6 GEORGE GILL RANGE AND FINKE GORGE

This chapter deals with several archaeological sites - Wanmara, Ilarari and Krewurlpmurlpme kweke - located in the southern part of the MacDonnell ranges. This area, which includes the George Gill range in the southwest, the Krichauff ranges and the main body of the James range in the north and east, contains some the best watered country in Central Australia. Giles encountered large numbers of Aborigines here - see for example his experiences along the George Gill range in 1872 (1889:110-125) - and ethnographically it appears to have been one of the most densely populated parts of the Centre.

The George Gill range is a bold sandstone plateau that forms the northern edge of the drainage basin centering on Lake Amadeus. The southern escarpment of the range presents a succession of bluffs separated from one another by rocky gorges and gum lined creeks. These contain a series of permanent springs, waterholes and large rockholes all fed by seepage from the Mereenie aquifer. The most prominent of these in accounts of traditional land use are Watarka [Kings canyon], Lila [Reedy rockhole], Wannga, Ipitilkiti [Kathleen spring], Tjungu [Stokes creek] and Wanmara [Bagot spring]. Where the creeks have cut deeply into the edge of the plateau there are deep natural rock reservoirs, some holding several thousand litres of water. The regional importance of the range as a drought refuge area for Aboriginal people occupying the

sandhill country to the south is stressed by Hamilton and Vachon (1985:44). In a protracted drought there were no reliable waters between those along the George Gill range and Piltati in the Petermann ranges and even here Strehlow recorded that in 1939 Piltati was dry (cited in Hamilton and Vachon 1985:75).

To the east of the George Gill range the Palmer river cuts through the James range forming a large spring-fed waterhole at Ilarari [Illara waterhole]. This is the main spring in the country occupied by Matutjara-speaking people and was linked with Wanmara by a traditional walking route that travelled via Alarungu along Petermann creek.

After rain people inhabiting the George Gill range and the Ilarari area foraged south into the sandhill country making temporary camp wherever water was available. Hamilton and Vachon (1985:43-45) mention sites such as Wiputa, at the terminus of Kings creek, and Alatjuta. From the George Gill range a traditional walking route led across the sandhill country and the narrowest part of Lake Amadeus to Uluru [Ayers rock]. This was the route taken by Groom in 1947 guided by Tiger Tjalkalyiri (Groom 1977).

> This one good country all the time. I live here - runabout - when little boy. Good country altogether. Reedy Creek we call Lilla. Bagotty Spring we call Wynmurra. All good country. My country - go all the way across Lake Amadeus and Oolra and Kuttatuta. I take you and show you. Tomorrow we go 'cross desert? We take them ol' camella - plenty water canteen - we got good tucker - good! We go three, maybe four days, thataway - right up by lake country - right up Ayers Rock, we go!. [Tiger Tjalkalyiri to Arthur Groom at Watarka (Groom 1977:140)].

East of the Palmer river and Ilarari area is the gorge system formed by the Finke river and Ellery creek. This riverine corridor is deeply entrenched into the red sandstone of the

Krichauff range and it cuts across the grain of the land allowing easy access to the long parallel valleys that separate the ranges. Along the gorge there are numerous waterholes and soakages but as campsites were often in the sandy river channels, occupation debris has been removed or reworked by subsequent floods. This periodic flushing of archaeological sites in the gorge system is recorded by the presence of lines of stone artefacts delimiting the various flood strata along the Finke (Webb, Baker and Pickup n.d. :5). One of the few sites with the potential for preserving archaeological material that predates the last series of large floods is a low cave in the east wall of the Ellery gorge near the important totemic site of Krewurlpmurlpme.

WANMARA

Wanmara (cf. Bowman and Scherer 1948 map Walpmura; Strehlow 1978:37 Walbmara; Groom 1977:140 Wynmurra) has by far the most extensive and dense occupation debris of any of the campsites along the George Gill range. There are two main springs at Wanmara and according to Jack Coulthard the main traditional camping area was on the sandy rise adjacent to the southernmost of these. Giles (1889:112) noted that "reed beds and water filled the whole glen". Today it has been extensively disturbed by stock, the reed beds occupy only a small area and a dense stand of Acacia victoriae is present around the creek.

An accurate reconstruction of Aboriginal land use and tenure prior to European presence is extremely difficult since pastoral expansion with its concomitant disruptions occurred as early as

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Overleaf **Figure 6.1 :** Part of the Finke gorge. Livistona mariae palms along Little Palm creek. Looking east towards the Finke river, September 1980.

1885. It seems likely that Aboriginal people were still living around the George Gill range up to about 1900 although they were 'chased' away from the main waters by police and pastoralists and often resorted to camping on the plateau above the main waters (J. Coulthard pers. comm.). According to Hamilton and Vachon (1985) the traditional landowning unit was a community made up of a loosely defined cluster of cognatic kin. In this regard, there is some evidence to suggest that the George Gill range was bisected by two such groups . For instance, Jack Coulthard stated that his country included both Wanmara and Ilarari and extended from Ipitilkiti in the west to Ilamata [Illamurta spring] in the east and that another group of Matutjara occupied the range west of Ipitilkiti.

Although Wanmara was primarily important for its springs it was also well located with respect to important plant foods - in particular the fruit of Ficus platypoda, the seeds from grasses such as Eragrostis eriopoda which are prolific in the areas where the creeks flood out into the sandplain, and the seeds of Acacia murrayana and A. victoriae. Aboriginal people were still using the resources around Wanmara in the 1930s including grass seeds for damper (Daisy Morgan cited in Hamilton and Vachon 1985:45).

THE ARCHAEOLOGICAL SITE

At Wanmara Bagot creek debouches from the range and floods out onto the sandplain. Two springs are present in the bed of the creek where the gorge opens out into a small embayment (see fig. 6.2). Here the creek has deposited an extensive sheet of pale quartz sand. An auger hole shows that the red aeolian sand that has built up on the northwest edge of the embayment is underlain

by this pale sand. The springs are surrounded by black or mottled yellow organic mud. In places this is also underlain by pale sand suggesting that in the past the extent of permanent standing water and reed-beds was less than at present.

The most striking archaeological feature of the site is the large number of grindstones, seedgrinding implements and fragments of grindstones. A number of complete millstones remain despite the proximity of the old road from Wallara to Kings Canyon. I estimate that the number of smaller seedgrinding implements, such as faceted mullers, to be about 300-400. Other implements such as mortars or pestles are less common but several examples were noted. A light scatter of chipped stone artefacts is present right across the surface of the embayment but does not significantly extend out onto the sandplain. The density of this surface scatter ranges from about from 48 to 65 chipped stone artefacts per 100 m^2, with the greatest concentration of both grindstones and chipped stone artefacts present on a sandy rise just south of the main spring (fig. 6.2 and table 6.1). This corresponds well with Aboriginal statements that this was in fact the main camping area. Much of this area is now taken up by a stockyard, tank and troughs.

Further up the gorge there are several shelters or overhangs with minor panels of paintings.

THE 1985 EXCAVATION

In July 1985 I laid out three 1 m^2 excavation pits - designated G30, G56 and G82 on a nominal site grid - in a 50 m

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Overleaf **Figure 6.2** : Plan and profile of Wanmara showing the location of surface collections and excavated pits.

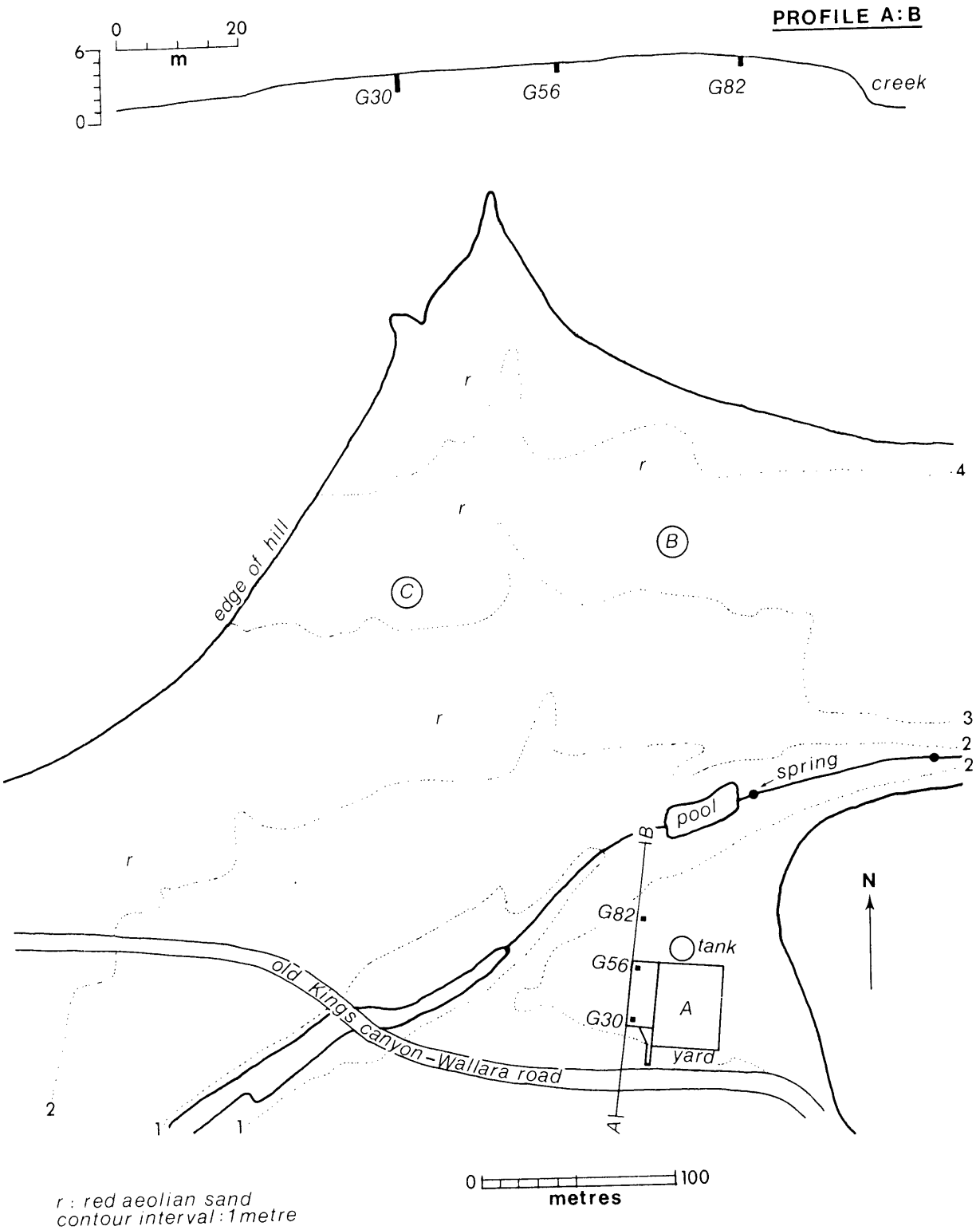
PROFILE A:B
0
20
m
6
0
G30
G56
G82
creek
edge of hill
r
4
B
C
3
2
2
spring
pool
B
N
G82
tank
G56
A
G30
yard
old Kings canyon–Wallara road
2
1
1
A
0
100
metres
r : red aeolian sand
contour interval : 1 metre

Table 6.1 : The surface distribution of stone artefacts at Wanmara. The location of sampling points is shown in fig. 6.1.

