, quartz, hornvels and CCS but are visibly dominated by quartz.

c. Grindstones

Three complete upper grindstones and pieces of upper and lower grindstones were recorded. They are all in quartzite and display smoothing on one or more surfaces. Upper grindstones normally display smoothing on one side, often with small pitting in the centre. Lower grindstones often exhibit smoothing on both surfaces as a result of deliberate grinding. Two large lower grindstones are still on the surface at the site.

C. WASTE

Waste classes include six types : chips, chunks, flakes, blades, bladelets and cores.

Waste accounts by far the largest number of pieces of all sites and include all unretouched and non-utilized debitage of artefact manufacture. Chips are defined as any piece which represents flake debitage, with no bulb of percussion. Chuncs are pieces of non-flake origin with a minimum dimension of 10mm. One or two small negative flake scars may be visible. Flakes display no sign of utilization damage or secondary retouch. Blades are flakes, but with the length twice the width or more. Also, their sides are more or les parallel. Bladelets are less than 20mm and are conceived as small blades.

Waste appears in all raw materials.

b. CORES

Cores are pieces formed by the systematic striking off of (three or more) flakes from its body. The use of 'three or more' is an arbitrary definition. It is the original nodule from which all flakes are detached and selected to make into tools. Cores are included in the waste class, although Deacon (J. 1982:543) does recognise core-type formal tools. Three types of cores are recognised.

i. IRREGULAR CORES

Irregular cores are cores from which three or more flakes have been struck, but in random fashion. They are dominated by silcrete.

ii. BIPOLAR CORES

These cores display splintering at opposite ends. The flake scars are much thinner than those from irregular cores. They are usually of quartz, but also occur in fine-grained CCS and hornfels.

iii. RICE-GRAIN CORES

Rice-grain cores are a sub-type of bipolar cores. They are cylindrical in shape and are almost exclusively made in quartz. Deacon (J. 1982:521) calls these flat bladelet cores.

RAW MATERIAL

Five different raw materials have been recognized: quartz, silcrete, crypto-crystyaline silicate (CCS), hornfels and quartzite.

QUARTZ

Quartz is fairly common in the research area and is found in the form of veins in the Table Mountain Sandstone (TMS) and quartz pebbles which erodes out of the sandstone. Three types of quartz are present in the assemblage: milky vein quartz which is formed by hydrothermal solution or lateral secretion; smokey quartz, when vein quartz is subjected to radiation and quartz crystals which grow in cavities and fractures and; quartz crystals which are produced by hydrothermal solution. Milky vein quartz is of poor quality, brittle and fibrous and difficult to work. It accounts for most of the waste. It is also interesting to note that when vein quartz in fractures forms through successive layers of deposition, it is called chalcedony and agate (Lomberg pers.comm).

SILCRETE

'Silcrete' is the common (archaeological) name of a complex fine-grained siliceous sedimentary rock and it is one of the most common raw materials occurring in stone tool assemblages from all sites in the southwestern cape. 'Silcrete' occurs in rafts in the Sandveld. It is fine-grained and fractures conchoidally and it is therefore an ideal raw material for making stone tools. No local source has yet been located. It is quite possible that 'silcrete' is still available in the Sandveld today, but due to the limited geological training of archaeologists, it has not been recognized by them.

CRYPTO-CRYSTALLINE SILICATE (CCS)

Crypto-crystalline Silicate (CCS) include the various chalcedonies, such as agate, jasper and chert. They are extremely fine grained, fracture conchoidally and are ideal for stone tool manufacture. These raw materials are found to the eastern side of the Olifants River Valley, particularly in the drainage basin of the Doorn River which erodes through tillites of the Dwyka Series.

Some CCS is available in the rare tillites (or basal conglomerates) in the TMS.

HORNFELS

Hornfels is a black, flinty rock which is formed by intrusion of dolerite sills and dykes into the Karoo shales. It is also a metamorphised shale. Hornfels is fairly unrepresented at most sites in the southwestern Cape. Its availability is restricted to the east of the Olifants River Valley and in the region of the Malmesbury series to the south. Its distribution is facilitated by river action and is available in pebble form from most of the rivers which drain the Doorn/Tangua basin. It is also fine-grained and thus ideal for stone tool manufacture.

QUARTZITE

Quartzite is metamorphic rock formed from quartz sandstone. Silica which is present in the Sandstone permeates into the spaces between the original grains of quartz. It is abundant in the Cape fold belt mountains. Its course-grained nature is not conducive to mirco-lithic tool manufacture, but it is represented in some formal tools, mainly large, heavy utilized pieces like grindstones, bored stones and larger flakes.

