

THE ROCK ART OF THE SYDNEY BASIN

There are two art contexts in the Sydney Basin: in rockshelters and on open engraving sites. Shelter sites contain mostly pigment art (pictographs) but occasionally also engravings (petroglyphs). Medium is generally defined as ‘the physical materials of which the artefact consists; or the techniques employed to produce the artefact’ (Clegg 1977:260). Medium here is defined as art context - for pragmatic and theoretical reasons. A shelter art site is defined as all the art which occurs within the dripline boundaries of a single sandstone rockshelter. An engraving site is defined as all the art which is located across the limits of an open sandstone boulder/platform which is usually surrounded by a soil matrix and/or vegetation.

The location or context, in which the art is produced i.e. in the open or in a shelter, may indicate something about the social context of the art (and the site). For the purposes of this study the social context of the art – and whether it was located within a rockshelter or in the open - formed the basis for the initial separation of the two media.

‘Art’ is defined loosely as all humanly made marks which occur in repeatable identifiable forms. In Sydney, art results from either the application of material (coloured, black or white pigments) for pigment art or from the removal of the sandstone matrix by a variety of techniques (for petroglyphs or engravings¹⁰). Both art assemblages were classified using motifs, the majority of which have recognisable forms - human, animal or inanimate objects, or can be categorised as geometric shapes. A large proportion the art consists of unrecognisable or incomplete motifs - particularly in the shelter art assemblage. These motifs were included in the initial analysis of both art assemblages, since they provide a more accurate census of the two assemblages and their general technique information. The motif classification used was based on a taxonomy of visually recognisable figurative forms. These have been given the names of the forms which they most closely resemble but these terms are analytical labels (see Clegg 1977, 1981). This classification is a heuristic device to facilitate the analysis of the data. Given that Sydney Basin rock art is largely figurative, it was pragmatic to give these motifs names which are descriptive.

Sydney Art in the general scheme of Australian rock art

There is continuing debate regarding the geographic and chronological organisation of rock art styles across Australia (McCarthy 1988; Bednarik 1988; Morwood 2002; Franklin 2004) although there has been little empirically based progress made on Maynard’s (1976) tripartite model. Maynard’s model saw a pan-continental, relatively homogenous engraving style (mainly tracks and circles) - the Panaramitee - replaced by a series of more regionally diverse but simple (engraving and pigment) art styles, the Simple Figurative. The Complex-Figurative was thought to then follow, this being a more complex (pigment and engraving) group of styles restricted mainly to the north-west of the continent.

Increasing difficulties are encountered by this model as the result of the proliferation of data (and dating evidence) from around the country. Some complex figurative art (e.g. Bradshaw figures in the Kimberley) has been found to have significant antiquity (Watchman

¹⁰‘Petroglyphs’ and ‘Engravings’ are used interchangeably throughout this monograph to refer to the rock art images of the Sydney Basin. Both terms imply that various techniques have been applied by the artists, removing the stone matrix to form the resultant image. ‘Petroglyph’ as a term has been long-used in the Australian art literature (e.g. Worms 1954, McCarthy 1962, Maynard 1977), but it is generally not as popular amongst Australian archaeologists as ‘engraving’. The NPWS (now AHIMS) Site Register refers to this type of art as ‘Engravings’.

1993b; Roberts *et al.* 1997). The dynamic figures of Kakadu have also been argued to have considerable antiquity (Chaloupka 1977, 1985, 1994; Haskovec 1992; Taçon and Chippindale 1993) and indeed some have older than established Panaramitee dates (e.g. Watchman 1993b). Complex engraved anthropomorphic motifs of great antiquity have now been recorded in the Calvert Ranges (McDonald and Veth 2006) as have ancient figurative forms i.e., embellishments of archaic faces in a number of arid contexts (McDonald 2005b). This creates the most serious challenge to Maynard's tripartite sequence. Increasingly the Panaramitee has been found to demonstrate significant regional heterogeneity (Morwood 1979; Rosenfeld 1991; Rosenfeld *et al.* 1981; Franklin 1988, 1991, 2004) and localised style graphics are argued to date to the earliest production of engraved art throughout the arid zone (McDonald 2005b). The dating evidence does support a late Pleistocene antiquity for the Panaramitee (Rosenfeld 1993). But there is increasing evidence for continuity of this graphic tradition over time – particularly throughout the Western Desert in engraved art (McDonald and Veth 2007), in central Australian engraved and pigment art and body painting (McDonald 2005c, Rosenfeld 2002) and in several eastern regional assemblages, including the Sydney Basin.

The real problem for the Maynard model with the early dates for complex figurative art is that it is obvious that there is not clear diachronic change from an early, highly structured and non-iconic tradition to the later proliferation of figurative (iconic) styles, with increasing design complexity. More recent research (e.g. Rosenfeld and Smith 2002, McDonald 2005c, McDonald and Veth 2006, Ross 2005) has attempted to explore the social mechanisms likely to have been in place for this to occur – and it seems clear that further dating evidence is likely to demonstrate that an early production of highly complex signalling behaviour accompanied the earliest uses of the arid zone – much as has been seen with the use of art throughout Europe during the Palaeolithic.

A vast number of regional Simple Figurative art bodies have now been documented across the country (Cole and Trezise 1992; David 1992, 1994; David and Cole 1990; Flood 1987; Gunn 1983, 1995, 2000, 2003; Hatte 1992; Layton 1992a; McDonald 1998a, 1999; McDonald and Veth 2006; Morwood 1984, 1988, 1992b; Officer 1984, 1992; Ross 1997, 2003). While being cohesive style regions – usually defined by bio-geological regions - internal variation (both synchronic and diachronic) is found in these.

The rock art of the Sydney Basin fits the definition for the Simple Figurative styles (Maynard 1976; Franklin 1984, 2004). Maynard's model predicts that this art is a relatively recent (Holocene) phenomenon which is supported by this region's archaeological context. Her original definition still provides a good general description of the region's art.

the style is dominated by figurative motifs ... the majority of (these) ... conform(ing) to a pattern of crude naturalism. Whether the motif is engraved or painted, in outline or solid form, it usually consists of a very simple silhouette of a human or animal model. Most portrayals are strongly standardised. Human beings are depicted frontally, animals and birds in profile, snakes and lizards from above. Normally only the minimum visual requirements for recognition of the motif are fulfilled by the shape of the figure. (Maynard 1976:200-1)

Certain variations to her definition are necessitated by the current research. For instance, human figures are sometime depicted in profile, while some animals (e.g. the echidna) are not always (Officer 1984, McDonald 1987). Franklin's work on macropods and men in the region indicates that Form, Technique and Motif are equally important in differentiating between the different regional Simple Figurative styles (Franklin 1984:89). Each of these assemblage characteristics is equally able to provide stylistic information which can characterise the region (see also McDonald 1993b). This is significant when evaluating quantitative as opposed to qualitative data (viz. Ashton 1983), and for the analyses undertaken for this research.

Previous work in the Sydney region – the growth of a data base

The art of the Sydney region has long had a fascination for European observers (e.g. Phillip 1789) and more recently rock art analysts. The first major publication of systematic rock art recordings from the Sydney region was by W.D. Campbell (1899). Campbell recorded (from the back of his horse) a vast number of (mainly) engraving sites encountered during his duties as Government Surveyor.

