

CHAPTER FOUR

ANALYSIS

4:1 INTRODUCTION

The analysis is based on the entire body of rock art present at each site as recorded in 1971-4. It is not the analysis of a total concept or composition at each site but of a cumulative body of art as it appeared at an end point in time, e.g. that period when the last group of Aboriginal people added their marks to the existing series.

Superimposition sequences establish that there was a relative time sequence, the absolute duration of which remains yet to be determined. Thus there is a continued tradition of placing marks on rock surfaces which may or may not have changed, developed or deteriorated both in technique or style over time. However due to the nature of the art and the relative infrequency of these superimposition sequences the greater proportion of the art body cannot be examined sequentially.

The analysis is aimed at establishing those overall patterns of occurrence for motifs and techniques which may possibly serve to distinguish this regional art style from other bodies of rock art. In essence it is descriptive, limited to a spatial and distributional examination of rock art techniques and motifs within and between sites. In this thesis a small body of rock art in a discrete area is being studied as a preliminary to an examination of the distribution of related larger bodies of rock art which cover a much greater geographical area.

Where possible statistical tests have been used to provide

quantitative support for the establishment of some patterns of occurrence. The only statistical test applied to the data was the Chi-square test (χ^2). This test was selected in favour of other tests such as the student's t-test because it is non-parametric and makes no assumptions about the shape of the hypothetical parent population. Student's t-test involves the comparison of populations assumed to exhibit normal distribution. Chi-square tests were used for the analysis of the ratio of relative frequencies of occurrence of left and right human limbs, and the analysis of the deviation of the relative frequencies of certain motifs and colours in superimposition sequences from the relative frequency of their occurrence in the total art body. Since the power of any statistical test is directly related to the sample size, chi-square was not applied to samples where fewer than 30 units occurred.

The following analysis is based on the data presented in the census, colour and superimposition records which appear in the gazetter in the preceding chapter. Throughout Chapter 4 it should be noted that the term 'pictograph' refers to all motifs which are made by the addition of pigment to the rock surface; this includes stencils, prints, drawings and paintings. The term 'painting' refers only to those marks produced by daubing wet pigment directly onto the surface.

4:2 INTRA-SITE ANALYSIS

A detailed examination of the larger more complex multi-technique sites, taken site by site follows. Eighteen smaller single technique sites are treated separately as a group at the end of this section because their individual art content (eleven motifs or less)

is seen to be too small to warrant individual analysis.

M-HE/1: The 'Art Gallery' site is composed of two distinct physical areas, the open cliff face of some 15 metres in length at the north eastern end (Plate 44a-b) and the rock shelter proper occupying the remainder of the site (Plates 44c-46) (Plan 1). The clean hard white surface of the former seems to have attracted the preferential use of pictographs; the soft, friable easily abraded surface of the latter favoured the engraving process. Pictographs comprise 76.76% and engravings 23.23% of the motifs on the open cliff face. By contrast the equivalent frequencies in the rock shelter are 14.02% and 85.98% respectively. Table 1 shows the frequency of pictographs and of engravings in both areas as percentages of the total number of motifs for each within the site as a whole. Thus the majority of pictographs and engravings are found on that type of rock surface which is most suited to each technical process.

M-HE/1: Position of Techniques

Area	Pictographs		Engravings		Total	
	No.	%	No.	%	No.	%
Cliff face	449	69.50	135	10.05	584	29.36
Rock shelter	197	30.50	1208	89.95	1405	70.64
Total	646	100.00	1343	100.00	1989	100.00

Three techniques occur at this site, engravings are the most numerous, followed next by stencils and last by paintings (Table 2).

M-HE/1: Techniques

Technique	No.	%
Stencils	559	30.12
Paintings	47	2.36
Engravings	1343	67.52
Total	1989	100.00

There are nine motif groups at the 'Art Gallery', five are figurative and four non-figurative. The former comprises 48.17% the latter 51.83% of the total. Linear motifs are the most numerous group closely followed by human features, then animal features, cups and rings, solid motifs, tools and weapons, geometric designs, unidentified and plant features in descending order of frequency (Table 3).

M-HE/1: Motif Groups

		<u>Motif group</u>	<u>No.</u>	<u>%</u>
Figurative	{	Human features	497	24.99
		Tools and weapons	71	3.57
		Animal features	355	17.85
		Plant features	8	0.40
		Unidentified	27	1.36
Non-figurative	{	Cups and rings	275	13.83
		Geometric designs	55	2.77
		Linear motifs	542	27.25
		Solid motifs	159	7.99
Total			1989	100.01

Hands are the most important component of the human features motif group comprising 78.07% of these. Among those human limb stencils which can be distinguished there was a significant preference shown for left over right ($x^2 = 38.58$, level of significance 0.05). A similar preference is indicated for hands and hands + forearms ($x^2 = 40.14$ and 12.33 , level of significance 0.05). By contrast the reverse situation applies to feet, where the right is marginally more frequent. But this does not show significant preference ($x^2 = 1.49$, level of significance 0.05). (Table 4).

M-HE/1: Human Features

Motif	Left		Right		Total
	No.	%	No.	%	
Hands	209	68.08	98	31.92	307
Hands + f'arm	33	76.74	10	23.26	43
Feet	23	41.82	32	58.18	55
Human limbs	265	65.43	140	34.57	405

Small sized human limbs do appear although much less frequently than standard sized examples. The ratios for hands + forearms are high but for feet there are relatively more small sized examples (Table 5).

M-HE/1: Human Features

Motif	Left		Right		Total	Ratio
	No.	%	No.	%		
Hands	349	89.03	43	10.97	392	8.12:1
Hands + f'arm	41	91.11	4	8.89	45	10.25:1
Feet	23	53.49	20	46.51	43	1.15:1
Human limbs	413	86.04	67	13.96	480	6.16:1

Only two examples of the 392 hands are 'mutilated'. One is a yellow left hand with the top joint of the middle finger missing, the other a red left hand lacking the top joint of the little finger.

The most favoured technique used to depict the human features group at this site was stencilling. A small number of engravings and a single painting also appear (Table 6).

Table 6

<u>M-HE/1: Human Features: Techniques</u>		
<u>Technique</u>	<u>No.</u>	<u>%</u>
Stencils	473	95.17
Painting	1	0.20
Engravings	23	4.63
Total	497	100.00

The animal features groups is composed of five motifs, the goanna is depicted as a complete figure, the remainder as tracks. Macropodid tracks occur most frequently closely followed by emu then animal and lastly bird in descending order of frequency (Table 7).

Table 7

<u>M-HE/1: Animal Features: Motifs</u>		
<u>Motif</u>	<u>No.</u>	<u>%</u>
Goannas	7	1.97
Macropodid tracks	149	41.97
Animal tracks	62	17.47
Emu tracks	121	34.08
Bird tracks	16	4.51
Total	355	100.00

Engraving was the most frequently used technique for depicting animal features. A small number of stencils and paintings were also utilized (Table 8).

Table 8

<u>M-HE/1: Animal Features: Techniques</u>		
<u>Technique</u>	<u>No.</u>	<u>%</u>
Stencils	20	5.63
Paintings	6	1.69
Engravings	329	92.68
Total	355	100.00

Three motifs make up the tools and weapons group, the most important of which are the boomerangs. Axes and shields also occur though less frequently (Table 9). All tools and weapons are stencilled.

Table 9

<u>M-HE/1: Tools and Weapons: Motifs</u>		
<u>Motif</u>	<u>No.</u>	<u>%</u>
Axes	17	23.94
Boomerangs	51	71.83
<u>Shields</u>	<u>3</u>	<u>4.23</u>
Total	71	100.00

The engraved cup and ring motif is a very distinctive feature at this site. Despite the fact that the cup and ring makes up only 13.83% of all motifs at M-HE/1, the 275 examples here form more than two-thirds of the total number for this motif group at all the sites combined.

The pictographs can be divided into four basic colour groups rated in descending order of frequency - red, yellow, white and black (Table 10). There are eight different hues present in the red group and four in the yellow.

Table 10

<u>M-HE/1: Colours: Pictographs</u>		
<u>Colour</u>	<u>No.</u>	<u>%</u>
Red	469.5	72.68
Yellow	84.5	13.08
White	67	10.37
<u>Black</u>	<u>25</u>	<u>3.87</u>
Total	646	100.00

All pictographs except one are monochrome. The exception is the outline face which shows a bichrome combination of red and yellow. White, yellow and black paintings are relatively more frequent than their equivalent frequencies among the total pictographs (Table 11).

M-HE/1: Colours: Paintings

<u>Colour</u>	<u>No.</u>	<u>%</u>
Red	19.5	41.49
Yellow	6.5	13.83
White	17	36.17
Black	4	8.51
Total	47	100.00

Table 11

The majority of motifs present at the 'Art Gallery' are single component units, but there are a considerable number of double or multiple examples also. These include pairs of hands, vertical extended pairs of hands + forearms, tiers and rows of two, three or four convex and concave orientated boomerangs, tiers of painted chevrons, pairs of macropodid tracks and numerous multiple rows of engraved and painted lines. Double component motifs can also be combined, two pairs of extended hands + forearms, one vertical and one horizontal are combined to form a more complex design.

(Table 12). One multi component motif is the 'emu' foot consisting of the combination of three or four stencilled boomerang tips or leaves arranged in the manner of a *fleur de lis*. These double and multiple component motifs need to be taken into account when making quantitative as well as qualitative judgements about the relative frequency and significance of motifs and techniques.

M-HE/1: Multiple Component Motifs

Table 12

Motif	Components				Total No. Components
	2	3	4	mult.	
Hands	4				8
Hands + f'arm	1		1		6
Boomerang	2	1			7
Boomerang	5		1		14
Boomerang	1				2
Boomerang	1				2
Emu tracks		10	9		66
Macropodid tracks	115				230
Chevrons				3	21
Vertical linear series		3	3	10	103
Total occurrences	129	14	14	13	170
					459

Some motifs are unique to this site in the context of the sites included in this thesis. These include the painted and engraved goannas (Plate 20), a hafted steel axe stencil (Plate 12b), leaf stencils (Plate 25a), the stencilled crossed hands + forearms (Plate 34b), painted chevrons (Plate 35b), and the outline design face (Plate 2b). The emu foot stencils (Plate 23b) are not found elsewhere although painted and engraved examples do occur.

There are 62 superimposition sequences involving 219 motifs at the 'Art Gallery' (Table 13). Most are stencils, however, their number is relatively small in proportion to the number of stencils at the site (28.38%). Paintings in superimposed sequences by contrast comprise over half the number of that technique at the site (53.19%). The proportion of engravings involved in a superimposition sequence

is very small (1.79%).

M-HE/1: Superimpositions: Techniques

<u>Technique</u>	<u>No.</u>
Stencils	170
Paintings	25
<u>Engravings</u>	<u>24</u>
Total	219

Table 13

Half the superimposition sequences involve only two motifs. The others comprise multiple arrangements (Table 14).

M-HE/1: Multiple Superimposition Sequences

<u>Superimposition</u>	<u>No.occurrences</u>	<u>No.motifs</u>
2 superimposed	31	62
3 superimposed	11	33
4 superimposed	5	20
5 superimposed	6	30
6 superimposed	4	24
7 superimposed	1	7
8 superimposed	1	8
10 superimposed	2	20
<u>15 superimposed</u>	<u>1</u>	<u>15</u>
Total	62	219

Table 14

There is no evidence for a strict relative sequence of techniques as there are examples of each superimposed over the other. Seven examples of pictographs are superimposed over engravings and eight examples of engravings over pictographs. In one case a red pigment wash appears to have been laid down prior to the engraving of a pair of macropodid tracks. This small number may be accounted for by the division of the site into areas where one process or the other predominates. Paintings occur in the superior position

on sixteen occasions. They are superimposed by stencils four times. However, in one of these multiple superimposition situations, they are in turn superimposed by engravings.