APPENDIX III

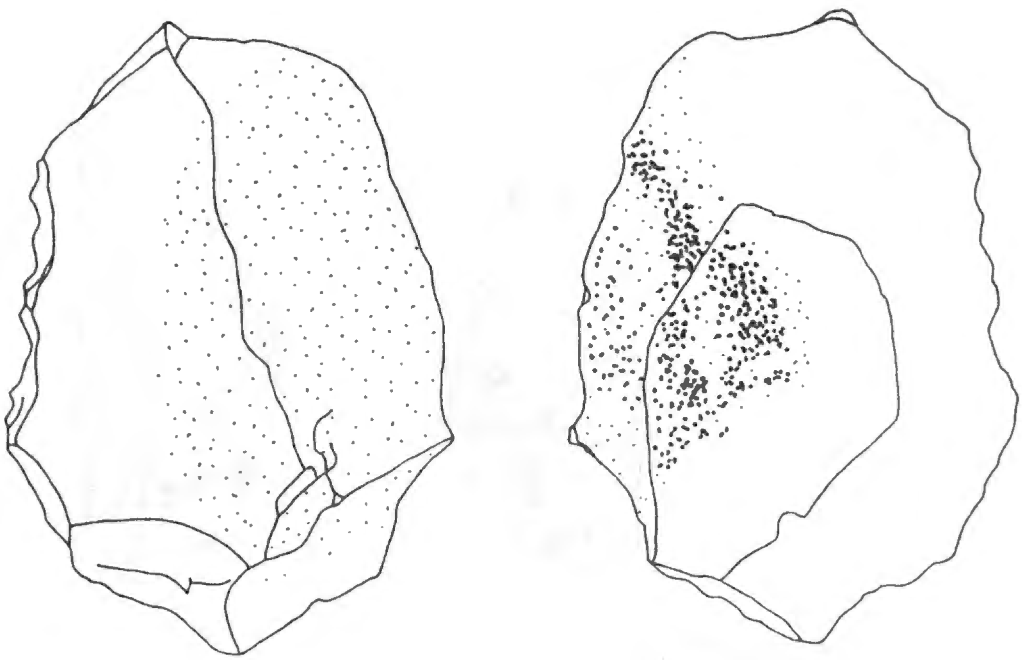
ILLUSTRATIONS OF SELECTED FORMAL AND UTILIZED TOOLS

FIGURE 1A - ADZES

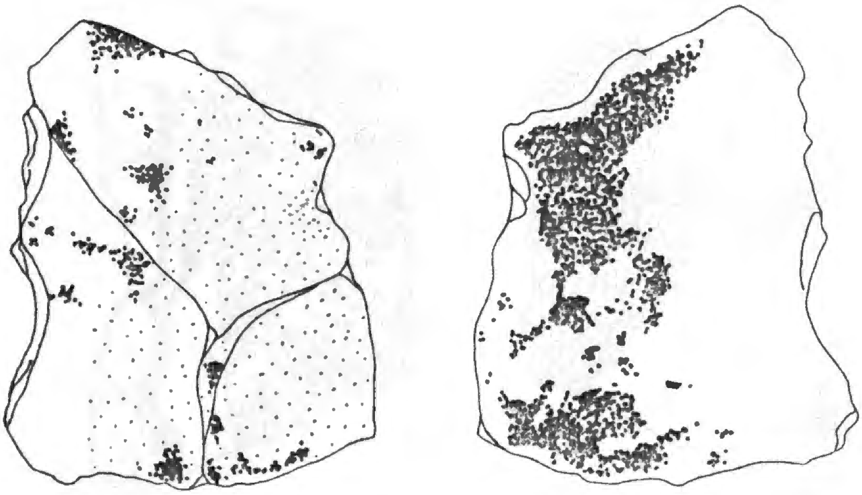
ENCRUSTED MASTIC

MASTIC TRACING

(i) (i) SC silcrete



(ii) (ii)BSV silcrete



(iii) (iii) BPI silcrete

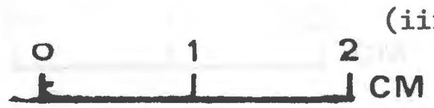


FIGURE 1B - ADZES

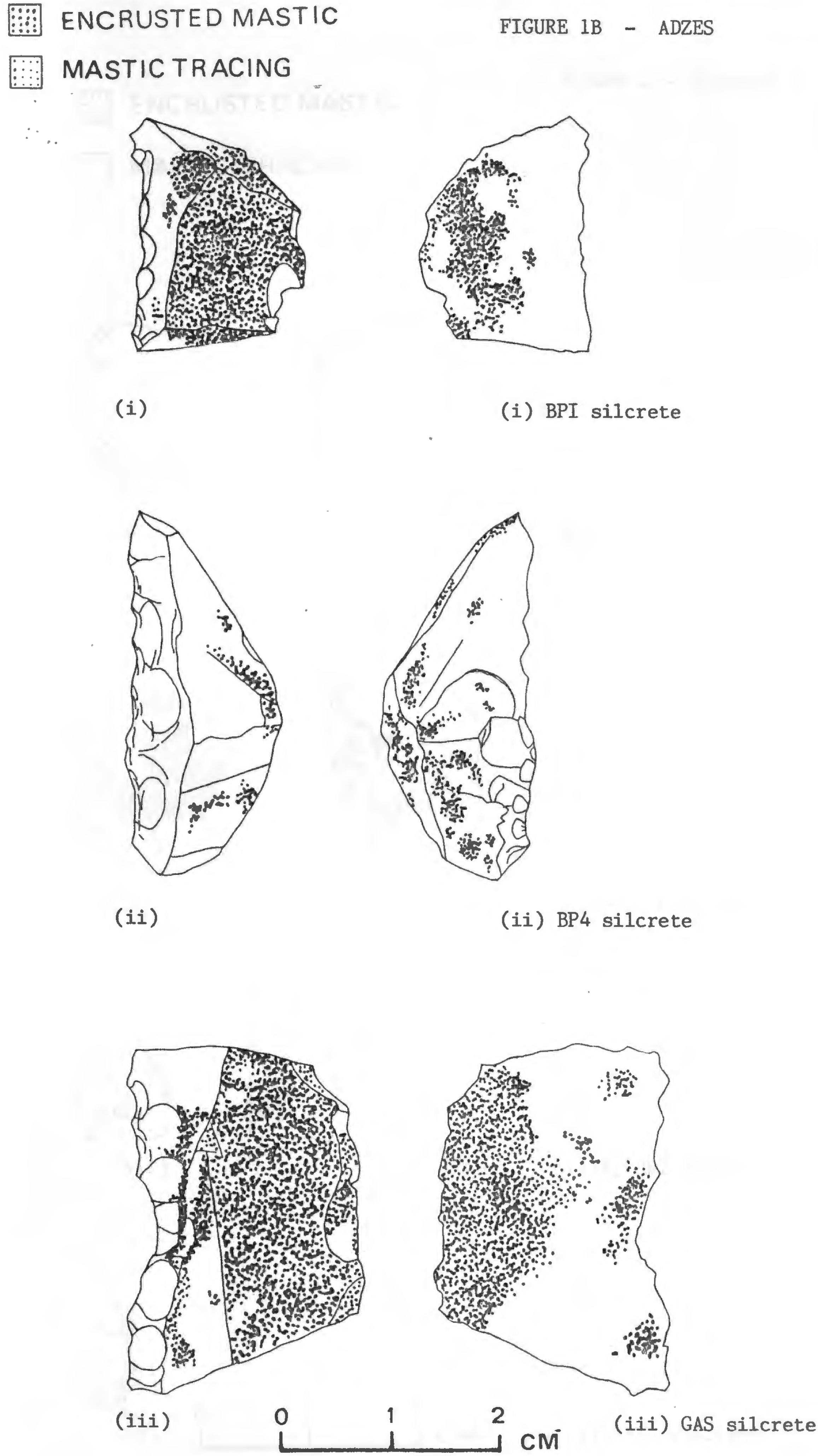
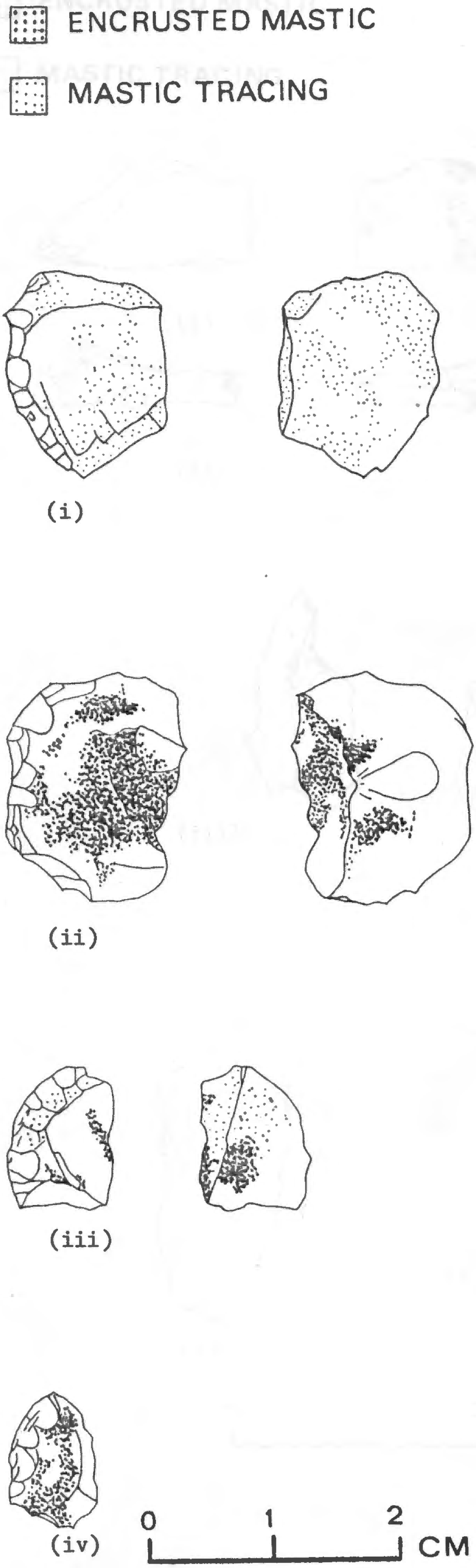