From the 1940's onwards there was an increase in the publication of engraving sites in the region. Fred McCarthy was the most prolific recorder and publisher (see bibliography) over a forty year period. Ian Sim was another prolific recorder with his published material being augmented by an enormous body of field notes and drawings, now archived by the AHIMS as the 'Sim Collection'. John Lough also recorded a large number of sites; many re-recordings of earlier recorders. These, however, were not made accessible to subsequent researchers and very few are published.

While early interpretations of the Sydney engravings were based loosely on borrowed ethnographic material from other regions (McCarthy 1939a, Elkin 1949) the first systematic analysis of this art was undertaken when Lesley Maynard (then McMahan) undertook her Honours research in 1965. This was the first quantitative analysis of any body of art in Australia, the aim being '(to) produce, first a typology of the engravings, and second, a spatial distribution of traits, based on the typology' (McMahan 1965:7). The results of the analysis (which involved the use of hand-sorted punch cards) indicated that:

- 1) there are definite patterns of distribution in both north-south and east-west planes; and,
- 2) the differences between one end of the range and the other may be ascribed to cultural causes - except those obviously resulting from the stimulus of different environments. (McMahan 1965:75)

McMahan's geographic divisions were too coarse to allow more than a glimpse of trends from north to south, but she did identify two distinct artistic units. One of these was located around the Upper Hawkesbury while the other was south of Botany Bay. She distinguished these areas largely by the presence of particular motifs. The first of these broad style areas has not survived the proliferation of data. The boundary for the second style area has been redefined as the Georges River (McDonald 1985a).

Since McMahan's seminal work, research has been directed at localised assemblages and/or specific research questions. Konecny (1981) was concerned with both engraved and pigment art and investigated possible aggregation locales (viz. Conkey 1980) within the Sydney area. While identifying no specific aggregation locales, Konecny suggested that functionally similar sites could be identified in different areas in both media.

Laurajane Smith's work was concerned with identifying archaeological patterning across ethnographically reported tribal boundaries (Smith 1983:1). Her analysis was based in the Mangrove Creek/Macdonald River area, and involved both art components. Smith tested the linguistic boundary between the *Darkinjung* and *Guringai* groups using Mangrove Creek (not Mooney Mooney Creek: Capell 1970:22; Map 1). Thus her analysis characterises variation within the *Darkinjung* language area. Topography was considered to be a primary factor contributing to stylistic variation here.

Officer (1984) examined the art of the Campbelltown area on the Georges River. A sample of 57 shelter art sites (SPG 1983) was used to explore and describe the formal variability within a local body of art. Officer formulated a detailed hierarchical motif classification and argued for both functional and 'casual' interpretations for the considerable heterogeneity identified in this art body. An interrelatedness of motifs across the two art components was perceived, and Officer

identified strong ties between the coast and hinterland, despite a linguistic boundary and other evidence for a cultural dichotomy here.

Franklin's (1984) work explored Maynard's (1976) definition of the Simple Figurative styles, and was thus involved with comparing the Sydney region with regional assemblages from Port Hedland, Cobar, south-east Cape York and the Grampians. This analysis confirmed previous conclusions made by McMahon about the Sydney region.

Little art research has been achieved in conjunction with Cultural Heritage Management work, partly because the majority of urban development in the Sydney region occurs on the Cumberland Plain (see Figure 1.1) where there is no rock art. In several instances, however, a research oriented approach has been achieved (McDonald and Smith 1984, McDonald 1988a).

The Sydney Basin Art Style: a current definition

Schema

The word 'schema' is used to denote the manner of depiction (or abstraction) of an image from the object that is being depicted.

A motif is a recurrent visual image which has a particular arrangement of components ... motifs are therefore the objectified expressions of schemata - the standardised pictorial forms which result from a consistent mental template (consistent with the cultural group of the artist). (Maynard 1977:396)

The art of the Sydney Basin has been described as a Simple *Figurative* style, because of the high level of recognition (for modern etc observers) between the art and a 'natural' assemblage (human figures, animals, birds, fish etc.). *Simple* Figurative also implies that the schema is not a complicated one: that a minimum amount of detail is provided.

The schemata used for the two art components in the Sydney Basin are very similar. This is manifested in the *Motif* range used, in the *Form* of these and - in particular - the general *Character* of the regional motif assemblage (as defined by Maynard 1977). The main difference between the two components is *Technique* but also *Size*. Size differences are mostly due to the differences in 'canvas' size (i.e. available rock surface). Extremely large motifs (life-size or larger) are occasionally found in shelter art assemblages (e.g. AHIMS #'s 45-2-48, 45-2-118¹¹), while very small motifs (miniature or smaller than life-size) sometimes occur on open engraving sites (e.g. AHIMS #'s 45-2-224, 45-6-43).

There are also some differences in Form. Motif form for the pigment art comprises a variety of outline, infilled and combination forms. The vast majority (97%) of the engraved motifs are outline only. The only consistently infilled engravings are culture heroes which are generally decorated with series of pecked lines of dots. Intaglio forms (i.e. fully pecked infill) are extremely rare.

Chronology

Some Panaramitee style sites (cf. Maynard's 1976 definition) have been identified within the region. These assemblages contain predominantly tracks and circles produced in pecked intaglio, not pebraded outline form. Interestingly, these occur almost exclusively within shelter sites. It is possible that residual Panaramitee motifs are also located in open contexts, and that weathering and the association with figurative motifs is masking their presence (McDonald 1993b).

¹¹AHIMS site identification numbers are used in the text in preference to the sample numbers used for sites in the multivariate analyses. This form of identification is potentially more meaningful to the reader (McDonald 1994: Appendices 5 and 6 identifies sites by both means).



Figure 5.2: Engravings in Ku-ring-gai Chase National Park. Male and female figures and fish positioned in a tessellated pavement.