There is strong evidence for some types of painting being the latest technique to be introduced to the site; out of a total of 47 motifs, 21 are single occurrence motifs and sixteen are in the superior position in superimposition sequences, one superimposed by a stencil itself, in turn superimposes another stencil. Five paintings are superimposed by stencils (Table 15).

M-HE/1: Superimpositions: Combinations of Techniques

<u>Techniques</u>	<u>No.</u>
Stencils/stencils	28
Stencils/paintings	1
Stencils/paintings + stencils	2
Stencils/paintings/stencils	1
Stencils/engravings	4
<u>Table 15</u> Paintings/stencils	12
Paintings/stencils + paintings	1
Paintings/stencils + engravings	2
Paintings/paintings/stencils/ engravings	1
Engravings/engravings	2
Engravings/stencils	8
Total	62

Seventy-one motifs appear in the top position in the 62 superimposition sequences. Human features are the major group, followed by geometric designs, animal features and tools and weapons (Table 16). The relative frequency of geometric designs in a superior position in superimposition sequences is significantly higher than its relative

frequency at the site ($x^2 = 58.61$, level of significance 0.05).

H-HE/1: Superimpositions: Motif Groups

<u>Motif Group</u>	<u>No.</u>	<u>% total</u>
Human features	33	6.64
Tools and weapons	7	9.86
Animal features	11	3.10
Unidentified	2	7.40
Cup and ring	3	1.09
Geometric designs	13	23.64
Linear motifs	1	0.19

Table 16

Perhaps among the most recent group of motifs to be depicted were the painted goannas, grids and crosses. Three of the six white painted goannas are in a superior position in a superimposition sequence, one is a single position occurrence, one is superimposed by a painted cross and the other by a white hand stencil. Two of the three painted crosses are in the top position in superimposition sequences, and one is in a single position occurrence. Eleven of the fourteen grids are in a superior position in superimposition sequences, and three are single position occurrences.

Sixty pictographic motifs appear in the superior position in 52 superimposition sequences. These are mainly coloured red, followed by white then yellow and lastly black (Table 17). The relative frequency of white in a superior position in superimposition sequences is significantly higher than its relative frequency at the site ($x^2 = 23.26$, level of significance 0.05). Conversely the relative frequency of red is significantly lower ($x^2 = 12.89$, level of significance 0.05).

M-HE/1: Superimpositions: Colours

<u>Colour</u>	<u>No.</u>	<u>% total colour</u>
Red	31	6.00
Yellow	10	11.00
White	18	26.87
Black	1	4.00

Table 17

There are only two examples of engraving superimposed over engraving, in both cases the cup and ring motif is found over emu tracks.

At the 'Art Gallery' it appears that we have evidence that stencils and engravings were practised contemporaneously for at least some time, and that certain painted motifs appeared at a later date when stencils and engravings were still being added to the series. It is possible that the white stencils and the painted grids, crosses and goannas date mainly from the same late period.

On a qualitative or subjective level of analysis it is necessary to take into consideration size, colour, composition and multiple component units; all features that give a total visual impact. In this context, painted grids which were included within the motif group geometric designs assume an importance far beyond that which their relative frequency in the census would indicate. Subjectively one could rate the motif groups in the following order; human features, animal features, cups and rings, geometric designs, tools and weapons, and linear motifs. However, the dangers inherent in such an approach are paramount. The viewer is prone to make ethnocentric, cross cultural judgements about a visual art form which can and probably does diverge greatly from not only the conceptual but the visual framework of the Aboriginal artist.

M-HE/2: Pictographs only are present at this site and there is no apparent preference for location except that the art is concentrated in two major groups, one centrally at the bottom of the slope, the other to the right at the top of the slope towards the south eastern end near the cave (Plan 2, Plates 47-8).

Three techniques occur at this site. By far the greatest preference was shown for the selection of stencils although a small number of paintings and a drawing are also present (Table 18).

M-HE/2: Techniques

<u>Technique</u>	<u>No.</u>	<u>%</u>
Stencils	251	97.67
Paintings	5	1.94
Drawing	1	0.39
Total	257	100.00

Table 18

There are six groups of motifs depicted; four figurative comprising 97.67% of the total and two non-figurative making up the remaining 2.33%. Human features are by far the most frequently occurring motif group, followed in descending order of frequency by tools and weapons, plant features and solid motifs and geometric designs and unidentified motifs (Table 19).

M-HE/2: Motif Groups

<u>Motif Group</u>	<u>No.</u>	<u>%</u>	
Figurative {	Human features	226	87.94
	Tools & weapons	19	7.39
	Plant features	4	1.56
	Unidentified	2	0.78
Non-figurative {	Geometric designs	2	0.78
	Solid motifs	4	1.56
Total	257	100.01	

Table 19

Hands form the most important component of the human features motif group comprising 70.52% of the total. There is a significant preference for left over right for human limbs, ($\chi^2 = 7.30$, level of significance 0.50). A similar preference is shown for hands ($\chi^2 = 7.32$, level of significance 0.05). Left is more frequent than right for hands + forearms but does not show a significant preference ($\chi^2 = 0.74$, level of significance 0.50). There is an equal distribution for feet (Table 20).

M HE/2: Human Features

Motif	Left		Right		Total
	No.	%	No.	%	
Hands	91	61.07	58	38.93	149
Hands + f'arm	20	57.14	15	42.86	35
Feet	7	50.00	7	50.00	14
Human limbs	118	59.60	80	40.40	198

Small sized human limbs do appear, although less frequently than standard sized examples. The relative proportion of small hands is greater than for feet and hands + forearms (Table 21).

M-HE/2: Human Features

Motif	Standard		Small		Total	Ratio
	No.	%	No.	%		
Hands	120	65.22	64	34.78	148	1.86:1
Hands + f'arm	31	88.57	4	11.43	35	7.75:1
Feet	11	78.57	3	21.43	14	3.67:1
Human limbs	162	69.53	71	30.47	233	2.28:1

There are only two 'mutilated' hands present out of a total number of 184 hands. Both lack the little finger. One is of standard, one of small size.

Red is definitely the most favoured colour group being utilized to depict some 98.83% of motifs. White, the only other colour group present, makes up the remaining 1.27%. Four different hues are used within the red group.

Most motifs present are single component units, but there are a number of double component examples and these include pairs of hands, pairs of hands + forearms (three of which are horizontal extended pairs), tiers of double convex orientated boomerangs and a pair of opposed concave orientated boomerangs (Table 22).

M-HE/2: Multiple Component Motifs

Table 22

Motifs	Components	Total No. Components
Hands	8	16
Hands + f'arm	5	10
Boomerang  x 2	1	2
Boomerang 	1	2
Total	15	30

The motif showing a pair of hands joined wrist to wrist (Plate 4c) is unique to this site, as are the four 'zamia' seed pods (Plate 25b) and the seven knives (Plate 13a).

A small number of superimpositions occur. These include eleven sequences involving 25 motifs. The single example of a painted grid is superimposed over a hand stencil. Human features are in a superior position in a superimposition sequence six times, and tools and weapons five times. By contrast human features are also in an inferior position on ten occasions, while tools and weapons are in a similar position only once.

M-HE/3: At 'Cathedral Cave' pictographs are found along the entire length of the decorated wall but engravings are limited to the south western side of the site (Plan 3, Plates 49-53a).

Four out of the five techniques utilized in this area are found at 'Cathedral Cave', more than at any other site included in this survey. Stencils appear most frequently, then engravings, a few paintings and finally a single drawing (Table 23).

Table 23

<u>M-HE/3: Techniques</u>		
<u>Technique</u>	<u>No.</u>	<u>%</u>
Stencils	995	59.61
Paintings	27	1.62
Drawing	1	0.06
<u>Engraving</u>	<u>646</u>	<u>38.71</u>
Total	1669	100.00

Eight groups of motifs are depicted, four figurative comprising 83.84%, and four non-figurative making up 16.16% of the total. Human features are by far the most important group comprising over half the motifs at the site; animal features are also prominent, then linear and solid motifs, tools and weapons, geometric designs, cups and rings and unidentified motifs in descending order of frequency (Table 24).

Table 24

<u>M-HE/3: Motif Groups</u>		
<u>Motif group</u>	<u>No.</u>	<u>%</u>
Figurative	Human features	874 52.37
	Tools and weapons	72 4.31
	Animal features	382 22.89
	Unidentified	68 4.07

		Motifs	No.	%
Table 24 (cont'd)	Non- figurative	Cups and rings	30	1.80
		Geometric designs	27	1.62
		Linear motifs	124	7.43
		Solid motifs	92	5.50
		Total	1669	99.99

There is one example of a complete human figure present, but hands constitute the most important component of the human features motif group (forming 86.27% of the total). There is an overall preference for left over right among all human limbs combined, and for hands, hands + forearms and feet alone. A significant preference for left over right is shown for all human limbs ($x^2 = 19.86$, level of significance 0.05) and for hands ($x^2 = 18.17$, level of significance 0.05), but no significant preference is shown for hands + forearms ($x^2 = 1.63$, level of significance 0.05) and feet ($x^2 = 0.32$, level of significance 0.05). (Table 25).

M-HE/3: Human Features

Motif	Left		Right		Total
	No.	%	No.	%	
Hands	356	58.65	251	41.35	607
Hands + f'arm	43	57.33	32	42.67	75
Feet	17	54.84	14	45.16	31
Human limbs	416	58.34	297	41.66	713

Small sized human limbs are greatly outnumbered by standard sized examples, but there are, marginally, more small than standard sized feet (Table 26).

M-HE/3: Human Features

Motif	Standard		Small		Total	Ratio
	No.	%	No.	%		
Hands	701	92.85	54	7.15	755	12.98:1
Hands + f'arm	75	94.94	4	5.06	79	18.75:1
Feet	11	47.83	12	52.17	23	0.92:1
Total	787	91.83	70	8.17	857	11.24:1

Stencilling is the most favoured technique utilized to depict human features, a small number of engravings and one drawing also occur (Table 27).

M-HE/3: Human Features: Techniques

Technique	No.	%
Stencils	846	96.80
Drawing	1	0.11
Engravings	27	3.09
Total	874	100.00

Four motifs make up the animal features group; macropodid tracks occur most frequently followed by animal then emu and bird tracks (Table 28).

M-HE/3: Animal Features: Motifs

Motif	No.	%
Macropodid tracks	192	50.26
Animal tracks	106	27.74
Emu tracks	79	20.68
Bird tracks	5	1.31
Total	382	99.99

Engraving is the preferred technique for animal features; stencils and paintings constitute only a small portion of the total (Table 29).

Table 29

<u>M-HE/3: Animal Features: Techniques</u>		
<u>Technique</u>	<u>No.</u>	<u>%</u>
Stencils	9	2.36
Painting	1	0.26
Engravings	372	97.38
Total	382	100.00

Five motifs make up the tools and weapons group. The most important of these are the boomerangs. All tools and weapons are stencilled (Table 30).

Table 30

<u>M-HE/3: Tools and Weapons: Motifs</u>		
<u>Motif</u>	<u>No.</u>	<u>%</u>
Axes	5	6.94
Clubs	9	12.50
Boomerangs	55	76.39
Spear head	1	1.39
Shields	2	2.78
Total	72	100.00

Over three-quarters of the unidentified group is made up of disc stencils with and without attachment. The engraved cup and ring motif although present in a small quantity is not of great importance at this site.

Four basic colour groups are used for the pictographs. In descending order of frequency, they are red, yellow, white

and black (Table 31). There are sixteen different red hues, five yellow and two white.

M-HE/3: Colours

<u>Colour</u>	<u>No.</u>	<u>%</u>
Red	959	93.74
Yellow	51	4.99
White	10	0.98
Black	3	0.29
Total	1023	100.00

Table 31

A large number of double and multiple component motifs are depicted including pairs of hands, pairs of horizontal extended hands + forearms, pairs of stencilled and engraved animal and macropodid tracks, tiers and rows of two to sixteen convex and concave orientated boomerangs and multiple rows of vertical painted and engraved lines and horizontal rows of engraved lines (Table 32).