FIGURE 2 - SCRAPERS



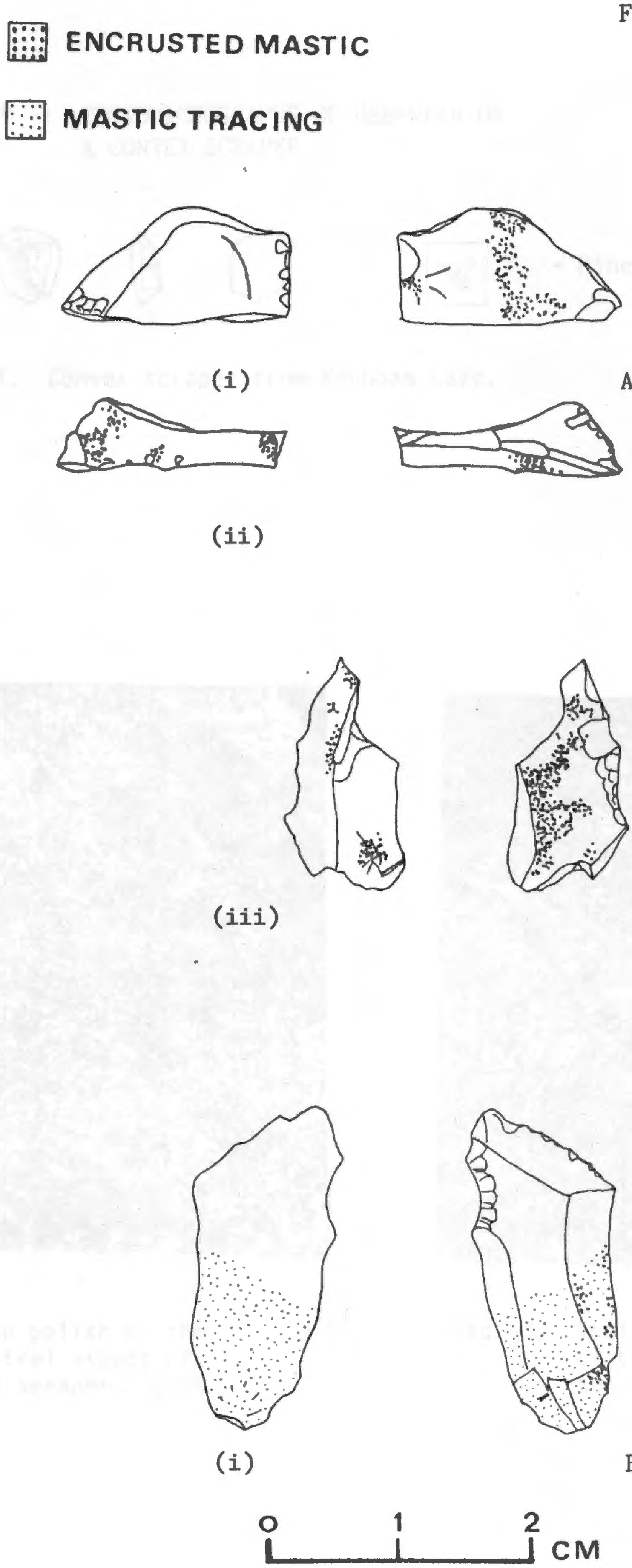
(i) BSC silcrete

(ii) GS silcrete

(iii) BP2 silcrete

(iv) BSV silcrete

FIGURE 3 A - MRP's
B - Utilized



APPENDIX IV : PHOTOMICROGRAPHS OF USE-WEAR ON A CONVEX SCRAPER

- Mineral and Organic deposit

Fig. 1. Convex scraper from Renbaan Cave.