Sampling point	A	B	C
area m²	1428	314	314
seedgrinders	39	10	2
other grindstones	303	14	4
tula adze slugs	22	-	3
cores	15	1	4
other stone artefacts	901	159	198
no. artefacts/100 m²	90	59	67

transect across the main campsite (see fig. 6.2). The first two of these pits lay within the stockyard and the third was sited on the creek bank facing the main spring. The ground surface slopes up from G30 towards G82. The latter is near the crest of a low sand bank or levee, about 4.6 m above the bed of the nearby creek. The total fall from G82 to G30 is 72 cm - a slope of approximately 1 in 69.

Before excavating any of the pits the loose, heavily trampled, surface sand was shoveled off until a more compacted surface was reached. In the case of G30 this entailed the removal of the top 7-10 cm of the deposit. However, as the stratigraphy shows (see fig. 6.3) this still left a veneer of disturbed but compact deposit about 10 cm thick. In the case of G56 and G82 about 5 cm of material was removed to expose the firm surface of the undisturbed archaeological deposit.

Pit G30 was the deepest of the pits and reached a maximum depth of 162 cm below the original ground surface. Excavation ceased at this level without reaching the base of the occupation when the pit became unsafe. The other two pits were shallower excavations aimed at probing the main occupation horizon at the site. Pit G56 reached a depth of 108 cm and G82 a depth of 114 cm.

Throughout the excavations the top of the reinforcing iron that made up the stockyard fencing near G30 served as zero datum.

Stratigraphy and chronology.

The sediments at Wanmara are presumed to be of alluvial origin. The deposits in the three pits are identical and essentially consist of the one layer, an undifferentiated silty

fine sand which imperceptibly grades in colour from grey brown (Munsell 5YR 4/3) to pale pink (Munsell 5YR 6/4, pH 4.0-4.5 throughout profile). This change appears to be mainly due to the greater amount of organic matter, especially rootlets and small pieces of decaying wood, in the upper 40 cm of the stratigraphy and the contrast decreases away from the creek. Throughout the profile the sediment matrix is poorly sorted and lacks any visible laminae or graded bedding.

One other stratigraphic feature warrants mention. This is a prominent post-mould in Pit G30 - subsequently labelled as unit 16. This extended from the surface of the undisturbed deposit in unit 2 down to the base of the pit. The original post appears to have been about 20 cm in diameter and to have sharply tapered to a point at its base. Although it was burnt down to the top of unit 2 the buried portion appears to have simply decayed in-situ. The sharp definition of a soft post-mould such as this, even near the surface, is evidence that the archaeological deposits have not been otherwise disturbed below unit 1 by the superimposition of a stockyard.

For analysis I have divided the deposits into two sections. In each of the pits layer Ia consists of the material down to a depth of 68 cm below the original ground surface. Beneath this is layer Ib. This division corresponds to a noticeable change in the concentration of occupation debris (see tables 6.2 and 6.4-6.6). Whilst there is no stratigraphic means of identifying contemporaneous levels between pits there are a number of features

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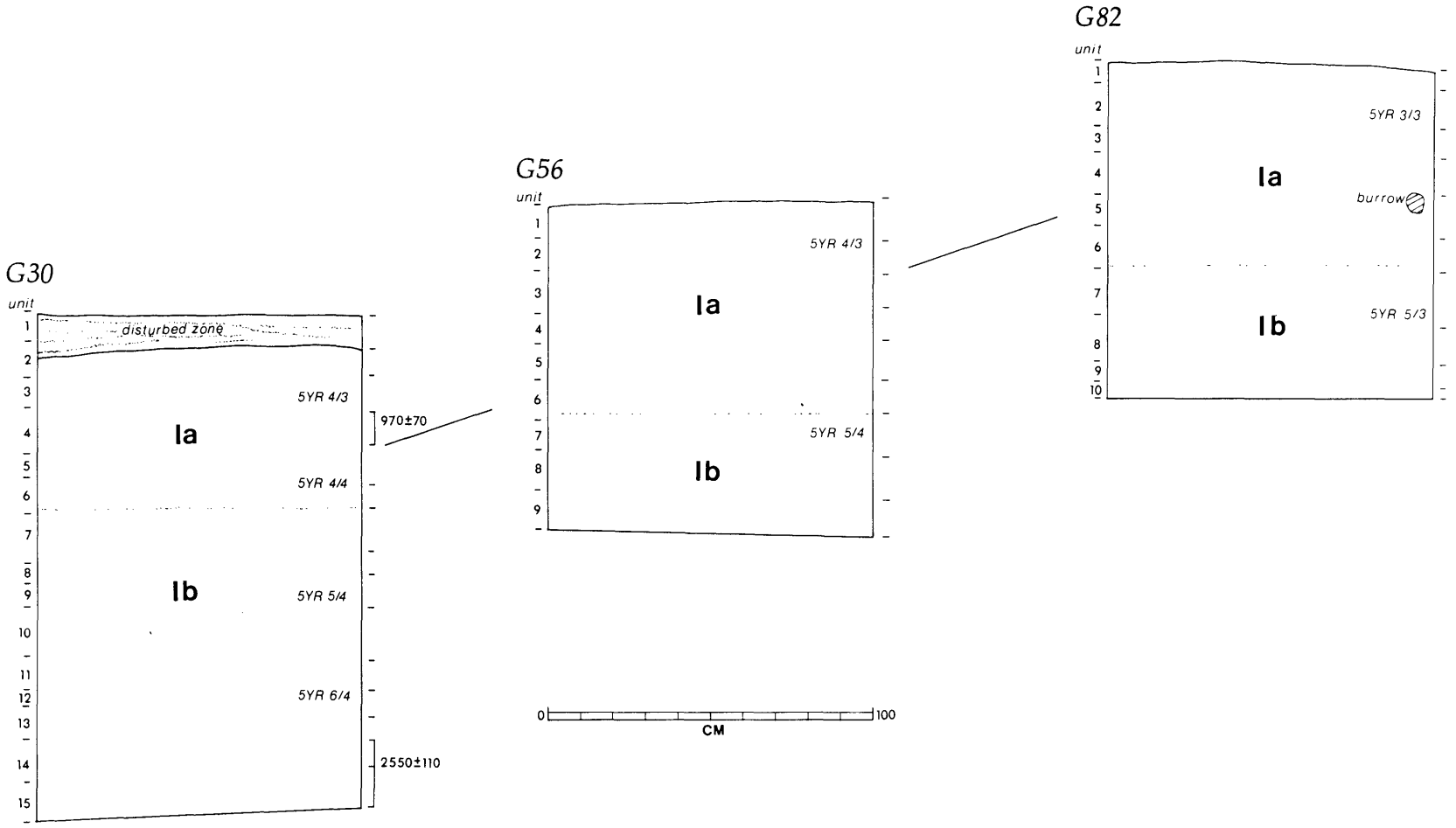
Overleaf **Figure 6.3 :** Stratigraphic diagram for Pits G30. G56 and G82 at Wanmara.

WANMARA : west face of pits.



that suggest that this change is synchronous across the site. Firstly, the changes in each pit are similar in nature and magnitude. Secondly, the change consistently occurs at 68 cm below ground level and in this respect it follows the slope of the present ground surface. Auger holes put down in other parts of the site - at points B and C on figure 6.2 - show the same pattern.

Two radiocarbon samples were submitted from G30, both of dispersed charcoal (table 6.3). Beta-16308 gives a basal age for the deepest excavated levels of around 2600 yrs BP. Between the two radiocarbon dates I estimate that sediment accumulated at a rate of 66mm/100yr. After about 970 yrs BP this decreased to about 46mm/100yr. On these figures the change from layer Ib to layer Ia occurred about 1320 yrs BP.

Charcoal.

The concentration of charcoal in the deposit is consistently low in layer Ib and progressively increases in layer Ia to a peak at about 20 cm below the surface. The distribution is not a simple decay curve and in any case one would expect charcoal to be inert. Nor does the distribution closely match that of other plant material which is greatest in the surface levels and is negligible below a depth of 40 cm. However, there is a general correlation between the numbers of chipped stone artefacts and the concentration of both bone and charcoal suggesting that much of the charcoal derives from human activities. This is especially well illustrated in the density graph for Pit G56 in fig. 6.4.

Overleaf **Figure 6.4 :** Wanmara, Pits G30, G56 and G82. Graphs showing the distribution of chipped stone artefacts, in number of artefacts per 10kg of sediment and in g. per 10kg of sediment; and of charcoal and bone expressed in g. per 100kg of sediment.

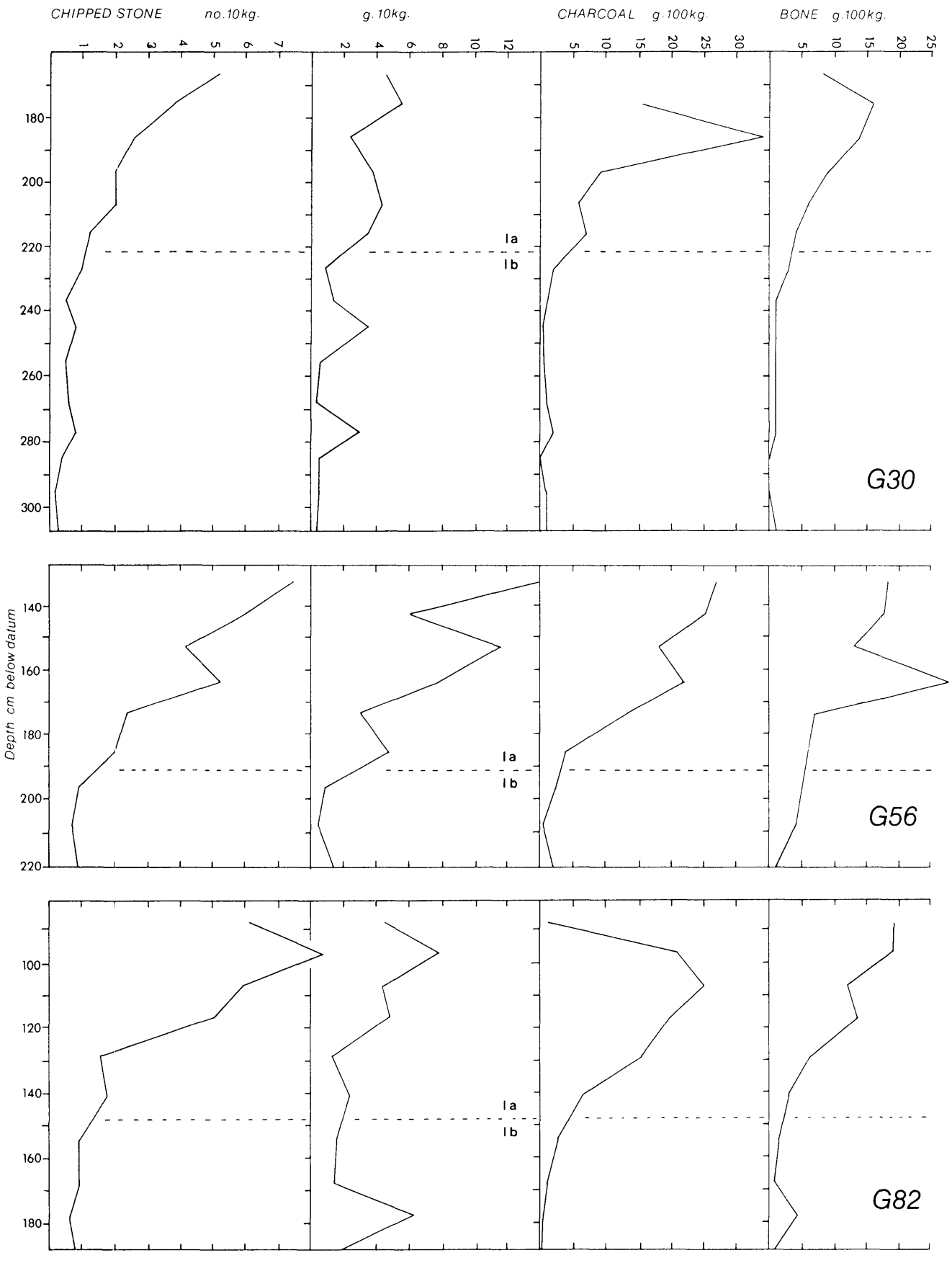

CHIPPED STONE no.10kg.
g.10kg.
CHARCOAL g.100kg.
BONE g.100kg.
Depth cm below datum
Ia
Ib
G30
G56
G82

