



KEYWORDS: *Dry pigment – Style – Definition – Gariwerd – Victoria*

DRY-PIGMENT DRAWINGS WITHIN GARIWERD, AUSTRALIA

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Abstract. This paper presents an appreciation of the content and context of the dry-pigment drawings within Gariwerd (Grampians Ranges) in western Victoria. The drawings constitute a single discrete art phase in the development of the corpus of Gariwerd rock art. A definition of drawing as it relates to rock art is presented and then the characteristics of the phase are described in detail as a basis for further comparative studies, both in Gariwerd and elsewhere in Australia.

Introduction

Dry-pigment drawing has been recorded from most rock art regions of Australia (e.g. McCarthy 1959; Gunn 1984a, 1992, 2000; Flood 1987; David and David 1988; Walsh 1988; McDonald 1998). Gariwerd constitutes one of the smaller but no less significant rock art regions of Australia (Gunn 1984b, 1987a). Three phases of art production have been identified that appear to be chronologically distinct: firstly red paintings, then drawings in red, black or white, and most recently, white paintings. No dates can yet be firmly attributed to any of the phases. The characteristics of the red paintings have been described elsewhere (Gunn 2005), and an initial examination of the drawing phase was presented in two unpublished studies (Gunn 1984a, 1987b). This paper revises those studies incorporating additional data from sites found more recently, results from interstate studies, and with a slightly different theoretical approach.

Terminology

The term 'drawing' has several different uses, incorporating both general and specialist meanings. The word drawing may denote the action or activity derived from the verb 'to draw' in its many senses. The *Encyclopaedia Britannica* defines a drawing as:

the primarily linear rendition of objects in the visible world, as well as concepts, thoughts, attitudes, emotions, and fantasies given visual form, of symbols and even of abstract forms ... The principal element of drawing is the line. ... Because of the immediacy of its statement, drawing expresses the draftsman's personality spontaneously in the flow of the line; it is in fact, the most personal of all

artistic statements.

And also:

Such varied tools as slate pencils, charcoal, metal styli, and chalks may be used for drawing as well as all writing utensils, including pens, pencils, and brushes: indeed, even chisels and diamond are used for drawing (Hutter 2008).

From this definition, drawing can be ascribed to works produced in either dry or wet pigment, and also in a combination of the two (Rawson 1969; Kovats 2007).

In fine art, the term 'drawing' can encompass a variety of very different meanings dependent on its context (compare definitions in *Oxford dictionary* 1926; *Dictionary of arts and crafts* 1957; *Encyclopaedia of world art* 1961; *Standard dictionary* 1962). When not clearly defined, its meaning is often ambiguous and can be misleading.

Craig-Martin (1991: 9–10) gives a list of sixteen attributes that he claims have 'always been the characteristics of drawing'. However, many of these can also apply to painting and printmaking, and so are not useful in furthering the present definition. Of the sixteen, only spontaneity, directness and modesty of means are considered vital but not exclusive aspects of a drawing. Further, and particularly significant to the appreciation of rock art, is the influence of the ground support (the material the drawing is produced on), as this infuses the drawing with 'texture', a principal difference between most painting and drawing (despite the works of individuals such as Rembrandt and Van Gogh, and the promotion of gesture and texture by the Abstract Expressionists in the mid-20th century and the subsequent reactions against surface texture by the Photorealists; e.g. Hobbs 1980).

These definitions, being so broad and all encompassing, do not in fact define any one thing as a drawing but indicate a broad spectrum of activities and products (works). These combine both the verb sense of the word (activity) and noun sense (product) but only require that one of them need be fulfilled for the term to be applicable. Hence the use of the terms painterly drawings (e.g. the drawings of Rembrandt; Benesch 1947) or drawn paintings (bark paintings from eastern Arnhem Land; Ryan 1990). It can be seen therefore that the term does not simply describe a technique, but also assesses the quality of the form produced (whether the overall image is suggestive of either a linear or solid area construction).

In considering the 'art of drawing', Rawson (1969: 3-4) incorporates two meanings of the word art. The first involves the use of visual symbols in the manner of language; the second involves an appreciation of aesthetic quality. In this sense, he incorporates into the definition the spiritual (subjective) aspect, as the basic elements are strokes or marks which 'have a symbolic relationship with experience, not a direct overall similarity with anything real' (ibid.: 1), and also that drawings, more so than other art forms, provide an insight into the structural concepts held by the artist. This is due to the immediacy of the medium and because drawing is a result of, and is therefore about, movement; either the broad sweep of the arm, or the narrow pull of the fingers (ibid.: 2).

By these definitions, most freeform Aboriginal art (as opposed to preform stencils and prints), especially that within Gariwerd, can be termed drawing, painterly drawing, drawn paintings, or paintings (see Herbert 1958: 27-28; Rawson 1969; Gunn 1983a; Hutter 2008). For the purpose of an archaeological classification, such a loose definition is not appropriate.

There are other understandings of the term drawing that need not detain us here, such as the 'applied' drawings (*architectural, technical, geometric, mathematical, diagrammatic, and design* drawing), each of which has its own purpose and, often, conventions (Hutter 2008). Most of these are related to the pre-production stage of an object, in the sense of 'blueprints' of one form or another. In contrast, *doodles* are alleged to be by-products of a state of mind accompanying some other activity (Watson 2008), while other by-products include scribbles to test a tool or pigment. In these events, the drawing is of less importance than the final object of the production. This therefore has a parallel in the use of rock art in so-called maintenance ceremonies, where it is the act of producing the art that is required to maintain the reproductive powers of the species or feature under attention (cf. Spencer and Gillen 1899: 193; Mountford 1976: 213). It is possible therefore that some rock art drawings may fall into this category, but without direct interpretation by appropriate Aboriginal people this aspect will remain unknown.

In Australian archaeology the term has evolved

into a more restricted and specific definition. Davidson's important and progressive study of the time (Davidson 1936) makes no distinction between the two terms painting and drawing, although 'drawing' had been used earlier to describe some of the shelter art from the Sydney district where it occurs as a major technique (e.g. Thorpe 1909: 326). Similarly, F. D. McCarthy (1939), when describing the five techniques of painting used in the rock art of New South Wales, listed not what we now term techniques, but rather variations of motif forms (simple outline, silhouette, stencil etc.), showing how loosely the concepts of drawing and painting were held at that stage. Twenty years later, however, when recording art sites south of Sydney, McCarthy found it necessary to differentiate between paintings and drawings that occurred within the same shelter (McCarthy 1959). Here he mentions that the drawings are 'all silhouettes *drawn with dry pigment* rubbed thickly lengthwise up and/or down the body and arms', and that '68 figures were *drawn with charcoal*' (ibid.: 193; my emphasis). In the same article he notes 'a previously unrecorded technique for Australia using scratched lines' (ibid.), showing that the concept of distinct techniques was now becoming more clearly understood and defined. Two years later he further elaborated the definition by contrasting it with paintings and stencils:

The stencils were done with a water-mixed paint, but all of the other figures were drawn with dry pigment and are therefore referred to as drawings, not paintings (McCarthy 1961a).

And again the same year, in reference to a new area of sites south of Sydney:

In the next period of cave art in this area, all of the figures are drawn with a piece of dry or raw red ochre or white clay, not mixed into a paint (McCarthy 1961b).

Hence by 1972, with the publication of McCarthy's article 'Recording art on rock surfaces', it had become standard procedure to differentiate between the various techniques present. With the introduction of a more scientific approach to the classification of rock art attributes (Maynard 1976, 1977), the definition of drawing was further refined to:

those delineated motifs, composed of coloured lines or solid areas, which appear to have been applied under direct manual control without any other aids, with a dry pigment rubbed onto the rock like a crayon [so that] the high spots of the surface are more thickly coated than the low spots, giving a streaky effect to the drawing (Maynard 1977: 393).

Following these directions but attempting to be more restrictive, I previously limited the term to those motifs produced from 'the application of a dry or waxed pigment to a ground (or support) by the motion of a nodule, stick or crayon' (Gunn 1983b: 61).

