



# Pilbara and Western Desert Rock Art: Style Graphics in Arid Landscapes

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## ABSTRACT

*Rock art systems in north-western Australia are highly complex and reveal structural patterning crucial for interpreting social organisation and spatial relations. There are distinctive style-provinces in the Pilbara and clear chains of stylistic connection through this region and into the Western Desert. These graphic systems appear to link people over short and vast distances. The implication of shared graphic systems functioning over distance and through time is explored, as is the presence of starkly different graphic traditions within a single cultural bloc.*

## RIASSUNTO

*I sistemi d'arte rupestre dell'area nord occidentale dell'Australia sono molto complessi e presentano motivi strutturali di fondamentale importanza per l'interpretazione dell'organizzazione sociale e delle relazioni spaziali. Vi sono tratti stilistici distintivi per ogni provincia nell'area di Pilbara e chiari collegamenti stilistici tra questa regione e il Western Desert. Tali sistemi stilistici sembrano legare tra loro le persone sia ad ampio, sia a corto raggio. Nell'articolo s'indaga sull'utilizzo di questi sistemi grafici condivisi nel tempo e nello spazio e ci si chiede come mai tradizioni grafiche completamente differenti siano presenti all'interno di un unico contesto culturale.*

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## INTRODUCTION

Our paper describes an extraordinary corpus of engraved and pigment rock art in the Western Desert of Australia and puts this in the context of the various petroglyph style provinces from the Pilbara region of North-west Australia. The Pilbara-Western Desert nexus provides us with contrasting landscapes, disparate language groupings and different territorial social arrangements. Here we have a dynamic set of social relations set in a fundamentally arid environment. The rock art across this landscape and social interface provides us with insight into the nature of these dynamics both across space and through time.

The Pilbara is a mountain and piedmont desert with well defined major valley systems draining to the Indian Ocean. There are numerous gorges, many of which retain year-round abundant water supplies. These form habitable corridors throughout an otherwise harsh desert landscape. The deep pools in these gorges probably have provided refugia for people since the initial settlement of the continent.

The Western Desert provides a stark landscape contrast. Lying inland and east of the Pilbara uplands, this arid lowland contains a complex of sandy and stony deserts. Amongst the dunes here are scattered subdued ranges. Drainage is internal and uncoordinated. Permanent water can be found in a number of these scattered Ranges – and desert people have a classification of different types of waters to be found across these beautiful but often inhospitable regions (Tindale 1974). Graphic representations of these waterholes often appear in rock art and contemporary art (Figure 1):

- Soak waters – trapped in deep sands;
- Claypan waters – where shallow supplies form after rain;

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- Rock holes (both permanent and semi-permanent);
- Permanent waters (*tjila*) – often springs – mostly located in the isolated ranges;
- Creek and river pools;

Knowledge about these locations in their territorial landscapes allowed for seasonal use, the planning of journeys and in times of drought - retreat. Veth (1993, 2005) has identified that the more permanent water sources would have functioned as refugia throughout the arid interior and has modelled for human settlement behaviour during times of fluctuating climatic conditions. In this paper we are interested in contrasting the likely settlement patterns through time in these adjacent and contrasting landscapes – and modelling how these patterns may have affected the use of art as a mechanism for social interaction.

We detail the situation at contact, when we have a good ethnographic and linguistic understanding of how people were arranged across these landscapes and the manner of their social interaction. At contact a total of 21 social-linguistic groups were recorded in the Pilbara uplands (including the area between the Ashburton River's catchments in the south – and the de Grey River's catchments in the north (Tindale 1974). The area of particular interest to our analysis has recently been defined linguistically as the Ngayarda sub-group of the *Pama Nyungan* family (O'Grady 1966; Patrick McConvell, 1996; pers. comm. 2007). At least 15 of Tindale's 21 socio-linguistic groups fall into this classification – and notably these are surrounded on all side by distinctly different language sub-groups (Figure 1). Linguistic stratigraphy suggests that the Ngayarda languages may have been distinctive sub-group for the last 4,000 years. At contact these language groups had well-defined territories. The territories of these groups ranged in size from 500 sq kilometres (the *Jaburara* on the Dampier Archipelago) up to 43,000 square kilometres (the *Njamal* whose territory included the Coongan and the Shaw Rivers and the headwaters of the Yule and Turner Rivers). In the Pilbara, territories are mostly defined by river catchments – boundaries being at the relatively waterless watersheds. Tindale notes that there was quite a lot of movement between these groups just prior to contact and suggests that Western Desert lores and customs (e.g. male sub-incision) were becoming highly influential in the period just before European contact.