Table 6.2 : Composition of the deposits. Depths are in cm below site datum. Figures for bone and eggshell include only the 6mm sieve fraction.

unit	mean depth cm.	sediment gross wt kg.	charcoal wt. g.	charcoal wt. g/100kg sediment	bone wt. g.	bone wt. g/100kg sediment	eggshell wt. g.
G30:disturbed layer							
1	167	146.1	-	-	12.1	8.3	-
G30:layer Ia							
2	176	145.0	22.6	15.6	23.7	16.3	-
3	186	168.6	57.8	34.3	23.3	13.8	-
4	197	162.4	14.3	8.8	15.0	9.2	-
5	207	137.7	7.9	5.7	8.3	6.0	-
6	216	119.6	8.7	7.3	5.3	4.4	-
G30:layer Ib							
7	227	225.2	5.1	2.3	7.1	3.2	-
8	237	104.8	0.7	0.7	1.1	1.1	-
9	245	148.1	0.5	0.3	1.8	1.2	-
10	256	227.7	0.6	0.3	3.2	1.4	-
11	268	155.8	1.2	0.8	1.1	0.7	-
12	277	100.4	2.0	2.0	0.8	0.8	-
13	285	162.8	0.3	0.2	0.1	0.1	-
14	295	173.4	1.1	0.6	-	-	-
15	307	191.0	1.0	0.5	1.4	0.7	-
16	242	----- recent post mould ------					
G56:layer Ia							
1	133	167.5	44.7	26.7	30.0	17.9	0.7
2	143	137.2	34.7	25.3	23.2	16.9	1.1
3	153	158.4	28.0	17.7	20.6	13.0	0.1
4	164	159.9	35.7	22.3	44.2	27.6	-
5	174	235.5	29.8	12.7	16.5	7.0	-
6	186	158.9	6.8	4.3	10.0	6.3	-
G56:layer Ib							
7	197	213.2	5.7	2.7	11.0	5.2	-
8	208	154.3	0.9	0.6	5.8	3.8	0.1
9	221	253.5	5.5	2.2	2.9	1.1	-

Table 6.2 : (Continued from page 168).

G82:layer Ia

1	88	104.9	1.6	1.5	19.9	19.0	-
2	97	193.7	41.3	21.3	36.2	18.7	-
3	107	109.5	27.5	25.1	13.2	12.1	0.1
4	117	181.2	36.3	20.0	24.5	13.5	-
5	129	143.3	22.4	15.6	9.0	6.3	-
6	141	218.8	14.3	6.5	6.8	3.1	-

G82:layer Ib

7	155	254.5	7.8	3.1	4.3	1.7	-
8	168	202.5	2.2	1.1	2.8	1.4	-
9	178	160.7	0.9	0.6	7.5	4.7	-
10	188	204.2	1.3	0.6	2.4	1.2	-

Table 6.3 : Radiocarbon dates from Wanmara. Depths are in cm below datum. Figures in brackets give depths below the original ground surface.

unit	depth cm.		lab. no.	yrs. BP.
G30/4	191-202	(39-50)	Beta-16307	970+/-70
G30/14 & 15	289-312	(137-160)	Beta-16308	2550+/-110

Table 6.4 : Comparative density of chipped stone artefacts and grindstones in layers Ia and Ib. All pits combined.

layer	volume m^3	chipped stone artefacts			grindstones	
		no.	no/m^3	no/1000yrs*	no.	no/m^3
Ia	1.84	1140	620	225	85	46
Ib	1.76	206	117	67	4	2

*calculated for Pit G30 only.

Table 6.5 : The distribution of retouched artefacts, cores and grindstones comparing layer Ia and Ib.

layer	retouched artefacts				cores	grindstones	
	backed blades	tula adzes	endscrapers	other		seedgrinders	other
Ia	8	11	2	40	4	13	72
Ib	1	-	-	2	4	-	4

Chipped stone artefacts.

density

The distribution of chipped stone artefacts is shown in tables 6.4 and 6.6 and graphically in fig. 6.4. Allowing for the changes in rate of sediment accumulation layer Ia has more than three times the concentration of artefacts as layer Ib. Throughout the period represented by layer Ib the number of artefacts deposited was low and relatively stable. From the base of layer Ia there is a gradual increase in the density of artefacts reaching a peak near the surface of the deposit. The pattern is not as straightforward if weight rather than number of artefacts is plotted. This is because fluctuations in the size of artefacts between excavation units - reflected in minor peaks and troughs in figure 6.4 - obscure the overall trend.

The density of artefacts also varies across the site. G82 and G56 each have double the number of chipped stone artefacts and grindstones in layer Ia as Pit G30. This reflects more intensive late Holocene use of the part of the site lying within 50 m of the spring. In contrast the density of artefacts in layer Ib does not reflect the same gradient. This is also shown in fig. 6.4 where the change from layer Ib to Ia is most marked in G56 and G82.

size

Unlike other sites there are no trends in artefact size associated with the changes in site use at Wanmara (see table 6.6). Throughout the deposit the mean weight of chipped stone artefacts is about 1-3 g but there are considerable fluctuations about this value in both layer Ia and Ib.

Table 6.6 : The distribution of chipped stone artefacts, grindstones and ochre. (6mm sieve fraction only).

		chipped stone artefacts					grindstones		ochre
unit	mean depth cm.	no.	wt.g	mean wt.g	no/10kg sediment	wt. g/10kg sediment	no.	wt.g.	wt.g
G30:disturbed layer									
1	167	76	66.9	0.9	5.2	4.6	3	344.1	-
G30:layer Ia									
2	176	55	81.0	1.5	3.8	5.6	1	115.5	3.1
3	186	43	40.5	0.9	2.6	2.4	8	1081.5	-
4	197	33	62.4	1.9	2.0	3.8	2	43.1	-
5	207	27	59.5	2.2	2.0	4.3	2	35.8	-
6	216	14	42.2	3.0	1.2	3.5	-		-
G30:layer Ib									
7	227	23	20.6	0.9	1.0	0.9	-		-
8	237	5	13.8	2.8	0.5	1.3	-		-
9	245	12	51.8	4.3	0.8	3.5	-		-
10	256	12	12.1	1.0	0.5	0.5	-		-
11	268	9	2.8	0.3	0.6	0.2	1	2.3	-
12	277	8	30.2	3.8	0.8	3.0	-		-
13	285	6	7.8	1.3	0.4	0.5	-		-
14	295	3	8.0	2.7	0.2	0.5	-		-
15	307	6	5.7	1.0	0.3	0.3	-		-
16	242	---- recent post mould ----							
G56:layer Ia									
1	133	126	218.7	1.7	7.5	13.1	5	267.6	-
2	143	83	83.6	1.0	6.0	6.1	9	785.8	-
3	153	66	184.9	2.8	4.2	11.7	6	605.1	-
4	164	83	126.8	1.5	5.2	7.9	4	226.2	0.7
5	174	57	72.2	1.3	2.4	3.1	3	247.6	0.6
6	186	32	76.1	2.4	2.0	4.8	4	198.0	-
G56:layer Ib									
7	197	19	20.0	1.1	0.9	0.9	1	895.4	-
8	208	11	7.5	0.7	0.7	0.5	-		-
9	221	23	35.5	1.5	0.9	1.4	-		-

Table 6.6 : (Continued from page 172).

G82:layer Ia

1	88	64	47.1	0.7	6.1	4.5	4	49.8	0.7
2	97	162	150.1	0.9	8.4	7.7	12	460.7	1.0
3	107	65	48.1	0.7	5.9	4.4	9	573.8	-
4	117	91	87.7	1.0	5.0	4.8	12	4394.6	-
5	129	23	19.2	0.8	1.6	1.3	1	55.7	0.6
6	141	40	49.6	1.2	1.8	2.3	-		-

G82:layer Ib

7	155	24	40.6	1.7	0.9	1.6	2	110.6	-
8	168	19	29.4	1.5	0.9	1.5	-		-
9	178	10	102.9	10.3	0.6	6.4	-		-
10	188	16	35.3	2.2	0.8	1.7	-		-

raw material

A striking feature of the chipped stone on the surface of this site is the high proportion of chert artefacts. This is also the case in the upper levels of the excavated pits, where chert is as important a raw material as silcrete in the assemblage. However this appears to have been a relatively recent development that took place from about 600-1000 yrs BP. Throughout much of layer Ia and all of layer Ib the most frequently used raw material was in fact silcrete. Fig. 6.7 illustrates the distribution of the different raw materials in G30 and G82. Although I have not attempted a quantitative analysis for the third pit my observation is that here also chert only makes up a significant proportion of the assemblage in the upper two or three excavation units. Whereas silcrete is widely available in the hills near the site, the chert must come from exposures of dolomite and limestone in the sandhill country south of the range. The substantial increase in use of chert after about 600-1000 yrs BP may reflect increased access to the resources in this area.

manufacture

There is no evidence for any change in manufacturing techniques in this assemblage. Of the eight cores, four are either single or multi-platform cores and two are bifacial cores. None of these have been used to the extent of developing major step-fractures and none show signs of careful platform preparation. The remaining two cores are blade cores, one each from layer Ia (G82/4) and Ib (G30/8). The manufacture of blades prior to the changes in site is also supported by the presence of a blade segment in G56/8. This artefact is part of a thin silcrete blade,

Table 6.7 : The proportion of different raw materials, calculated as % of total weight in each excavation unit, Pits G30 and G82. (6mm sieve fraction only).

unit	total wt. g.	quartz	chalcedony	chert	silcrete
Pit G30					
2	81.0	20.0	0.9	39.4	39.8
4	62.4		0.6	6.8	92.6
6	42.2		0.2	9.8	90.0
8	13.8		6.8		93.2
10	12.1		9.3	5.1	85.6
12	30.2		1.4	4.1	94.6
14	8.0			34.6	65.4
Pit G82					
2	150.1		4.2	36.2	59.6
4	87.7		15.9	24.7	59.4
6	49.6		1.4	13.3	85.3
8	29.4		1.4	1.7	96.9
9	102.9			0.1	99.9
10	35.3			51.9	48.1

with parallel sides and triple dorsal ridges.

typology

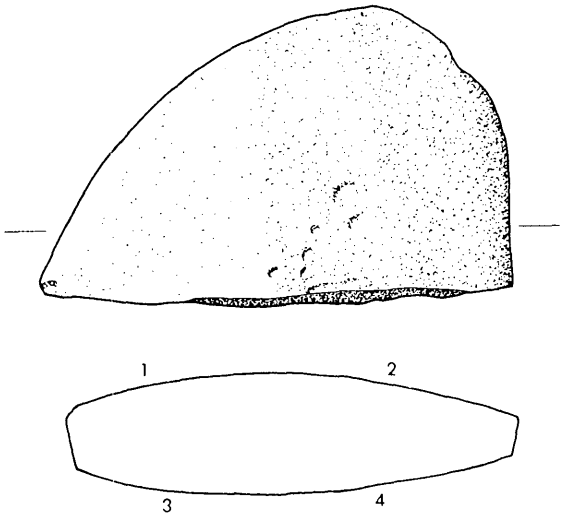
Tables 6.5 and 6.8 show the distribution of cores, redirecting flakes and retouched artefacts. The backed blades in the assemblage are all geometric microliths. The tulas are all in slug form and all of chert. Both of these types are distributed throughout layer Ia but are more common in G82 - the nearest of the pits to the spring. There is only one backed blade from layer Ib - from G82/8 (see fig. 3.7).