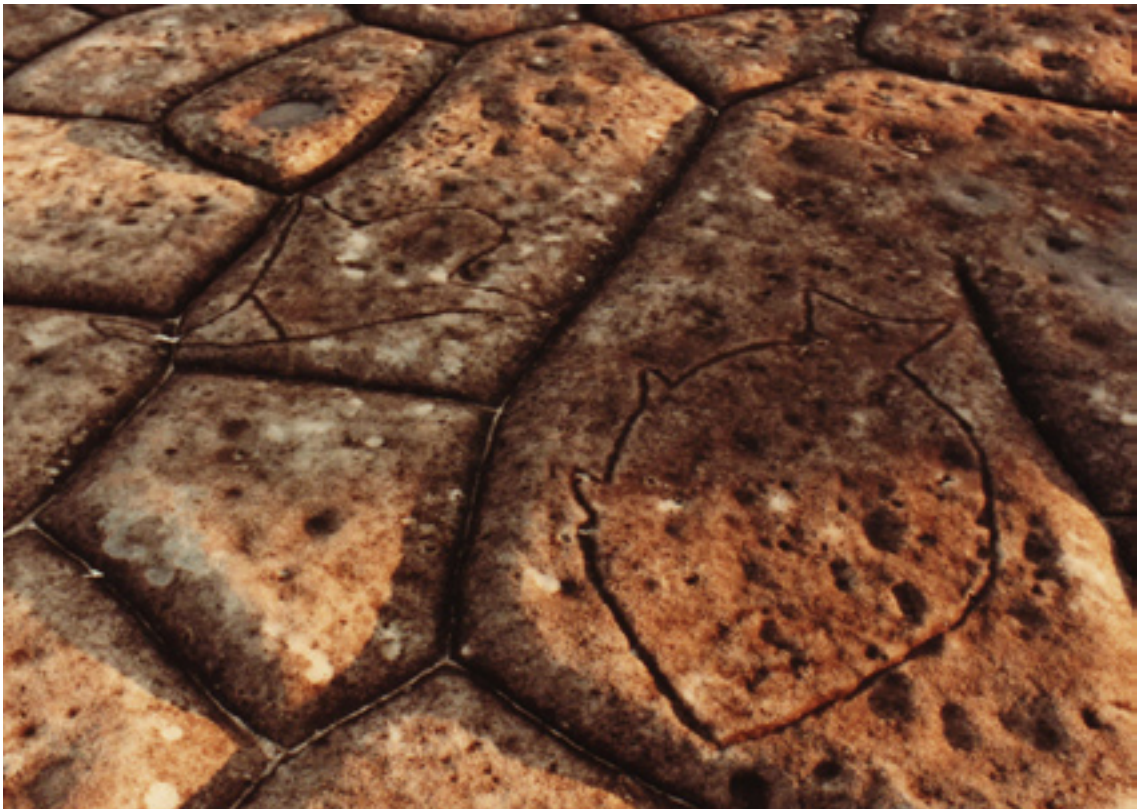


Figure 5.3: Engravings in Ku-ring-gai Chase. Fish and bird motifs positioned within and across natural tessellations.



Figure 5.4: Large macropod engraving at Maroota, south of the Hawkesbury River. This macropod is being struck by two boomerangs. The row of pits crossing this motif traverses the entire assemblage.



Figure 5.5: Engraved shield motif near Berowra Creek. The internal design on this shield matches early ethnohistoric descriptions of the St George Cross (Design 2B in analysis of compositional details).



Figure 5.6: Devils Rock Maroota. Recording engravings in daylight using large acetate mirrors. In foreground is a Biaime culture hero. Compare the size of this motif with the humans in the background.



Figure 5.7: Large emu with clutch of eggs. The emu tracks are in outline form unlike the pecked intaglio version often found in the region's rockshelters. These motifs were chalked at night using oblique lighting. A s87 permit is required to undertake this type of recording.



Figure 5.8: Macropod motif, superimposed by a post-contact sailing ship.



Figure 5.9: Engraved snake motif consisting of five parallel zig-zag lines. The individual peck marks are clearly visible.

The Samples

The samples for the two art contexts comprise 717 engraving sites and 546 shelter art sites. These figures represented 39.5% and 32.7% (respectively) of the known sites in the region in 1994. Based on these samples, the following regional characteristics of the art assemblages are summarised:

- motif and technique information;
- average assemblage size;
- topographic location;
- site associations; and,
- the unique or unusual aspects of each component (e.g. engravings within shelters, the occurrence of open pigment art, vertical engravings etc.).

The Open Engraving sites

Assemblage Size

The average engraving assemblage contains 10.9 motifs. The largest site in the region (Burragurra; NPWS # 45-3-404) contains 174 motifs; and there are many sites (137: 19.1%) which contain only one motif.

The majority of sites (83.4%) have less than 16 motifs and about two-thirds (66.1%) have less than eight motifs (Figure 5.1). Sites with larger numbers of motifs are rare, and only 61 engraving sites (8.5%) have more than 30 motifs present. Four sites only (0.6%) have more than 100 motifs present.

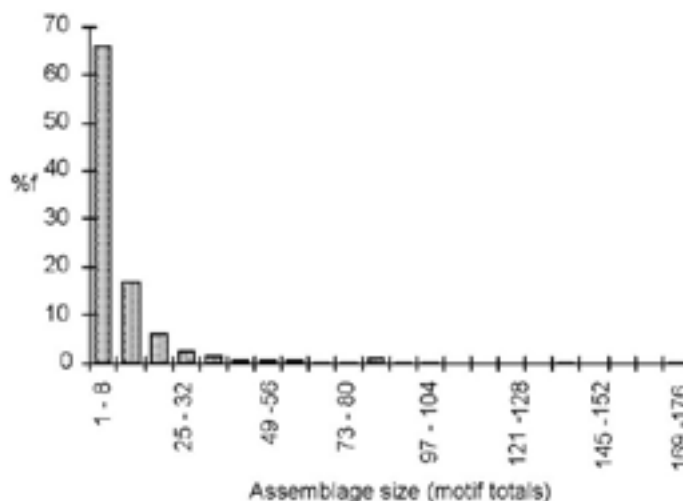


Figure 5.1: Engraving Sites. Percentage frequency of different assemblage sizes.

Site Nature and Topographic Location

The vast majority (97%) of open engraving sites are located on horizontal sandstone platforms. Only twenty-two open engraving sites have been identified on vertical boulders, most of these

adjacent to waterways. These engravings on flat surfaces face the water. Several engravings on vertical faces also have been found on low cliff lines adjacent to major creeks: others are located on the outside wall(s) of shelters. Given the interior dripline definition for shelters, this category excludes those which are located inside shelters.

One only open pigment site is known (AHIMS # 45-6-1411). This consists of a red pigment drawing on an open cliff face protected from the elements by a slight rocky projection. This motif is on Berowra Creek and is associated with vertical engravings.

Topographic position is summarised according to three broad categories: ridge tops, hill sides and valley bottoms. These locations were defined by Attenbrow (1987) and her definitions were used: the cut-off point for ridge tops and valley bottoms is 5m in elevation below and above (respectively) the ridgeline and valley bottom.

Distance from permanent drinking water was also recorded for each site. Distance to a second order stream was the general rule (McDonald 1996); with distance rounded off to the nearest 50m. Sites recorded by me during fieldwork had a greater precision. This type of data belies the presence of springs, rock holes and soaks which would have provided water, at least periodically, for knowledgeable Aboriginal inhabitants.

More than half of the engraving sites (401 sites: 55.9%) are located on ridgelines. Hill side locations are the next most common (296 sites: 41.2%) while valley bottom locations are relatively rare (20 sites: 2.8%). Almost half (45%) of those in valley bottom locations were vertical engraving sites, on boulders adjacent to major waterways (e.g. Berowra and Cowan Creeks). Slightly more than half (59%) of the vertical engravings, however, are located more than 5m in elevation above the water and therefore in the hillside zone.

The average distance to drinking water from any engraving site in the region is 650m and the maximum distance is approximately 3km. The minimum distance is 2m (on-site rock wells and/or creek lines).

Site Associations

The main site type association for open engraving sites is grinding grooves, although this is fairly rare. Only 96 engraved platforms (13.4%) also having grinding grooves. Water channels (i.e. pecked and abraded lines which direct water seepage around potholes: McDonald and Smith 1984) occur on a small proportion of engraving sites (22 - 3.1%). All sites with water channels also have grinding grooves present. Of the sites which contain engravings and grinding grooves, 23% also have water channels.