M-HE/3: Multiple Component Motifs

<u>Motif</u>	<u>Components</u>				<u>Total Components</u>
	2	3	4	mult.	
Hands	1				2
Hands + f'arm	12				24
Boomerang	6	5		2	51
Boomerang		1		3	33
Boomerang	2				4
Boomerang	1				2
Boomerang		1			3
Boomerang				2	13
Animal tracks	2				4

Table 32

Macropodid tracks	155					310
Vertical linear series	1	2	1	11		106
Horizontal linear series	1			2		31
Total occurrences	181	9	1	20	211	583

'Cathedral Cave' contains some motifs unique to this area. These include two types of stencilled clubs (Plates 14b, 15a-b), the solid human figure drawing (Plate 2a) and an engraved outline design (Plate 39c).

Superimposition of motifs occurs 45 times involving 147 motifs. More than half the motifs involved are stencils, however their number is relative small in proportion to the total number of stencils at the site (8.44%). The proportion of engravings in a superimposed situation is also low (6.35%). By contrast over three quarters (77.78%) of painted motifs are involved in superimposition sequences.

Over half the superimposition sequences are made up of only two motifs, the remainder are composed of multiple arrangements (Table 33).

M-HE/3: Multiple Superimposition Sequence

<u>Superimposition</u>	<u>No. Occurrences</u>	<u>No. Motifs</u>
2	25	50
3	8	24
4	2	8
5	5	25
6	2	12
7	1	7
10	1	10
11	1	11
Total	45	147

Table 33

There is no absolute evidence for a strict relative sequence of techniques since there are only a few examples of each superimposed over the other. In four cases pictographs are superimposed over engravings and in three engravings are found over pictographs (Table 34).

M-HE/3: Superimpositions: Combinations of Techniques

<u>Techniques</u>	<u>No.</u>
Stencils/stencils	21
Stencils/stencils/stencils	1
Stencils/paintings/stencils	1
Stencils/pigment wash	1
Stencils/engravings	2
Drawing/stencils	1
Painting/stencils	7
Painting/painting/stencils/ stencils	1
Painting/stencils/stencils	1
Painting/painting + stencils	1
Painting/engraving	2
Painting/stencil/pigment wash/engraving	1
Pigment wash/engraving	2
Engraving/stencil	1
Engraving/pigment wash	1
Engravings/pigment wash/ engravings	1
Total	45

Out of a total of 23 painted motifs (excluding four areas of pigment wash) fifteen are in superior superimposition sequences

(thirteen plus two superimposed by other paintings), seven are single occurrence motifs, and one is superimposed by a stencil, however, this in turn superimposes a group of stencils. No painted motifs are superimposed by engravings. This evidence suggests that painted motifs were among the last to be introduced to this site, although it is also probable that the other techniques continued until the latest period.

A coating of red pigment wash was applied to the rock surface in a number of places, these areas can extend in broad bands up to 9.80 metres in length and 50 centimetres in width. On four occasions this red wash overlies earlier engravings. It appears to have been laid down either to provide a background for paintings and stencils (twice) or for other engravings (twice).

Fifty-six motifs appear in the top position in the 45 superimposition sequences. The major groups in order of frequency are human features, geometric designs, tools and weapons and animal features (Table 35).

M-HE/3: Superimpositions: Motif Groups

<u>Motif group</u>	<u>No.</u>	<u>% total</u>
Human features	18	2.17
Tools and weapons	10	13.89
Animal features	7	1.83
Unidentified	3	4.41
Cup and ring	1	3.33
Geometric designs	11	40.74
Linear motifs	3	2.42
Solid motifs	2	2.17

Table 35

The relative frequency of geometric designs and tools and weapons in the superior position in superimposition sequences is significantly higher than its relative frequency at the site ($\chi^2 = 12.58$ and 22.56 , level of significance 0.05).

Painted grids were probably the latest motifs to be added to the corpus at this site. Fifteen grids are present. Out of these two are single unit occurrences, eleven appear in the superior position in a superimposition sequence and a further two are superimposed by other grids. One of the latter is also superimposed by a red stencilled boomerang.

Forty-eight pictographs appear in the superior position in 42 superimposition sequences. The colour red predominates over white (Table 36). But the relative frequency of white motifs shows that a high percentage of these are in the top position. A further white motif, a painted grid, is superimposed by another grid and a further four white motifs are single occurrence motifs. It is possible that most of the white motifs belong to the latest period.

M-HE/3: Superimpositions: Colours

<u>Colour</u>	<u>No.</u>	<u>% total colour</u>
Red	38	3.96
Yellow	6	11.77
White	4	40.00

On a subjective level the paintings and the drawing have decidedly more visual impact than the census would indicate for these techniques. The geometric grids though small in number stand out because of their size and colour and the human figure looms over the observer in a very imposing manner. Boomerangs, because of the

large actual number (due to multiple component motif units) in contrast to the number of motifs which appear in the census (139:55) are also visually more apparent.

M-HE/4: No deliberate pattern is apparent at this site. The art is scattered in small groups along its entire length (Plan 4, Plate 53b-c, 54a). There are three techniques present - stencils occur most frequently, engravings and paintings far less so (Table 37).

M-HE/3: Techniques

<u>Techniques</u>	<u>No.</u>	<u>%</u>
Stencils	60	89.55
Paintings	2	2.99
Engravings	5	7.46
Total	67	100.00

Table 37

Five groups of motifs occur here, three figurative and two non-figurative, forming 95.52% and 4.48% of the total respectively. Human features are the predominant motif group (Table 38).

M-HE/4: Motif Groups

		<u>Motif group</u>	<u>No.</u>	<u>%</u>
<u>Table 38</u>	Figurative	Human features	53	79.10
		Animal features	4	5.97
		Unidentified	7	10.45
Non-figurative	{	Cup and ring	1	1.49
		Geometric design	2	2.99

Hands make up the most significant component of the human features group, constituting 94.34% of the total. There is a marginal preference for the left over the right among human limbs (Table 39).

M-HE/4: Human Features

Motif	Left		Right		Total
	No.	%	No.	%	
Hands	13	65	7	35	20
Table 39 Hands + f'arm	0	0	1	100	1
Feet	1	50	1	50	2
Human Limbs	14	60.87	9	29.13	23

Only one small hand appears. Consequently standard sized examples make up 98% of the total. Both feet depicted are small sized. Stencilling is the only technique used to depict human features whereas the animal features motif group is entirely composed of engraved emu tracks. Geometric designs (grids) are the only painted motifs present.

Three colour groups occur. Red which appears in three different hues is greatly favoured over yellow and white (Table 40).

M-HE/4: Colours

Colour	No.	%
Red	55	88.71
Table 40 Yellow	6	9.68
White	1	1.61
Total	62	100.00

All motifs at this site are single component units. There is only one superimposition, a white hand stencil over a red hand stencil. The painted grids are single position occurrences.

M-HE/5: The majority of the art is located towards the western end of this site (Plan 5, Plates 54b-c, 55). Three techniques are present, stencilling is only marginally preferred over engraving; painting is by far the least favoured (Table 41).

M-HE/5: Techniques

	Technique	No.	%
Table 41	Stencils	84	52.17
	Paintings	7	4.35
	Engravings	70	43.48
	Total	161	100.00

There are seven motif groups depicted, three are figurative comprising 60.63% and four non-figurative 39.37% of the total. Human features are the most frequently occurring group, with linear motifs, cups and rings, animal features, geometric designs and solid motifs all marginally rated, tools and weapons appear last in order of frequency (Table 42).

M-HE/5: Motif Groups

	Motif group	No.	%	
Table 42	Figurative	Human features	82	50.93
		Tools and Weapons	2	1.24
		Animal features	14	8.70
Table 42	Non-figurative	Cup and ring	18	11.18
		Geometric designs	13	8.08
		Linear motifs	22	13.67
		Solid motifs	10	6.21
	Total	161	100.01	

Hands make up the most important component of the human features motif group comprising some 86.42% of the total. There are marginally more left human limbs than right, but this does not show a significant preference of left over right ($\chi^2 = 0.30$, level of significance 0.05). (Table 43).

M/HE-5: Human Features

Motif	Left		Right		Total
	No.	%	No.	%	
Hands	24	53.33	21	46.67	45
<u>Table 43</u> Hands + f'arm	4	66.67	2	33.33	6
<u>Feet</u>	3	50.00	4	50.00	7
Human limbs	31	54.39	27	45.61	58

The ratio of standard to small sized human limbs is high (12.67:1). Stencils are the only technique used to depict human features.

The animal features group is composed of three separate motifs, macropodid and emu and bird tracks in descending order of frequency (Table 44). All animal features except for a single painted bird track are engraved.

M-HE/5: Animal Features: Motifs

Motif	No.	%
Macropodid tracks	9	64.29
<u>Table 44</u> Emu tracks	4	28.57
<u>Bird tracks</u>	1	7.14
Total	14	100.00

Although small in actual number the frequency of the engraved cup and ring is relatively high at this site (11.18%).

Two colour groups are used for the pictographs; red which is made up of seven different hues is greatly favoured over yellow which is composed of three different hues. They comprise 95.18% of the total respectively.

A number of double component motif units occur. These include a pair of feet, pairs of macropodid tracks and multiple rows of engraved grooves (Table 45).

M-HE/5: Multiple Component Motifs

Motif	Components		Total No. components
	2	mult.	
Feet	1		2
Macropodid tracks	9		18
Vertical linear series	2	4	25
Total occurrences	12	4	16 / 45

There are three superimposition sequences involving six motifs and in all cases pictographs are superimposed over engravings. Painted grids appear as single occurrence units.

M-HE/6: No deliberate pattern is apparent at this site except for the placing of all the hafted axe stencils in one area towards the central point (Plan 6, Plate 56a).

Two techniques are utilized at 'Tomahawk Cave', stencils occur most frequently comprising 88.29% of the total, and paintings make up the remaining 11.71%. Four motif groups are depicted, three figurative and one non-figurative, the former are composed entirely of stencils the latter of paintings. The largest motif group is human features (Table 46).

M-HE/6: Motif Groups

Motif group	No.	%	
Figurative {	Human features	81	72.97
	Tools and weapons	4	3.60
	Unidentified	13	11.71
Non-figurative	Solid motifs	13	11.71
Total		111	99.99

Hands comprise the major part of the human features group constituting 98.77% of the total. There is a slight predominance of left over right for human limbs (40:31); but this ratio does not show significant preference ($\chi^2 = 1.15$, level of significance 0.05). One mutilated hand showing the top joint of the middle finger missing is present. The tools and weapons motif group consists entirely of four hafted axe stencils which appear to be the same axe depicted each time in three different orientations (Plate 11c).

Three colours are used; red which appears in seven different hues is greatly favoured over yellow and white (Table 47).

M-HE/6: Colours

<u>Colour</u>	<u>No.</u>	<u>%</u>
Red	99	89.19
Yellow	7	6.31
White	5	4.50
Total	111	100.00

Table 47

There are five superimposition sequences involving twelve motifs. Three of these depict hafted axe stencils superimposed over hand stencils; the others, hand stencil over hand stencil; the fourth axe is a single motif occurrence. It is possible that they are among the latest group of motifs to be depicted here and due to their central position and bright colour (apricot orange) these axes stand out visually to a far greater extent than their census frequency would indicate. Hence the local name 'Tomahawk Cave'.

M-HE/7A: All engravings at this site are confined to a five metre area to the western end of the shelter; pictographs are randomly

placed along the entire length of the site (Plan 7, Plates 56b-c, 57).

Stencilling and engraving are the only techniques utilized. The former comprise 90.48% and the latter 9.52% of total motifs. There are six groups of motifs, four are figurative and two non-figurative, the former are entirely composed of stencils, the latter of engravings. Human features form the largest motif group (Table 48).

M-HE/7A: Motif Groups

	Motif group	No.	%
Figurative	Human features	160	84.66
	Tools and weapons	2	1.06
	Animal features	1	0.53
	Unidentified	8	4.23
Non-figurative	Geometric designs	5	2.65
	Linear motifs	13	6.88
Total		189	100.01

Table 48

Hands constitute almost the entire human feature group at this site making up all but one of the motifs (99.38%). There are fewer left than right hands, the ratio being 52:58. But this does not show significant preference ($\chi^2 = 0.33$, level of significance, 0.05).