In the light of the broad use of the term in fine art, the archaeological use of the term can be seen to be somewhat incongruous, as it isolates under the same heading a particular sub-set of the various fine art drawing techniques. Rather than try to introduce a

new term for this specific, archaeological use, I continue to use the term *drawing* with the understanding that at all times this will refer only to the stricter archaeological sense of a *dry pigment drawing* and excluding wet pigment drawing (see also the *IFRAO rock art glossary*; Bednarik et al. 2003: 8). Almost necessarily, dry pigment drawing utilises lines, even though they may be thick bands if a crayon is held sideways, or be used to create a solid area using overlapping lines, bands or other form of shading or hatching. Further subdivisions might usefully compare the use of line and shade. With closer study, it may become possible to write of the more interesting aspects of spontaneity, directness, modesty of means, structural concepts, pentimenti, and texture referred to above. Also, when studying any artwork as well as the raw technique used, the researcher should be aware of the full corpus of raw materials (pigment, ground, space), the manual and mechanical process, and the artist's intention (Collins et al. 1983: 12). In the case of Aboriginal rock art, the intention of the artist is generally unknown and probably unknowable. However, an examination of the way in which the manual process of drawing acts upon the raw material to organise and shape the image may provide a grasp of the structural values of the artist, and possibly then an indication of the artist's intent (ibid.: 14).

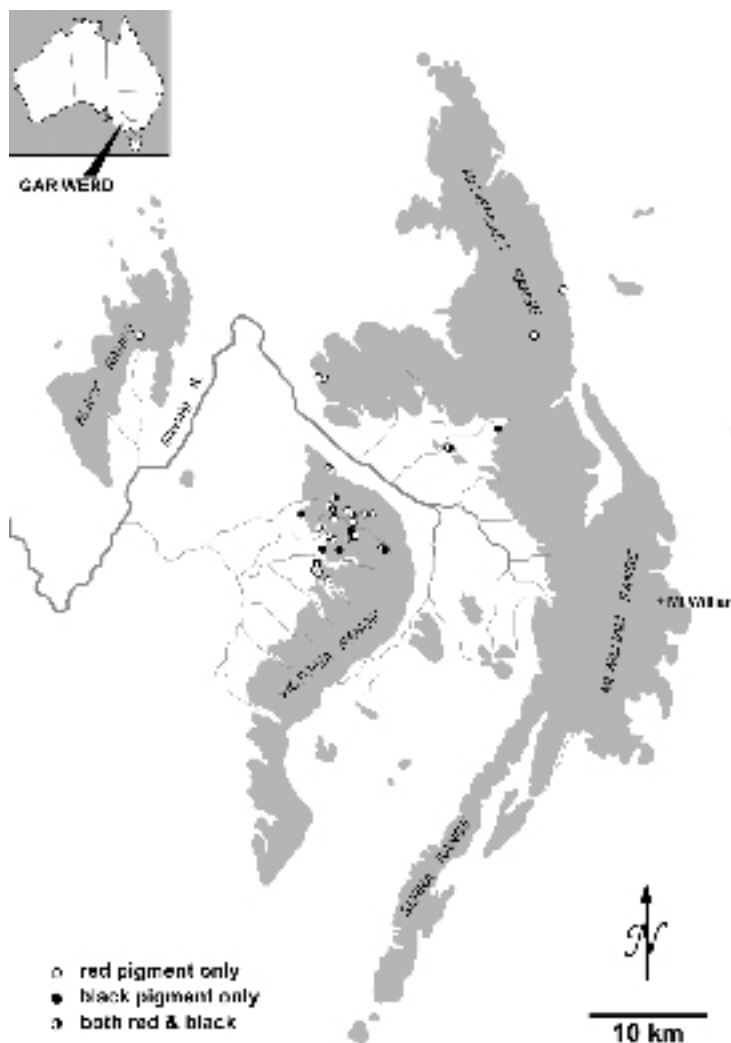


Figure 1. Distribution of dry-pigment drawing sites within Gariwerd.

Gariwerd (The Grampians)

A great deal has been written on the natural and cultural history of Gariwerd (cf. Day et al. 1984; Calder 1987; Wettenhall 1999; Bird and Frankel 2005). It covers an area some 75 × 50 km in extent. In addition to its mountain ranges, foothills and outliers, it contains broad valleys, narrow deep gullies, and extensive outwash slopes (Fig. 1). The ranges trend north-south and rise up to 1160 m, or

900 m above the surrounding plain. With their abrupt and rocky relief, they form a dominant topographic feature in the otherwise low relief of western Victoria (Fig. 2). The ranges are cuestas of Early Devonian sandstones, with steep easterly faces and gentle but



Figure 2. Victoria Range from the west.



Figure 3. Typical shelter with drawings.

heavily dissected back-slopes. Of the two broad types of sandstone present, the well-cemented varieties (which are of quartzite quality) have also been used for flaked stone tool production (Gunn 1983a: 7, 98). Blocks of the more poorly cemented varieties, on the other hand, have been used as whetstones, palettes and grindstones (Gunn 1987b, 2003).

The climate of Gariwerd contrasts with that of the surrounding plains, with a higher annual rainfall (up to 890 mm per annum) and cooler average temperatures. Rainfall is heaviest over the winter months and light snowfalls can be expected on the higher peaks. Only the larger creeks and rivers continue to flow over the summer months and even these may be reduced to a series of waterholes over the not uncommon periods of drought. There is also a marked difference in the climate of the northern and southern ends of the range, with the northern area being considerably warmer and drier (see LCC 1979). The rockshelters, most of which face to the north-east, provide useful protection from both the cold winter rains and the hot summer sun (Fig. 3).

The vegetation communities vary from dry heathland to tall forest and fern gullies (Willis 1971). Most of the art sites occur within areas of rocky outcrops that tend to form the margins of two or more communities (Gunn 1983a). The wide range of vegetation communities supports a similarly diverse faunal population. However, these resources would not have been exceptional, as the surrounding plains were both richer and far more readily exploited by the Aboriginal people (Coutts and Lorblanchet 1982).

Aborigines and Gariwerd

At the time of European settlement, around 1840, Gariwerd stood as an apex to the tribal areas of the

Jardwadjali and Djab Wurrung peoples (Clark 1990, and contra Tindale 1974). The ethnography is particularly sparse, however, and tells little of Gariwerd's economic use or social occupation. Excavations of six rockshelters around the ranges indicate that Aboriginal occupation, or at least utilisation, was under way around 20000 years ago and continued up until the contact period around 1840 C.E. (Bird and Frankel 2005). Today, Brambuk Inc., an association of the five Aboriginal groups from around the ranges, oversees the management of the Aboriginal cultural heritage of Gariwerd.

Drawing in Gariwerd

Of the 124 Gariwerd rock art sites examined, 34 contain drawings. Unlike the painting sites, which occur throughout the ranges, the drawing sites are restricted to the central ranges (Victoria, Black, Asses Ears and Mt Difficult Ranges). The lack of any drawings within northern Gariwerd is seen as significant, as this area is also differentiated from the central ranges through the presence of handprints and the absence of hand stencils. Their absence in the southern ranges is attributed to the paucity of suitable rockshelters, as only two small sites with painting have been recorded here.

Most of the drawing sites occur within the northern end of the Victoria Range (82%). Also, over half of the sites (18 of 33) are located within a single creek catchment: the large basin-like hanging valley of Cultivation Creek. This pattern follows the distribution of painted shelters within these ranges (although paintings are far more numerous and occur within a greater number of shelters), both of which parallel the occurrence of suitable rockshelters.

Drawing numbers and site selection

A total number of 422 individual drawings were recorded for this study, from thirty-four shelters. The mean number of motifs per site is 13, with a range from one to 98 but, with a standard deviation of 19, there is little consistency in the actual numbers (Table 1). Ranking the sites (Fig. 4) produces a regular curve with no significant anomalies, indicating that no site or group of sites stands out as being exceptional in this regard. Sites with higher motif numbers are less common than those with low totals, resulting in a situation where over half of the motifs occur in just four shelters, and half the sites have 90% of the motifs.

Table 1. Drawing numbers per site by colour.