Only a very small proportion of engraving sites have shelter art associated with them. By definition, this association can only occur when the open platform and shelter occur within the one (usually massive) outcrop of sandstone. Less than 10 (1.3%) such occurrences are noted in the sample. This does not indicate that Aboriginal artists did not perceive of a contextual relationship between the two art forms. Rather, the location for the production of the two art forms was, by the nature of the two physical contexts, quite distinct. Engraved motifs amongst pigment art *within* shelter art sites indicate that the two components were not strictly separated. This is discussed further below.

Another rare association for engraving sites is the association with stone arrangements (4: 0.6%). It is notable, however, that 17 such recorded site associations do occur within the region (but the art assemblages of 13 of these have not been recorded in sufficient detail for inclusion in the current sample). While stone arrangements are unlikely to be found on an engraving site, it is likely (21%) for a stone arrangement to have engravings associated with it.

Very few site records indicate an association of archaeological deposit on open engraving sites (e.g. stone artefacts). This may be due to recorder indifference (or ignorance) to this type of evidence as many engraving sites do have sparse scatters of lithic artefacts in pockets of soils and/or vegetation (personal observation). Open exposures of sandstone generally do not encourage the

build up of deposit, and it may well be that artefact manufacture rarely occurred in conjunction with the activity of engraving.

While open engravings have sparse associated evidence, the majority (>95%) of the *vertical* engraving sites are associated with extensive open midden deposits.

Motifs

A total of 7,804 motifs were analysed from the 717 engravings sites in the sample (see Table 5.1 and Table 5.2). The most common motif in the region is the human footprint ('mundoe' - 17%), followed by unidentifiable motifs¹² (15%) and fish (12%). Several other individual motifs figure reasonably strongly: bird tracks and macropods (7% each) and men (5%). The remainder, however, are present in relatively low percentages.

The clumped motif percentage frequencies (Table 5.2) clearly reveal the subject preferences of the region and indicate that Maynard's definition for the region needs refining. There is a focus on tracks, followed by a preference for marine animals, land animals, anthropomorphic representations and items of material culture. Birds and 'other' motifs (circles, complex-non-figurative motifs and contact motifs) are less common (see Figure 5.2-5.9).

Maynard's distinction between the Panaramitee and Simple Figurative styles is based not only on differing techniques and forms, but also on the motif ranges and preferences. Bird and animal tracks dominate the Panaramitee at 60% (Maynard 1976:193). Conversely the Simple Figurative was described as having predominantly figurative motifs (78% for Sydney - Maynard 1976:193) with animal and human tracks 'nowhere near as dominant as in the Panaramitee style' (Maynard 1976: 200-201). Maynard estimated that track motifs accounted for 5% of the Sydney engravings. The current data overturn this perception: while tracks in the Sydney Basin are not as predominant as in the Panaramitee, they are still the dominant motif type in the region. The possibility that some of the Sydney region's macropod and bird tracks on open site are residual Panaramitee style is discussed below.

The Georges River style boundary

The presence of a major style boundary was identified in the south of the region by McMahan (1965) and confirmed by the first stage of the SRAP (McDonald 1985a). A number of motifs are completely absent from sites south of the Georges River. The number and density of engraving sites diminished south of the Georges River (open engraving sites are absent from the artistic repertoire south of the region: Officer 1992, 1993). While the geographic distribution of some motifs can be explained in terms of environment¹³ several motifs are restricted to either side of the Georges River 'style' boundary (McDonald 1985a).

South of the Georges River:

- there are no profile anthropomorphs, culture heroes, emus and contact motifs;
- there is a much higher proportion of unidentified motifs;
- the proportions of tracks (particularly *mundoes*) are appreciably lower;
- anthropomorphic, marine and terrestrial depictions are more numerous and there is a reduced motif repertoire and lower number of tracks.

¹²Unidentifiable motifs are generally an indication of indistinct or incomplete engravings rather than motifs outside the motif classification.

¹³Whales are restricted to the coast and appear to be concentrated around Broken Bay: all are east of Berowra Creek. These continue down the coastline. There is another cluster of whales around the mouth of the Port Hacking, and the most southerly example is located just south of Bundeena.

Table 5.1: The Sydney Basin Engraving component: motif frequency and %f.

Variable *	Motif	Total	% frequency
1	Man	422	5.4
2	Woman	79	1.0
3	Anthropomorph	183	2.3
4	Profile Anthropomorph	78	0.9
5	Culture Hero	36	0.5
6	Macropod	543	7.0
7	Snake	56	0.7
8	Other Land Animal	312	4.0
9	Emu	76	0.9
10	Other Bird	166	2.1
11	Fish	905	11.6
12	Eel	182	2.3
13	Whale	101	1.3
14	Other Marine Animal	156	2.0
15	Shield	232	3.0
16	Boomerang	303	3.9
17	Axe	45	0.6
18	Other Material Object	218	2.8
19	Unidentified Open	474	6.1
20	Unidentified Closed	710	9.1
21	Hand	19	0.2
22	Human Foot	1,360	17.4
23	Roo Track	190	2.4
24	Bird Track	543	7.0
25	Circle	309	3.9
26	Complex-Non-Figurative	70	0.9
27	Contact Motif	36	0.5
28	Total	7,804	(99.8)

*Variable numbers are those referred to in subsequent analyses.

Table 5.2: The Sydney Basin Engraved Component: clumped motif frequency, %frequency of totals and identifiable motifs

Variable	Motif	Total	% f	% identifiable
1	Anthropomorphic	798	10.2	12.1
2	Terrestrial Animal	911	11.7	13.8
3	Birds	242	3.1	3.7
4	Marine Animals	1,344	17.2	20.3
5	Material Objects	798	10.2	12.1
6	Tracks	2,112	27.1	31.9
7	Other	415	5.3	6.3
8	Unidentified	1,184	15.2	-

As well as these assemblage differences, there are differences in the method of depiction - or the schema - of the art north and south of this boundary.

Macropods and other zoomorphs are the most obvious indicator of this: these motifs are depicted in profile with all four legs south of the Georges River, while to the north they are shown with only two legs [there are two known exceptions to this: a macropod located just south of Port Jackson with four legs; and another near the Lane Cove River; personal observation].

The whales south of the Georges River are less highly stylised than their northern counterparts, with few containing decorative infill or anatomical details (such as gills, eyes).

Another difference is the method of depicting echidnae. North of the Georges River these are depicted in profile; to the south they are depicted from beneath as 'pelts' (Officer 1984:49). Officer also makes the observation that there is similarly a mixed perspective ('simultaneous projection') demonstrated in the pigment art around Campbelltown (Officer 1984:49). The beaked anthropomorphs are a good example of this stylistic convention.

These differences are examined further below in light of the trends and patterns observed in the shelter art component (see below).

The Shelter Art sites

Assemblage Size

The average shelter art site assemblage contains 26.4 motifs. A total of 14,424 motifs were counted from the sample of 546 sites. The largest assemblage (Swinton's; AHIMS # 45-3-252) contains 857 motifs. A small number of sites (31: 5.7%) contain only a single motif.

The majority of sites (478: 87.5%) have <30 motifs while almost half (285: 52.2%) have <10 motifs. Only 30 sites (5.5%) in the region have more than 100 motifs; eight sites only have more than 200 motifs (Figure 5.10).