Three colour groups appear, red, yellow and white in descending order of frequency (Table 49).

M-HE/7A: Colours

Colour	No.	%
Red	156	91.23
Yellow	8	4.68
White	7	4.09
Total		171 100.00

Table 49

There are five superimposition sequences involving twelve motifs. Four depict stencil over stencil sequences, three show hand over hand, one of which has a white hand in the superior position. (five other white hand stencils are single occurrences). An outline design has been engraved over an area of prepared pigment wash.

M-HE/7B: The entire pictograph group is located on the main back wall of this site while 96.30% of the engravings appear on a rock pillar towards the front of the shelter (Plan 8).

Engravings marginally outnumber stencils. Their relative frequencies are 57.45% and 42.55% respectively. Six groups of motifs comprising an equal number of figurative and non-figurative occur. The former constitute 46.81%, the latter 53.19% of the total. Linear motifs are marginally the most frequently occurring group, followed closely by human features and the cup and ring (Table 50).

M-HE/7B: Motif Groups

Motif groups	No.	%
Figurative {	Human features	13 27.66
	Animal features	2 4.26
	Unidentified	7 14.89
Non-figurative {	Cup and ring	8 17.02
	Geometric design	1 2.13
	Linear motifs	16 34.04
Total	47	100.00

Table 50

Hands made up 92.3% of the human features group. There is an equal number of left and right human limbs. The relative frequency of engraved cup and ring motifs is high (17.02%).

Three colour groups are used to depict the pictographs, these are mainly red (65%) with a relatively high percentage of yellow (30%)

and some black (5%). There are three hues of red.

M-HE/7D: This is a small site at which stencilling is the only technique practiced. There are only two motif groups; human features which consist entirely of hand stencils forms 84.21% of the total the remainder being made up by unidentified and indistinct stencils. The ratio of left to right hands is 14:1. The single right hand stencil present is 'mutilated', lacking the little finger. Red is the only colour group utilized.

M-HE/7F: This is a single technique site featuring stencils only. These appear to have been randomly placed along the entire length of the decorated wall (Plan 10). Three figurative motif groups are present, human features making up the greatest number (Table 51).

<u>M-HE/7F: Motif Groups</u>		
<u>Motif group</u>	<u>No.</u>	<u>%</u>
Human features	79	91.86
Tools and weapons	1	1.16
Unidentified	6	6.98
Total	86	100.00

Table 51

Hands comprise the entire human features group, the ratio of left to right is 2.4:1 (36:15), which shows significant preference for left over right ($\chi^2 = 8.24$, level of significance 0.05). There are two colour groups present; red which is made up of six different hues comprises 97.67%, yellow makes up the remainder of the total number of motifs.

M-HE/9: Stencilling is the only technique found at this site. Human features which is the only motif group present is entirely made up of hand stencils. There is a 2:1 preference for left over right hand stencils. All the stencils are depicted in the same red hue.

M-HE/10A: Two techniques occur at this site; stencils which comprise 93.02%, and prints the remainder of the total number of motifs. Only two motif groups are present; the human features group which consists entirely of hand stencils and prints forms 88.37% of the total, the remainder being made up by a small number of indistinct stencils. There are more left hands than there are right hands, the ratio being 1.5:1 (18:12). This does not show significant preference for left over right ($\chi^2 = 1.24$, level of significance 0.05).

Four colour groups are present; red which appears in three different hues is predominant, followed by white, then yellow and black in descending order of frequency (Table 52). The relative frequency for white is high.

<u>M-HE/10A: Colours</u>		
<u>Colour</u>	<u>No.</u>	<u>%</u>
Red	34	79.07
Yellow	3	6.98
White	5	11.63
Black	1	2.30
Total	43	99.98

There are three superimposition sequences involving five motifs and a red wash background. White hand stencils appear in the top position twice and in the second position of a triple sequence once. Two others are single occurrence units. It is probable that

the white hand stencils were among the last motifs to be depicted here.

M-HE/11: Three techniques appear at this site; stencils occur most frequently, but they only marginally outnumber drawings while prints are the least important (Table 53).

M-HE/11: Techniques

<u>Technique</u>	<u>No.</u>	<u>%</u>
Stencils	34	53.13
Prints	4	6.25
Drawings	26	40.62
Total	64	100.00

Table 53

There are four groups of motifs present, two figurative and two non-figurative. The former comprises 59.38% of the total. Human features are the most important motif group, closely followed by geometric designs (Table 54).

M-HE/11: Motif Groups

<u>Motif group</u>		<u>No.</u>	<u>%</u>
Figurative	{ Human features	37	57.81
	{ Unidentified	1	1.56
Non-figurative	{ Geometric designs	25	39.06
	{ Linear motifs	1	1.56
Total		64	99.99

Table 54

Hands make up 89.19% of the human features group. For hands alone there are fewer left than right, the ratio here being 0.85:1 (11:13), but for all human limbs the ratio is 1.15:1 (15:13).

Two colour groups occur; red which includes six different hues is the preferred choice, there being only one example of a yellow motif. There are five superimposition sequences involving fifteen motifs. All examples depict drawings superimposed over stencils. Thus more than a quarter of the drawings are in a superior position. The remainder are single position occurrences. It is therefore probable that drawings were the latest technique to be practised at this site.

The dry pigment geometric outline design motifs are unique to this site (Plates 40c, 41a-b).

M-HE/12: This is a small two technique site; stencils comprise 88.89% of the total and a single painting makes up the remainder. There are two motif groups, one figurative and one non-figurative; in this case all the former are human features and the latter is a painted grid. There are marginally more right than left human limbs. All motifs are red.

M-HE/14: This is another small two technique site where stencils occur most frequently making up 70% of the total, the remaining 30% are paintings. There are four motif groups, two figurative and two non-figurative. These occur in the same relative proportion as the techniques. Two colour groups were used; red for stencils and white for paintings.

M-HE/16: All motifs at this site are stencilled, consequently they are all figurative. Human features composed entirely of hands form the most important motif group, comprising 83.72% of the total. The remainder are of the unidentified or indistinct group. One is superimposed over a hand stencil. All motifs are red, three hues

of this colour being used.

M-HE/24: Stencilling is the only technique found at this site. The single motif group present, human features is made up entirely of hand stencils. There is a 7:1 preference for left over right hand stencils. Two colour groups are used, red makes up 71.43% and yellow the remainder of the total.

M-HE/26: This is another single technique stencilled site containing figurative motifs only. Three motif groups were depicted; human features occur most frequently forming 88.68%, then unidentified and lastly tools and weapons comprising only 3.77% of the total. Hands make up the major component of the human features group; left is definitely preferred over right for all human limbs, the ratio being 21:1. Red was the major colour used comprising 86.68%, yellow making up the remainder of the total.

M-HE/27: This again is another single technique stencilled site. Two motif groups are present; human features occur most frequently forming 86.67% of the total, the unidentified group making up the remainder. There are an equal number of left and right hands, but taking all human limbs into account there are marginally more left than right (5:4). All motifs are coloured red.

M-HE/28: At this site while pictographs are sparsely scattered along both walls, engravings are concentrated on the south eastern wall (Plan 18, Plate 61).

Two techniques were used; engravings are the preferred choice (79.73%), stencils make up the remainder. Four motif groups are

depicted; three figurative comprising 95.95% and one non-figurative 4.05% of the total. Animal features are the most frequently occurring group (Table 55).

M-HE/28: Motif Groups

	Motif group	No.	%
Figurative	{ Human features	12	16.22
	{ Animal features	56	75.68
	{ Unidentified	3	4.05
Non-figurative	Linear motifs	3	4.05
Total		74	100.00

Table 55

Hands make up the entire human features group. The ratio of left to right is 2.5:1. Two motifs comprise the animal features group, emu tracks being preferred (82.14%) over macropodid tracks (17.86%).

There are eight double component motifs, all pairs of macropodid tracks. Two superimposition sequences involving four motifs occur. Both show engraving superimposed over engraving; one is an emu track over an emu track and the other an emu track over a pair of macropodid tracks. All the stencils are red.

M-HE/31: In the lower part of this site pictographs are located along the entire length of the decorated wall but engravings are limited to the north eastern end (Plan 19, Plates 62-3, 64a).

Three techniques were used of which stencils are the preferred choice, followed by engravings and paintings in descending order of frequency (motifs in 31a are included) (Table 56).

M-HE/31: Techniques

<u>Technique</u>	<u>No.</u>	<u>%</u>
Stencils	153	68.92
Paintings	3	1.35
<u>Engravings</u>	<u>66</u>	<u>29.73</u>
Total	222	100.00

Table 56

There are six motif groups present, three figurative and three non-figurative. The former comprise 69.81%, the latter 30.19% of the total. Human features are by far the most frequently occurring group; linear motifs and cups and rings are also important (Table 57).

M-HE/31: Motif Groups

<u>Motif group</u>	<u>No.</u>	<u>%</u>	
Figurative {	Human features	135	60.81
	Tools and weapons	11	4.96
	Unidentified	8	3.60
Non-figurative {	Cup and ring	24	10.81
	Geometric designs	6	2.70
	Linear motifs	38	17.12
Total	222	100.00	

Table 57

Hands are the most important component of the human features group making up 98.18% of the total. There is a significant preference for left over right for human limbs the ratio being 3.91:1 (86:22) ($\chi^2 = 37.94$, level of significance 0.05). The engraved cup and ring is present in relatively large numbers.

Three colour groups were used for the pictographs. In descending order of frequency they are red, white and yellow (Table 58).

Table 58

<u>M-HE/31: Colours</u>		
<u>Colour</u>	<u>No.</u>	<u>%</u>
Red	103	66.03
Yellow	8	5.13
White	45	28.84
Total	156	100.00

Red is made up of ten different hues, yellow of two. This is the highest relative frequency for the appearance of white in the area under review.

Although the majority of motifs are single component units there are a small number of multiple component examples. These include zig-zag design made up of nine stencilled fingers and a row of twelve painted vertical lines and a tier of eight horizontal engraved lines. The stencilled finger zig-zag design and a painted club are unique to this site (Plates 35c and 15c).

There are fourteen superimposition sequences involving 42 motifs. These include eight cases of stencil superimposed over stencil, one of painting over stencil over stencil, and five of stencil over engraving. There are no examples of engravings over pictographs. Hand stencils appear in the top position over other stencils on five occasions; tools and weapons four times. Among the pictographs there are two cases of white over white, two of white over red, one of white over yellow, two of red over red, one of red over white and one of red over white over red. Thus white appears in the superior position five times. It is possible that the white stencils and the red painted club were among the latest additions to the corpus of motifs at this site.

M-HE/49: At this site pictographs are found along the entire length of the decorated surface but the great majority of engravings (96.49%) are limited to the southwestern end (Plan 20, Plates 65a-b).

Three techniques were used, engravings occur marginally more frequently than stencils (Table 59).

M-HE/49: Techniques

Technique	No.	%
Stencils	47	42.34
Paintings	7	6.31
Engravings	57	51.35
Total	111	100.00

Table 59

There are seven motif groups present; three are figurative comprising 44.16% and four are non-figurative 55.84% of the total. Human features occur most frequently, followed closely by linear motifs, then cups and rings, solid motifs, unidentified, animal features and geometric designs in descending order of frequency (Table 60).

M-HE/49: Motif Groups.

Motif group	No.	%	
Figurative {	Human features	40	36.04
	Animal features	2	1.80
	Unidentified	7	6.31
Non-figurative {	Cups and rings	19	17.12
	Geometric designs	1	0.90
	Linear motifs	31	27.93
	Solid motifs	11	9.91
Total	111	100.01	

Table 60

Hands are the most important component of the human features group making up some 90% of the total. There are slightly more left than right limbs among human features, the ratio being 1.18:1 (13:11). Small hands do occur, but less frequently than standard sized, the ratio is 5:1.