Grindstones.

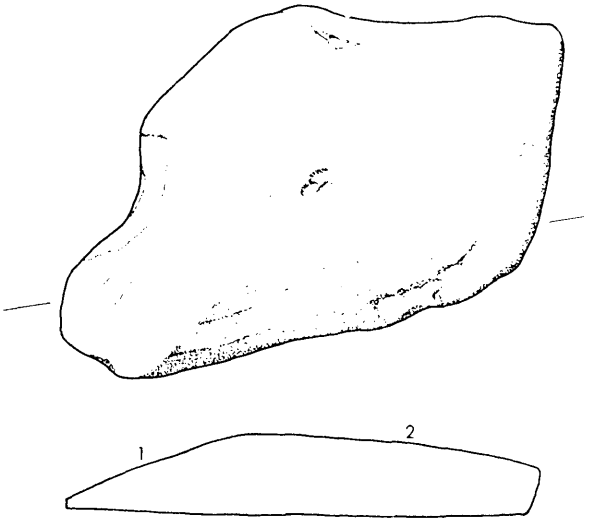
The excavations produced 89 fragments of grindstone, including five almost complete mullers. The distribution of these specimens is shown in tables 6.5 and 6.9. Of the 13 seedgrinding implements, all are from layer Ia.

Many of the undiagnostic fragments are probably also from seedgrinders. For instance, it is likely that at least four of the fragments that I have classified as undiagnostic are from mullers. In Pit G82 several of the undiagnostic fragments from units 1-3 are sandstone flakes with sections of opposing ground surfaces preserved on the ends. These are probably flakes struck off the ends of millstones in a manner similar to that described by Cane (1984:140-1). However the only definite piece of a millstone found in the excavation is a rim fragment from G82/2 (fig. 6.5). Another of the undiagnostic fragments, in this case from G30/2, is stained with yellow pigment suggesting use as a palette.

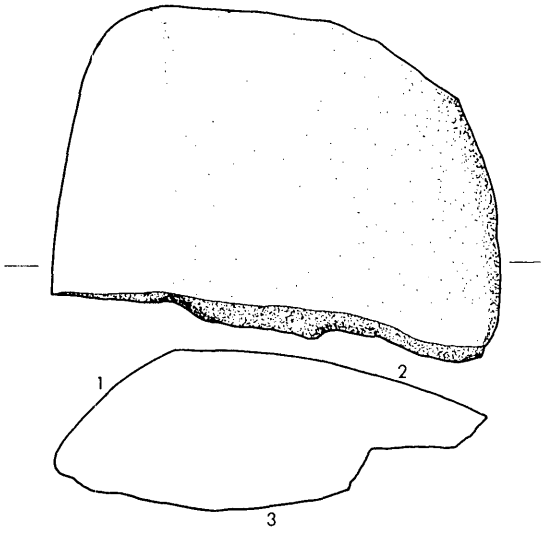
Overleaf **Figure 6.5 :** Seedgrinding implements from the excavations at Wanmara. G82/2-2 is a rim fragment from a millstone. The other specimens are from mullers.



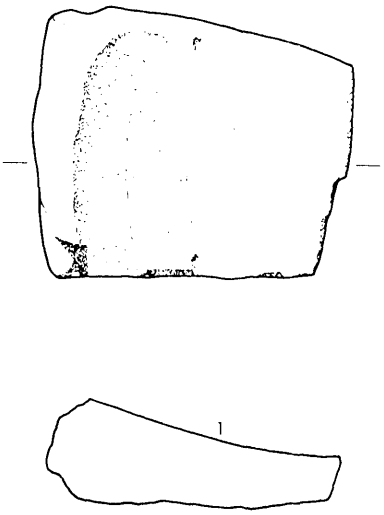
WNM G56 2-1



WNM G56 2-3



WNM G56 3-1



WNM G82 2-2

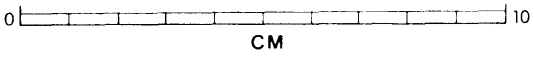


Table 6.8 : The distribution of retouched artefacts, cores and redirecting flakes by excavation unit.

unit	backed blades	tula adzes	end-scrapers	cores	redirecting flakes	amorphous retouched artefacts
G30:layer Ia						
1	-	-	-	-	-	1
2	-	1	-	-	-	3
3	-	-	-	-	-	3
4	-	-	1	-	-	1
5	-	-	-	-	-	-
6	-	-	-	-	-	1
G30:layer Ib						
7	-	-	-	-	-	-
8	-	-	-	1	-	-
9-15	-	-	-	-	-	-
G56:layer Ia						
1	-	2	-	2	-	7
2	1	1	-	-	1	2
3	1	-	-	-	-	5
4	-	-	1	1	2	1
5	-	-	-	-	-	-
6	1	-	-	-	-	1
G56:layer Ib						
7-9	-	-	-	-	-	-
G82:layer Ia						
1	-	-	-	-	1	2
2	1	4	-	-	-	6
3	1	1	-	-	-	2
4	1	1	-	1	-	3
5	-	1	-	-	-	-
6	2	-	-	-	-	2
G82:layer Ib						
7	-	-	-	1	-	2
8	1	-	-	-	1	-
9	-	-	-	1	-	-
10	-	-	-	1	-	-

Table 6.9 : The distribution of grindstones by excavation unit.

unit	seedgrinders: millstone	seedgrinders: muller	undiagnostic fragments	amorphous implement
G30:layer Ia				
1	-	1	2	-
2	-	-	1	-
3	-	-	8	-
4	-	-	2	-
5	-	-	2	-
G30:layer Ib				
11	-	-	1	-
G56:layer Ia				
1	-	1	4	-
2	-	3	6	-
3	-	1	5	-
4	-	1	3	-
5	-	-	3	-
6	-	-	4	-
G56:layer Ib				
7	-	-	-	1
G82:layer Ia				
1	-	1	3	-
2	1	3	8	-
3	-	1	7	1
4	-	-	12	-
5	-	-	1	-
6	-	-	-	-
G82:layer Ib				
7	-	-	2	-

The final feature that warrants some mention is a clump of rocks and grindstone fragments excavated in G82/4. This feature contained five undiagnostic grindstone fragments and two rocks. As at least four different grindstones are represented amongst the fragments it is likely that this feature reflects some clearing and dumping of debris in this part of the site.

Ground-edge implements.

A small dolerite flake from a ground-edge implement was recovered from G82/4. This weighed 1 g and preserved part of a ground surface with prominent fine striations. A larger axe fragment of the same material was also found in the surface collection. The nearest sources of this material are in the northern MacDonnell ranges to the northeast of Wanmara and it is likely that the Matutjara would have had access to this via their close contacts with the western Arrernte people living at Irrpmangkire [Running waters]. Another possibility is that it was obtained from sources in the Musgrave ranges to the south, through contacts with Yankuntjatjara people near Uluru.

Ochre.

Small pieces of red ochre were found throughout layer Ia but none was recovered from Ib (see table 6.6).

Eggshell.

Small pieces of eggshell were recovered from both layers but were most common in Ia. Most of the fragments preserve the distinctive texture of emu eggshell.

Bone.

density

Table 6.2 and fig. 6.4 show that the distribution of bone follows the pattern already described for chipped stone artefacts. There is very little bone in layer Ib but this increases from the base of layer Ia to reach its greatest concentration at a depth of 30-35 cm below the surface, in levels estimated to date from about 600-1000 yrs BP. The bone is mainly made up of fragments of hard compact bone. Most are between 10-20 mm long but a few are up to 45 mm. Very little shows obvious charring or burning. The 3mm sieve fraction from layer Ia also contains large amounts of finely fragmented bone whereas this sieve fraction from Ib has much less bone.

species identification

From the 6mm sieve 28 macropod teeth - mostly broken - were recovered. These are from both layers and include teeth from both large and small animals. In addition, there are four mandible fragments and three maxilla fragments. Although these are too broken to permit easy identification they all appear to be from small macropods. One specimen from G56/4 can be identified as the maxilla of a rat-kangaroo, possibly Bettongia to judge from illustrations in Merrilees and Porter (1979). All except one of the jaw fragments are from layer Ia.

Although I have not attempted definitive species identifications the teeth suggest that a range of macropods are represented, including large animals such as Macropus robustus or M. rufus as well as small wallabies - possibly Petrogale - and rat

kangaroos - possibly Bettongia.

The absence here of identifiable parts of large reptiles - such as dentaries and vertebrae - is worth noting. The only exception is a small agamid dentary found in the the 6mm sieve fraction from G30/3. A check of the 3mm sieve fraction from G56/4 produced a further seven teeth from small macropods, including a small molar from a rat kangaroo, but did not turn up any skeletal elements from reptiles. A similar absence has already been noted at Tjungkupu in chapter 5.

ILARARI

Ilarari (cf. Bowman and Scherer 1948, map Ilarara; Strehlow 1971, map Ilara; Smith 1983:31 Illarerri; Hamilton and Vachon 1985 Ilarari) was one of the most important camping places in the territory occupied by Matutjara people. Here the local groundwater underlying Horse plain is held in a small artesian basin against a sandstone ridge. There are several permanent springs in the bed of Ilara creek where it flows through a gap in this ridge. Water from these maintains a maze of reed beds and pools for several kilometres downstream. At the southern end of the gap a large waterhole has formed, in a bend of the creek, against an outlying hill. Bowman and Scherer show this on their 1948 map as "Kalaialapupakatintja hill". Around its southern and eastern edge 17 archaeological sites were recorded in 1980, including rockshelters with some build up of occupation deposit, others with stencils of hands and boomerangs painted on their walls, and also the remains of campsites on the sandy flat near the channel.

Overleaf **Figure 6.6 :** Ilarari 17 rockshelter. July 1982. View showing the excavation of square L10 in progress.

THE 1982 EXCAVATION AT ILARARI 17

Given the density of archaeological sites and the proximity of a major waterhole this area appeared to have considerable potential for establishing a chronological framework for human occupation in Central Australia. Initially my attention was caught by the rich occupation deposit on the sandy flat between Kalaialapupakatintja hill and the river. This consists of an ashy grey soil, about 70 cm deep, containing many chipped stone artefacts. However, between my visits in 1980 and 1982 this area was heavily scoured by floodwaters and it became apparent that the likely stratigraphic problems were beyond my capacity to deal with in a small excavation. I turned my attention therefore towards the rockshelters.