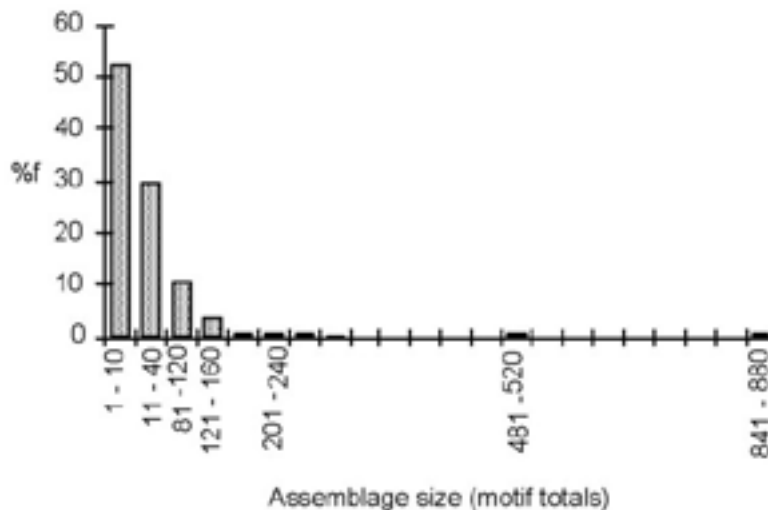


Figure 5.10: Shelter Art Sites: assemblage size information.

While showing the same general pattern as the engraved assemblage (i.e. a proliferation of very small sites with a moderate number of medium-sized sites and a few very large sites) the shelter art assemblages are slightly larger than their engraved counterparts. The average pigment assemblage is twice as large as the average engraved assemblage, while largest shelter art site contains almost five times as many motifs as the largest engraving site.

Site Nature and Topographic Location

All of the art in this component occurs within sandstone overhangs or shelters. No decorated deep caves occur in the region. Art within shelters is commonly located on the back wall, but often occurs on the ceiling and also on the inside lip of the dripline. The entire range of differently-sized shelters has been decorated, although this aspect has not been quantified. The smallest recorded art shelter site was 'Little end shelter' which measures 2.5m x 2.0m x 1.0m (see Figure 2.8). The largest recorded art shelter is at 'Sphinx Trig' in Ku-ring-gai Chase National Park (AHIMS #45-6-258) which measures 40m x 10m x 8m and contains 91 motifs.

The majority of shelter sites (70%) is located on the hillslopes, while the remainder are fairly evenly divided between the ridge top zone (13.7%) and the valley bottom zone (16.7%). The average distance to permanent drinking water for this site type is 262m. The greatest distance from water recorded was 2km while one site was recorded as having water permanently on-site

- with a creekline flowing over the shelter. Given most shelter sites are on hillslopes or in valley bottoms, this increased proximity to water compared to engravings is not surprising.

Site Associations

The major site type association for this art component is occupation deposit: both archaeological and midden deposits. Of the sample used, 138 sites (25.3%) had surface evidence for occupation deposit. Nineteen sites (13.7%) also contained grinding grooves.

Differences were observed in sites either side of the Georges River. Art sites south of this River have a much lower association with deposit (25/181 sites: 13.8%) than the northern sites (113/365 sites: 31.0%). South of the Georges River, seven of the 25 sites with deposit (28%) also contain grinding grooves; while north of the Georges River 12 of the 113 sites with deposit (10.6%) also contain grinding grooves.

Observer bias may be responsible for creating some of these differences and it is likely that the proportion of shelters with both art and deposit is in fact much higher. Indeed, many of the sites recorded during Stages II and III of the Rock Art Project were found to contain signs of occupation deposit which had not been recorded on the original recording. Many art recorders have been interested in recording only the art and not other less obvious forms of occupation evidence. Of the 214 shelter art sites in the current sample recorded by systematic and/or detailed survey (Attenbrow 1987, Gunn 1981, McDonald 1986a, 1987, 1988a, 1990b) 122 sites (57%) also have occupation deposit. Only 43 (20%) of these sites definitely have no occupation deposit (i.e. they have sloping rock floors). Many of these sites (49; 23%) have floors assessed as having potential for archaeological deposit (PAD). Taphonomic factors contribute to this problem. Attenbrow (1987) tested shelters with PAD and revealed that almost 90% of these contain subsurface deposits.

Twenty-six shelter art sites (5%) also contain grinding grooves. Nine of these occur south of the Georges River, 17 to the north. The incidence of pigment art and grinding grooves without occupation deposit is rare.

Motifs

A large proportion (41%) of the 14,424 motifs counted for this art component is unidentifiable (Table 5.3). This reflects the nature of the art - complex, less formalised and often heavily superimposed. Often the poor preservation of the art results from instability of the sandstone surfaces within shelters (Spate and Jennings 1983; although see Watchman 1994).

The average number of identifiable motifs in the region is 15.4. Swinton's shelter, as well as having the greatest number of motifs recorded, also has the highest number of identifiable motifs - 653. There are numerous sites (51) which contain no identifiable motifs. The vast majority of the unidentified motifs are depictive¹⁴ and dry pigment (i.e. drawn). Some are painted and some are also stencilled (see below).

Of the identifiable motifs, stencilled hands and hand variations predominate (49%). This reflects the dominance of stencilling as a technique, but also the fact that the depictive art is significantly less formalised. It also reflects a degree of unavoidable recorder bias: a partial hand stencil is still identifiable as part of a stencil of a hand, whereas the classification of depictive motifs require that motifs with insufficient diagnostic information must be classified as 'unidentified'. A quadruped without legs and/or tail could be either a kangaroo or a dingo: and is thus recorded as unidentifiable.

Of the identifiable depictive motifs, macropods are the dominant subject (9%) followed by anthropomorphs (7%) and other land animals (5.5%). All of the motif classes used in the engraved

¹⁴The term 'depictive' is used to describe non-stencilled motifs, this including both figurative and non-figurative forms.

assemblage are also present in this component, although percentage differences do occur (section 5.6, below).

Table 5.3: Shelter Art component: summary motif frequency information.

Variable	Motif	Frequency	%f	%f identif..
1	Man	239	1.7	2.8
2	Woman	107	0.7	1.3
3	Anthropomorph	570	4.0	6.7
4	Profile Anthropomorph	88	0.6	1.0
5	Culture Hero	18	0.1	0.2
6	Macropod	792	5.5	9.3
7	Snake	176	1.2	2.1
8	Other Land Animal	474	3.3	5.5
9	Emu	36	0.2	0.4
10	Other Bird	317	2.2	3.7
11	Fish	185	1.3	2.2
12	Eel	161	1.1	1.9
13	Whale	2	0.0	0.0
14	Other Marine Animal	32	0.2	0.4
15	Shield	57	0.4	0.7
16	Boomerang	184	1.3	2.2
17	Axe	81	0.6	1.0
18	Other Material Object	122	0.8	1.4
19	Unidentified Open	1,151	8.0	-
20	Unidentified Closed	4,770	33.1	-
21	Hand	3,601	25.0	42.3
22	Human Foot	66	0.5	0.8
23	Hand Variation	588	4.1	6.9
24	Roo Track	87	0.6	1.0
25	Bird Track	24	0.2	0.3
26	Circle	82	0.6	1.0
27	Complex-Non-Figurative	129	0.9	1.5
28	Contact Motif	45	0.3	0.5
29	Other	240	1.7	2.8
Total id		8,503	59.0	-
Total		14,424	(100.2)	(99.9)

The clumped motifs (Table 5.4) indicate that tracks (human hand, feet and animal and bird tracks) dominate (51%), followed by terrestrial animals (17%) and anthropomorphic depictions (12%). There are a relatively low number of birds, marine animals and material objects and a high number of ‘other motifs’ (6%). This latter category includes circles and complex-non-figurative motifs, as well as a high number of other repeatable motif classes (i.e. Simple-Non-Figuratives and many rare occurrences of special motif forms). Diversity within this motif class was more extensive than found in the engraved component.