The number of drawings per site bears no relationship to the number of motifs in other techniques or to the overall number of motifs present in the site. While three of the major drawing shelters were also major painting shelters (Manya, Larngibunja, SCk-1), two were not (CC-10, CC-15b), and four major painting sites had very few drawings. Hence, while some sites continued to be major art sites through successive art periods, others did not. No practical reasons (such as ochre sources, lack of wall space, preservation etc.) can be offered to explain these changes. Similarly, there is no pattern in the distribution of the major drawing sites, such as restricted to the interior or periphery of the ranges, or forming a singular cluster.

Pigments

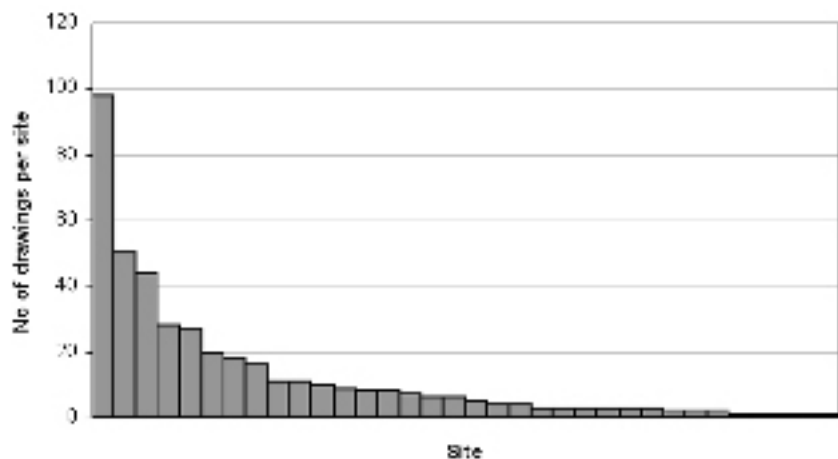
Three different coloured pigments were used to produce the drawings: red, black, and white.

Red: Red pigments vary considerably in all aspects of hue, tone and chroma. Essentially these range from bright orange-red to dull dark brown. From the Munsell Colour Charts (Munsell Colour 1975) the range includes reds (10R 4/6-8, 7.5R 4/6-8), weak reds (10R 4/4, 7.5R 4/4) and dark reds (7.5R 3/6-8). These are presumably all derived from unprepared earth pigments, a range of which occurs in nodule form throughout Gariwerd (both within the sandstone and in ochreous earth deposits). One such outcrop occurs in the floor of one of the shelters with drawings (CC-01). A large outcrop of red, white and yellow clays was recorded 'on the plain a few miles from Glenisla' (Coutts and Lorblanchet 1982: 13). A high-quality red ochre is reported to have been mined earlier this century at Stawell, 30 km north-east of Gariwerd, but this was later destroyed with the expansion of the current gold mine

Figure 4. Ranking of sites by motif numbers.

Site Name	AAV Site No.	Red	Black	White	Total drawings	% of all motifs*
CC-29	7323-193	2	96		98	98
CC-15b	7323-058	13	37		50	77
Manya	7323-004	44			44	15
Mugadgadjin	7323-023	4		24	28	24
SCk-01	7323-061	16	11		27	26
Larngibunja	7323-013	20			20	8
HC-03	7323-059		17	1	18	86
CC-10	7323-035	16			16	76
GI-06	7323-118	3		11	14	93
BS-06	7323-043	11			11	92
PLN-01	7423-697	10			10	All
BgCk-01	7323-027	9			9	All
GI-05	7323-015		8		8	6
HC-12	7323-104		8		8	16
CC-03	7323-018	2	5		7	8
BS-02	7323-039	6			6	60
HC-01	7323-054		6		6	23
CC-15a	7323-057	2	3		5	36
HC-09	7323-101	4			4	7
Billimina	7323-001	3			3	<1
CC-04a	7323-053	3			3	All
Jananinj Njai B	7323-009b	3			3	5
Gunangidura	7323-010	2	1		3	<1
HC-02	7323-050	1	3		4	67
CC-20	7323-092		3		3	All
SCk-02	7323-1xx		3		3	17
CC-09	7323-034	2			2	11
Drual	7323-026	2			2	4
CC-01	7323-016	1	1		2	3
CC-08	7323-012	1			1	3
CC-16	7323-068	1			1	All
CC-17	7323-069	1			1	All
GI-03	7323-003	1			1	3
Jananinj Njai D	7323-009d	1			1	4
TOTAL		184	199	36	419	(n=3951)

* Drawings plus paintings and stencils if present



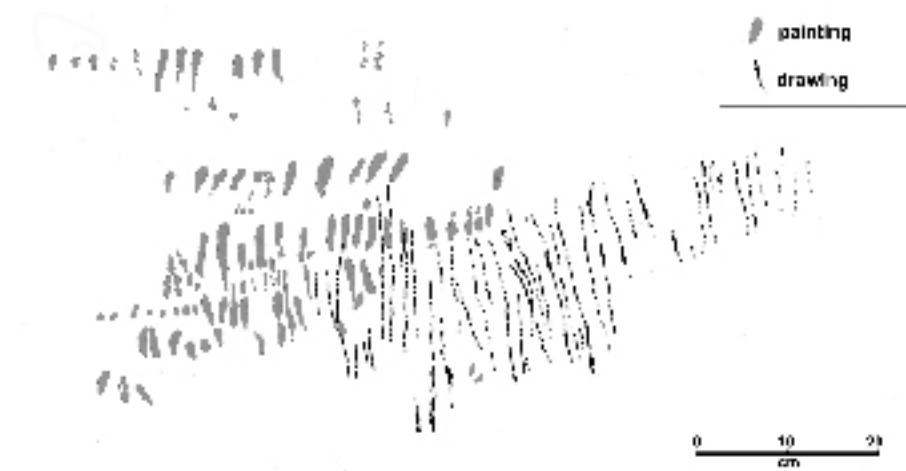


Figure 5. Row of drawn bars superimposed over rows of painted bars.

(I. McCann, pers. comm., 1984). Red accounts for 184 (44%) of the drawn motifs and occurs at 28 (85%) of the sites. The number is similar to that of black drawings but the distribution is much broader (Fig. 1).

Black: Although none of these pigments have been chemically analysed, it is assumed that all derive from charcoal, although whether in the form of a waxed stick (impregnated with fat) or untreated is unknown. The colour ranges from grey (Munsell 2.54 6/0, 2.5~5/0) through dark grey (2.5Y 4/0), to very dark grey (2.5Y 3/0). No true 'dense' blacks were recorded. Black drawings account for 119 motifs (47%) and occur in 13 (39%) sites. These are more concentrated than red drawings around the Victoria Range. Interestingly, soft and granulated natural charcoal has only a slight adhesiveness when drawn on paper and, without fixative, deteriorates rapidly. On sandstone, however, because of these very properties, charcoal impregnates between the sand grains and can last for thousands of years (see below).

White: Several white paint pigments from Gariwerd rock art sites have been analysed and all those of Aboriginal origin are derived from kaolin clays. Outcrops are known to exist in several locations around the northern ranges, with a large deposit only five kilometres north-east of the Mugadgadjin shelter in the Black Range (Burrunj), where 24 of the 36 examples of white drawing occur. The pigment is very dense and varies in tone from pure white to off-white or very light grey. In addition to the Mugadgadjin shelter, the only other occurrences of white drawings are at GI-06 (11 motifs) and HC-02 (1 motif) in the Victoria Range.

Eight sites had both red and black colours represented; two had red and white; and one black and white. No site had all three colours present. In all of these sites except SCK-01, where red and black were both well represented, one colour clearly dominated over the other. All of the drawings recorded were in monochrome.

Motif types

From the 422 motifs recorded, 121 were too deteriorated to allow classification into any particular type (fragments). Of the remaining 301 motifs, all could be classified into a limited array of just eleven basic types: bars, bar sets, bar rows, lines, line sets, geometric elements, simple designs, 'emu tracks', 'emus', anthropomorphous figures and 'human' figures (Appendix 1).

Bars: Straight, single stroke lines less than 10 cm in length. The distinction from the class 'lines' is based on their size, most around 60 mm, reflecting

a finger rather than wrist action, which is required for lines greater than 10 cm. In painting these are produced by a single stroke of the finger. These drawn examples are seen as dry-pigment versions of the painted motifs. Fifteen single bars occur at four sites, and at the two sites where they occur in any number (7 and 6 respectively) they are in white. The other two examples, at two different sites, are in red.