In the small part of the Western Desert we are interested in – a mere 170,000 square kilometres at the interface between the Pilbara uplands and the Great Sandy Desert - Tindale recorded six dialects of the Wadi language covering territorial ranges of between 16,000-52,000 square kilometres (*Wiridinja* and *Potidjara* respectively). In these arid landscapes, group's territories were large and included a series of ranges, and waterholes of varying permanency, as indicated above. Here, 'home' territory equates with dialectal rather than language boundaries. In this landscape a group's territory is likely to be defined by the distribution of these different types of waterholes which are scattered within more loosely defined boundaries. Given that the population size of the defined groups in both the Pilbara and Western Desert was in the order of 300 people – population densities were extremely low: one person/29 square kilometres in *Njarluma* territory on the coastal Pilbara; one person/57 square kilometres in *Panjima* territory and one person/135 square kilometres in *Wardal* territory (see Figure 2).

The ways that groups used these territories, and particularly how they signalled their identity, is the key interest of this paper.

The Pilbara region possesses a "dazzling array of Complex Figurative styles" (Maynard 1977: 107). Bruce Wright's extensive and detailed documentation and synopsis (1968, 1977) identifies several distinct style regions in this north-western region of Australia. Based on the recording works of various researchers (e.g. Campbell 1911, Petri and Schultz 1951; Worms 1954; McCarthy 1962; Berndt 1964; Crawford 1964; Wright 1964, 1968; Dix 1977; Green 1982; Turner 1981) these include Port Hedland, the Upper Yule River (Woodstock-Abydos), Cooya Pooya (including the Fortescue River) and two others, in the eastern Hamersley Gorges and between Juna Downs and the Ophthalmia Ranges area. The art of Depuch Island, extending up the Sherlock River, suggests another style province – while more recent work on the Burrup Peninsula/Dampier Archipelago (Bednarik 2002; Vinnicombe 1987, 2002; Lorblanchet 1992; McDonald & Veth 2005, 2006b) has documented yet another spectacular petroglyphs style province (Figure 3).

The complexities of these various art provinces in the west Pilbara, exemplify the problems that beset Maynard's (1979) Australia-wide tripartite model (and see the debate in RAR Volume 1988) as there is no clear unidirectional development of art styles and sequences through time in this region: *These separate styles seem to be quite distinctive and there does not seem to be any evidence of the gradual evolution of these figures.* (Wright 1977:115-6)

This variability of styles in both space and time can be explained by considering how the art may demonstrate social organisation. Across the west Pilbara, between the Dampier Archipelago and into the Western Desert (e.g. the Calvert Ranges) there is evidence that people used engravings to show the local group they belonged to and the broader social network in which they participated.