Table 5.4: Shelter Art component: clumped motif frequency and % frequency.

Variable	Motif	Total	%f	% identif.
1	Anthropomorphic	1,022	7.1	12.0
2	Terrestrial Animal	1,442	10.0	17.0
3	Birds	353	2.4	4.2
4	Marine Animals	380	2.6	4.5
5	Material Objects	444	3.1	5.2
6	Tracks	4,366	30.3	51.3
7	Other	496	3.4	5.8
8	Unidentified	5,921	41.0	-

There are major differences in motif preferences between the sheltered and open art assemblages. These will be discussed in detail below.

Technique

The recording of technical information for unidentified motifs has demonstrated a more complete understanding of the overall range of techniques employed in this art component (Table 5.5). If only identifiable motifs had been used for these analyses, stencilling would have dominated the results to a greater extent than is real. The majority of the art (66.1%) is depictive. Stencilling is common (32.6%) while engraving is rare (1.3%).

Of the 9,527 depictive pigmented motifs recorded, the vast majority (91%) are drawn. Most of the remainder (8%) have been painted, while a small number (1%) are drawn and painted. These motifs are predominantly (93%) monochrome. Bichrome (i.e. two colours) motifs are relatively rare (7%), while polychrome (i.e. three or more colours) is rarer (1%). Most of the polychrome motifs consist of three colours (usually red, black and white) although several of motifs in this category include four colours (yellow also).

The way the database was counted does not allow for the splitting colour information according to stencilled or depictive motifs. The following colour summary is thus based on a combination of the two techniques.

Despite the dominance of stencilling, black¹⁵ is the predominant colour used in the region, accounting for 46.2% of the pigment art. White is the next most dominant (34.6%), followed by red (16.6%) and yellow (2.8%). These colour proportions vary significantly in localised areas of the Basin (see Chapter 9).

Stencilling is mainly restricted to white and red pigment. Yellow stencils occur in localised areas and, as indicated, black stencils are rare. The use of two colours within one stencil (bichrome) occurs, as has the mixing of pigments to achieve non-primary colours – e.g. the mixture of red and white pigment to make pink. Off-white (cream) stencils have also been recorded, but these are more likely to have resulted from the use of less pure pipeclay. Bichrome and black stencils had not been documented in the region prior to this work.

Of the 9,715 depictive motifs (engraved and pigment), most are in outline and infill form (38%), although outline-only forms are nearly as common (34%). Solid infill motifs are less common (28%). Linear (geometric or patterned) infill in depictive motifs rare (2.5%: see Figure 5.12).

The assemblages at 57 shelter sites include engraved motifs. While the proportion of engraved motifs within the entire shelter art assemblage is very low (c.1%), the percentage of sites at which this technique has been employed is fairly high – c.10% of the regional sample. Engraved motifs within shelter art sites are another feature which differentiates art production on either side of the Georges River. While there is not a complete absence of engravings from the shelter sites south of the Georges River, the proportions vary significantly. There are only two such sites (out of 181 sites: 1.1%) south of the Georges River; the other 55 sites (15.4%) are located north of Port Jackson and the Parramatta River.

Most of these engraving are pecked tracks or circles. However, three distinct types occur (McDonald 1991). These are (Figure 5.16, Figure 6.7, Figure 8.7):

- 1) fully pecked, intaglio motifs; usually of circles, or bird and/or kangaroo tracks;
- 2) miniature Sydney style engravings; these are the same form, character and technique as the open engraving site variety, but in miniature (i.e. < 20cm max. dimension); and,

¹⁵Black pigment is very rarely used for stencilling. Black stencils have been recorded at Yengo 1 and are reported in one site in the Woronora catchment (Caryl Sefton, pers. comm.).

3) incised or scratched motifs, usually incorporated with pigment motifs. This type has the same motif character as figurative pigment motifs.

The use of the engraving technique within the shelter art assemblage will be discussed further.



Figure 5.11: Frieze of charcoal women and men beneath a red outlined wombat. Hand stencils, white paintings and drawings and engraved macropod tracks were also in this assemblage near Warre Warren Creek.



Figure 5.12: Black outlined and infilled turtle with linear infill positioned in a scalloped alcove. A faded, infilled snake motif runs along the surface below this alcove.



Figure 5.13: Black infilled and white outlined dingoes and macropods on Yatala Creek near the Colo River. These motifs are large (top dingo 1.25m long). Water seepage affects this art, making some colour run.



Figure 5.14: Swinton's shelter, with its heavily superimposed art. Stencils and drawings in red, black and white. The panel shown has a sequence that ends with a red horned anthropomorph, superimposed over white stencils.



Figure 5.15: Black and white bichrome goannas (Phase 3) over red painted goannas (Phase 2) at the northern end of Swinton's shelter.

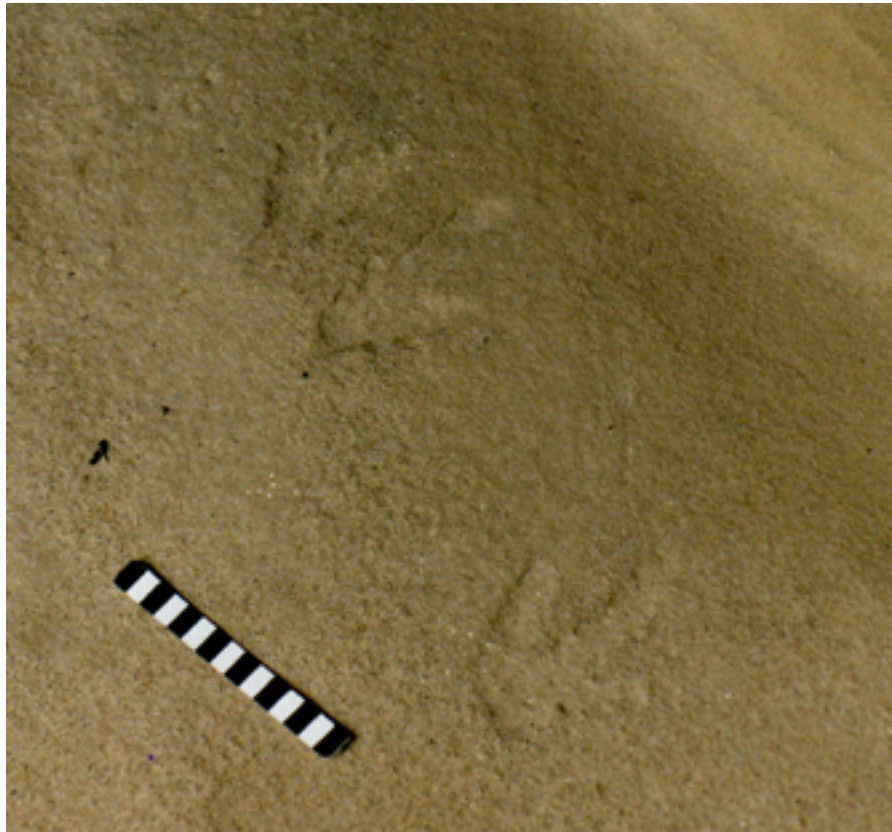


Figure 5.16: Three Birds Site: Engraved bird and macropod tracks on shelf at back of shelter just above floor level.