Bar sets: Short (mostly < 10 cm), straight lines either perpendicular or horizontal, usually in close sets of three or more. A total of 13 bar sets were recorded from nine sites. At no site were there more than two sets. While there was an overlap of bar sets and bars, both occurred at sites where the other did not.

Bar rows: A particular form of bar set, bar rows occur as horizontal rows of vertical strokes that form a picket-fence-like design (Fig. 5). Although most are < 10 cm in length, within a group individuals may reach up to 20 cm. A row is distinguished from a set as being wider than high. Rows of bars, often referred to as tally marks, appear in all cases to have been executed at the one sitting and hence should not be seen as 'ticking of the days' etc. Whether or not they represent any sort of tally is unknown, but it is probable that each set represented a unit construction in its own right, independent of the number of strokes present (such as a 'group' of dancers or a 'mob' of kangaroos).

The eight bar sets occur at four sites, with a maximum of three at one site. At one site two sets occur in black and one in red.

Lines: Straight or slightly wavy, single stroke lines that are generally longer than 10 cm. Forty-three lines were recorded from fifteen sites. The smallest group of the major motif types, lines are usually present in small numbers at any one site, although nine occur at one site. As a type, it is very widespread throughout the area.

Line sets: Loose sets or constructions of roughly parallel lines up to 50 cm in length. Eight examples were recorded from seven sites. The number of lines

per set ranged from two to 26, with little consistency of number.

Geometric elements: Simple graphic forms usually produced by the development of from one to three linear elements. They are usually small (<100 mm) and most often take the form of C, O, P, L, V, N, W and X shapes. Lines and bars are particular sub-sets of this group.

Twenty-two geometric elements were recorded from eight sites. Seven of these were in one site where four were in black and three in red.

Simple designs: This type includes all non-representational or abstract motifs whose overall construction is essentially not of a complex nature. Seventy-eight examples were recorded from nineteen sites. Where sites have more than one colour represented, simple designs occur in both colour suites.

The potential variation of simple designs is almost limitless, however, here 23 sub-types were distinguished within seven basic types (Gunn 1984a: 63-71). The extreme simplicity of these is readily apparent and none proved to be visually outstanding (Figs 6 and 7). Eight of the sub-types were restricted to single sites but the repeated designs were widespread across the region.

'Emu tracks': This type is a widely recognised variation on the apex or trident design (B1). It has three 'toes' of roughly equal lengths usually spread at 45 degrees such that the distance between the two outer 'toes' is roughly the length of the mid-toe. There is no definition of the heel pad as occurs in some paintings in Gariwerd. Despite difficulties in definition, this type is recognised throughout Australian Aboriginal art, although it can also be interpreted by Aboriginal artists as the tracks of the bush turkey or other bird species. The separation of this type from other simple designs rests solely on ethnographic analogies from numerous other areas of Australia, as it elsewhere has proved a useful comparative type (e.g. Franklin 2004). Only eleven examples were recorded, eight of which occurred in the one shelter (Mugadgadjin; Fig.

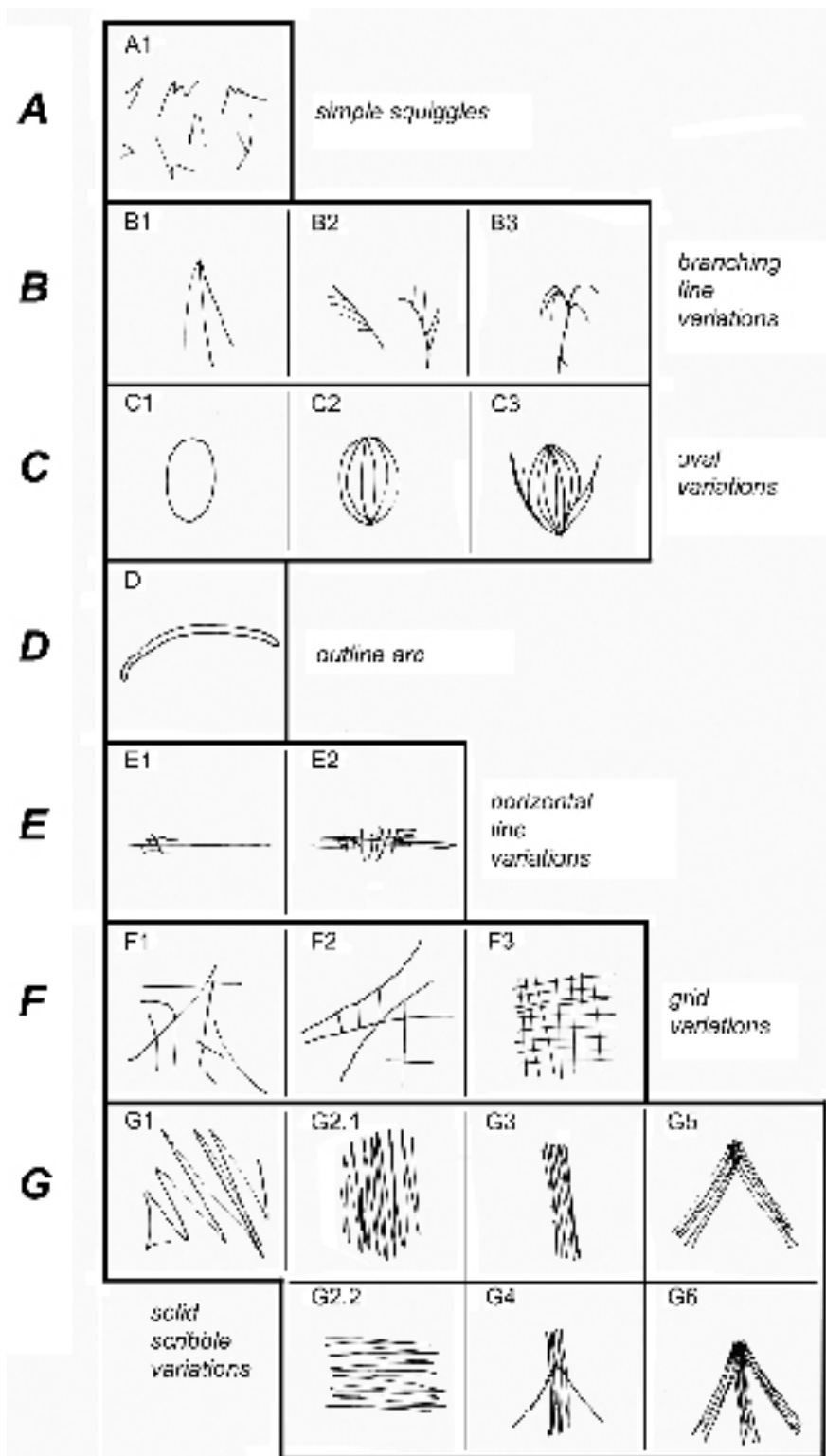


Figure 6. Classification of simple design and geometric element motif types showing the overlap of the two classes.

8). The other three occur as single examples at sites around or on top of the Victoria Range. The high number of 'emu tracks' at Mugadgadjin, along with their presentation in white pigment, is seen as being idiosyncratic of that site.

'Emus': Representations of 'emus' occur at two sites, CC-29 and HC-03 (Figs 9 and 10). At both sites they are

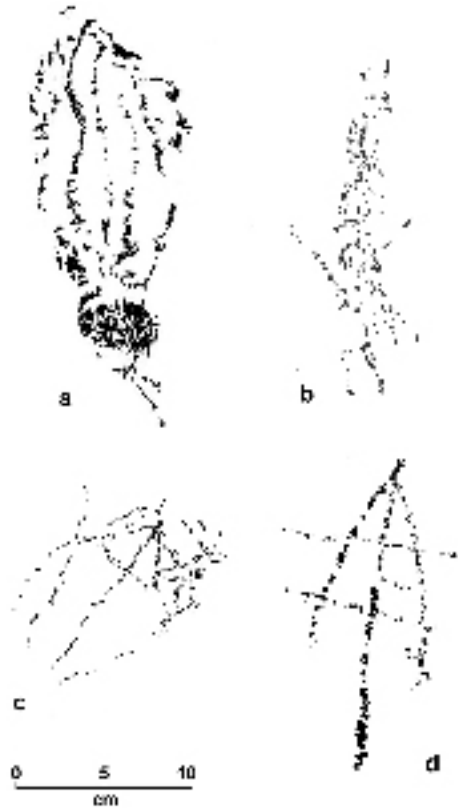


Figure 7. Selection of simple designs.