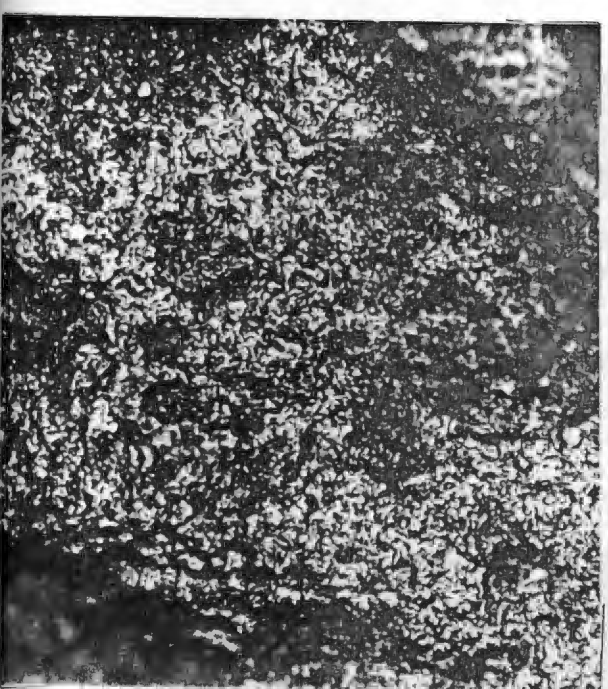


Fig. 2. Hide polish on the ventral aspect of the scraper. 200X

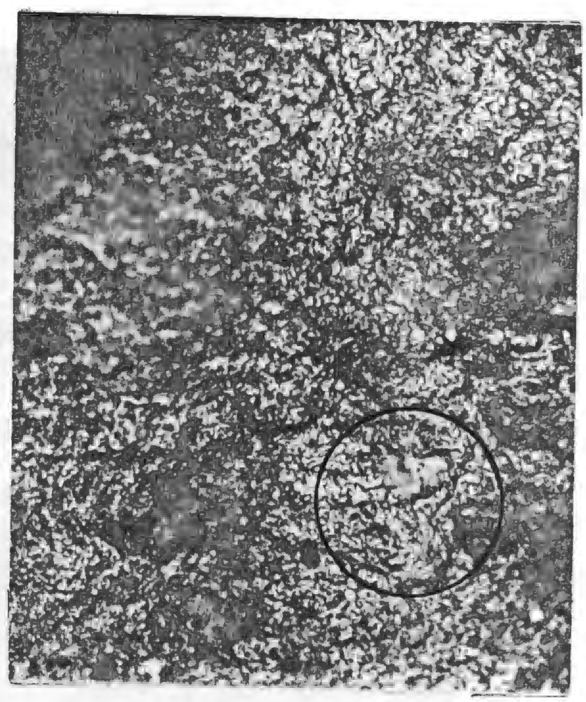


Fig. 3. Small patch of wood polish on the ventral aspect of the scraper. 200X

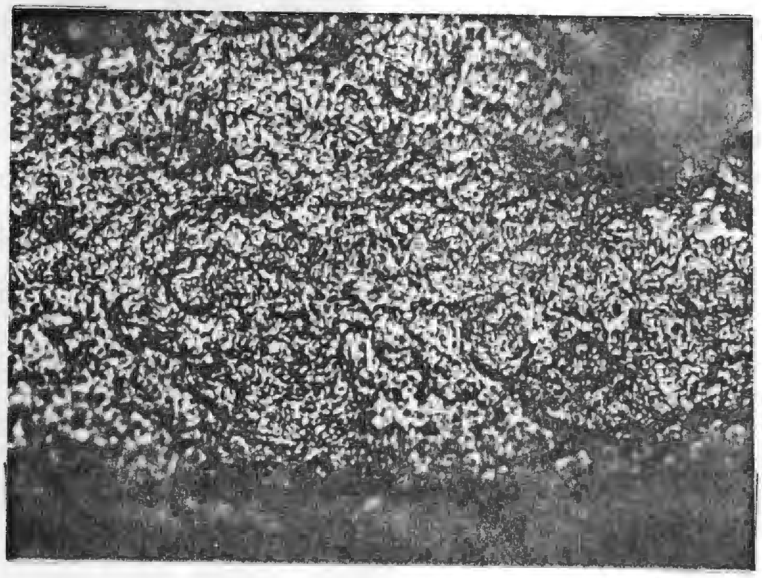


Fig. 4. Hide polish along the working edge of the scraper. 200X

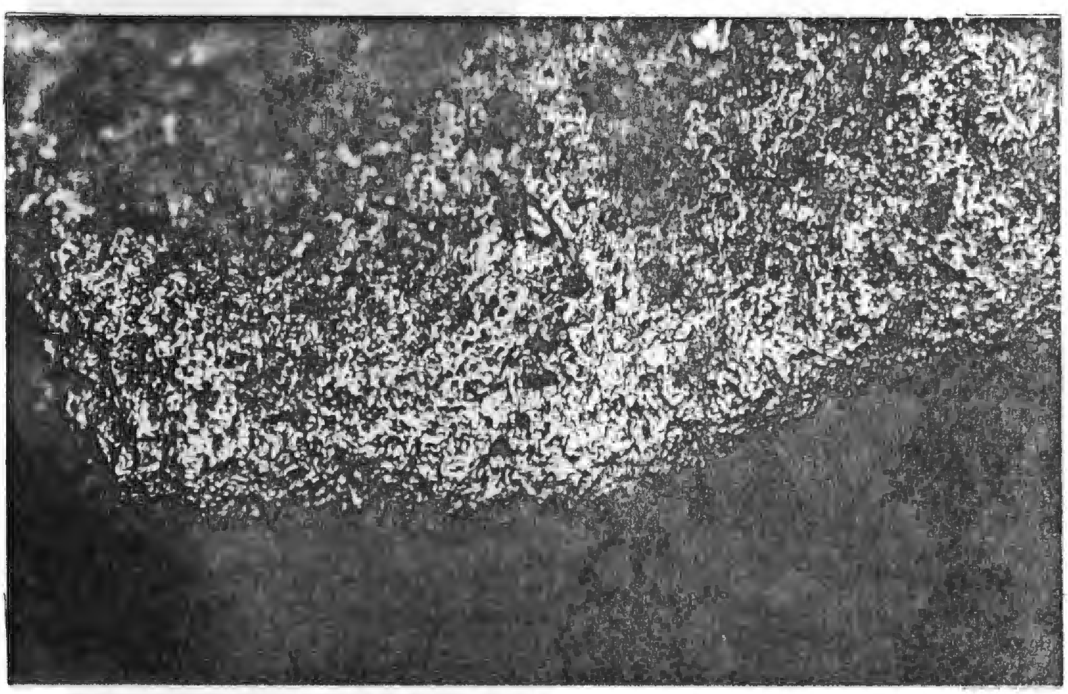


Fig. 5. Experimental hide polish after 20 minutes use. 200X.

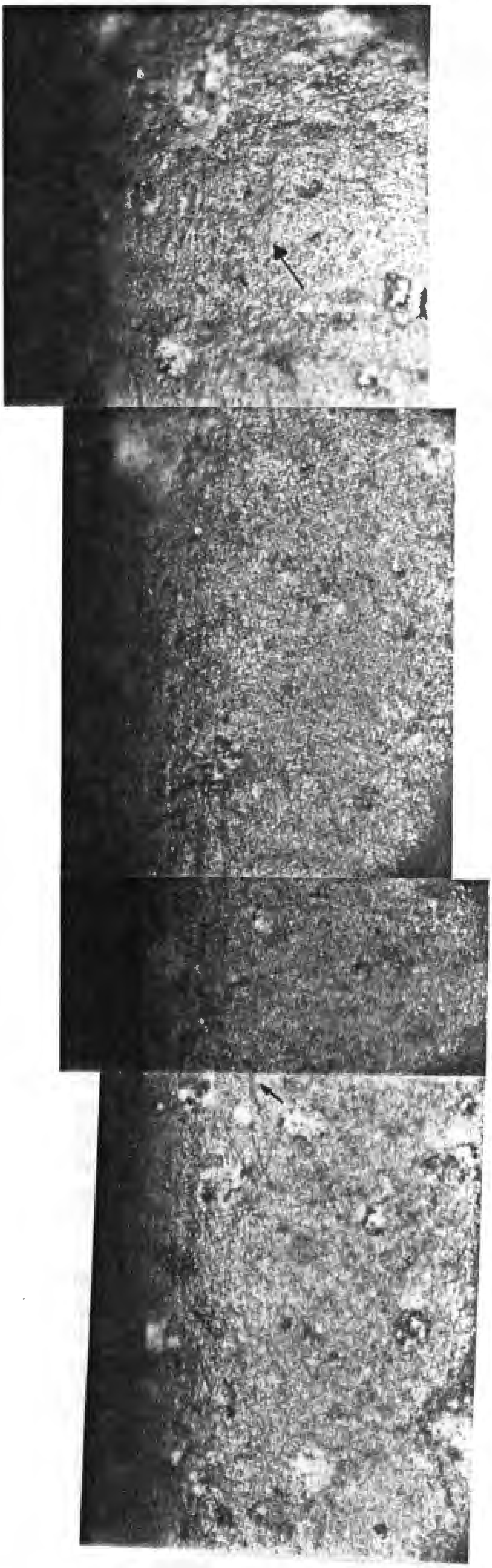


Fig. 6. Striations on the rounded working edge. 50X. Darkfield.

FORMAL TOOL INVENTORY FROM RENBAAN CAVE

QUARTZ TOOLS	f	% QUARTZ	% TOTAL
Adzes	3	3.75	1.21
Scrapers	67	83.75	27.23
MRP's	8	10.00	3.25
Awls	0	0.00	0.00
Segments	1	1.25	0.40
Drills	0	0.00	0.00
Backed Points	1	1.25	0.40
SUB-TOTAL FOR QUARTZ	80	100.00	32.49

SILCRETE TOOLS	f	% SILCRETE	% TOTAL
Adzes	82	60.29	33.33
Scrapers	21	15.44	8.53
MRP's	32	23.52	13.00
Awls	1	0.73	0.40
Segments	0	0.00	0.00
Drills	0	0.00	0.00
Backed Points	0	0.00	0.00
SUB-TOTAL FOR SILCRETE	136	99.98	55.26

CCS TOOLS	f	% CCS	% TOTAL
Adzes	6	37.5	2.43
Scrapers	2	12.5	0.81
MRP's	8	50.0	3.25
Awls	0	0.0	0.00
Segments	0	0.0	0.00
Drills	0	0.0	0.00
Backed Points	0	0.0	0.00
SUB-TOTAL FOR CCS	16	100.0	6.49

QUARTZITE TOOLS	f	% QUARTZITE	% TOTAL
Adzes	1	20.0	0.40
Scrapers	2	40.0	0.81
MRP's	2	40.0	0.81
Awls	0	0.0	0.00
Segments	0	0.0.	0.00
Drills	0	0.0	0.00
Backed Points	0	0.0	0.00
SUB-TOTAL FOR QUARTZITE	5	100.0	2.02

HORNVELS TOOLS	f	% HORNVELS	% TOTAL
Adzes	4	44.44	1.62
Scrapers	1	11.11	0.40
MRP's	3	33.33	1.21
Awls	0	0.00	0.00
Segments	0	0.00	0.00
Drills	1	11.11	0.40
Backed Points	0	0.00	0.00
SUB-TOTAL FOR HORNFELS	9	99.99	3.63
GRAND TOTAL	246		99.89

APPENDIX V RENBAAN CAVE LITHIC INVENTORY

	SD		BU		AD		BL		TOTAL		% TOTAL
-- FORMAL TOOLS --	f	%	f	%	f	%	f	%	FREQUENCY		ASSEMBLAGE
Adzes	43	44.32	41	40.38	10	28.57	2	18.18	96	39.27	
Scrapers	33	34.02	38	36.53	14	40.00	8	72.72	93	37.65	
MRP's	19	19.58	23	21.15	11	31.42	0	0	53	21.05	
Awls	0	0	1	0.96	0	0	0	0	1	0.40	
Segment	0	0	0	0	0	0	1	9.09	1	0.40	
Drills	0	0	1	0.96	0	0	0	0	1	0.40	
Backed Points	1	1.03	0	0	0	0	0	0	1	0.40	
Bored Stone	1	1.03	0	0	0	0	0	0	1	0.40	
Total	97	99.98	104	99.98	35	99.99	11	99.99	247	99.97	8.21
-- UTILIZED PIECES --											
Utilized Flakes	32	62.74	34	58.62	26	81.25	18	94.73	110	68.75	
Outilles Ecaillees	15	29.41	22	37.93	6	18.75	1	5.26	44	27.5	
Hammerstone	1	1.96	0	0	0	0	0	0	1	0.63	
Uil. Grindstone	3	5.88	2	3.44	0	0	0	0	5	3.12	
Total	51	99.99	58	99.99	32	100	19	99.99	160	99.995	5.32
-- WASTE --											
Flakes	134	12.94	160	18.03	75	15.36	44	23.28	413	15.89	
Broken Flakes	229	22.12	264	29.76	151	30.94	53	28.04	697	26.81	
Bladelets	35	3.38	45	5.07	21	4.3	8	4.23	109	4.19	
Chips	566	54.68	353	39.79	217	44.46	75	39.68	1211	46.59	
Chunks	54	5.21	52	5.86	12	2.45	6	3.17	124	4.77	
Cores	17	1.64	13	1.46	12	2.45	3	1.58	45	1.73	
Total	1035	99.97	887	99.97	488	99.96	189	99.98	2599	99.98	86.46
Grand Total +%	1183		1049		555		219		3006		99.99