Figure 5.17: Cafe's Cave, Putty: near the northern limit of the study area. White painted complex-non-figuratives (CXNF), hand and axe stencils.



Figure 5.18: Tic Alley: white painted anthropomorph and shield with internal design (2B). These motifs are painted over black drawings.



Figure 5.19: Gunyah Beach, near the confluence of Cowan Creek and the Hawkesbury River. Stencilled fish tails. This site also contained two small engraved whale motifs.



Figure 5.20: Boorai Creek, Wollemi National Park. Red stencilled kangaroo tails. This site also has stencils of boomerangs, hands and a kangaroo skin bag.



Figure 5.21: Colo Heights. Panel of stencilled material objects including boomerangs, parrying shield, axe, woomera and large hand stencils.



Figure 5.22: Swinton's shelter. Pink and bichrome stencils of boomerangs, and hand stencils. A red horned anthropomorph's hand is visible (bottom right) superimposed over stencils.

Table 5.5: Shelter Art component: summary technique frequency information.

Variable number	Technique description	Frequency	% (total) frequency*	% internal frequency
1	outline	3316	(67.4)	34.1
2	infill/solid	2747		28.3
3	outline and infill	3652		37.6
4	dry pigment	8637	(66.1)	90.6
5	wet pigment	771		8.1
6	wet and dry pigment	119		1.2
7	linear infill	244		2.5
8	stencil	4709	32.6	32.6
9	1 colour	8827	(66.1)	92.7
10	2 colours	647		6.8
11	3 colours	53		0.6
12	black pigment	6921	98.7	46.2
13	white pigment	5195		34.6
14	red pigment	2487		16.6
15	yellow pigment	430		2.8
16	engraving	188	1.3	-
17	Total motifs	14,424		
18	Total recognisable motifs	8,503	59.0	

*Percentages in brackets represent the proportion of the data base for which this information was counted i.e. the engraved motifs did not have colour information; variables 1 - 3 include pigmented and engraved motifs (but not stencils); variables 4 - 6 and 9 - 11 refer only to pigmented depictive motifs (not stencils or engraved motifs). The variable number column indicates the numbering system used in subsequent quantitative analyses.

Comparison of the two art contexts: Sheltered and Open Art Sites

The Sydney Basin with its two synchronous art forms is unique. In no other area of Australia does this occur to the same extent. In most regions one medium has been practised to the exclusion of the other (e.g. Arnhem Land, Kimberley, Pilbara, Laura), or the two are diachronically distinct (western NSW, central Queensland).

The two overriding assumptions about the Sydney region art components are that they are relatively recent and that they are roughly contemporaneous. Given the assumption of contemporaneity, the two art components allow quite specific questions of comparison. These questions can be at a very simple level.

How do the two components compare in regard to the motifs used? and,

How do the distributions in one component, compare with those of the other component?

At a higher level, stylistic patterning may be attributed to spheres of mediation in the society which produced the art. The meaning of the art cannot be explored, as the artists are no longer present. But by establishing certain parameters, the analysis of the two components enable a detailed picture to emerge of how the art may have functioned across the region. General comparisons are explored first.

Assemblage Size

Sheltered art assemblages are generally 2.5 times larger than open engraving assemblages. The largest pigment site contains five times as many motifs as the largest engraving site. This could be due to the fact that the average engraving's production time would be significantly greater than

that for any pigment motif (Clegg 1981). The differing motif totals may reflect a commensurate amount of artistic activity.

Interestingly, both components demonstrate similar proportions of larger to small assemblages: there is a relative infrequency of very large site assemblages, but a proliferation of small, perhaps single episode sites. This suggests that there are particular art foci around the region, and that these may represent a different type of activity to the interspersed sites with less intensive art production (e.g. casual sites vs. aggregation sites).

Topographic location

A longstanding preconception about Sydney engravings has been that these were located on ridgelines while pigment art shelters were located in valleys. This division is not substantiated by the current work. Certainly, only a small proportion of the shelter art sites are located on ridgelines, but relatively equal proportions of engraving sites occur on hillslopes and on ridgelines.

A comparison of engraving sites on ridgelines with those on hillslopes and in valley bottoms has been undertaken (McDonald 1998b) to determine the relative stylistic homogeneity of these. A sample from Ku-ring-gai Chase National Park (within a single language group) was used for this comparison: topographic diversity here is pronounced and there is a high number of engraving sites generally. As well as open engraving sites on horizontal platforms, engravings on vertical surfaces close to the water's edge also occur. This analysis confirmed stylistic differences which can be explained in terms of topographic location and social context.

The average distance to drinking water from shelter sites is considerably less than the average distance from the open engraving sites. A greater association between art and occupation evidence in shelters is one possible explanation for this, especially since the contemporaneity of art and occupation can often be demonstrated (Chapter 6). The fact that more shelter sites occur in valley bottom and hillside locations (and are topographically closer to creeklines) could also explain this finding.

Motif

The motif range and preferences of the two art components were compared. This had not been done by previous research in the region (Franklin 1984, McMahon 1965, Maynard 1976, Officer 1984, Smith 1983) and, as indicated above, is not possible in any other Australian art region.

This has been done at a simple level (Table 5.1 and Table 5.3; Figure 5.23 and Figure 5.24) and on the basis of variance described by multivariate analyses (Chapters 11 and 12).

There are obvious similarities and differences between the two components' motif assemblages. In both components, tracks dominate the identifiable motifs (Table 5.2 and Table 5.4). With the shelter art sites, this is due to the overall predominance of hand stencils; in the engraving component it results from the predominance of human tracks ('mundoes') and bird and macropod tracks. Given stencils are likely individual or personalised markers (Moore 1977), and that hand stencils place the artist very firmly amongst the art, the presence of human tracks in great numbers amongst the engravings is an intriguing similarity. Is it a coincidence? The insertion of people into both art assemblages does suggest a semiotic implication, although engraved mundoes are not in the same representational class as stencilled hands: one is conventional and the other is replication.

Another similarity between the two components is found in the proportions of anthropomorphs, birds and terrestrial animals. Major difference between the two components can be seen in the frequency of marine depictions and material objects (high in engraving sites; low in shelter art sites). The greater number of 'other' motifs in the shelter art assemblage is partly indicative of the more 'stylistically unfettered nature' of this medium (Officer 1984:72).

The proportion of unidentifiable motifs within the shelter art component is significantly greater than that found in engraved sites (41%:15.2%). This is partly due to the nature of

production and to the more fragile nature of the shelter art generally. Pigment art has a greater susceptibility to natural deterioration due to the instability of sandstone surfaces e.g. surface exfoliation, pigment flaking etc. except perhaps where silica coatings have helped to stabilised these (Hughes 1978, Watchman 1994). The more ad hoc nature of pigment art production (i.e. freehand drawing using unprepared surfaces/pigments) may also have contributed to this high proportion of unidentifiable motifs. Superimpositioning of motifs (and the obscuring of earlier art) is more common in pigment sites than on engraving sites.