There are five shelters with some build up of archaeological deposit - sites 4-7 and 17. In 1982 these were augered to test their depth and contents. The two shelters closest to the waterhole - sites 4 and 5 - proved to have 40 cm of grey ashy occupation deposit underlain by red aeolian sand. The red sand was loose and difficult to successfully auger and its unconsolidated nature clearly posed problems for any excavation. In contrast the deposit in site 17 was found to be relatively damp and consolidated and the auger showed that chipped stone artefacts were present up to 1.70 m below the surface. In 1982 I gave priority to work with a chance of establishing a long chronological framework and thus I chose to excavate site 17 - located about 2 km southeast of the waterhole and lacking the more intensive use represented by the grey ashy layer at sites 4 or 5.

Ilarari 17 is a small rockshelter (figs. 6.6 and 6.7) which

faces south onto a broad sandplain dotted with desert oak (Casuarina decaisneana). According to Jack Coulthard the shelter was normally used for only one or two consecutive nights, during rainy weather, and then people would move back to camp nearer the spring. Apart from a few pieces of flaked stone and some scraps of bone the only evidence of this use is a small cluster of seven hand stencils, executed in red ochre on the rear wall of the shelter.

Initially I excavated a 1 m^2 pit - designated as L10 on a nominal site grid - but when this became too deep to permit easy access I opened half of M10 to provide a step. This enabled me to continue L10 to a maximum depth of 188 cm below the surface. Augering from the base of the trench showed that the deposit continued for a further 106 cm without reaching bedrock. Throughout the excavation zero datum was provided by a nail hammered into a prominent crack in the wall of the shelter.

Stratigraphy and chronology.

The fill of Ilarari 17 is a uniform red aeolian sand (Munsell 2.5 YR 4/6 to 4/8, pH 6.5) made up of about 80% fine to very fine sand and 7% silt/clay. It is essentially part of the sandplain that the shelter opens out onto. The only stratigraphic features are a series of rocks near the top of the section (see fig. 6.8) and a band of rubble encountered by the auger at 210 cm below the surface. The former also contained a piece of a grinding slab (IL17/L10/3-1) which was found on edge in the deposit suggesting

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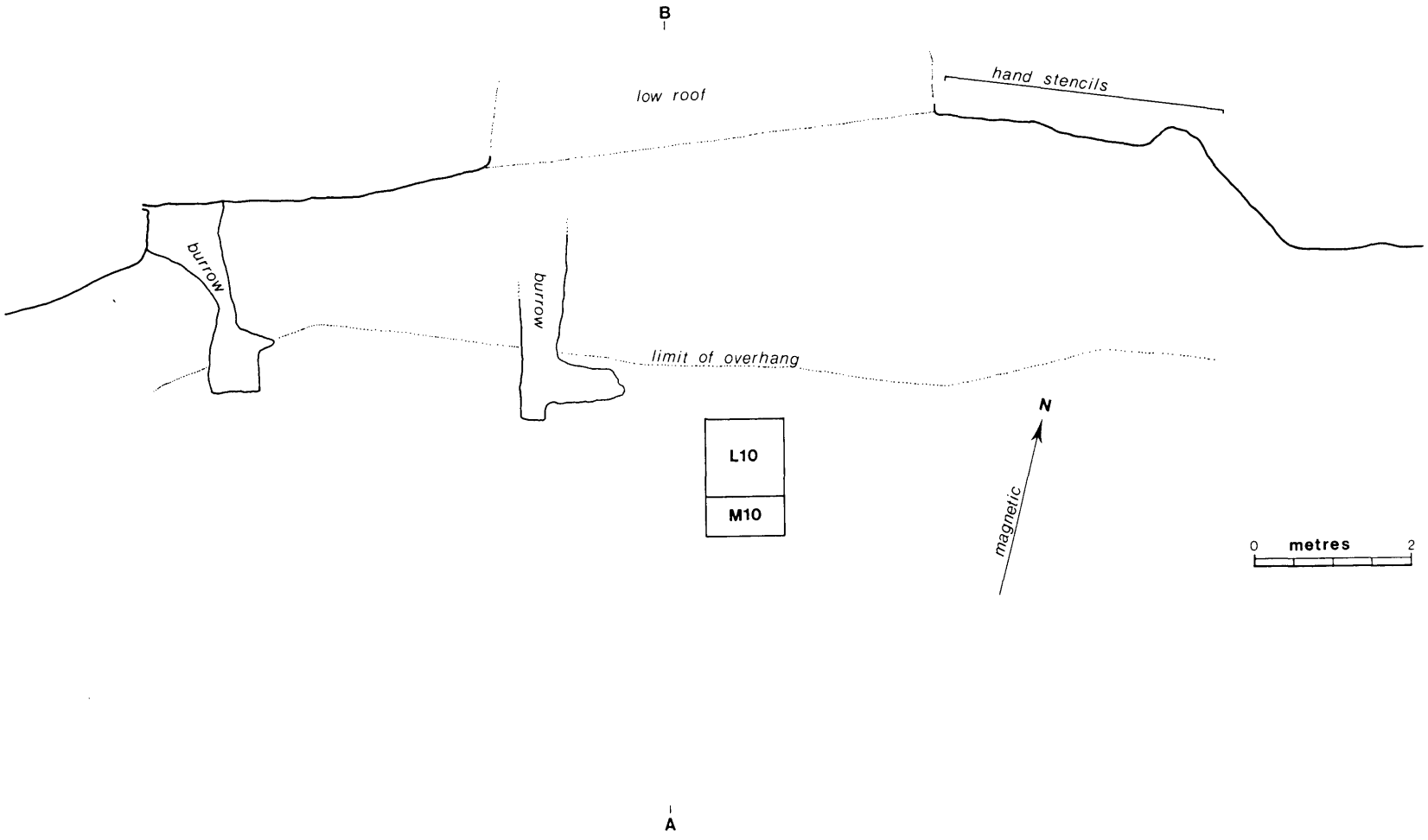
Overleaf **Figure 6.7 :** Plan of the rockshelter showing the location of the 1982 excavation. **Figure 6.8 :** Stratigraphic diagram for Ilarari 17 rockshelter.


B
low roof
hand stencils
burrow
burrow
limit of overhang
L10
M10
N
magnetic
0
metres
2
A

west face

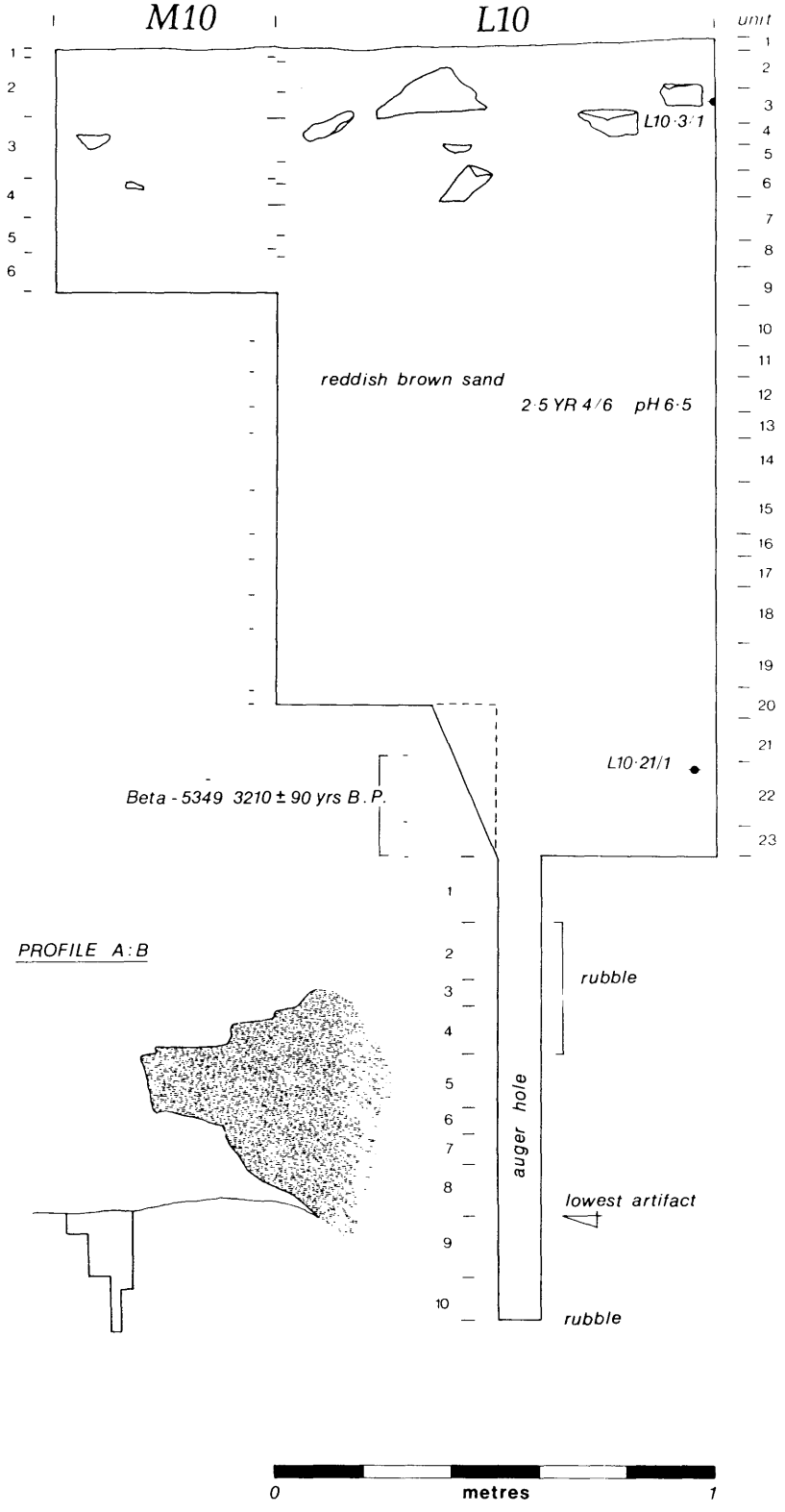

M10
L10
unit
L10·3·1
reddish brown sand
2·5 YR 4/6 pH 6·5
L10·21/1
Beta - 5349 3210 ± 90 yrs B.P.
PROFILE A:B
rubble
auger hole
lowest artifact
rubble
0
metres
1

Table 6.10 : The distribution of charcoal, chipped stone artefacts and bone in squares L10 and M10. Depths in cm below surface.