TABLE 1: OCCUPATION MODELS FOR THE WESTERN DESERT AND PILBARA WITH PROPOSED ART CORRELATES

Occupation phases	Region	Linguistic correlations	Occupation model	Likely art correlate
<u>Phase 1</u> c.40-22,000 BP Wetter interglacial conditions	Pilbara uplands and Western Desert	Non Pama-Nyungan speakers	Early colonisation phase All land systems in use Broadly based economy	Sporadic art production reflecting small population groups at occupation nodes. Dynamic population with homogenous art demonstrating widespread networking and/or movement of people over vast distances
<u>Phase 2</u> 22,000-17,000 BP Global LGM – Intensified aridity – colder and drier conditions	Pilbara uplands	non Pama-Nyungan speakers	Groups persisted by retracting to range refugia during LGM	broad scale social cohesion with increased localised identifying behaviour – territorial tethering
	Western Desert	radical reconfiguration of demographics	Lowlands used opportunistically	broad scale social cohesion needed to establish connections – art production probably episodic
17,000-13,000 BP Low precipitation	Pilbara uplands	non Pama-Nyungan speakers	Very small population groups with high residential mobility –faint archaeological signatures persist in refugia	Groups become isolated; broad scale social networks break down. Information exchange breaks down – art not used as signalling behaviour?
	Western Desert		Hiatus - no dated occupation	People abandon these ranges, possibly retracting further into less arid refugia. Little if any rock art produced during this period
<u>Phase 3</u> 13,000 – 6,000 BP Climatic amelioration Sea level rises to current coast by c.6,000 BP	Pilbara uplands and Dampier Archipelago	non Pama-Nyungan speakers	A broadening of territorial ranges with systematic and increasing use of all landscapes.	Art used to establish territoriality with an increased demonstration of identifying behaviour  Art on the Dampier Archipelago reflects terrestrial focus until sea level rise
	Western Desert		Ephemeral lands used more systematically; range refugia become a focus of more intensive occupation	Art used to establish territoriality with an increased demonstration of identifying behaviour in core territories
<u>Phase 4</u> 6,000 – 1,500 B P	Pilbara uplands and Dampier Archipelago	<i>Ngayardic</i> languages established across the Pilbara uplands	Occupation of all upland ecosystems and expansion out of Pilbara into WD  Dampier Archipelago become a major regional focus for aggregation	Art used to negotiate broad-scale and local group identity – social pressures (population increase?) result in expansion of territories and occupation of new territories. Assertion of (Pilbara) identity by colonising groups. Maritime art focus on the Archipelago shows changed environment. Elements from all Pilbara styles recognisable now on the Dampier Archipelago
	Western Desert	<i>Ngayardic</i> languages spread into the Western Desert	Occupation of all desert ecosystems and the development of relatively fixed territorial ranges  Re-establishment of regional exchange/ information networks	Pilbara art graphic move into the WD - social pressures and tensions result from occupation by new groups: impetus for strong use of rock art to establish both boundaries and connectedness. Localised style regions evolving at this time
<u>Phase 5</u> 1,500–500BP	Pilbara uplands and Dampier Archipelago	<i>Ngayardic</i> subgroups persist and Pilbara culture bloc develops	Increased intensity of site occupation  Accelerated ritual and ceremonial cycle (within uplands?)  Increase in long distance exchange (into WD?)	Increased use of art to negotiate broad-scale and local group identity with distinctive localised style regions in full production
	Western Desert	Spread of Wati language - Western Desert culture bloc develops  Some loan words from northern languages  Some evidence of Arandic (central Australian) contact	Increased intensity of site occupation  Accelerated ritual and ceremonial cycle  Increase in long distance exchange from the coast	Increased use of art to negotiate broad-scale and local group identity with distinctive localised style regions established: art influences include some from the north  Coastal exchange networks also result in coastal art graphics influence during this time
Phase 6 500 BP to contact	Pilbara uplands and Dampier Archipelago	WD cults move west into the Pilbara uplands	Increased influence from social networks from Western Desert	Continuing use of art to negotiate broad-scale and local group identity. Graphic influences from the Western Desert increase in the art
	Western Desert	WD speakers move into central Australia	Increased interaction with social networks in central Australia	Continuing use of art to negotiate broad-scale and local group identity. Graphic influences from the centre and further afield are evident in the Western Desert



The latter is shown through the sharing of representational schema and narratives over long distances (McDonald 2005; McDonald and Veth 2006a, 2006c). Very early in this regional art sequence, we see a sharing of graphic traditions spanning over 1,000 kilometres. The implication of shared traits, particularly those operating over vast distances in deep time needs to be explored as does the presence of starkly different schematisation within the one cultural or language block in the more recent past.

#### ROCK ART AND MYTHOLOGY

Pilbara engravings are not seen as being created by people but by *Marga* who lived in the Dreamtime (Palmer 1975: 155). Engravings are seen as a mnemonic device to recall songs and invocations learned during initiation or for use in hunting (Palmer 1975: 157). It has also been noted that mythological narratives link features in the landscape and rock art provinces e.g. *Ganya* (near Gregory's Gorge), Depuch Island and the Port Hedland petroglyph sites are linked by ancestral beings including Kangaroo (*marlu*), Two Men (*Wati kutjarra*) and Seven Sisters or *Minyiburu* (Palmer 1977). Where mythology has been ascribed to particular motifs, as part of the regional narrative of ancestral beings, the sites are usually incorporated into larger geographic features (e.g. Depuch Island). Specific motifs on Depuch Island were identified as representing these Beings.