* f = Frequency

APPENDIX VI
SUMMARY OF RENBAAN CAVE STATISTICS

Length Statistics : Untrimmed Flakes

Levels	f	Range mm	Mean mm	Standard Deviation mm	Mode mm
QUARTZ					
SD	85	5-24	12.1	4.35	10
BU	84	5-32	12.89	4.83	11
AD	38	6-23	11.39	4.85	6
BL	16	6-25	12.78	5.02	9
SILCRETE					
SD	36	6-33	14.38	6.59	12
BU	55	7-32	13.85	6.18	14
AD	24	6-31	14.78	6.66	12
BL	9	7-17	12	4.35	*
CCS					
SD	14	5-18	12.11	3.77	*
BU	6	9-19	13.66	3.66	*
AD	6	7-21	14	4.89	15
BL	2	5-21	13	11.39	*
HORNFELS					
SD	4	10-22	14.5	5.44	*
BU	2	13-19	16	4.24	*
AD	2	10-16	13	4.24	*
BL	5	9-15	11.4	2.30	*
QUARTZITE					
SD	6	11-30	19.5	6.94	*
BU	11	7-22	14	4.31	13
AD	5	12-40	22.2	11.18	*
BL	12	9-35	16.6	9.35	11

* MODE NOT DETERMINED BECAUSE SAMPLE TOO SMALL

Length Statistics : Convex Scrapers

Levels	f	Range mm	Mean mm	Standard Deviation mm	Mode mm
SD	12	9-25	13.4.	4.6	12
BU	11	6-12	10.8	2.08	12
AD	10	10-20	13.33	3.09	11
BL	7	10-60	31	21.4	*

Length Statistics : Elongated Scrapers

Levels	f	Range mm	Mean mm	Standard Deviation mm	Mode mm
SD	9	5-9	6.88	1.26	6
BU	19	5-19	7.68	2.51	8
AD	3	6-9	7.33	1.52	*
BL	-	---	----	----	-

Length Statistics : Scrapers and raw materials

Levels	f	Range mm	Mean mm	Standard Deviation mm	Mode mm
QUARTZ					
SD	11	5-19	8.8	4.06	6
BU	29	5-17	8.4	2.7	8
AD	8	6-20	11.8	4.7	*
BL	1	10	10	---	*
SILCRETE					
SD	5	9-25	13.6	6.5	*
BU	1	10	10	---	*
AD	4	1-15	12.5	2.08	*
BL	4	12-37	22.3	12	*
CCS					
SD	1	11	11	---	*
BU	-	-	-	-	-
AD	1	11	11	-	*
BL	-	-	-	-	-
HORNFELS					
SD	1	16	16	-	*
BU	2	30-33	32	2.1	*
AD	-	-	-	-	-
BL	-	-	-	-	-
QUARTZITE					
SD	-	-	-	-	-
BU	-	-	-	-	-
AD	-	-	-	-	-
BL	2	58-60	59	1.4	*

Length Statistics : Adzes

Levels	f	Range mm	Mean mm	Standard Deviation mm	Mode mm
SD	39	15-39	24.9	6.1	23
BU	42	13.45	26.5	6.7	23
AD	10	16-36	23	7.8	*
BL	1	31	31	-	*

Length Statistics : Adzes and Raw Materials

Levels	f	Range mm	Mean mm	Standard Deviation mm	Mode mm
SILCRETE					
SD	36	16.39	25.1	6.34	23
BU	36	13-45	26.5	6.58	23
AD	9	16-36	21.8	2.38	*
BL	-	-	-	-	-
QUARTZ	1	21	21	-	*
BU	2	15-18	16.5	2.12	*
AD	-	-	-	-	-
BL	-	-	-	-	-
CCS					
SD	3	15-22	18.66	3.51	*
BU	2	18-29	23.5	7.77	*
AD	1	33	33	-	*
BL	-	-	-	-	-
HORNFELS					
SD	2	22-24	23	1.41	*
BU	1	34	34	-	*
AD	-	-	-	-	-
BL	1	31	31	-	*
QUARTZITE					
SD	1	23	23	-	*
BU	-	-	-	-	-
AD	-	-	-	-	-
BL	-	-	-	-	-

Length Statistics : Retouched edge of Scrapers

Levels	f	Range mm	Mean mm	Standard Deviation mm	Mode mm
SD	19	2-5	2.94	0.7	3
BU	30	2-5	2.7	0.74	3
AD	13	1-4	2.69	0.85	3
BL	7	2-7	4.28	1.6	4