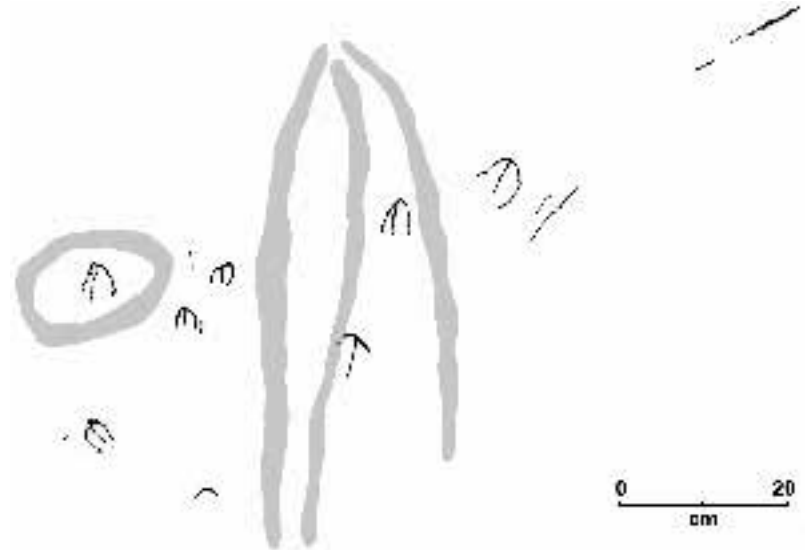


Figure 8. White drawn 'emu track' and bar motifs superimposed over white paintings.



Figure 9. Black frontal 'emu' drawings from HC-03.

Figure 10 (on left). Profile black 'emu' drawings from CC-29.

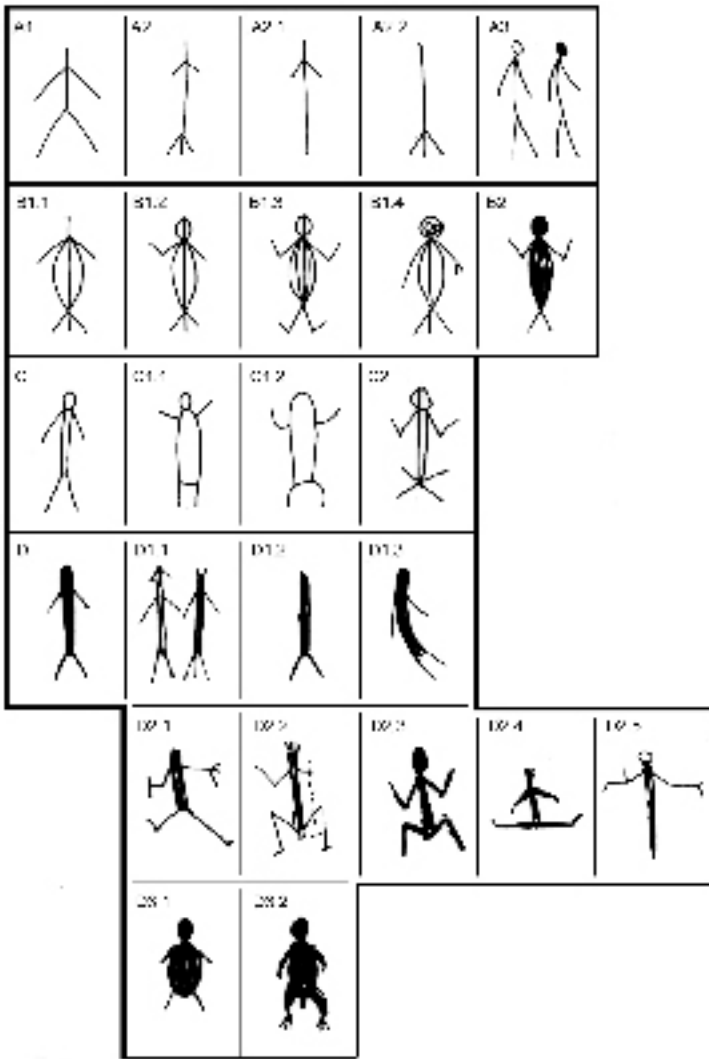


Figure 11. Classification of the range of 'human' figure motifs.

drawn in black and are visually outstanding. However, at CC-29, the nine examples are represented in profile amongst a range of other motifs including 'human' figures, while the three at HC-03 are represented in an impressive frontal pose.

Anthropomorphic figures: A category of motif was recognised that had predominantly humanoid characteristics but yet was distinctly unhuman in other aspects. Only three were recorded from two shelters, both of which also contained 'human' figure motifs. The overlap of this type with 'human figures' has yet to be clearly defined. Their distribution is limited to three sites in the Victoria Range. Anthropomorphs are included as naturalistic motifs as they are here likened to illustrations of dragons in European medieval art, as 'realistic' representations of abstract ideas, dreams or manifestations

'Human' figures: It is the 'human' figure motifs more than any other that most clearly characterise the Gariwerd drawing phase. This is because, apart from the 12 'emus', these are the only motifs in which the artist has introduced any appreciable degree of personality or character. In part this is due to the



Figure 12. Examples of the drawn 'human' figure motifs.

purely formal geometric nature of the other motif types but also, in their own right, these motifs are some of the most memorable in Gariwerd rock art (Figs 11 and 12).

Eighty-two examples were recorded from 16 sites. Numerically, they constitute the largest motif group along with simple designs. Their distribution is widespread, although they are concentrated within

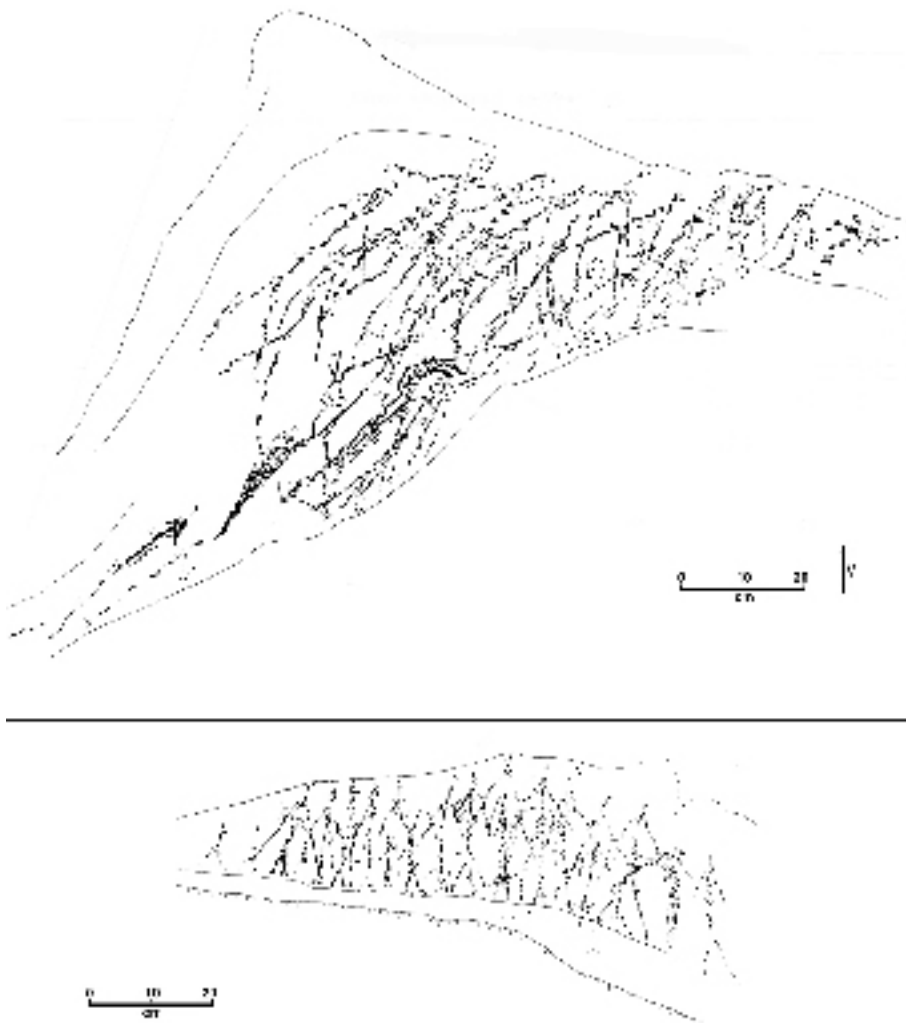


Figure 13. Net-like compositions of 'human' figures at Manya shelter.

the Victoria Range. Despite this distribution, they only occur in any number at the one shelter, Manya, with 32 figures. However, this concentration is somewhat misleading for, of the 32 motifs recorded, all but one occur within two tight compositions in which the figures have been interlocked so as to produce two net-like designs rather than 32 individual figures (Fig. 13).