*...the petroglyphs were thought not only to have been made by the Dreaming ancestors, the marlu or the Minjiburu, but also were regarded as symbols of the deeper meaning and reality of their mythology. And so they are seen as representations of the myth and ritual adornments through which the body of traditional belief is expressed. (Palmer 1977: 45)*

Our work in the Western Desert has revealed that the *Martu* view of rock art within their totemic landscape is similar. A distinction is made by *Martu* between *pigment art* (which is said to be created by humans and which could depict both everyday and sacred themes) and *engraved art* which was created in the Dreamtime and left behind by creator-beings (McDonald and Veth 2006c). Engraved art is not considered to be of human origin. The engravings are seen to depict the marks or tracks left behind by creator-beings as they visited particular galleries where these Beings were literally transmogrified into stone.

In terms of understanding how this reading of the rock art has transpired – it seems that a logical interpretation is that the engraved art, some of which is arguably many thousands of years old, was created by humans – but in the more distant past. There is very little pigment art in the Pilbara (certainly by comparison with the engraved provinces) – and the introduction of pigment rock art across the Western Desert into the rock art repertoire appears to be a more recent phenomena. Obviously with dates of 27,000+ for the pigmented Bradshaw figures in the Kimberley region (Roberts *et al.* 1997) and with utilised pigment being found in many Pleistocene cave deposits around the desert margin (e.g. O'Connor 1995), pigment traditions may well have been around as long as engraving traditions – but it would appear that in the current area of interest, engraved art predates the current (and more recent) art production cycles and possibly social configuration.

There is broad consensus that Western Desert occupation has been of a long antiquity and that especially during the Holocene it has been marked by periods of dynamic social and economic transformation. We have previously modelled how rock art may fit into this general occupation model (McDonald and Veth 2006a) and here we have expanded this model to include the Pilbara region (Table 1). This modelling is again based on long-term regional occupation indices (Brown 1987; Edwards & Murphy 2003; Marwick 2002; Veitch *et al.* 2002; Veth 2005, 2006). These archaeological phases and rock art correlates through time allow us to hypothesise about diachronic change in social identifying behaviour.

One of the major functions of stylistic behaviour is to “link those members of a community who are not in constant verbal contact with each other, and make their interaction more predictable and less stressful” (Wobst 1977). We have applied this notion of style as social strategy in these two very different arid landscapes to explore the maintenance of personal and social identity distinctions through time.

Our model sees the initial settlement of both regions in the Pleistocene and we argue that art formed an integral part of the social baggage necessary to colonise these relatively inhospitable lands. Ancient Panaramitee style art, including archaic faces and the development of complex figurative motifs in arid aggregation locales reveal long distance connections – and there are shared motifs that have been documented in the Dampier Archipelago and Calvert Ranges, these separated by more than 1000 kilometres. We argue that a tightening of social and territorial organisation occurred just before the last glacial maximum following a long phase of high mobility and multivalent art.

Occupation evidence reveals that groups persisted in refugia in the Pilbara uplands during the Last Glacial Maximum (LGM) – even during peak aridity, albeit with territorial retraction. Throughout the period of maximum aridity, large tracts of plains and inter-dunal corridors dropped from their normal range. It seems likely that the ranges in the Western Desert dropped out of use during this time and that people retracted into less arid refugia (e.g. in the Pilbara uplands). It is possible that rock art was not produced du-

ring this period - either because of the absence of people or indeed because of the isolation of social groups - negating the need for signalling behaviour. Certainly, the period between 17,000 and 13,000 years ago - after the peak aridity - appears to have had minimal occupation and sedimentation in rock shelter foci. It is possible that rock art production completely ceased during this period.

Between 13,000 - 6,000 BP there was climatic amelioration, and the sea level rose to its current coastline after c.8-6,000 BP. Islandisation of the Dampier Archipelago occurred during the later stages of this Phase - and there is evidence across both arid landscapes for a re-colonisation of territorial ranges with systematic and increasing use of all lands. We model that rock art is again used to establish territoriality with an increased demonstration of identifying behaviour in core territories.