FIGURE 1:1 MODIFIED DICE-LERAAS DIAGRAMS OF QUARTZITE FLAKE LENGTHS - MEAN, RANGE AND STANDARD DEVIATION

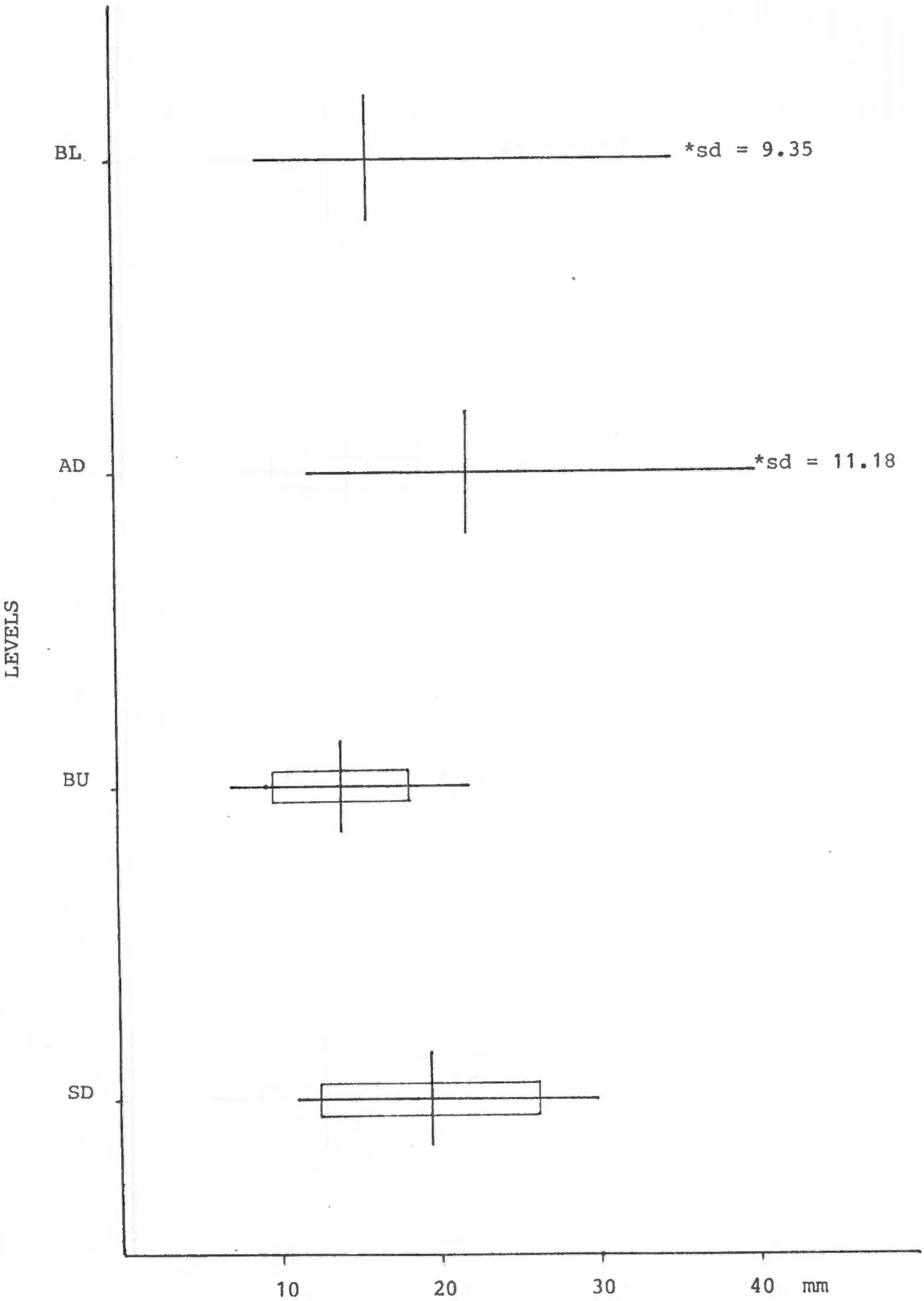


FIGURE 1:2 MODIFIED DICE-LERAAS DIAGRAMS OF CCS FLAKE LENGTHS - MEAN, RANGE AND STANDARD DEVIATION

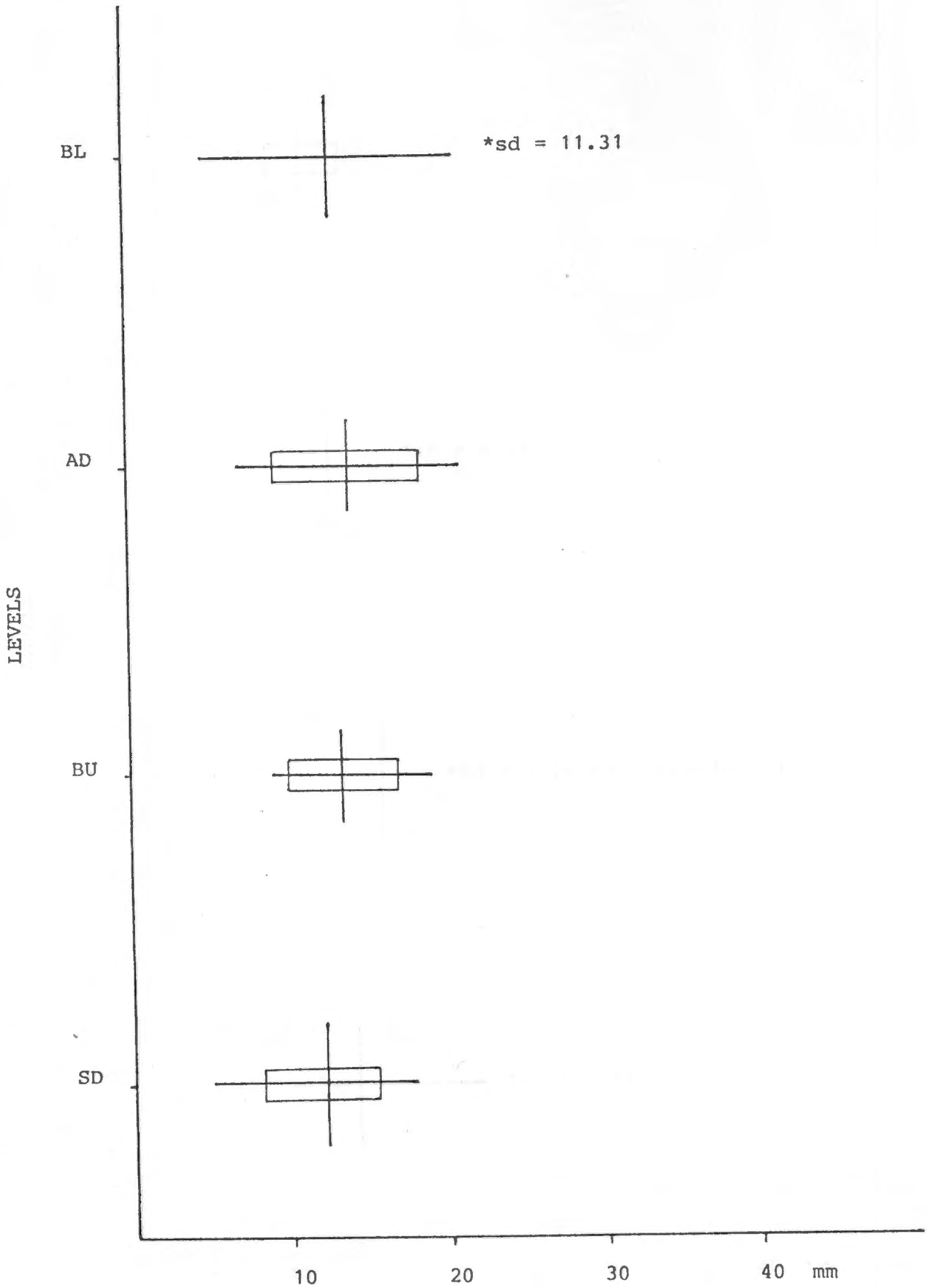


FIGURE 1:3 MODIFIED DICE-LERAAS DIAGRAMS OF HORNFELS FLAKE LENGTHS - MEAN, RANGE AND STANDARD DEVIATION