The relative frequency for the engraved cup and ring motif is high. Two colour groups occur, red which has seven different hues is the most common, comprising 81.48% of the total; white makes up the remainder.

Two superimposition sequences involving three motifs and a background wash are found. One shows a white hand stencil over a red hand stencil; the other an engraved cup and ring over a prepared red pigment wash.

M-HE/79: The art at this site appears to have been randomly placed on those parts of the sandstone surface which are not crumbling away. Stencilling is the only technique present. Consequently all three motif groups which occur are figurative, human features being the most prominent of these (Table 61).

<u>M-HE/79: Motif Groups</u>		
<u>Motif group</u>	<u>No.</u>	<u>%</u>
Human features	19	52.78
Tools and weapons	5	13.89
Unidentified	12	33.33
Total	36	100.00

Hands made up the major component of the human features group. The ratio of left to right among human limbs is 1.75:1 (7:4).

Three colour groups are present, yellow, red and white in descending order of frequency (Table 62).

Table 62

<u>M-HE/79: Colours</u>		
<u>Colour</u>	<u>No.</u>	<u>%</u>
Red	16	44.44
Yellow	19	52.78
White	1	2.78
Total	36	100.00

The four axes appear to be reproductions of the same implement. These and the shield and two large unidentified objects form a discrete group in one section of the site where all are stencilled in the same yellow hue. They were possibly all depicted on the same occasion.

M-HE/80A: This is a small single technique site featuring stencils only. Three figurative motif groups are present: the unidentified group makes up the greatest number (60.87%), followed by human features (34.78%) and lastly tools and weapons (4.35%). There are more right than left hands the ratio being 3:1. Red is the only colour used.

M-HE/80B: Stencilling is the only technique utilized at this site. There are three motif groups present. All are figurative; human features occur most frequently (Table 63).

Table 63

<u>M-HE/80B: Motif Groups</u>		
<u>Motif group</u>	<u>No.</u>	<u>%</u>
Human features	57	76.00
Tools and weapons	2	2.67
Unidentified	16	21.33
Total	75	100.00

Hands form the major component of the human features motif group comprising some 94.74% of the total. There is a significant preference for left over right among human limbs, the ratio being 3:1 (33:11) ($\chi^2 = 11.02$, level of significance 0.05). One example of a 'mutilated' hand occurs, this lacks the top joint of the middle finger. Red, composed of four hues, is the predominant colour group comprising 96% of the total. White makes up the remainder. Two superimposition sequences involve nine motifs. Both red and white stencils occur in the superior position although the relative frequency (50%) for white is higher than for red (4.17%). The other white stencil is inferior to white and red.

M-HE/7C,E,G-I, 10B-C, 13, 15, 16, 18, 20, 29, 30, 47, 48, 77, 80C: All eighteen sites contain stencils only, consequently all motifs are figurative. The human features motif group makes up the entire art content at fifteen, and is much the preferred choice at two others (M-HE/10B, 87.50%; 80C, 87.50%). But the unidentified group outnumbersthem at M-HE/10C. The ratio of left to right human limbs varies, left only are found at seven sites (M-HE/7C,G-H, 17, 30, 48, 77), right only at four (M-HE/10B-C, 15, 20), an equal number of both at one (M-HE/18), more left than right at two (M-HE/7I, 47), and more right than left at three (M-HE/7E, 29, 80C). Red is the only colour group to appear at sixteen sites and is the predominant colour in conjunction with white at M-HE/29. Yellow is the only colour to appear at M-HE/30.

Sites M-HE/7C, 17, 30 and 48 are of interest because they appear to have been used for the depiction of art on one occasion only. M-HE/17 contains a single stencil. At M-HE/7C two left hands and a left hand + forearm stencil of the same red hue appear to have been made by the same person. A similar situation with five left

hand stencils depicted in the same red hue occurs at M-HE/48. The evidence is not so strong at M-HE/30, where the three motifs are all stencilled in the same yellow hue. It could also be argued that each of the last three sites may have been visited on separate occasions by the same person who used the same pigment each time.

4:3 INTER-SITE ANALYSIS - TECHNIQUES (Table 64)

Five techniques were practised at the 44 sites under review. At no single site, however, are all techniques represented. Overall stencils are the major art form present, closely followed in relative frequency by engravings. Paintings, prints and drawings do not make a major contribution to the totality of motifs in the census (Table 65).

<u>All Sites: Techniques</u>			
	<u>Technique</u>	<u>No.</u>	<u>%</u>
Pictographs	Stencils	3067	55.68
	Paintings	115	2.09
	Prints	7	0.13
	Drawings	28	0.51
	<u>Engravings</u>	<u>2291</u>	<u>41.59</u>
	Total	5508	100.00

Pictographs alone are found at 35 sites. But these contain only 17.79% of total motifs. Engravings occur in combination with various pictographic techniques at nine sites only. The various combinations of techniques at different sites together with the relative frequency of motifs contained therein is shown in Table 66.

All Sites: Distribution of Techniques

Site No.	ST		PA		PR		DR		EN		Total No.
	No.	%	No.	%	No.	%	No.	%	No.	%	
1	599	30.12	47	2.36					1343	67.52	1989
2	251	97.67	5	1.94			1	0.39			257
3	995	59.61	27	1.62			1	0.06	646	38.71	1669
4	60	89.55	2	2.99					5	7.46	67
5	84	52.17	7	4.35					70	43.48	161
6	98	88.29	13	11.71							111
7A	171	90.48							18	9.52	189
7B	20	42.55							27	57.45	47
7C	3	100									3
7D	19	100									19
7E	11	100									11
7F	86	100									86
7G	4	100									4
7H	2	100									2
7I	3	100									3
9	14	100									14
10A	40	93.02			3	6.98					43
10B	8	100									8
10C	3	100									3
11	34	53.13			4	6.25	26	40.62			64
12	8	88.89	1	11.11							9
13	6	100									6
14	7	70.00	3	30.00							10
15	4	100									4
16	43	100									43
17	1	100									1
18	11	100									11
20	7	100									7
24	14	100									14
26	53	100									53
27	15	100									15
28	15	20.27							59	79.73	74
29	8	100									8
30	3	100									3
31	153	68.92	3	1.35					66	29.73	222
47	8	100									8
48	5	100									5
49	47	42.34	7	6.31					57	51.35	111
77	3	100									3
78	9	100									9
79	36	100									36
80A	23	100									23
80B	75	100									75
80C	8	100									8
Total	3067	55.68	115	2.09	7	0.13	28	0.51	2291	41.59	5508

Table 64

All Sites: Combinations of Techniques

Techniques	Sites	Motifs	
		No.	%
Stencils	29	485	8.81
Stencils-paintings	3	130	2.36
Stencils-prints	1	43	0.78
Stencils-paintings-drawing	1	257	4.67
<u>Table 66</u> Stencils-prints-drawings	1	64	1.16
Stencils-engravings	3	310	5.63
Stencils-paintings-engravings	5	2550	46.30
Stencils-paintings-engravings-drawing	1	1669	30.30
Total	44	5508	100.01

At the nine sites where they occur in combination total engravings marginally outnumber total pictographs (Table 67). There is a majority of engravings at four of these sites (M-HE/1, 7B, 28, 49).

All Sites: Combinations of Pictographs/
Engravings

Site	Pictographs		Engravings	
	No.	%	No.	%
1	646	32.48	1343	67.52
3	1023	61.29	646	38.71
4	62	92.54	5	7.46
5	91	56.53	70	43.47
<u>Table 67</u> 7A	171	90.48	18	9.52
7B	20	42.55	27	57.45
28	15	20.27	59	79.73
31	156	70.27	66	29.73
49	54	48.65	57	51.35
Total	2238	49.42	2291	50.58

Stencils are found at all sites. They appear alone at 29 sites and in various combinations with other techniques at the other fifteen sites forming the major technique at eleven of these. At only one site (M-HE/11) do drawings make a major contribution, appearing second to stencils in order of frequency. The preferential location of techniques on the type of rock surface which is more suited to each technical process can be clearly seen at only one site (M-HE/1). Some techniques were used exclusively for some motif groups; e.g. engraving for the cup and ring, stencilling for plant features and the unidentified group.

4:4 INTER-SITE ANALYSIS - MOTIFS (Table 68)

Nine motif groups were depicted at all 44 sites combined; five are figurative and four non-figurative. The former comprise 71.04%, the latter 28.96% of total motifs (Table 69). One only of the sites (M-HE/1) contains examples of all nine motif groups. Overall human features form the major motif group followed by animal features and linear motifs, then the cup and ring, solid motifs, unidentified features, tools and weapons, geometric designs and plant features in descending order of frequency.

All Sites: Motif groups

		Motif group	No.	%
Figurative	{	Human features	2667	48.42
		Tools and weapons	192	3.49
		Animal features	816	14.82
		Plant features	12	0.22
		Unidentified	226	4.10
Non-figurative	{	Cup and ring	375	6.81
		Geometric designs	140	2.54
		Linear motifs	791	14.36
		Solid motifs	289	5.25
<u>Table 69</u>		Total	5508	100.01

All Sites: Distribution of Motif Groups.

Site No.	H.F.		T/W.		A.F.		P.F.		Un.		C.R.		G.D.		L.M.		S.M.		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1	497	24.99	71	3.57	355	17.85	8	0.40	27	1.36	275	13.83	55	2.77	542	27.25	159	7.99	1989
2	226	87.94	19	7.39			4	1.56	2	0.78			2	0.78			4	1.56	257
3	874	52.37	72	4.31	382	22.89			68	4.07	30	1.80	27	1.62	124	7.43	92	5.50	1669
4	53	79.10			4	5.97			7	10.45	1	1.49	2	2.99					67
5	82	50.93	2	1.24	14	8.70					18	11.18	13	8.08	22	13.67	10	6.21	161
6	81	72.97	4	3.60					13	11.71							13	11.71	111
7A	160	84.66	2	1.06	1	0.53			8	4.23			5	2.65	13	6.88			189
7B	13	27.66			2	4.26			7	14.89	8	17.02	1	2.13	16	34.04			47
7C	3	100																	3
7D	16	84.21							3	15.79									19
7E	11	100																	11
7F	79	91.86	1	1.16					6	6.98									86
7G	4	100																	4
7H	2	100																	2
7I	3	100																	3
9	14	100																	14
10A	38	88.37							5	11.63									43
10B	7	87.50							1	12.50									8
10C	1	33.33							2	66.67									3
11	37	57.81							1	1.56			25	39.06	1	1.56			64
12	8	88.89											1	11.11					9
13	6	100																	6
14	5	50.00							2	20.00			2	20.00	1	10.00			10
15	4	100																	4
16	36	83.72							7	16.28									43
17	1	100																	1
18	11	100																	11
20	7	100																	7
24	14	100																	14
26	47	88.68	2	3.77					4	7.55									53
27	13	86.67							2	13.33									15
28	12	16.22			56	75.68			3	4.05				3	4.05				74
29	8	100																	8
30	3	100																	3
31	135	60.81	11	4.96					8	3.60	24	10.81	6	2.70	38	17.12			222
47	8	100																	8
48	5	100																	5
49	40	36.04			2	1.80			7	6.31	19	17.12	1	0.90	31	27.93	11	9.91	111
77	3	100																	3
78	9	100																	9
79	19	52.78	5	13.89					12	33.33									36
80A	8	34.78	1	4.35					14	60.87									23
80B	57	76.00	2	2.67					16	21.33									75
80C	7	87.50							1	12.50									8
Total	2667	48.42	192	3.49	816	14.82	12	0.22	226	4.10	375	6.81	140	2.54	791	14.36	289	5.25	5508

Table 68

All plant features and unidentified motifs were stencilled; stencilling was the major technique used for the human features and tools and weapons motif group. All cups and rings were engraved; engraving was the major technique for animal features, linear and solid motifs and marginally for geometric designs. The combined frequency of paintings and drawings in the latter motif groups is greater than that of engravings (Table 70).