unit	mean depth cm.	sediment gross wt kg.	charcoal wt. g.	charcoal wt. g/100kg sediment	chipped stone artefacts wt.g	chipped stone artefacts no.	chipped stone artefacts mean wt.g	chipped stone artefacts no/10kg. sediment	bone wt.g
L10									
1	1	45.9	9.3	20.3	68.4	7	9.8	1.5	4.5
2	7	107.5	36.3	33.8	7.7	4	1.9	0.4	0.7
3	15	76.3	17.3	22.7	-	-	-	-	-
4	22	103.5	3.6	3.5	51.9	8	6.5	0.8	1.4
5	28	74.8	4.1	5.5	16.7	5	3.3	0.7	1.2
6	34	75.4	3.4	4.5	22.6	12	1.9	1.6	1.1
7	41	71.7	5.2	7.3	3.6	3	1.2	0.4	0.2
8	47	83.9	6.1	7.2	6.2	4	1.6	0.5	0.3
9	55	98.0	3.1	3.2	15.3	6	2.6	0.6	-
10	64	117.6	2.3	2.0	2.0	3	0.7	0.3	-
11	72	95.9	1.4	1.5	20.1	10	2.0	1.0	-
12	79	95.4	0.9	0.9	17.7	4	4.4	0.4	-
13	86	87.9	1.2	1.4	2.4	7	0.3	0.8	-
14	95	153.4	2.9	1.9	31.6	10	3.2	0.7	-
15	106	118.1	2.9	2.5	63.0	7	9.0	0.6	-
16	115	92.9	2.4	2.6	15.7	10	1.6	1.1	0.4
17	122	84.3	2.0	2.4	3.2	5	0.6	0.6	0.1
18	130	124.2	2.9	2.3	109.9	15	7.3	1.2	2.6
19	141	144.6	6.7	4.6	9.1	12	0.8	0.8	0.1
20	150	92.9	4.1	4.4	31.1	15	2.1	1.6	0.1
21	158	79.3	6.3	7.9	18.4	13	1.4	1.6	0.1
22	171	91.8	6.5	7.1	70.0	11	6.4	1.2	-
23	183	47.5	5.9	12.4	18.2	7	2.6	1.5	0.1
M10									
1	2	31.3	1.0	3.2	0.3	1	0.3	0.3	1.1
2	9	96.5	1.6	1.7	7.0	3	2.3	0.3	0.2
3	22	86.4	0.1	0.1	2.6	2	1.3	0.2	-
4	33	78.8	0.1	0.1	34.8	10	3.5	1.3	-
5	42	60.7	0.2	0.3	14.0	1	14.0	0.2	-
6	51	66.3	0.3	0.5	-	-	-	-	-

that this band of rocks may represent the clearing of larger debris from the shelter. Apart from this, rocks and artefacts encountered during the excavation were usually found to be lying horizontally bedded within the deposit. Table 6.10 summarises the archaeological content of the deposit.

During the excavation diffuse dark patches, presumably of very finely comminuted charcoal, were noted throughout the deposit. These are likely to be the remnants of small cooking or sleeping fires and I attempted to investigate this possibility in several ways. Firstly, I attempted to section several of these and found them to be irregular and diffuse in plan, to be less than 2 mm thick and to be sealed in above and below by red sand. In unit L10/19 I processed one such patch separately from the remainder of the deposit but found that its constituents were identical to the rest of the unit. Finally, I attempted to reconcile the stratigraphic distribution of the dark stains with peaks in the density of either charcoal or of chipped stone as shown in table 6.10 but this showed no obvious correlation with either.

A radiocarbon date of 3210+/-90 yrs BP (Beta-5349) was obtained on a sample of small charcoal pieces from units 22 and 23 at the base of the excavation (163-188 cm below surface). It is worth noting here that this sample comes from a level where a slightly higher concentration of artefacts and charcoal is evident (see table 6.10). Beta-5349 implies a rate of sediment accumulation of about 55mm/100yrs.

Stone artefacts.

The number of chipped stone artefacts and the amount of charcoal in the deposit are both very low and there is little

correlation between their respective distributions (see table 6.10).

The overall pattern suggests a succession of short periods of light use - represented by peak artefact densities in units 1, 6, 11, 16, 18, and 20-23 - separated by periods of little or no use. Units 20-23 have a slightly higher concentration of artefacts and charcoal. The auger hole showed that this continued below the base of the excavation for another 45 cm suggesting that the shelter was more frequently used from about 3000-4000 yrs BP. However the sequence does not show any periods of more intensive use that are comparable to those at, for example, Wanmara or Intirtekwerle (chapter 7). This is confirmed by the lack of appreciable numbers of fine flakelets in the 3mm sieve fraction. For L10 I calculate an overall density of 107 chipped stone artefacts per m^3 or about 61 artefacts/kyr - figures that are comparable to those for the lower levels of Wanmara.

Fine grained silcrete, silicified sandstone and chert are the most common raw materials throughout the deposit. There are also small amounts of chalcedony. There is no evidence of any obvious change in the proportion of these materials over time but the assemblage is very small.

Table 6.11 shows the distribution of retouched artefacts, cores and redirecting flakes. Of the three cores, two are amorphous artefacts of silicified sandstone each with less than five flake scars. The third core, from L10/1, is a more extensively flaked multiplatform core of silcrete. The only formal artefact recovered is a backed blade from the base of unit 21 at a depth of 165 cm below the surface (illustrated in fig. 3.7). Its

association with the radiocarbon date of 3210+/-90 yrs BP makes it one of the earliest securely dated backed blades from the region. On this point it is worth noting that there were no signs of any burrows or other disturbance to the deposit and that this artefact was recorded in-situ rather than recovered in the sieve.

A single grindstone was recovered during the excavation. This otherwise undiagnostic specimen, IL17/L10/3-1, bears traces of red or purple red pigment on the ground face suggesting that it is contemporary with the hand stencils at the site.

Ochre.

A large piece of high quality yellow ochre weighing 67.2 g was found during the excavation of M10/4. This level corresponds with a peak in artefact density in both M10 and L10 (see table 6.10).

Bone.

Very little bone is present in the deposit. Most of it - but not all - has a fresh, unburnt appearance suggesting that it derives from non-human agencies. Identifiable fragments include a Dasyurus mandible from L10/1, the dentary of a small agamid lizard from L10/8 and fragments of three teeth from a large macropod in L10/6 and 16. From L10/17, L10/19 and L10/20 there are several small molars and incisors from a rodent.

Table 6.11 : The distribution of retouched artefacts, cores, redirecting flakes and grindstones in the excavation at Ilarari 17.

unit	backed blades	amorphous retouched artefacts	cores	redirecting flakes	undiagnostic grindstone fragments
L10					
1	-	-	1	-	-
2	-	-	-	-	-
3	-	-	-	-	1
4	-	1	-	-	-
5	-	1	-	-	-
6	-	1	-	-	-
7	-	-	-	-	-
8	-	-	-	-	-
9	-	-	-	-	-
10	-	-	-	-	-
11	-	-	-	-	-
12	-	-	-	-	-
13	-	-	-	-	-
14	-	-	1	-	-
15	-	-	-	1	-
16	-	1	-	-	-
17	-	-	-	-	-
18	-	-	1	-	-
19	-	1	-	-	-
20	-	2	-	-	-
21	1	-	-	-	-
22	-	1	-	-	-
23	-	-	-	1	-
M10					
1	-	-	-	1	-
2	-	-	-	-	-
3	-	-	-	-	-
4	-	2	-	-	-
5	-	-	-	-	-
6	-	-	-	-	-

RREWURLPMURLPME KWEKE

Rrewurlpmurlpme kweke (cf. C. Strehlow 1907:215 and Strehlow 1964:743-5 Roulbmaulbma; Roheim 1969:95 Arolbmolbma; Smith 1983:29-30 Rulpmulpme) is one of the few sites in the Finke and Ellery gorge system with the potential for preserving archaeological deposits undisturbed by the large floods that periodically scour the area. The site is immediately downstream from the point where the sandy channel of Ellery creek enters a broad gorge and meanders amongst banks of river cobbles, old flood deposits and prior stream channels. Thus the site is well situated to allow access to the open country of the Missionary plain to the north, as well as the habitats of the gorge system.

The boundaries of the clan estate surrounding Rrewurlpmurlpme are given in detail by Strehlow (1964 map II) and show that the site is the focal point - or pmere kwetethe - of the estate. It has also given its name to the local land trust (see Lindsay 1983), which reflects something of the contemporary importance of this totemic site.

THE ARCHAEOLOGICAL SITE

The archaeological site is located upstream from the major totemic site at Rrewurlpmurlpme and on the opposite bank of the creek. It is distinguished by the name Rrewurlpmurlpme kweke - little Rrewurlpmurlpme.

The site is a low cave extending into the hillside for 16 m (see figs. 6.9 and 6.10). The disposition of large boulders at the

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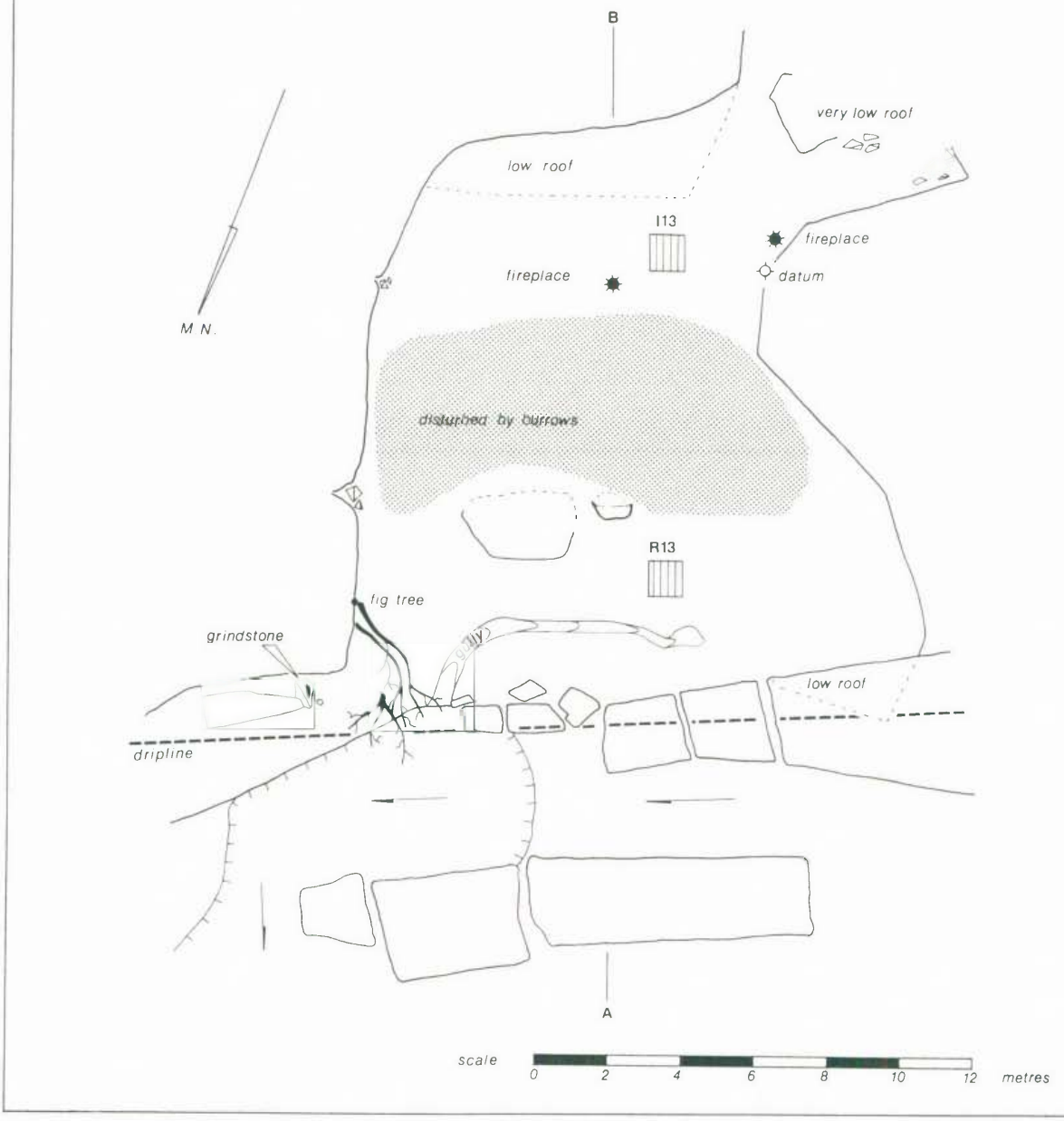
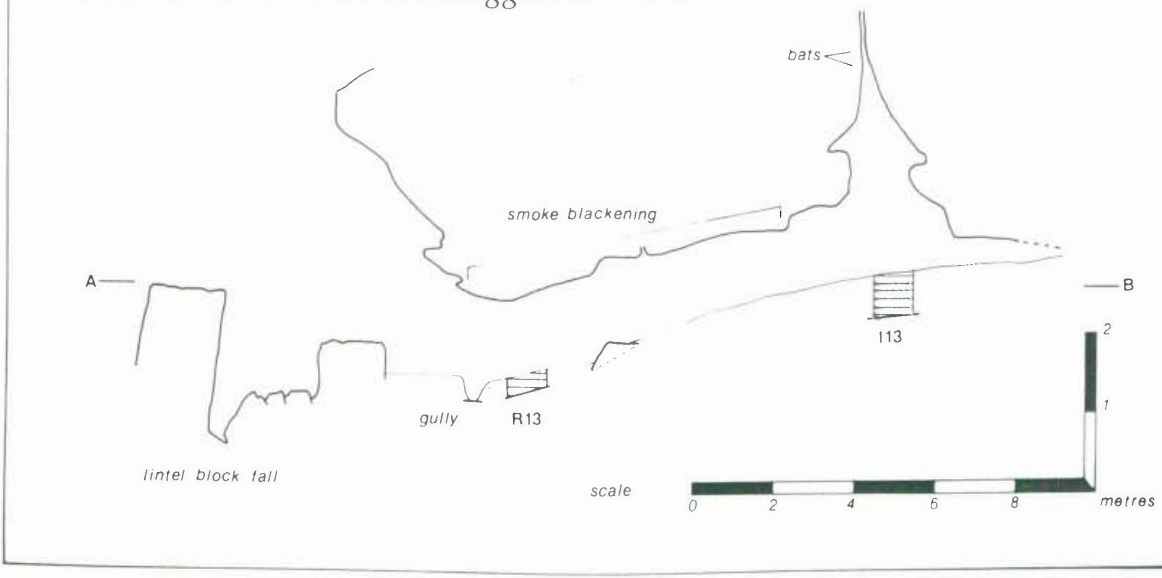
Overleaf **Figure 6.9 :** Rrewurlpmurlpme kweke cave. September 1980. View looking east. **Figure 6.10 :** Plan and profile of the cave showing the location of excavated pits.