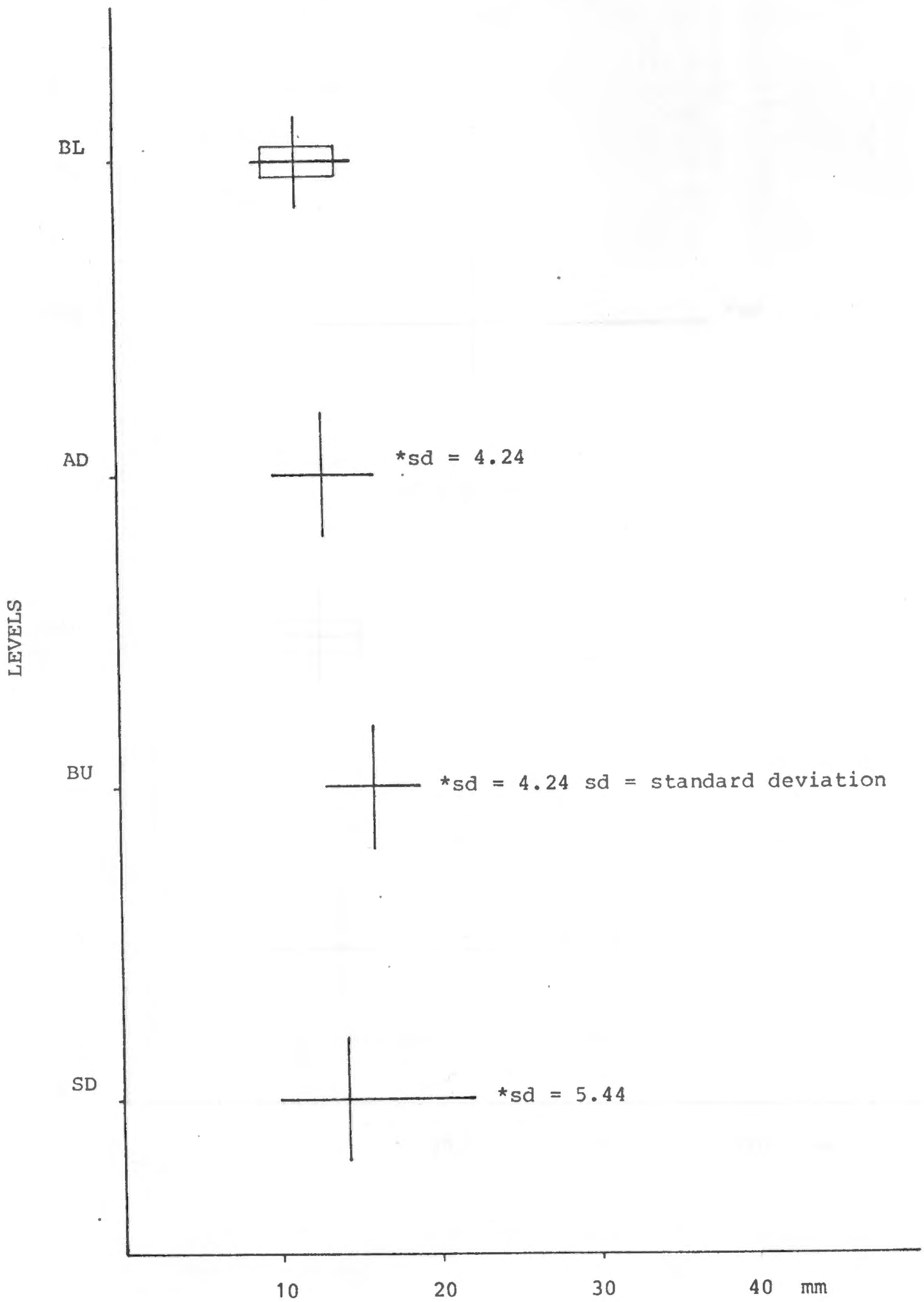


FIGURE 1:4 MODIFIED DICE-LERAAS DIAGRAMS OF SILCRETE SCRAPER LENGTHS - MEAN, RANGE AND STANDARD DEVIATION

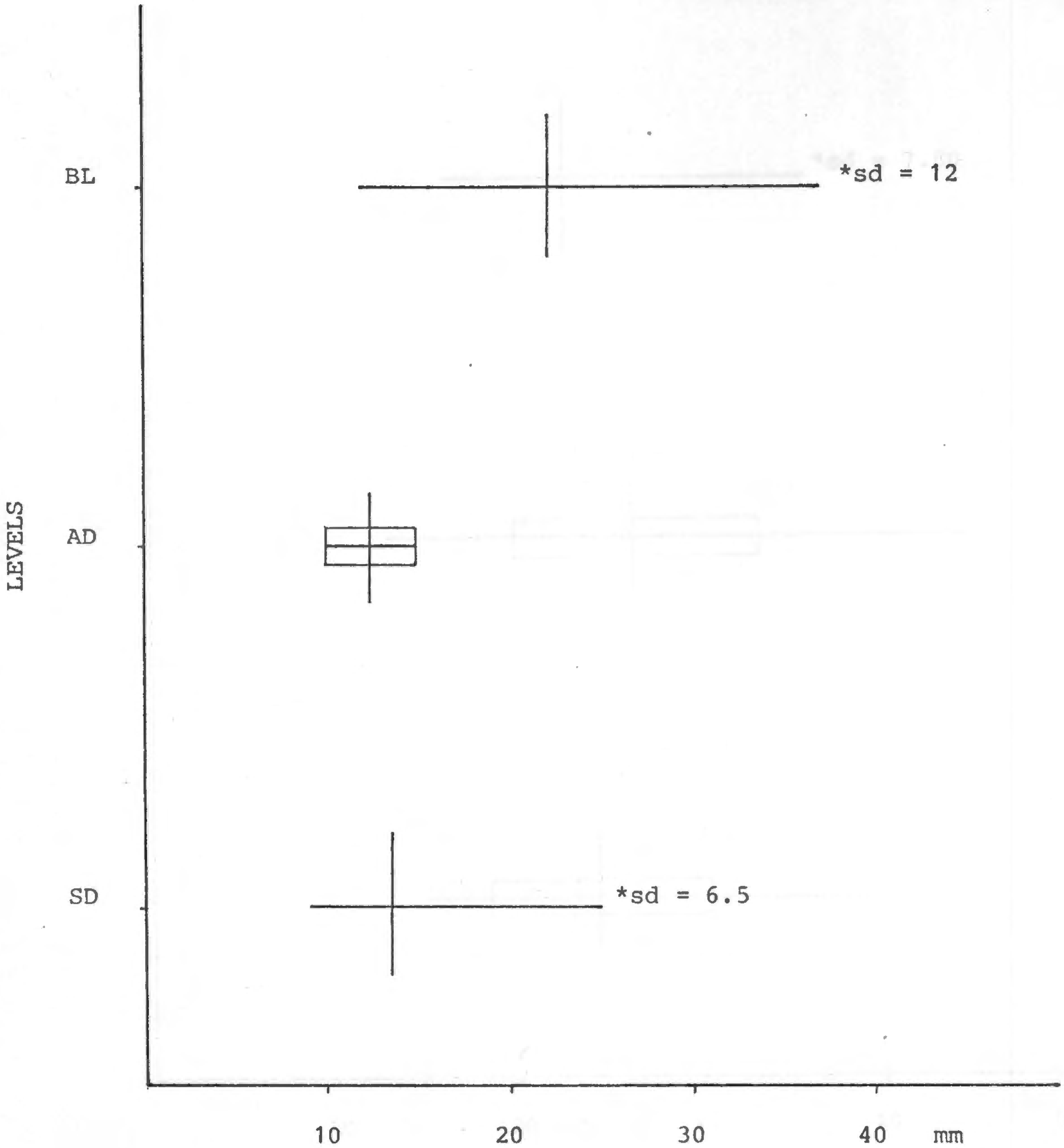


FIGURE 1:5 MODIFIED DICE-LERAAS DIAGRAMS OF ADZE LENGTHS - MEAN, RANGE AND STANDARD DEVIATION

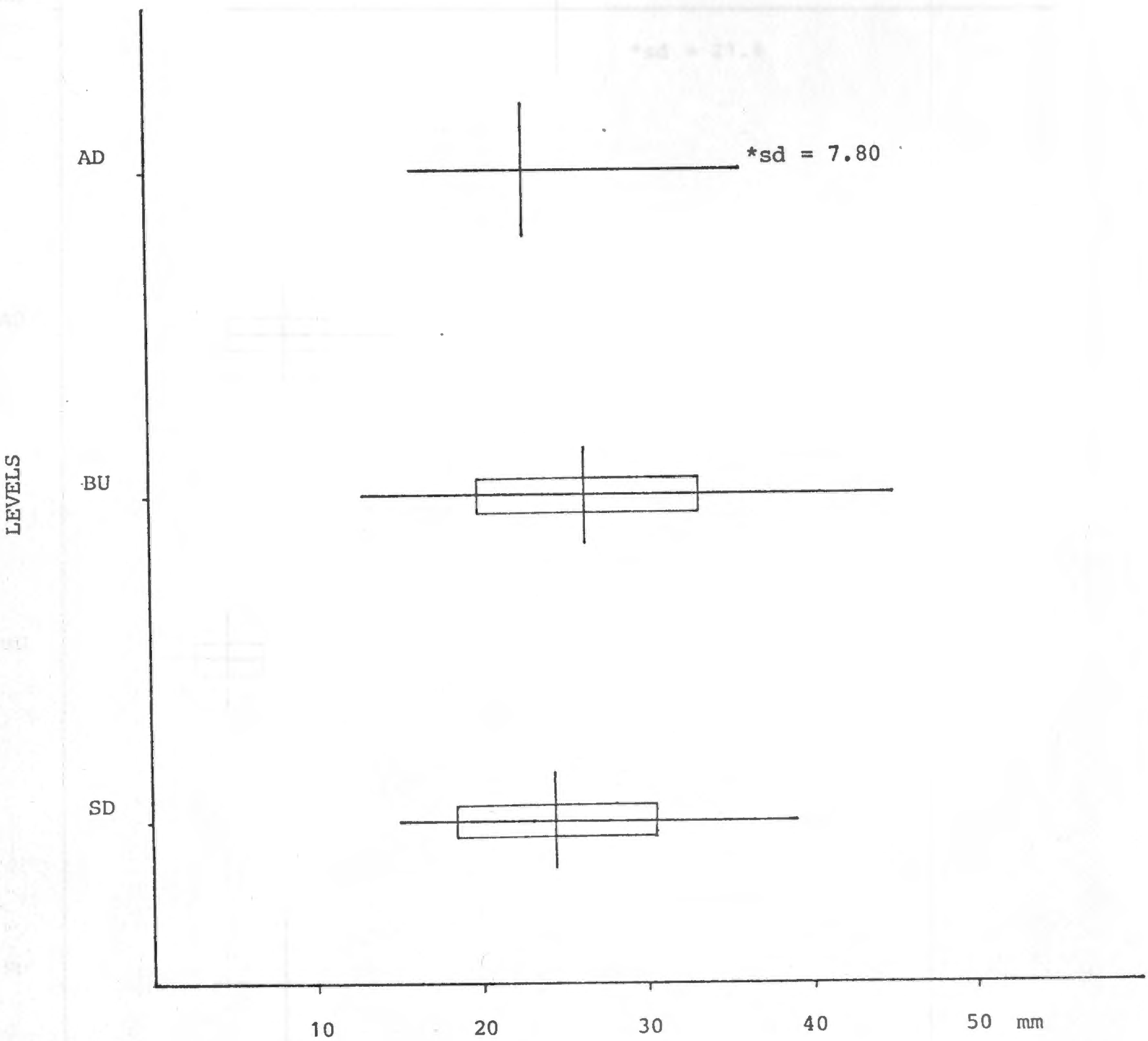