All Sites: Numerical Distribution of Motif Groups
by Technique

Motif Group	ST		PA		PR		DR		EN		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	
H.F.	2608	97.79	1	0.04	7	0.26	1	0.04	50	1.88	2667
T/W	191	99.48	1	0.52							192
A.F.	30	3.68	8	0.98					778	95.34	816
P.F.	12	100.00									12
Un.	226	100.00									226
C.R.									375	100.00	375
G.D.			52	37.14			26	18.57	62	44.29	140
L.M.			20	2.53			1	0.12	770	97.35	791
S.M.			33	11.42					256	88.58	289

Table 70

For stencilled motifs human features form by far the greatest number (85.03%) followed in descending order of frequency by the unidentified group (7.37%), tools and weapons (6.23%), animal features (0.98%) and plant features (0.39%). Animal features are the most frequently occurring engraved motifs (33.96%) closely followed by linear motifs (33.61%); then cups and rings (16.37%), solid motifs (11.17%), geometric designs (2.71%) and human features (2.18%) in descending order of frequency. For paintings geometric designs are

the major group (45.22%) followed by solid motifs (28.70%), linear motifs (17.39%), animal features (6.96%) and human features and tools and weapons (0.87%) in descending order of frequency.

The human features motif group appears at all 44 sites. Apart from the unidentified group the next most common motif groups are tools and weapons and geometric designs, closely followed in descending order of frequency by linear motifs, animal features, cups and rings, solid motifs and plant features. Table 71 shows the joint occurrence of these motif groups, the maximum number of occurrences for each group is shown in the first horizontal line.

All Sites: Joint Occurrence of Motif Groups

Motif Group	H.F.	T/W	A.F.	P.F.	Un.	C.R.	G.D.	L.M.	S.M.
H.F.	-	12	8	2	24	7	12	10	6
T/W		-	4	2	11	4	6	5	5
A.F.			-	1	7	6	7	7	4
P.F.				-	2	1	2	1	1
Un.					-	5	10	9	5
C.R.						-	7	6	4
G.D.							-	9	5
L.M.								-	4
S.M.									-

Table 71

Human features: The human features motif group is composed of eleven motifs. Hands form the major component of the group whereas minor components of some importance include hands + forearms and feet (Table 72).

All Sites: Human Features: Motifs

<u>Motif</u>	<u>No.</u>	<u>%</u>
Figure	1	0.04
Face	1	0.04
Thumbs	3	0.11
Fingers	3	0.11
Hands	2339	87.70
<u>Table 72</u> Hands + f'arms	168	6.30
Fist	2	0.08
Fist + f'arm	1	0.04
Arm	3	0.11
Foot	142	5.32
<u>Toes</u>	<u>4</u>	<u>0.15</u>
Total	2667	100.00

Hands appear at all sites, hands + forearms at seventeen, feet at ten, fingers at three, arms, fists and toes at two; figure, face and fist + forearm each at one.

When all human limbs of all techniques are considered, 2049 (77.35%) can be distinguished as being from the left or the right side of the body. Amongst these there is a significant preference for the depiction of left over right ($x^2 = 109.19$, level of significance 0.05). A similar preference is indicated for hands and hands + forearms ($x^2 = 101.96$ and 18.70, level of significance 0.05). By contrast the reverse situation applies for feet with the right foot marginally more frequent. But this does not show significant preference ($x^2 = 0.58$, level of significance 0.05) (Table 73).

All Sites: Human Features

Motif	Left		Right		Total
	No.	%	No.	%	
Hands	1089	62.05	666	37.95	1755
Hands + f'arm	119	66.11	61	33.89	180
Feet	53	46.49	61	53.51	114
Human limbs	1261	61.54	788	38.46	2049

Table 73

The left side of the body predominates at 31 sites, the right at nine and an equal number of left and right at three (motifs at one site were too indistinct to distinguish). Only ten sites each contained enough left and right human limbs to be tested by chi-square, of these nine contained more left than right and one more right than left. Significant preference for left over right was indicated for six of these sites (test populations ranged from 44 (M-HE/80B) to 704 (M-HE/3)). But at the three other sites with more left than right and the one with more right than left no significant preference was shown for either left or right (test populations ranged from 30 (M-HE/10A) to 110 (M-HE/7A)).

Small sized human limb stencils appear in a minority; the ratio for hands and hands + forearms is very high, by contrast that for feet is relatively low (Table 74).

All Sites: Human Features.

Motif	Standard		Small		Total	Ratio
	No.	%	No.	%		
Hands	2161	92.15	184	7.85	2345	11.75:1
Hands + f'arm	177	93.65	12	6.35	189	14.75:1
Feet	55	57.90	40	42.10	95	10.40:1
Human limbs	2393	91.02	236	8.98	2629	10.40:1

Table 74

The depiction of the 'mutilated' hand is not numerically important in terms of the Carnarvon Gorge rock art census. Seven examples occur at five sites only, overall they form only 0.91% of all hands present. Two variations can be seen, one shows the little finger missing, the other lacks the top joint of the middle finger. All examples except one are red, the exception being yellow. The majority of examples are standard sized left hands (Table 75).

All Sites: Human Features: 'Mutilated' Hands

Site	Motif	Mutilation	Colour	No.	% of hands at site
1	Hand-left	Middle finger	Y		
	Hand-left	Little finger	R	2	0.51
2	Hand-left	Little finger	R		
	Hand-left, small	Little finger	R	2	1.09
6	Hand-left	Middle finger	R	1	1.25
7D	Hand-right	Little finger	R	1	6.25
80B	Hand-indistinct	Middle finger	R	1	1.85
Total				7	0.91

The majority of human features are orientated in the vertical/diagonal plane, pointing upwards; the proportion in the horizontal and downwards plane is small (Table 76, pairs counted as two)

All Sites: Human Features: Orientation

Table 76

Motif	Vertical ↑		Horizontal		Vertical ↓	
	No.	%	No.	%	No.	%
Hands	2115	92.84	136	5.97	27	1.19
Hands + f'arm	124	70.86	48	27.43	3	1.71
Feet	141	98.60	1	0.70	1	0.70
Others	10	90.91	1	9.09	-	-
Human limbs	2390	91.67	186	7.14	31	1.19

All four colour groups are used to depict the human features motif group, red is the most common followed in descending order of frequency by yellow, white and black (Table 77).

Table 77

<u>All Sites: Human Features: Colours</u>		
Colour	No.	%
Red	2312.5	88.33
Yellow	166.5	6.36
White	118	4.51
Black	21	0.80
Total	2618	100.00

A small proportion of the human features group is made up of double or multiple component units, e.g. pairs of hands, pairs of horizontal and vertical extended elbow to elbow hands + forearms and pairs of feet. Thirty-three motifs are involved, these are made up of 70 components.

Despite the fact that this motif group is found on all sites and that it is numerically the most frequent, all other motif groups combined form a majority. Taken site by site human features make up all the motifs represented at eighteen sites, more than 75% at thirteen and more than 50% at a further seven. In all but one site

(M-HE/28) this group comprises at least one quarter or more of total motifs represented. The motif group is rated first in relative frequency at 39 individual sites, and second at the remaining five.

Tools and weapons: Seven separate items make up this motif group: three are tools (axes, knives and awls), three are offensive weapons (boomerangs, spears and club/throwing sticks) and one defensive (shields). Boomerangs occur most frequently, comprising two-thirds of the total; followed by axes, clubs, knives and shields, awls and the spearhead in descending order of frequency (Table 78).

Boomerangs occur at nine sites, axes at six, shields and clubs each at four, awls at two and knives and spearheads each at one.

<u>All Sites: Tools and Weapons: Motifs</u>		
<u>Motif</u>	<u>No.</u>	<u>%</u>
Axe-hafted	33	17.19
Axe-head	1	0.52
Knife	7	3.65
<u>Table 78</u> Awl	3	1.56
Boomerang	128	66.66
Club	12	6.25
Spearhead	1	0.52
Shield	7	3.65
Total	192	100.00

The orientation of each motif varies, and there is no evidence for a consistent pattern, e.g. 24.24% of hafted axes are orientated vertically with the head towards the top, 24.24% diagonally with the head at the top, 12.12% diagonally with the head towards the bottom, 39.40% horizontally. Boomerangs appear in

single, double, triple and multiple component units with a variety of orientations (Table 79).

All Sites: Tools and Weapons: Multiple Boomerang Motifs

Motif	1	2	3	4	6	7	8	12	16	Total No. Components
Boomerang 	35	4	1							46
Boomerang 	4	1			1	1				19
Boomerang 		1								2
Boomerang 	3	2								7
Boomerang 	8	9	5					2		65
Boomerang 	20	5	1	1		1	1		1	68
Boomerang 	1									1
Boomerang 	3		1							6
Boomerang 	3									3
Boomerang 	3									3
Boomerang 	1									1
Boomerang 	2									2
Boomerang 	3									3
Boomerang 	3	1								5
Total	89	23	8	1	1	2	1	2	1	128
										231

Single unit boomerang motifs comprise 69.53% of the census count but actually account for only 38.20% of the number of boomerang stencils appearing.

All four colours are used to depict the tools and weapons motif group; red occurs most frequently followed in descending order of preference by yellow, white and black (Table 80).

All Sites: Tools and Weapons: Colours

<u>Colour</u>	<u>No.</u>	<u>%</u>
Red	162	84.38
Yellow	17	8.85
White	8	4.17
Black	5	2.60
Total	192	100.00

Table 80

This group appears at twelve sites and is sixth in the frequency rating for all sites. At no site do tools and weapons represent more than 14% of the total; at one site (M-HE/2) the group appears second in order of motif frequency.

Animal features: This group is made up of five motifs. The goanna the only full figure, is the least frequent; indeed it is restricted to one site only (M-HE/1). The others comprise foot and paw tracks, the major series being macropodid, followed by emu, animal and bird in descending order of frequency (Table 81). Macropodid and emu tracks are found each at six sites, animal and bird tracks each at three sites.

All Sites: Animal Features: Motifs

<u>Motif</u>	<u>No.</u>	<u>%</u>
Goanna	7	0.86
Macropodid tracks	362	44.36
Animal tracks	170	20.83
Emu tracks	255	31.25
Bird tracks	22	2.70
Total	816	100.00

Table 81

The majority of tracks are orientated vertically, with toe or claw towards the top; macropodid 99.45%, animal 95.29%, emu 93.34% and bird 81.82%. The remainder are orientated vertically downwards, save for one animal track which is horizontal. The single engraved goanna is orientated vertically with head upwards, as is one of the six white painted goannas; three are orientated vertically with head downwards, the remaining two are vertical but indistinct.

Only a small proportion of animal features are pictographs. Here two colour groups are present, red accounts for all 30 stencils and two painted tracks and white for the painted goanna. A substantial number of the macropodid (288) and a few animal tracks (2) are double component units.

The animal features group appears at eight sites and is second in order of frequency overall. Only at one site (M-HE/28) does the group appear first in order of frequency, here it comprises 75.68% of motifs. It is second in order of frequency at one other site (M-HE/3), making up 22.89% of motifs.

Plant features: Plant features are a small group made up of two motifs, the zamia seed pod and leaf stencils. The former appear as a small discrete group (4 motifs) at M-HE/2 and the latter similarly grouped at M-HE/1 (8 motifs). Some of the leaf stencils show the additional negative impression of the fingers which held them in place while being stencilled. The motif group is rated last in order of frequency for the whole area. All motifs are stencilled in red.

Unidentified features: This group includes stencilled discs and all other stencilled figurative objects whose use is unknown and

cannot be adequately described (see corpus p.44) as well as those stencils which were too faded or indistinct to be identified. The disc stencil which is the only recurring element in the unidentified motif group appears at only two sites, M-HE/3 (52 examples) and M-HE/31 (4 examples).

Three colours were utilized, mainly red, then yellow and white in descending order of frequency. Red was the only colour used for disc stencils. The whole group appears at 24 sites, and is sixth in order of frequency overall. At two small sites the unidentified group forms a majority of motifs, but at most others, the proportion is small.