Between 6,000 - 3,000 years ago, particularly in the Pilbara, we see the emergence of social networks that are in place today. Art was likely to have been used to negotiate broad-scale and local group identity. Population sizes increased and there was increasing social pressures as a result of expansions of old territories and occupation of new territories. An assertion of territoriality by the (Pilbara) language groups is likely to have been intense during this period and it seems likely that many of the identifiable style provinces emerged during this time frame. A change to a maritime focus in the art of the Dampier Archipelago shows the change towards a marine environment from an inland arid terrestrial landscape. The presence of many Pilbara styles on the Archipelago indicates that this location was a prime aggregation locale - possibly from its earliest estuarine/marine phase.

In the Western Desert by c.1,500 years ago there is a major increase in site numbers and artefact densities which coincide with the spread of the Western Desert languages from south of the Pilbara uplands (McConvell 1996). The spread of Western Desert languages was accompanied by accelerated ritual and ceremonial cycles - and an increase in long distance exchange (Veth 2006b). We assume that the ramified social networks described by anthropological research have functioned for at least 1,500 years, while those in the Pilbara may have been *in situ* for possibly as much as 6,000 years.

Based on occupation indices and information exchange theory - rock art is seen as a form of negotiated identity with varying roles throughout the entire human occupation for the arid zone.

In the recent art of the Western Desert we have found unexpectedly high levels of stylistic diversity. It is generally assumed (Gamble 1982; Jochim 1983; C. Smith 1989; McDonald in press) that art in more fertile regions, where social networks are closed and the pressures of interaction between these groups are greater, will demonstrate a high degree of social information, with distinctive group-identifying and bounding behaviour. In the arid zone where widely ramified open social networks operate, it would be expected that the art would demonstrate broad-scale inter-group cohesion. Stylistic homogeneity would be the expected outcome here. Against expectations there are much higher levels of local stylistic heterogeneity operating within the arid rock art graphic in the recent past. We have recently argued (McDonald and Veth 2006) that the nature of social networks throughout the arid zone, and in particular aggregation behaviour that constitutes part of the normal ebbing and flowing of social contact within the arid zone, explains this high level of stylistic variability.

Our Western Desert research is disentangling subsets of the art that have social currency at any one period in time to assist in understanding these high levels of stylistic diversity (McDonald and Veth 2006c). An extensive ongoing dating programme will assist in this process.

While we have no absolute or relative dates for the engraving provinces of the Pilbara, we assume that these largely date to the Holocene and that the stylistic variability demonstrated is as a result of identity contestation in a highly focalised social landscape. It is notable that Wright's (1968) very detailed recording work identified multiple engraving phases at many sites, although the overall pattern of diachronic change eluded him (Wright 1968: 66-68). Territorial groups in the Pilbara are well defined and the development of distinctive language groups argues for social boundedness and high levels of territoriality - despite the aridity. Tindale's (1974) well defined physiological territories defined largely by the watersheds of major Rivers interspersed with semi-permanent well-watered gorges - have been confirmed by more recent linguistic analysis (McConvell pers. comm. 2006). The distribution of the Pilbara petroglyphs provinces overlain with the contact territorial mapping is revealing (Figure 4).

There is generally a very good fit between these style provinces and Tindale's socio-linguistic boundaries. Port Hedland style falls within the *Kariara* boundaries, while the Depuch style (which also includes sites on the lower Sherlock River) falls within the *Ngarluma* territory. The Hamersley Gorges style - and the Juna-Ophthalmia style are similarly located within a single group's boundaries (*Pandjima*). There are several interesting exceptions to this neat fit, however. The extraordinary Upper Yule style of petroglyphs transcends the current boundaries, occurring across three language groups (*Njamal*, *Indjabandi* and *Padjima*). The Cooya Pooya style similarly can be found in both the *Ngarluma* and *Indjabandi* territories. Analysis on these styles and their boundaries are preliminary at this stage, but this would suggest that these styles pre-date the current territorial arrangements. Given Tindale's observation that these boundaries were moving



just prior to white contact, this could mean that the art provinces date to within the last millennium. Given the linguist's view that these Ngyarda language subgroups date to at least the last 5,000 years, the Upper Yule and Cooya Pooya styles could be older than 5,000 years.