As with the simple design motifs a number of distinct sub-types were distinguished (Gunn 1984a: 76-81). The main criterion used was the form of the body; linear, outline and infill, outline (hollow), or solid (Fig. 11). Also, in common with the simple design

motifs, the most memorable of these human figure motifs (the B series and D2.4 types) were very low in number, although the B series was quite widespread. Of the remainder, 14 were isolated occurrences and only three occurred in more than two sites. Of the broader schema, types A, B and D were widespread throughout the region, while type C is limited to the western slopes of the Victoria Range. As mentioned above, the distinction between 'human figures' and 'anthropomorph' types remains nebulous (e.g. schemata A2.1 and A2.2; both of which co-occur with human figures).

It is clear then that, although the 'human figure' motifs come from the same basic repertoire, there is very little reproduction of specific types. This suggests that the society provided only general 'design conventions' for the artist, rather than setting forward specific templates to be followed.

Summary

Overall, it can be seen that the drawings of Gariwerd present a particularly limited range of motif types, all of which are of the very simplest in both construction and concept. This general lack of variety and the widespread occurrence of particular sub-types is seen as reinforcing the overall unity of the drawings within the Gariwerd.

Comparison of the motif type frequencies for the different pigment colours (Table 2) reveals a high degree of compatibility between the red and black drawings, as the range and proportions of motif types is similar for each. The principal difference between them is the higher incidence of 'human' figures amongst the red drawings, and the presence of 'emu'

Colour	Motif type											Total	n
	'Human' figure	Simple design	Line	Geom. element	Bar set	Line set	Bar row	Anthrop.	'Bird track'	Bar	'Emu'		
Red	40	22	15	9	4	4	3	1	1	1		100	151
Black	19	38	15	5	4	2	4	<1	<1		10	99	115
White		14	11	6	3				29	37		100	35
Total	27	27	14	7	4	3	3	1	4	5	4	98	301

Table 2. Motif type percentages by colour.

Colour	MODE					n
	Naturalistic	'Tracks'	Basic elementary	Simple geometric	TOTAL	
Red	41	1	36	22	100	151
Black	30	1	30	38	99	115
White	0	29	57	14	100	35
Total %	32	4	36	27	99	301

Table 3. Motif mode percentages by colour.

amongst the black. For such a close correlation to occur it would seem that, despite the differences in colour, the two groups represent the same repertoire. These similarities are reinforced by the fact that many of the figure sub-types are represented in different colours. In fact, any type occurring at more than one shelter is likely to be reproduced in a different colour.

In contrast, the white drawings, which are much lower in number, have neither 'human' figures nor 'emus', and have a much higher proportion of 'emu tracks' and single bars. The latter are all within the Mugadgadjin site and it is this site, with 68% of the white drawings, which determines the overall motif frequency for this colour.

Reduction of the motifs to their basic modes of representation (Table 3) shows that the repertoire consists primarily of basic elementary forms (c. 36%). This category can contain a variety of elements (dots, bars, lines, crescents etc.) but is here restricted to only bar and line forms. Naturalistic representations ('humans', anthropomorphs and 'emus') and simple geometric designs (which can also include complex designs when present) account for 32% and 27% respectively. It should be noted, however, that in the repertoire here, all of the 'naturalistic' representations are stylised, and none can be seen to be literal imitations of the original.

Motif sizes

The 359 motifs measured ranged from 2 cm to 364 cm in length, with a mean of 18 cm, and standard deviation of 23 cm. However, because of the high number of bars around 10 cm long, the mode was only 12 cm. Excluding the largest motif (364 cm), the range is reduced to 2 cm to 93 cm, the mean to 17 cm, and the standard deviation to 14 cm. Ninety percent are less than 50 cm in length, and 79% less than 20 cm.

The 'human' figures ranged in size from 10 cm to 75 cm, with a mean of 24 cm and a median of 21 cm. There was no appreciable difference between the red or black examples (medians of 20 cm and 22 cm respectively). 'Human' figures are generally smaller than either 'emus' or anthropomorphs, suggesting that where they occur together the 'emus' and anthropomorphs may have been the more significant.

The relationship between the size of individual motifs and the available wall surface was not

investigated although, for the most part, there did not appear to be any clear correlation between these two factors. It was noted, however, that the largest motif (at 365 cm) was recorded within one of the smallest shelters. This exceptional motif exceeded the width of the main panel by 'jumping' a 50 cm gap and continuing on, across an adjacent panel. In contrast, at the CC-5 shelter, which consists of numerous small sunken 'cameo' panels, the limitation of the rock support clearly dictated the maximum size of many of the motifs (both drawn and painted).

Composition and placement

Many drawings occur in relation to others, usually through the grouping of like motif types (e.g. groups of 'emu', 'human' figures or rows of bars). There are only four clear examples of composition, three of which involve 'human' figures (Fig. 13) and one involving 'emus' (Fig. 9 under-layer). The two compositions at Manya, where the 'human' figures are arranged in overlapping 'chains', are particularly noteworthy as graphic developments, even though they only occur at this one site. The lack of repetition of any of these compositions indicates that compositions were not a feature of the repertoire, but rather idiosyncratic of particular artists or the shelters in which they were placed.

Others are aggregates rather than compositions. Aggregates are loose assemblages of similar motifs, while compositions have a degree of visual coherency regardless of the motif types involved. Consequently, if the rows of bars are seen as a single motif rather than an aggregate of single bars, then compositions are very uncommon. This pattern of aggregation is similar to that found in the earlier phase of red paintings, and repeated in the later phase of white paintings.

Most drawings occur low down on the shelter walls, less than a metre above the floor. This suggests that they were produced from a sitting or squatting position. In contrast, most paintings occur at around body height (one to two metres above the floor), consistent with a standing attitude. Many of the rockshelters have bedrock floors and so have not been altered over the life of the artwork.

Superimposition reveals a consistent sequence for Gariwerd as a whole: white drawings over white paintings, white paintings over black drawings, red drawings over red paintings, and red paintings over



Figure 14. Superimposition of white paintings over black drawings (CC-15b).

red stencils (Fig. 14). The upper sequence of white drawings over white paintings indicates that the white drawings are chronologically distinct from the red and black drawings (which underlie white paintings). This chronological distinction may assist in explaining the other differences (motif type, colour and spatial separation) between these two art suites.

Graphics

As introduced above, drawings are generally small figures executed in a limited space by the movement of wrists and fingers. Hence, they are best appreciated at close range and as independent works in their own right.

Within the Gariwerd drawings, three different modes of graphic presentation were utilised: linear marks and outline plus plain line (linear techniques), and silhouette (one of the many plane, flat or solid area, techniques).

With the non-representational motifs (bars, lines, graphic elements and simple designs), the marks do not delineate borders or visual limits, as they are themselves the subject of concern, with the edges on each side of the mark defining simply the contact of the medium with the rock surface. There is no use of variation in line weight or implied direction as the line was used primarily for 'its own sake as a fluent, two-dimensional expression' (Rawson 1969: 94). In the earlier red (painting) phase, bars constitute the primary structural unit of the motifs (Gunn 2005). This primacy persists with the drawing phase and constitutes the major link between the two phases.