Cup and Ring: The 375 examples which form this group are substantially made up of the single motif described as cup and ring (98.67%), however, a small number of cup and hole motifs have been included. The great majority are orientated with their long axis vertical and the basal hole where present, at the bottom. A few examples however, appear with the basal hole at the top and three are orientated horizontally (Plate 31b). Eleven examples (2.93%) all from M-HE/1 are larger in size than the normal range (Plate 30a).

Engraving is the only technique used for the cup and ring, the motif appears at seven out of the nine sites at which this technique is present, forming 16.37% of all engraved motifs. The cup and ring is rated fourth in order of frequency at all sites combined, the highest rate of frequency at individual sites is third at four sites (M-HE/5, 7B, 31 and 49). A large proportion of the cup and ring motif (73.33%) appears at one single site (M-HE/1).

Geometric designs: Eight different motifs combine to make up this group; outline designs are the major motif followed by grids, then

in descending order of frequency by zig-zags, chevrons, meanders and crosses (Table 82). Outline designs were found at nine sites, grids at eight, zig-zags at three, meanders and crosses each at two and chevrons at one.

All Sites: Geometric Designs: Motifs

<u>Motif</u>	<u>No.</u>	<u>%</u>
Grids	40	28.58
Crosses	4	2.86
Chevrons	8	5.71
Zig-Zags	9	6.43
<u>Table 82</u> Meanders	7	5.00
Outline designs - unclassified	47	33.57
Outline designs - Type 1	22	15.71
Outline designs - Type 2	3	2.14
Total	140	100.00

Unclassified outline designs vary from simple round or oval outline circles to complex designs which cannot be definitively described. Most are engraved (87.23%), five are painted and one is a drawing. All classified outline designs are drawings. All grids except one are painted. All crosses are painted whereas all zig-zags and meanders are engraved.

A little more than half the geometric design motif group are pictographs. All four colour groups were used to depict them. Red is the most important followed in descending order of frequency by white, yellow and black. The relative frequency of white is high (Table 83).

All Sites: Geometric Designs: Colours

<u>Colour</u>	<u>No.</u>	<u>%</u>
Red	56	71.79
Yellow	6	7.69
White	12	15.39
Black	4	5.13
Total	78	100.00

Table 83

Geometric designs occur at twelve sites and are rated eighth in order of frequency for the area as a whole. At one site (M-HE/11) geometric designs are the second most frequent motif group (39.06%).

Linear motifs: Included in this group are single and multiple sets of vertical, horizontal and diagonal lines. Most of these are engravings (97.35%), a small proportion are paintings (2.53%), a single drawing makes up the remainder of the total. A small percentage (6.57%) of the motifs in the census are double or multiple component units, which add up to a total of 380 components. Only two colour groups were utilized for the pictographs, red comprises 76.19%, white the remainder.

The linear motif groups occurs at ten sites and is rated third in order of frequency overall. The group appears first in order of frequency at two sites (M-HE/1 and 7B) and second at five (M-HE/5, 7A, 28, 31, 49).

Solid motifs: Eight different motifs and areas of background pigment are included in the solid motif group. Solid elongate ovals are the most frequent motif (Table 84).

<u>All Sites: Solid Motifs: Motifs</u>		
<u>Motif</u>	<u>No.</u>	<u>%</u>
Solid ovate disc	1	0.35
Solid circle	31	10.73
Solid elongate oval	201	69.55
Hole	20	6.92
Pair holes	1	0.35
Horizontal band	1	0.35
Vertical band	2	0.69
Pigment splash	28	9.68
Pigment wash	4	1.38
Total	289	100.00

Table 84

A substantial majority of this motif group is made up of engravings (88.58%). The pictographs appear in three colour groups, red (78.79%), yellow (12.12%) and white (9.09%). Solid motifs are found at six sites and are rated fifth in order of frequency.

4:5 INTER-SITE ANALYSIS - COLOURS

Coloured pigments were used at all 44 sites. Four colour groups are recorded; red, yellow, white and black. Red appears at 43 sites, yellow at fourteen, white at fourteen and black at four.

Red is the only colour present at 24 sites, and yellow occurs alone at one site; there are only three sites where all colour groups appear jointly (M-HE/1, 3, 10A) (Table 85).

The red group is the predominant colour choice for motifs at all sites combined, followed by yellow, white and black in descending order of frequency (Table 86).

All Sites: Colour Combinations

	<u>Colours</u>	<u>Total</u>
	Red	24
	Yellow	1
	Red-yellow	4
<u>Table 85</u>	Red-white	6
	Red-yellow-white	5
	Red-yellow-black	1
	<u>Red-yellow-white-black</u>	<u>3</u>
	Total	44

All Sites: Colours

	<u>Colour</u>	<u>Total No.</u>	<u>Total %</u>
	Red	2808.5	87.30
	Yellow	215.5	6.70
<u>Table 86</u>	White	163	5.07
	<u>Black</u>	<u>30</u>	<u>0.93</u>
	Total	3217	100.00

Red is the only colour used for prints and drawings. It is decidedly the preferred choice for stencils, with yellow, white and black following in descending order of frequency. For painting red is still the major choice although the relative frequency is lower, white moves up to become the second choice (Table 87).

All Sites: Colours: Techniques

Table 87

Colour	St.		Pa.		Pr.		Dr.	
	No.	%	No.	%	No.	%	No.	%
Red	2704	88.16	70.5	61.30	7	100	28	100
Yellow	200	6.52	14.5	12.61				
White	137	4.47	26	22.61				
Black	26	0.85	4	3.48				

Red forming more than 70% of the total, is the major colour selected for depicting all motif groups. It is the only one used for plant features. Yellow provides the second colour choice for four out of the five motif groups for which it was used. White appears second ahead of yellow for geometric designs (Table 88).

Table 88All Sites: Colours: Motifs

Motif	Red		Yellow		White		Black	
	No.	%	No.	%	No.	%	No.	%
Human features	2312.5	88.33	168.5	6.44	116	4.43	21	0.80
Tools and weapons	162	84.37	17	8.85	8	4.17	5	2.60
Animal features	32	84.21			6	15.79		
Plant features	12	100.00						
Unidentified	201	88.94	21	9.30	4	1.77		
Geometric designs	56	71.79	6	7.69	12	15.39	4	5.13
Linear motifs	16	76.19			5	23.81		
Solid motifs	26	78.79	4	12.12	3	9.09		

Each colour except for black contains a range of hues, red has eighteen, yellow six and white two. Nine red, two yellow and one white hues were each restricted to one site only and a further two red and two yellow hues were found at two sites only. Of those

sixteen hues restricted to one or two sites, twelve were found at M-HE/3, three at M-HE/1, two at M-HE/7F and one each at M-HE/4 and 6. The most frequently occurring hue red 5'.00-R appears at 36 of the 42 sites at which colour records were taken (Table 89).

'Cathedral Cave' (M-HE/3) the site with the largest number of pictographs (1023) has the greatest range of colour hues (25 out of 27). This is perhaps due to the fact that this site is close and easily accessible to the bed of Carnarvon Creek, in which a wide range of ochre pebbles are readily available. Because of the lack of data collected no quantification concerning the preferred choice of colour hue can be made. But the most frequently distributed colour hue Red 5'.00-R subjectively appears to be the most frequent.

Table 89 All Sites: Colours: Hues

	Colour Hue	No.	Site No. (M-HE)
Red:	1'.RED	2	3, 7F
	1''.RED	12	1-3, 7A-B,11,15-6,28,31,49,77
	3'.O-R	7	1,3,5,7A,7F,10A,31.
	3''.O-R	12	1-5,7A-B,E,10B,27,47,49.
	5.00-R	1	1.
	5'.00-R	36	1-7A,7C-I,9-14,16-29,31-49,78,80A,C.
	5''.00-R	16	1-6,7F,10A,11,18,27-8,31,49,79,80B.
	5'''.00-R	1	3.
	7.R-O	1	7F.
	7'.R-O	10	1,3,7I,11,16,28,31,80A-C.
	9'.OR-O	3	1,3,49
	9'''.OR-O	1	3.
	11.ORANGE	1	3..
	11'.ORANGE	2	3,6.

	11".ORANGE	1	3.
	65''' .RR-V	1	3.
	69''' .RV-R	1	3.
	71".V-RR	1	3.
Yellow:	13.OY-O	1	1.
	13'.OY-O	2	1,3.
	15'.Y-O	5	1,3,7A,11,30.
	15".Y-O	2	3,4.
	17'.O-Y	10	1,3,5,6,7A-B,F,9,31,79
	17".O-Y	1	3.
White:	23'''''.YELLOW	1	3.
	67'''''.V-R	13	1-4,5,7A,10A,14,29,31,49,79, 80B.
Black:	67''''',V-R	4	1,3,7B,10A.

4:6 INTER-SITE ANALYSIS - SUPERIMPOSITION

In the area under review there is a total of 161 superimposition sequences involving 505 motifs. These superimpositions appear at only fourteen sites, although these sites do contain 92.14% of the total number of motifs. Only 9.17% of all motifs are actually involved in superimposition sequences.

Twelve of the fourteen sites are medium to large in physical size (eighteen to 77.50 metres long), the remaining two are relatively small (M-HE/10A and 16, eight and 11.50 metres respectively). There is enough vacant space on the walls at all of these sites to accommodate the number of superimposed motifs without superimposition having to take place. There appears to be an important relationship between the number of motifs at a site and the presence or absence of

superimpositions. On the one hand twelve of the fourteen sites where superimpositions do occur contain more than 50 motifs (the two smallest sites contain 43 each). On the other hand out of 30 sites with no superimpositions, 25 contain less than 20 motifs and four more less than 50.

Four techniques are involved in superimposition sequences. In quantity they reflect the same order of frequency as found in the census (Table 90). But their relative proportions in relation to the total number of motifs is quite different, those for paintings and drawings are high.

Table 90

<u>All Sites:</u>	<u>Superimpositions:</u>	<u>Techniques</u>
<u>Technique</u>	<u>Motifs</u>	<u>% motifs</u>
Stencils	356	11.61
Paintings	53	46.09
Drawings	8	28.57
<u>Engravings</u>	<u>88</u>	<u>3.84</u>
Total	505	9.17

Pictographs and engravings occur concurrently at eight of the sites with superimposition sequences. At two of these sites (M-HE/4, 28) they are not superimposed. Engravings are depicted over pictographs (prepared wash) at two sites (M-HE/7A, 49), over engravings at two sites (M-HE/5, 31) and engravings over pictographs and vice versa at two sites (M-HE/1, 3). In total there are nineteen superimposition sequences showing pictographs over engravings and thirteen showing engravings over pictographs. This evidence then suggests that both pictographs and engravings were practised contemporaneously for some time at least.

Stencils occur in a superior position in superimposition sequences on 103 occasions, paintings on 35, drawings six and engravings seventeen. The relative frequency of painted motifs (30.44%) in the top position is significantly higher than their relative frequency overall ($\chi^2 = 295.12$, level of significance 0.05). The relative frequency of drawings (21.43%) is also high (Table 91).

<u>All Sites: Superimpositions: Combinations of Techniques</u>		
<u>Techniques superimposed</u>	<u>No.</u>	<u>Total</u>
<u>Stencils</u>		
Stencil/stencil	83	
Stencil/stencil/pigment wash	1	
Stencil/stencil + painting	2	
Stencil/painting	1	
Stencil/pigment wash	2	
Stencil/painting/stencil	2	
Stencil/engraving	12	103
<u>Paintings</u>		
Painting + stencil/pigment wash/engraving	1	
Painting/stencil	22	
Painting/stencil + painting	2	
Painting/stencil + engraving	2	
Painting/painting + stencil	1	
Painting/painting/stencil + engraving	1	
Painting/engraving	4	
Pigment wash/engraving	2	35
<u>Engravings:</u>		
Engraving/stencil	9	
Engraving/pigment wash	3	
Engraving/pigment wash/engraving	1	17
<u>Drawings</u>		
Drawing/stencil	6	6
Total	161	161

Table
91

All four colour groups appear in top positions in pictograph superimposition sequences. The relative frequency of white coloured motifs in the top position is significantly higher than their relative frequency overall ($\chi^2 = 101.58$, level of significance 0.05) (Table 92).