The clear presence of multiple styles in a single location (e.g. three rock hole locations on Hamersley Station: Wright 1968: 17) suggests that this area may have been an aggregation locale throughout time.

The operation of long distance narratives, varying social networks and art production in the arid piedmont (Pilbara) compared to arid lowland (Western Desert) landscapes has great potential for further research. We are working towards more detailed recording and dating work which will allow us to test our models of changing art production through time. Our work so far challenges many of the precepts which arise from Information Exchange Theory – and we are refining the usual arid vs. fertile dichotomy by perceiving aridity in terms of social and physiological landscapes. By identifying how landscape parameters in the arid zone influenced social landscapes we are developing a more sophisticated view of both style as social strategy and perceptions of how rock art has been used to maintain personal and social identity through time.

Figure 1 Map of the Ngadadjara groups' storage wells, pools and sand soaks, also showing tracks made by men between the various water sources. Drawn for Tindale (1974: Figure 23) by Katabulka, an old Ngadadjara man.

Figure 2 Socio-linguistic groupings in the Pilbara uplands and adjacent Western desert, showing transect A-B through language and dialect groups and physiographic boundaries (after Tindale 1974).

Figure 3 Physiographic transect through the Pilbara in to the Western Desert. This transect includes several major art provinces from the Dampier Archipelago through to the Carnarvon Ranges.

Figure 4 Overlay of Pilbara art provinces with Tindale's 1974 socio-linguistic territories.

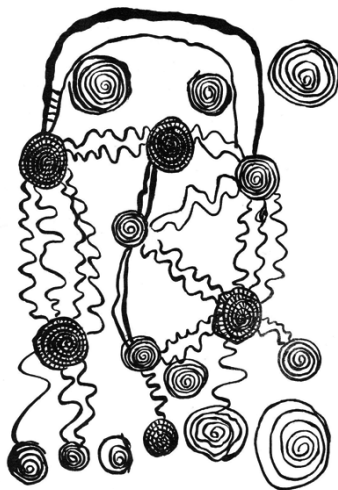


fig. 1

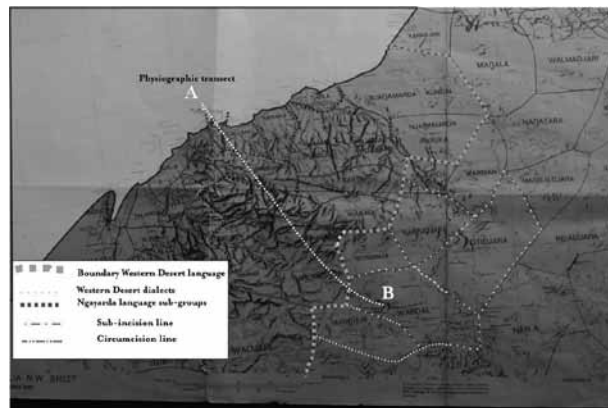


fig. 2



fig. 3

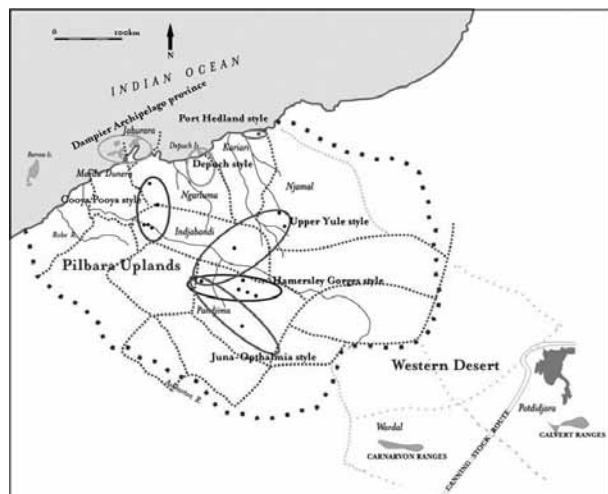


fig. 4

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