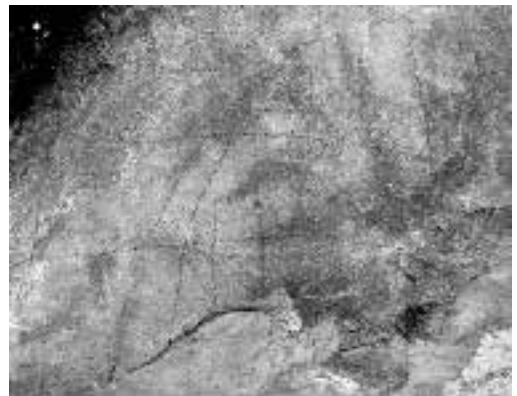


Figure 15. Superimposition of red drawing over red painting and red stencil.

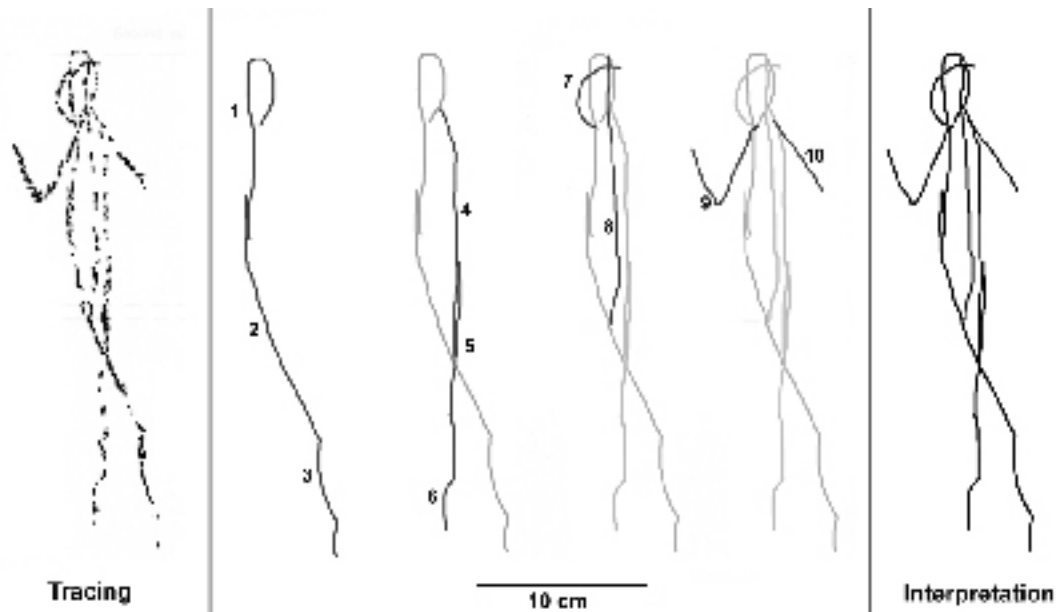


Figure 16. Construction sequence of a 'human' figure motif from CC-15b.

As with the red phase, bar sets continue to play on the use of rows of vertical bars to produce simple horizontal rhythms across the rock face, although the visual impact and variation is less marked amongst the drawings. However, the incorporation of grid designs is seen as an extension of this rhythm, overlapping vertical and horizontal line sets.

Among the more readily interpreted 'naturalistic' motifs, 'human' figures and 'emus', the graphics are more complex. The 'human' figures utilise outline and plain line, and the 'emus', silhouettes. With the figures, the outlining of the heads and bodies mark the limit of the form but do not provide any development of features or implication of three-dimensionality. In fact, through the use of interior lines that cut down the outlined plane, the two-dimensionality of the head/body is reinforced. Throughout Australia, dry-pigment drawings in Aboriginal rock art reveal the kinetic expression of the act of drawing. Consequently, the path of the artist can be readily interpreted and the sequential development plotted. For example, a single figure from CC-15b was constructed from ten lines, beginning with the head-leg line, the central section of which was used as the sideline of the body (Fig. 16). Other versions utilise the simple stick-figure common to most cultures.

The twelve 'emu' depictions occur at just two sites, with different perspectives used at each site. At HC-03 they are depicted frontally with a circular body and hooked-line neck and head. At CC-29 they are in profile, with ovoid bodies and distinct beaked heads. The use of pure silhouettes sets them apart from the 'human' figures, but whether this is a reflection of thematic significance is unknown.

'Tracks' appear as simple trident forms, without a central pad.

The superimposition of drawings over drawings

occurs at a number of sites. However this overlapping is not a graphic device, such as portraying depth, but, like those drawings superimposed over paintings, or indeed paintings over paintings (which is a common feature of Aboriginal rock art throughout Australia), it is concerned with expressing the immediacy of the present over the past and, in that sense, of connecting the present to the past.

Preservation

It was initially assumed that the drawings must be younger than white paintings because they were thought to be more susceptible to deterioration than paintings. However, with the location of the CC-15b shelter (Gunn 1987c), where white painting clearly overlies both red and black drawing, this assumption proved to be false. It is now apparent that, at least some if not all, drawings predate the period of white painting within Gariwerd. Considering this, a good number of the drawings here are remarkably well preserved and many have lost little in either clarity or strength from when they were executed. Unlike some drawings in the Sydney area that have been preserved by a chemical coating (Lambert 1989), those here are generally vulnerable to decay, which is testified by the many drawing fragments recorded (118 or 28%).

In an effort to investigate permanence, a simple test in accelerated weathering was undertaken. A number of bar and line motifs were drawn in natural red ochres onto two blocks of Gariwerd sandstone. One block was placed into a protected area away from direct sunlight, wind or rain. The other was exposed to the direct force of the elements for nearly ten months (November 1983 to August 1984). After this time, although the drawings on the exposed panel were fainter in colour and were slightly more

blurred, they had lost little of their definition. It took three years for the motifs on the exposed block to be effectively erased, although even at this stage a red stain was noticeable. Hence it appears that like red paint pigments (Clarke 1978), red drawings have the ability to permeate a sandstone support and retain an indelible image. The life of the motif would therefore be dependent only on the deterioration of the rock itself. In a rockshelter situation this could be in the order of thousands of years. The same does not apply to charcoal, however, for in a similar experiment, after less than twelve months of full exposure, all visible traces of the pigment had been erased. In the case of the fully protected blocks, there was no significant deterioration of the motifs over the three year period, and ten years later, dust build up was more a problem in reducing the quality of the motifs than fading or pigment loss.

Among the Gariwerd sites, fragments accounted for 18% of red pigment at 12 of 28 sites, and 42% of black pigment at 8 of 13 sites. These proportions reinforce the finding that black pigment (charcoal) is more fugitive than red pigment (ochre).

Age of the drawings

The excavated evidence indicates that Gariwerd was occupied, or at least utilised, around 20000 years ago and this use continued up until the contact period around 1840 C.E. (Bird and Frankel 2005). The excavated shelters were located on the periphery of the range and all contained artwork. However, they varied greatly in size, the quantity of deposit they contained, and the amount or variety of artwork present. The sites are interpreted as having been used periodically as transient camps during the months from late winter to early summer. None of the artwork in any of the excavated shelters could be linked to the archaeological deposit (Coutts and Lorblanchet 1982: 91–92). Consequently, any chronological framework for the art phases of Gariwerd, however well it may fit the available data, is based on speculative assumptions (Gunn 2003).

Wooden artefacts cut with steel implements have been located in three shelters along the crest of the Victoria Range (Gunn in prep.). Two of these have high numbers of drawings and small numbers of paintings, while the third has a small number of drawings only. While the preservation of these implements is likely to be exceptional, their association with drawings may be a product of concurrent shelter use. This aspect requires much more supportive data before such a conclusion can be drawn with confidence.

Elsewhere in Australia, drawings tend to overlie other art techniques, indicating that they are amongst the most recent artwork across the continent. Charcoal drawings from two separate regions have been directly and indirectly dated. In the Sydney Hawkesbury sandstone region, nineteen dates have been reported and include more than one date from the same motif

(McDonald 1998, 2000; McDonald et al. 1990). The dates for the same motif are not consistent and, overall, range from 30000 BP to modern. Given the problems establishing what was being dated, including potential contamination, McDonald concluded that, by and large, the drawings fell within her 'Sydney Basin art phase 3', which she places within the time period of 3000 BP to European contact (McDonald 1998).