PLAN OF CAVE



PROFILE A:B vertical exaggeration 2:1



entrance suggests that it was formerly more extensive and that at some time in the past the entrance lintel collapsed. Average height of the cave is 1.5 m but this opens out to 3 m beneath a joint line at the rear. The floor of the cave is approximately 10-15 m above the level of the river bank. This would place it out of reach of most floods and the blockfall at the entrance of the cave would provide additional protection from flood scouring.

A small colony of bats occupy the joint line at the rear of the cave and their droppings form a thin layer on the floor at this point. All of the deposit, except for that in semi-darkness at the rear of the cave, has been disturbed by burrowing animals.

The cave is said to have been used by men for concealment while preparing for ceremonies at the main totemic site[1]. The entrance overhang is said to have been generally used as shelter by people during wet weather[2]. The only evidence of Aboriginal use is a heavily smoke-blackened ceiling and a few stone artefacts on the surface. Children from a nearby outstation have left two recent fireplaces and a butter knife at the rear of the cave.

EXCAVATION OF PITS R13 AND I13

As Rrewurlpmurlpme kweke was the first of the sites excavated in this project the work was very much exploratory in nature. It was reasonable to expect that deposits in the cave entrance would be different to those in darkness at the back of the cave. Accordingly two 1 m² pits were laid out - R13 near the entrance (see fig. 6.11) and I13 beneath the high ceiling at the rear of the cave. The methods used during excavation were those generally employed on all sites in this project. For I13 however

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1. Dennis Ebaterinja. 2. Nahasson Ungwanaka.

excavation was carried out in light provided by kerosene pressure lanterns and with face-masks for protection against the fine dust.

Stratigraphy and chronology.

Pit R13 reached bedrock at a maximum depth of 40 cm. The stratigraphy consists of two layers (fig. 6.12). Layer I is a fine dark brown to grey sand (Munsell 5YR 4/4, pH 6.0) with ash, charcoal, vegetable matter (leaves, twigs, and bark), macropod faeces and stone artefacts. The top 3-5 cm are looser and lighter in colour and this is presumably the result of recent scuffage. At the base of layer I the excavation revealed a hearth, consisting of a lense of consolidated white ash and charcoal with a thin band of reddened sand underneath. The deposits in R13 have been extensively disturbed by burrowing animals. Two burrows could be isolated during excavation (units 8 and 9) and from the section it is clear that a third burrow had cut through the hearth (see fig. 6.12).

Layer I has a sharp boundary with layer II which consists of an unconsolidated fine orange sand (Munsell 5YR 6/8, pH 5.0) and roof spall. Layer II contains no bone or vegetable matter and only a small amount of charcoal except for the fill of animal burrows dug into it from the overlying layer. This layer lies directly on weathered and very friable bedrock. Table 6.12 illustrates the differences in the composition of layers I and II.

It is likely that this deposit, at the entrance of the cave, is relatively young in age because of the amount of organic matter. It also appears that sediment is periodically removed from

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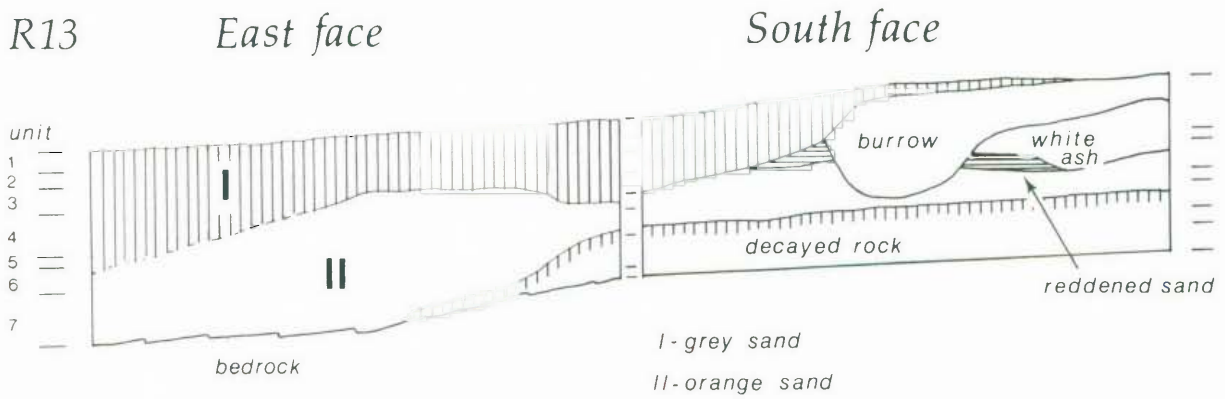
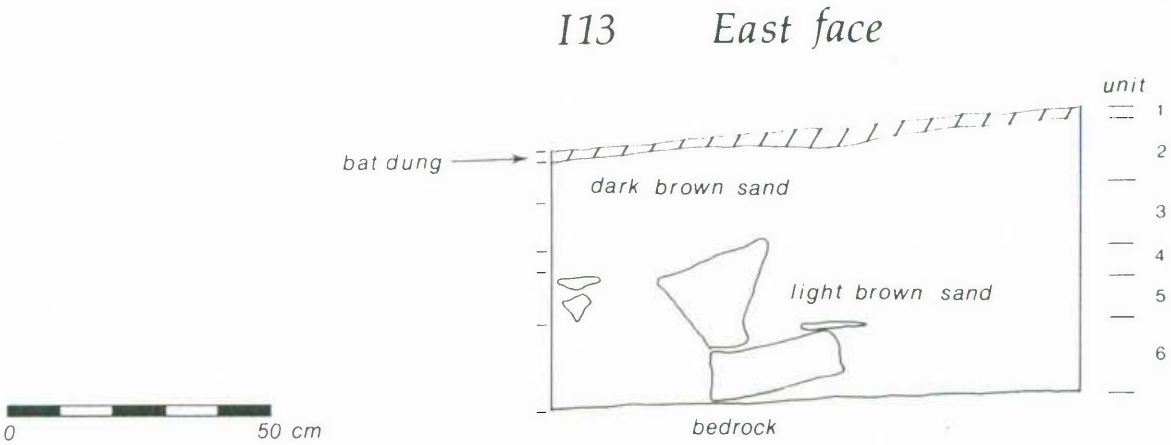
Overleaf **Figure 6.11 :** The interior of the cave showing the excavation of Pit R13 in progress. **Figure 6.12 :** Stratigraphic sections for Pits R13 and I13 at Krewurlpmurlpme kweke.


R13
East face
South face
unit
1
2
3
4
5
6
7
I
II
bedrock
burrow
white ash
decayed rock
reddened sand
I - grey sand
II - orange sand


I13
East face
unit
1
2
3
4
5
6
bat dung
dark brown sand
light brown sand
bedrock
0
50 cm

the mouth of the cave - perhaps washed out by heavy rain to judge from the gully shown in fig. 6.10. The marked difference in R13 between layer I and II suggests a change in depositional regime to one in which the entrance was more heavily used by both animals and people.

Pit I13 reached bedrock at a maximum depth of 58 cm. The deposit is quite different from that in R13 and was presumably built up by fine sediment washing into the cave through the joint line. There are no discrete layers (see table 6.12 and fig. 6.12). The surface is covered to a depth of 2-3 cm with small pellets of bat excreta. Underlying this is a moist dark brown sand (Munsell 5YR 3/4, pH 4.0) from 10-15 cm thick. This grades into a dry unconsolidated layer of light brown sand (Munsell 5YR 5/4, pH 6.0-6.5) with large rocks. The upper part of this sand (unit 3) and also the rocks throughout it are carbonate encrusted. This probably derives from the mineral content of water percolating through the joint line.

Charcoal from I13/3 gave a radiocarbon age of 3550+/-70 yrs BP (Beta-5350). This was the lowest unit with any charcoal in I13. Without additional chronological benchmarks it is not possible to estimate the basal age of the deposit. However if one were to assume that the deposit had in fact built up at a slow but constant rate and that the surface dated to within the last 100 years then the basal age would be about 10,800 yrs BP. No samples were submitted from R13 because of the disturbed stratigraphy. However given the condition of the organic matter in the deposit I estimate that layer I is only a few hundred years old.