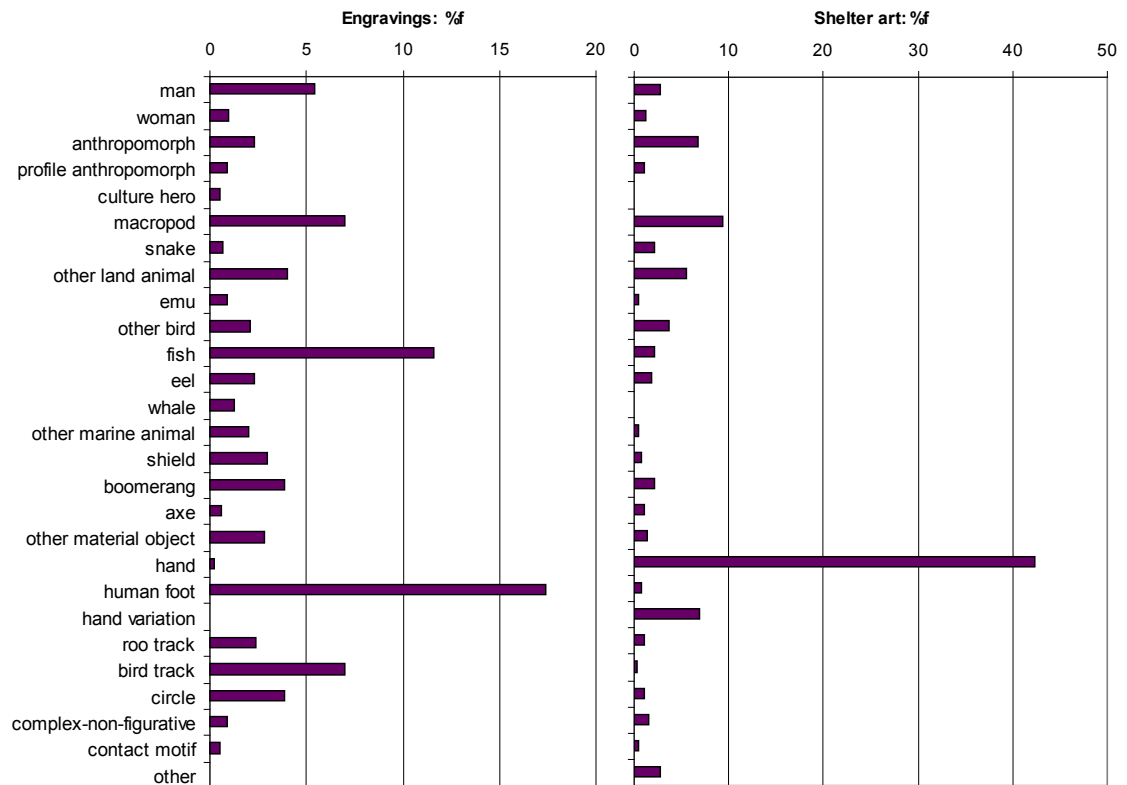


Figure 5.23: Motif preferences for the two art contexts. Motif classification (excluding unidentified motifs).

Composition

It cannot be assumed that any rockshelter or engraving assemblage is a single artistic event; indeed many pigment assemblages suggest several artistic phases. Occasionally, shelter and open engraving sites indicate that the assemblage was probably produced in a single artistic episode. Compositions include recognisable ‘scenes’ (hunting, fishing, corroborees etc.) or repetitive designs (using combinations of motifs, often stencils).

Most of the vertical engraving sites consist of complex compositions involving the sharing of internal lines/features for decorative effect, and a positioning of the design relative to the shape of the available surface. While composition is often recognisable in open engraving sites, by association and positioning of motif type (e.g. the Ku-ring-gai Fish Shoal site: Campbell 1899: 62; or the overlapping whales at West Head: McCarthy 1954: Figure 9) it is never as conclusively so as in the vertical sites (Figure 11.19).

Compositions within the shelter art sites take the form of obvious motif organisations [e.g. Native Animals (McDonald *et al.* 1990: Figure 5.2), Dingo and Horned Anthropomorph (Macintosh 1965: Plate 1)], as well as the positioning of hand and other stencils to make patterns or repetitive designs [e.g. Devils Hole, Cafe’s Cave (Figure 5.17), Swinton’s]. These types of compositions are good indications for the simultaneous production of many sites’ assemblages.

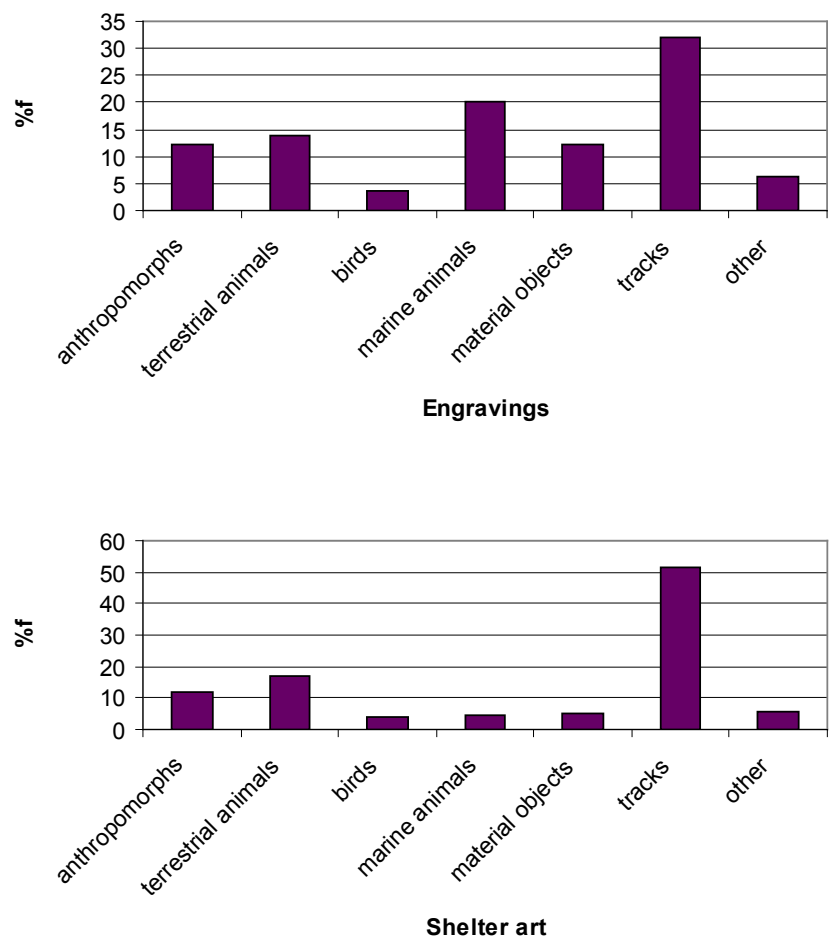


Figure 5.24: Subject preference for the two art contexts. Clumped motif classes (excluding unidentified motifs).