All Sites: Superimpositions: Colours

<u>Colour</u>	<u>No.</u>	<u>% total colour</u>
Red	101	4.29
Yellow	16	10.10
White	33	21.15
Black	1	12.50

Table 92

All nine motif groups on occasion occur in the top position. Human features are the most numerous, followed equally by geometric designs and tools and weapons, then animal features, plant features and cups and rings, solid motifs and unidentified, and lastly linear motifs. The relative frequency of geometric designs and tools and weapons in the top position is significantly higher than their relative frequency overall ($\chi^2 = 145.61$ and 100.80 , level of significance 0.05) (Table 93).

All Sites: Superimpositions: Motif Groups

<u>Motif group</u>	<u>No.</u>	<u>% total motif group</u>
Human features	77	2.89
Tools and weapons	31	16.15
Animal features	20	2.45
Plant features	6	8.82
Unidentified	5	2.94
Cups and rings	6	1.60
Geometric designs	31	22.14

Table 93

Table 93 (cont'd)	Linear motifs	4	0.51
	Solid motifs	5	1.73

Twenty white human feature stencils are in a top position, a further four are superimposed by other white stencils and another thirteen by painted motifs. Seventeen are superimposed by red motifs while the remainder are single occurrence motif units.

The superimposition sequences indicate that painted geometric designs (especially grids and crosses), white painted goannas, some stencilled tools and weapons and white stencilled human features were among the last motifs to be depicted at the sites under review.

4:7 INTER-SITE ANALYSIS - SIMPLE AND COMPLEX SITES

The 44 sites in Carnarvon Gorge can be divided into two groups on the basis of their technique/motif content or style. This division is based on the appearance or non-appearance of engravings in addition to pictographs (Table 67). These two groups are described as simple and complex.

The simple group comprises 35 sites where engravings do not appear. Stencils are the most numerous technique. Paintings, drawings and prints make little contribution to the total number of techniques used (Table 94). Stencils make up 100% of all motifs at 29 sites., over 88% at four, over 70% at one and 53% at one other.

<u>Simple Group: Techniques</u>		
<u>Technique</u>	<u>No.</u>	<u>%</u>
Stencils	923	94.28
Paintings	22	2.25
Prints	7	0.72
Drawings	27	2.76
<u>Total</u>	<u>979</u>	<u>100.01</u>

Table 94

At the latter (M-HE/11) prints and drawings make up 47%.

Human features are the most frequently occurring motif group followed in descending order of frequency by unidentified motifs, tools and weapons, geometric designs, solid motifs, plant features and linear motifs (Table 95). Human features make up 100% of all motifs at eighteen sites, more than 70% at twelve, more than 50% at three and less than 50% at two. At the latter two there is a majority of indistinct motifs. As a whole the simple group is characterized by the appearance of a majority of stencilled human features.

<u>Simple Group: Motif Groups</u>			
<u>Motif Group</u>		<u>No.</u>	<u>%</u>
Figurative	Human features	801	81.82
	Tools and weapons	34	3.47
	Plant features	4	0.41
	Unidentified	91	9.30
Non-figurative	Geometric designs	30	3.06
	Linear motifs	2	0.20
	Solid motifs	17	1.74
Total		979	100.00

The complex group is made up of nine sites where engravings occur in addition to pictographs. Engravings are the most frequently occurring technique followed closely by stencils; paintings and a single drawing do not make a major contribution to the total number of motifs (Table 96). Engravings make up more than 50% of motifs at four sites and stencils at five.

Complex Group: Techniques

<u>Technique</u>	<u>No.</u>	<u>%</u>
Stencils	2144	47.34
Paintings	93	2.05
Drawings	1	0.02
Engravings	2291	50.59
Total	4529	100.00

Table 96

Human features are the most numerous motif group followed by animal features, linear motifs, cups and rings, solid motifs, tools and weapons, unidentified motifs, geometric designs and plant features in descending order of frequency (Table 97). Human features appear at all sites forming more than 50% of motifs at five, less than 50% but first in order of frequency at one and second at three. The complex style is characterized by the appearance of engraved cups and rings and animal features in addition to stencilled human features. The universal feature common to both simple and complex groups is the stencilled human features motif group.

Complex Group: Motif Groups

	<u>Motif Group</u>	<u>No.</u>	<u>%</u>
Figurative	Human features	1866	41.40
	Tools and weapons	158	3.49
	Animal features	816	18.02
	Plant features	8	0.18
	Unidentified	135	2.98
Non-figurative	Cups and rings	375	8.28
	Geometric designs	110	2.43
	Linear motifs	789	17.42
	Solid motifs	272	6.01
	Total	4529	100.01

Table 97

4:8 ASSOCIATION WITH OTHER ARCHAEOLOGICAL FEATURES

There appears to be no consistent pattern relating the type of site, its orientation, or the association of archaeological features with the choice of various techniques or motifs or indeed the presence of art at all. The investigator in this region is struck by the number of what appear to be choice rock shelters providing an excellent background for rock art that are completely devoid of any trace of Aboriginal occupation, let alone any art.

Some factors do, however, become apparent upon examination. No associated archaeological features were to be found at 28 sites; of these 24 contained only stencils, three have other pictographs present in addition to stencils, and a single example has a small number of engravings depicted. The human features motif group provides all the motifs at fifteen of these sites, more than 80% of the total at nine and more than 50% at a further three. The majority of these are small sites both in physical size and content, only five contain more than twenty motifs.

Four sites are reputed to be sepulchral places, but supporting evidence is available at only M-HE/2. There are natural pipes, ledges and crevices present at all four which could have provided space for bark cylinder coffins. Two of these sites contain stencils only; one (M-HE/48) depicts the same left hand in the same red hue repeated in various orientations five times (Plate 64b). The other (M-HE/79) has a larger number of motifs of various colour groups; but it includes one discrete group comprising the same hafted stone axe repeated, together with a shield and two unidentified objects, all appearing in the same yellow hue.

The other two sites (M-HE/2 and 5) are quite different. The former is a large site containing pictographs only the majority of which are human features, tools and weapons also predominate. The latter is a multi-technique site containing stencils, engravings and paintings. Human features form only a little more than half the total number of motifs.

The presence of quantities of charcoal, lithic and faunal material on the surface of M-HE/6 and 31 and in the excavation at M-HE/3 provide evidence of fairly intensive habitation at these three sites. The first is small in physical size and contains only pictographs. The others are large multi-technique sites. Eight motif groups are depicted at M-HE/3 and seven at M-HE/31. In addition a bark cylinder coffin was reputed to have been removed from a niche at M-HE/3. Another site (M-HE/28) which shows some evidence of habitation, through the presence of a few stone flakes and implements, is also reputed to be a burial place. There is no evidence to support this except for the site's physical isolation and the presence of a sand filled cave. The art present there shows a definite preference for engraved emu tracks.

A small quantity of surface remains are found at the 'Art Gallery'. Here habitation does not seem to have been as intensive as at 'Cathedral Cave' (although this should be tested by excavation). Engravings are the major technique utilized but stencils and paintings are also present in quantity.

The remaining four sites are all clustered near an open factory site towards the entrance of the outer gorge. They may have been used as shelters during the manufacture of stone tools as considerable quantities of implements, flakes and cores are scattered down the hillside below the actual sites which themselves have little or no deposit. Stencils comprise the major technique at

three sites. Engravings are marginally more frequent at the fourth.

4:9 CONCLUSION

Because of the preliminary nature of this survey which is to be seen as a reconnaissance rather than an in depth investigation, "Studies of orientation, relative size, complexity of figures and associations"¹ as recommended by Edwards and Ucko have not been attempted. An attempt has been made however to classify the motifs and to calculate their relative frequencies of occurrences as a way of presenting the components of the art recorded in these sites. Because there is little or no comparative data yet available this process can only be carried out as an internal exercise within the parameters of a regional study. Therefore the usefulness of the analysis at this stage is limited.

Edwards has provided relative frequencies of design for the engraved art of south and central Australia.² In that region sites even over 1300 kilometres apart show a consistency of relative frequency especially for faunal tracks and circles which together make up 80-90% of all motifs at his sites. The technique used to present this art body is quite distinct from those used in Carnarvon Gorge. The relative frequency of motifs is also different, e.g. tracks in Carnarvon Gorge make up only 14.51% of all motifs whereas in south and central Australia they range from 48.30% to 71.30%.³ McCarthy and MacIntosh recorded 1371 stencilled (74.40%) and painted

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1. Edwards, R. & Ucko, P., 1973: *Nature*, vol.246, p.276.
 2. Edwards, R., 1966: *Trans.R.Soc.S.Aust.* vol.90, pp.33-8.
 3. Edwards, R. in Mulvaney, D.J. & J. Golson, 1971: *Aboriginal Man and Environment in Australia.* p.362.

(25.60%) motifs in 21 rock shelters at Mootwingee⁴ (which were not directly related to the extensive open air pecked engraving sites). Unfortunately engravings (mostly macropodid and emu tracks) which were present in six of the shelters were not included in the published census. Therefore full comparison with the data from Carnarvon Gorge cannot be made. It is to be hoped that comparative data will become available as a result of regional studies by other workers and the A.I.A.S. Sites of Significance programme.

In the preceding analysis the left to right ratio amongst those human features that can be so classified has been investigated because human features (especially stencils) are the universal common feature at all sites in Carnarvon Gorge and indeed in all sites in the highlands region of central Queensland. The preference for left or right may prove to be a guide for isolating different regional art bodies which have a large stencilled human features component. In Carnarvon Gorge there is a significant overall preference for the depiction of left over right (see pp.194-5, Table 73), although some individual sites do not show this same significant preference when a chi-square test is applied, but neither do they show a preference for right over left.

While stencilled human features appear to be the universal technique/motif group in this and other regions, the engraved cup and ring appears to be unique to the Queensland central highlands. In this respect it can be treated as a characteristic trait of the more complex group of sites in Carnarvon Gorge where pictographic and engraved techniques are combined (see p.215, Table 97). This is valid despite the fact that the cup and ring is a relatively minor

4. McCarthy, F.D. & N.W.G. MacIntosh, 1962: *Rec. Aust. Mus.* vol.25, pp.281-6.

component of the total art body at those complex sites (8.28%) and that more than two-thirds of the motif is concentrated at one site, the 'Art Gallery'.

The wide range of colours comprising 27 hues (70 tones) present in Carnarvon Gorge is perhaps misleading because the colour of each individual motif was not recorded. Many hues appear only once and that use possibly reflects the chance find of an ochre pebble in Carnarvon Creek, this is especially probable at 'Cathedral Cave' (see p.208). The late introduction of white pigment to the Gorge sites (see p.213) reflects an innovation that might be due to either a cultural change or a new pigment source.

The superimposition sequence provides the only evidence for the twin factors of continuity and change in motifs and techniques in the Carnarvon Gorge rock art tradition. The assumption that the Aboriginal artist when adding his work to the site was conscious of the existence of previous art and probably of the reason for and the meaning of the range of motifs present cannot be validated. This does not account for either the selective addition of a motif onto a clean surface or its superimposition over an existing motif.

The chi-square test has been used as an indicator of the higher relative frequency of some groups of motifs and colours (see p.212) in superimposition sequences than their actual number shows. This points to a higher probability of the majority of those particular groups of motifs and colours (some of which do not actually occur in superimposed positions) being later in the relative sequence.

Size, colour, composition, complex and multiple component motifs, all features that give a total visual impact cannot be quantified. Subjectively in terms of the observer's visual

perception some motifs can seem to be more apparent than others. A looming human figure or a stencilled design of crossed hands + forearms (especially the latter) may catch the eye of the European viewer. Such ethno-centric cross cultural reactions probably diverge greatly from the conceptual and the visual framework of the Aboriginal artist which is now beyond recall. Therefore no discussion concerning size and complexity will be attempted.