Table 6.12 : Composition of the deposits in Pits R13 and I13. Depths are in cm below ground surface. Rocks are stones greater than 5 cm. Rubble is defined as gravel from the 6mm sieve fraction.

		sediment	rocks	charcoal		rubble	bone
unit	mean depth cm	gross wt. kg.	wt. kg.	total wt g.	wt. g/kg	wt. kg.	wt.g
R13:layer I							
1	2	26.0	2.6	459.2	17.7	0.69	1.2
2	5	40.6	-	672.1	16.6	0.76	0.6
3	9	62.9	0.3	811.1	12.9	0.87	2.6
4	14	42.6	0.1	395.5	9.3	0.79	1.4
R13:layer II							
5	19	57.8	0.2	63.0	1.1	0.76	-
6	24	56.1	0.2	17.5	0.3	1.06	-
7	31	111.8	11.7	-	-	1.27	-
fill of burrows							
8	28	7.1	-	13.6	1.9	0.11	0.1
9	22	0.6	-	2.0	3.3	0.04	-
I13							
1	1	14.8	----- not available -----				
2	8	105.3	2.6	10.4	0.1	6.00	-
3	17	100.2	5.1	7.0	0.1	6.00	-
4	23	90.8	6.3	-	-	2.15	-
5	28	121.0	52.5	-	-	2.50	0.4
6	44	172.0	33.5	-	-	13.50	-

Chipped stone artefacts.

density

Given the small numbers of artefacts involved it is not possible to reliably plot contiguous changes in artefact density. All that one can say is that chipped stone artefacts were present in all units except R13/7, R13/9 and I13/1. The figures for both pits are given in table 6.13. Combining the figures for both pits gives an overall density of artefacts of 34/m^3.

raw material

The main raw material in this assemblage is metaquartzite which is available as cobbles in the river bed. Of the 27 artefacts from both pits, 24 are pieces of quartzite cobble. There are two flakes of chert, from R13/1 and R13/2, and a flake of chalcedony from I13/4.

size

The chipped stone artefacts are very variable in size and range from 0.1 to 180.6 g. There are no directional trends in size. The most striking feature of the assemblage is the comparative lack of fine debitage. This suggests that little knapping actually took place in the cave. The absence of obvious conjoins amongst either the surface finds or the excavated assemblage also supports this interpretation.

manufacture

Assemblages on sites along the middle and upper reaches of the Ellery, Finke and Hugh rivers are dominated by the reduction of quartzite river cobbles (ultimately derived from the headwaters

of the rivers in the northern MacDonnell ranges). The assemblage from Rrewurlpmurlpme kweke conforms to this pattern (fig. 6.13). Most artefacts are primary flakes retaining some pebble cortex on their striking platform and dorsal surface or alternatively with cortex along all margins except the chord. The latter probably results from a bipolar technique of sectioning cobbles (see Flenniken and White 1985:135).

The cores found on the surface of the site are pebbles reduced by unifacial flaking on one end. Whilst bifacial flaking of cores is common in these "pebble tool" assemblages this technique is not represented in the cores from Rrewurlpmurlpme kweke.

typology

Only one retouched artefact - I13/2-1 - was recovered in the excavation. This is a roughly made steep-edged artefact made on a fragment of a quartzite pebble. The single core (I13/5-1) is a unifacially flaked quartzite cobble weighing 180.6 g. In addition to these artefacts a small steep-edged scraper of brown silcrete was found on the surface of the deposit.

Grindstones.

No grindstones are present in the excavated assemblage. However just inside the entrance of the cave there is a boulder with a milling groove. A muller lies nearby. Further inside the cave part of another grinding slab was found - in this case an amorphous grindstone.

Overleaf **Figure 6.13** : Cores and flakes from river cobbles. Rrewurlpmurlpme kweke.

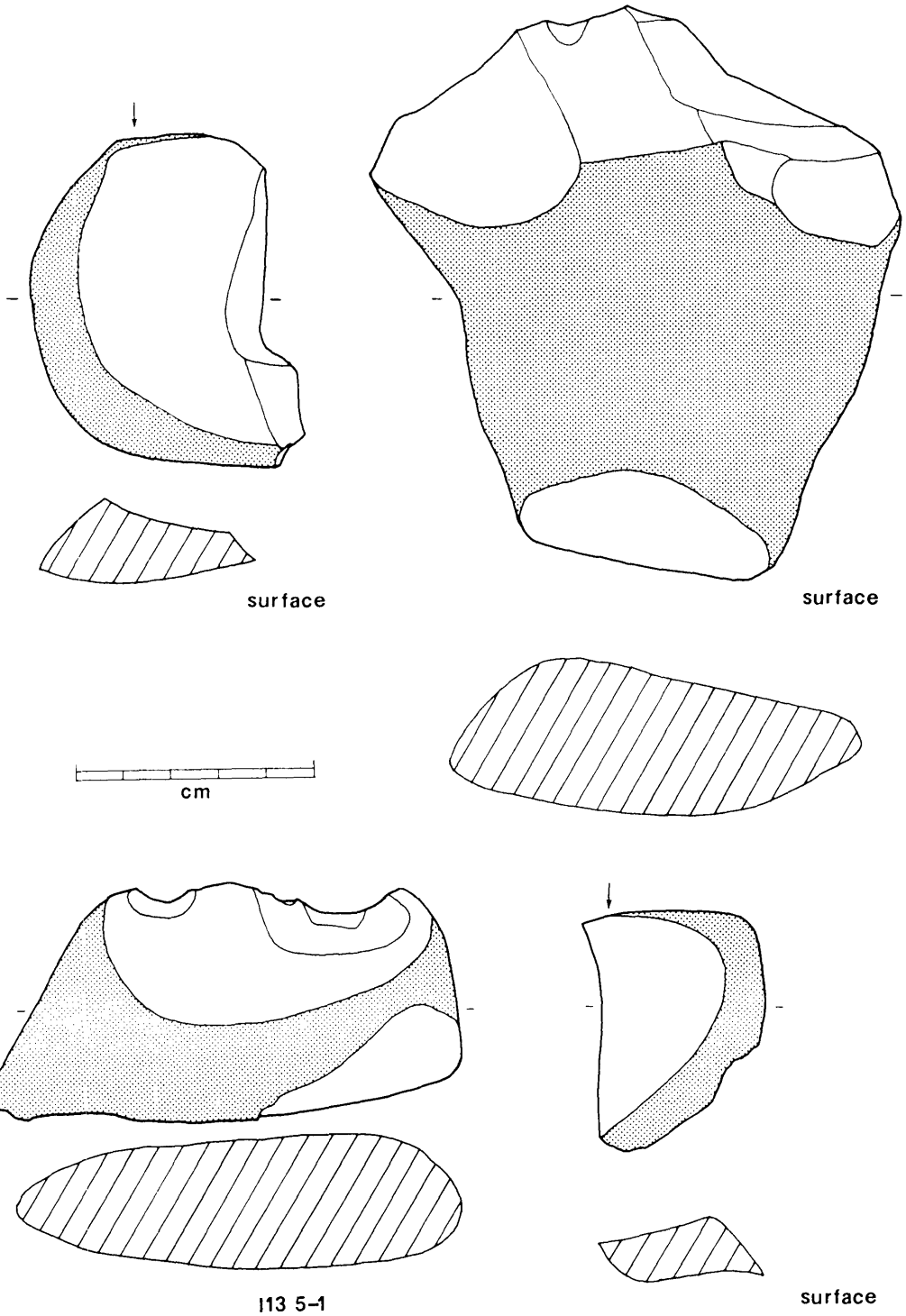


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Table 6.13 : The distribution of chipped stone artefacts in Pits R13 and I13 (6mm sieve fraction only). Depths are in cm below ground surface (there is an absolute height difference of 104 cm between the two pits).

unit	mean depth cm.	artefacts no.	artefacts wt.g
R13			
1	2	3	58.9
2	5	3	2.0
3	9	1	0.1
4	14	4	21.9
5	19	2	61.5
6	24	4	8.0
7	31		
8	28	1	0.1
9	22		
I13			
1	1		
2	8	1	124.4
3	17	1	37.7
4	23	2	7.9
5	28	3	218.3
6	44	2	9.0

Bone.

The quantity of bone in these deposits is low. It is fresh in appearance, and none of it is burnt or charred, suggesting that it may derive from non-human agencies. The only identifiable pieces from R13 are 2 rodent mandibles, from units 2 and 3, and the maxilla of a small macropod, probably Petrogale lateralis, also from R13/3. Only one piece of bone was recovered from I13. This is a tooth of a large macropod, probably Macropus rufus or M. robustus, from unit 5.

GENERAL SUMMARY: WANMARA, ILARARI AND RREWURLPMURLPME KWEKE

The sequence at Wanmara shows that the changes in site use previously reported for Puritjarra and Tjungkupu, in sandhill country to the west, also took place in the better watered ranges.

At Wanmara the change towards more intensive use of the site was gradual and began about 1320 yrs BP. This followed a comparatively stable period of at least 1000 years during which use of the site was low. From 1320 yrs BP use of the site appears to have progressively increased up to the present. The change is registered by a threefold increase in the concentration of chipped stone artefacts and corresponding increases in the numbers of grindstones and seedgrinding implements, and in the amount of charcoal, bone, ochre and eggshell in the deposit.

The changes shown in the three excavated pits at Wanmara appear to be broadly representative of the site as a whole. A series of auger holes used to gather information about the stratigraphy across the site revealed that artefacts and fine debitage were uncommon or absent at depths greater than 30-70 cm

below the surface. This is true both of the pale quartz sand north of the spring and of the red aeolian sand on the western flank of the embayment.

Elsewhere along the George Gill range there is also some field evidence to show that a change towards greater use of sites in the late Holocene was widespread. For instance, at Lila trial augering of several areas, including both red aeolian sand and pale quartz sand sediments, showed that the distribution of artefacts, fine debitage and bone was largely restricted to the top 10-35 cm of the deposit.

At Wanmara the 1985 excavations also showed that after 1320 yrs BP there was more lateral variation in the density of occupation debris. In particular, the area lying close to the spring was more heavily used than areas further away. The distribution of artefacts on the surface of the site suggests that the focus of this occupation was the low sand bank south of the creek, possibly reflecting a preference for the higher ground here.

Changes in the proportion of raw materials also suggest that after about 600-1000 yrs BP there was greater access to the resources of the sandhill country to the south of the George Gill range. It is tantalising to note that this period also marks the beginning of intensive occupation at Puritjarra and Tjungkupu, a change that appears to have taken place slightly later than at Wanmara.

The 1982 excavation at Ilarari 17 provides a rather limited window on prehistoric use of the area around this important waterhole. The archaeological record at this rockshelter records a

succession of short periods of use - a sequence consistent with ethnohistoric use as a temporary bivouac during rainy weather. The overall density of chipped stone artefacts at this site is very low and is comparable to figures for the period before 1320 yrs BP at Wanmara. The presence of a geometric microlith at a level dated to 3210+/-90 yrs BP is significant as it confirms other evidence from Wanmara showing that the new technology of the "small tool tradition" is present at least 2000 years prior to the late Holocene changes in site use.

Although the excavation of Ilarari 17 did not produce any evidence of a substantial late Holocene increase in occupation there is some field evidence from the Ilarari area to suggest that this change also took place here. For instance, the substantial occupation deposits - consisting of an ashy grey soil containing chipped stone artefacts - present in shelters 4 and 5, and on the open site near the waterhole are underlain by a red aeolian sand containing little evidence of occupation.

At Rrewurlpmurlpme kweke the excavation established that the deposits at the rear of the cave date back to at least 4000 yrs BP and possibly extend into the early Holocene.

The marked difference between layer I and II at the mouth of the cave suggests that a change towards greater use of this part of the site took place in the recent past. Whilst this pattern neatly fits into the sequence of changes in site use at other Central Australian sites the evidence from Rrewurlpmurlpme kweke is not strong enough to provide independent confirmation of this sequence. The deposits in the cave, and in the cave entrance, lack the range and density of refuse commonly present on occupation

sites and the archaeological record here is also consistent with Aboriginal accounts of ethnohistoric use of the site.