Eighteen charcoal drawings from Chillagoe (termed paintings by the researchers) were found to fall within the range 3400 BP to modern (David 1992; David et al. 1999; David et al. 2000). Four of the eighteen dates were 'modern' and the others represented a regular spread of dates from 400 BP to 3350 BP (David et al. 1999: 110). While acknowledging the problems inherent in the sampling, they concluded that the dates 'cautiously support' a late Holocene age for all of the artwork in the region, including the drawings (David et al. 2000).

In central Australia black drawings are common in small numbers. A number of these depict 'contact' motifs (horses, camels etc.) and therefore date to the post-contact period between 1850–1950 C.E. While many are clearly charcoal, others may be non-local pigment (such as pitch, although no chemical analysis has yet been undertaken). However, as all drawings appear to be in a similar state of preservation, it is likely that all of the surviving drawings in central Australia will be of similarly recent age (Frederick 1999; Gunn 2000; Ross 2005).

In contrast, red ochre dry-pigment drawings in western Arnhem Land, on the problematic basis of stylistic similarities, have been tentatively dated to around 6000 years BP (Gunn and Whear 2007). This speculative date suggests that the expected fugitive nature of dry-pigment drawings may be incorrect. However, as ochre pigment appears more lasting than charcoal, the generally late Holocene dates given above are most likely to also be applicable to surviving charcoal drawings throughout Australia, including those within Gariwerd.

The rockshelters

All of the Gariwerd rockshelters are within outcrops or boulders of fine-grained sandstone. However, the cementation of the sandstone varies markedly across the region, from a glassy quartzite quality to that of friable coarse sandpaper. The walls of the shelters vary from smooth inclined walls (Fig. 3) to cavernous niches. Most of the drawings occur in shelters either beneath outcrops of tilted sandstone beds, which are so characteristic of Gariwerd, or else beneath large boulders that have broken from the main outcrop. The numbers of drawings occurring on walls of both well and poorly cemented sandstone types is similar (Gunn 1984a: 36–40).

The size of shelters with drawings varies considerably, ranging in length from 5 m to 56 m and in depth from 1.5 m to 13 m, closely paralleling those for

all art sites in Gariwerd (Gunn 1987b). Therefore there does not appear to be any preferential selection for drawing sites based on shelter size. Similarly, neither the orientation of the shelters nor their situation within the landscape reflects the geological trend of the region. Hence, their selection appears to be more one of expediency rather than preferential selection (Gunn 1984a, 1987b).

Of the sites with high motif numbers, only one (SCK-01) has a large archaeological deposit, and most shelters with large deposits contain only a small number of drawings. This picture suggests that during the drawing phase, where alternative large shelters occurred close by, there was a move away from the major shelters of the earlier phase, into sites that had previously been used only as secondary shelters. Only two of the drawing shelters were devoid of other evidence of Aboriginal use. All but five had artwork in another medium and most were found to contain evidence of stone-working. Ten shelters had artefacts related to stone axe maintenance (axe grindstones, axe heads or blanks). In general, the variety of artefacts present was directly related to the estimated volume of the deposits. This suggests that a wider range of activities occurred at those sites that were used more often, indicating that the art shelters were not reserved solely for artistic purposes but acted rather as centres for a variety of activities. Such use is in keeping with the general expediency model proposed above, regardless of whether these various activities were synchronous or belonged to discrete pre-Historic periods.

This is reinforced as the range of artefacts within these shelters is consistent with that found in art sites that do not contain drawings, suggesting that the change in art media from painting to drawing was not paralleled by any obvious alteration in any associated shelter activities (cf. Coutts and Lorblanchet 1982: 93). Our inability to specifically relate any of these associated artefacts to any of the art phases, however, remains as a major problem in interpreting the functions of these shelters at any one period of time.

It is proposed that by the time of the drawing phase, Aboriginal exploitation of Gariwerd had become focused onto the northern half of the Victoria Range where rock shelters were prolific. Preference for the location of drawings seems to have been given to shelters that now form the periphery of the techniques distribution, reinforcing the more private nature of the medium. Not surprisingly, the largest shelters seem to have continued to be used as principal habitation foci, although they were used only minimally for artwork after this time.

A corollary of this model is that it would be expected that those shelters with the greatest array of artefacts (art and other occupational evidence) would in fact be the largest, physically protective rockshelters in the area (i.e. the most comfortable as well as the most

convenient camping spots); a fact that, although not qualified, is borne out by subjective assessment.

Conclusion

Dry pigment drawing remains a little studied aspect of Aboriginal rock art. The current study indicates that the appreciation of drawings needs to be undertaken at close range and as independent works in their own right.

Rockshelters provide a limited space for the production of rock art, including dry-pigment drawings. The drawings within Gariwerd are all simple constructions with little detail, but done with the assurance of a practised draughtsman. A number of aspects suggest that drawings were produced as private statements by particular individuals. These include:

- The use of the finer medium of drawing.
- Their low, confined placement within shelters.
- Their small size.
- Their simple linear form.
- The lack of repeated motif sub-types.
- The lack of large or coherent compositions.

This contrasts with the more open and dramatic potential of paintings, which appear to have been made under a more tightly controlled social regime for the display of readily recognised motifs. Given the similarity of the subjects between the drawings and previous paintings, it is possible that the drawings represent individual artists recalling the foundations of the past from their own individual perspectives.

One reason for the change from painting to drawing may have been the lack of large quantities of red ochre pigment. As this appears to have been derived from beyond the periphery of Gariwerd, this could indicate a change of relations between those people who owned the ochre resource and those utilising Gariwerd. Alternatively, the change could also be attributed to a less formal and possibly less intense use of the region, such that the time and/or the audience required for the ritual associated with painting were no longer available. The evidence for these interpretations remains one of the outstanding research questions for Gariwerd.

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Appendix 1. Motif types by shelter and colour.

SITE	Bar	Bar set	Bar row	Line	Line set	Geom. element	Simple design	'Bird track'	'Emu'	Anthrop.	'Human' fig.	Frag.	TOTAL
Mugad.													
Red				2			2						4
White	7	1		2			4	10					24
BCK-01													
Red				4		1					2	2	9
PLN-01													
Red						4	2				1	3	10
SCK-01													
Red							9				3	4	16
Black		2		2			7						11
SCK-02													
Black												3	3
BSP-02													
Red					2		4						6
BSP-06													
Red		1		9								1	11
JNj B													
Red							3						3
JNj D													
Red								1					1
Billimina													
Red				1			1				1		3
GI-03													
Red											1		1
GI-05													
Black				2			4			1		1	8
GI-06													
Red					1		2						3
White	6			2		2	1						11

Larngib.													
Red		2	1	2	1	5	2	1		2	3	1	20
CC-01													
Red							1						1
Black							1						1
CC-03													
Red		1					1						2
Black		2					2			1			5
CC-04a													
Red											3		3
Gunan.													
Red					1		1						2
Black							1						1
CC-08													
Red							1						1
CC-09													
Red										1	1		2
CC-10													
Red	1	1		3		1				9	1		16
CC-15a													
Red			1				1						2
Black			2	1									3
CC-15b													
Red						3	1			2	7		13
Black				1		4	6	1		3	22		37
CC-16													
Red					1								1
CC-17													
Red										1			1
CC-20													
Black				1			1				1		3
CC-29													
Red							1				1		2
Black		1		7	1	1	21		9	8	48		96
HC-01													
Black				3		1				1	1		6
HC-02													
Red							1						1
Black											3		3
White											1		1
HC-03													
Black			3		1				3	5	5		17
HC-09													
Red	1	2	1										4
HC-12													
Black							1			4	3		8
Manya													
Red				1						36	7		44
Drual													
Red											2		2
TOTAL No.	15	13	8	43	8	22	82	13	12	3	82	121	422
<i>No. of sites</i>	4	9	4	15	7	8	19	4	2	2	16	18	