FIGURE 1:6 MODIFIED DICE-LERAAS DIAGRAMS OF CONVEX SCRAPER LENGTHS - MEAN, RANGE AND STANDARD DEVIATION

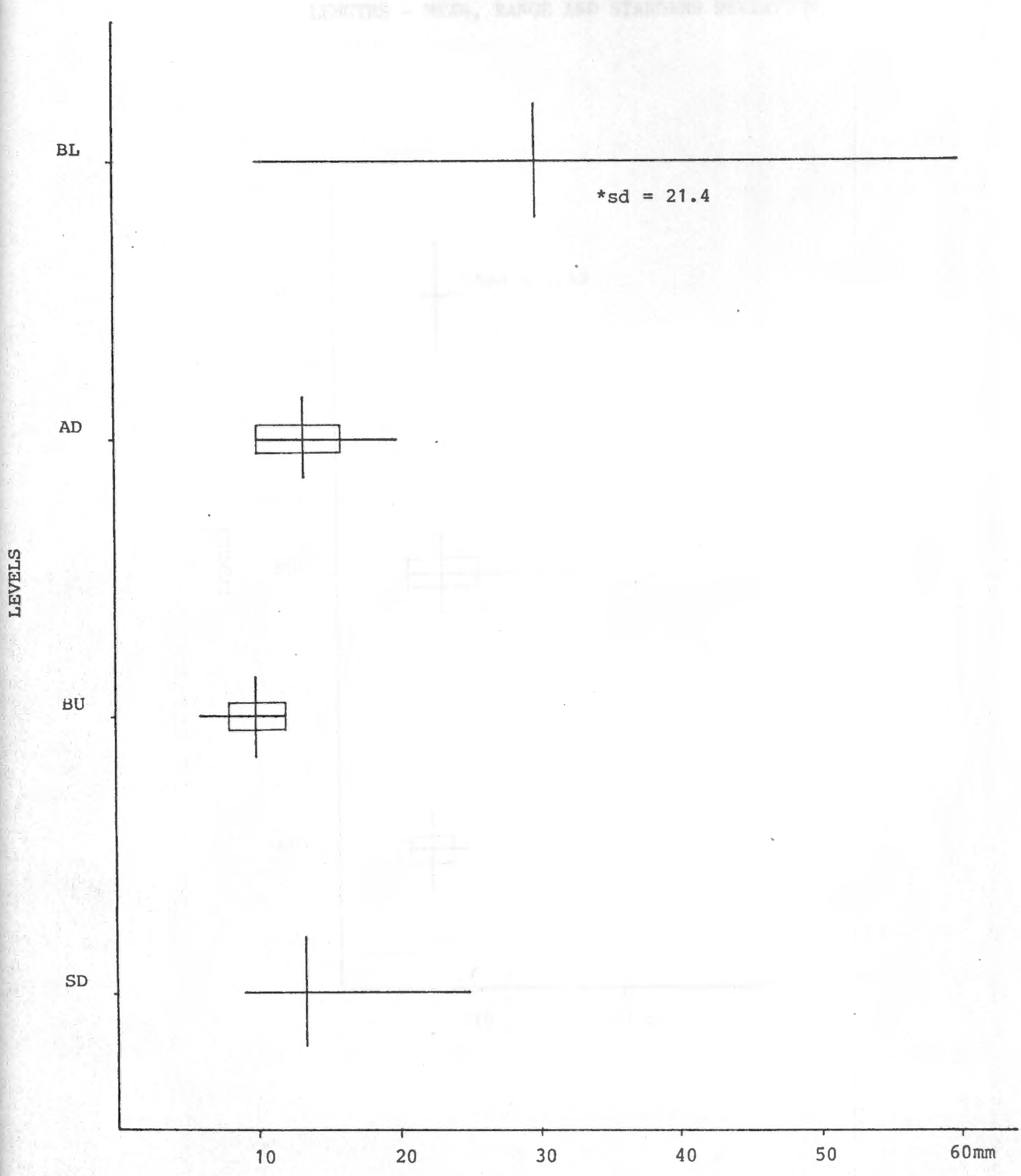
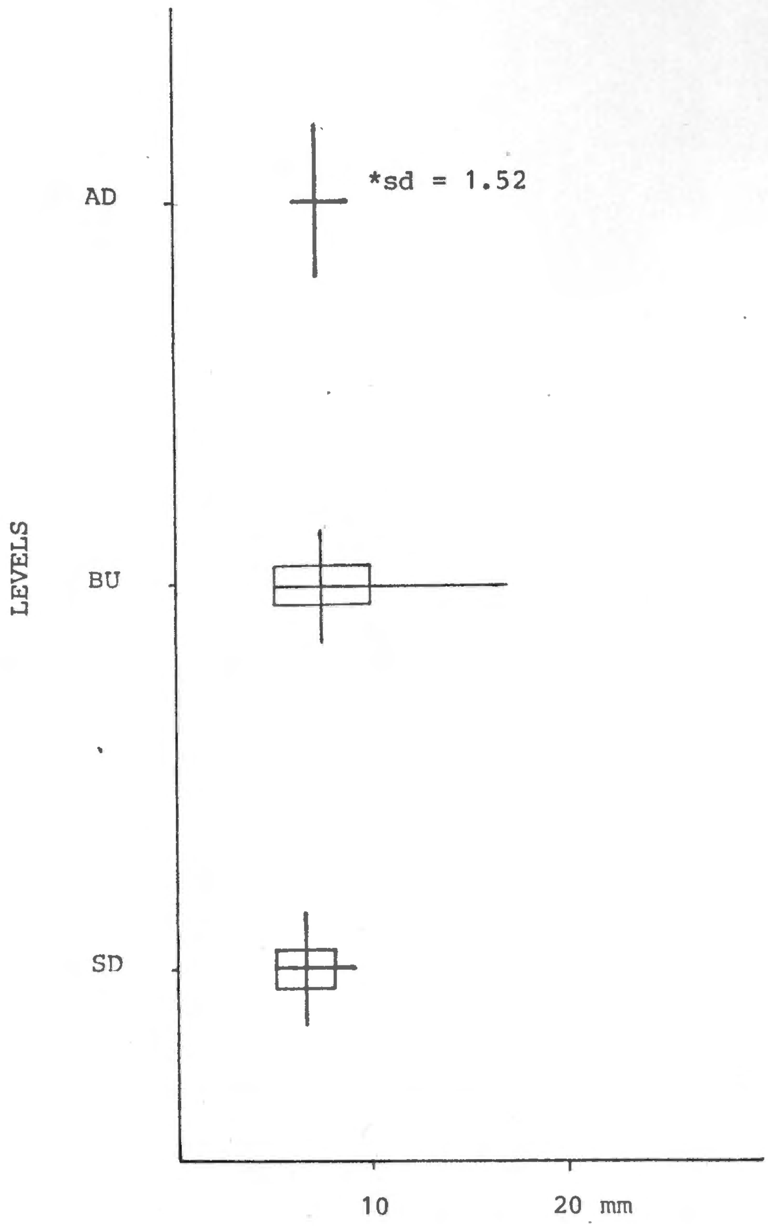


FIGURE 1:7 MODIFIED DICE-LERAAS DIAGRAMS OF ELONGATED SCRAPER LENGTHS - MEAN, RANGE AND STANDARD DEVIATION



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