Picturing Pacific Prehistory
The rock-art of Vanuatu in a western Pacific context

Volume I
Text

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Except where otherwise acknowledged in the text, this thesis represents the original work of the author

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This thesis examines similarities and differences between rock-art sites in Vanuatu and the broader western Pacific region, and situates the results within the framework of Pacific prehistory. Prior to this thesis, regional models of rock-art in the western Pacific were founded on corresponding distributions of non-motif variables, such as technical classes (painting or engraving), topographic location (boulders, caves etc), and local geology. One of the outcomes of these previous studies was the identification of a region-wide distinction between engraved and painted rock-art, referred to in this thesis as the ‘Austronesian engraving style’ (AES) and the ‘Austronesian painting tradition’ (APT), respectively. The aim of this study is to examine the merits of the AES and the APT as analytical entities, and to determine how they articulate with one another in time and space. This is achieved in two ways. First, an unprecedented statistical comparison between motifs is conducted across the region, the results of which are compared with the outcomes of an examination of non-motif variables. Second, an intensive examination of the spatial and temporal variation within the rock-art of Vanuatu is conducted in order to elicit broad patterns of similarity and difference between painted and engraved rock-art on a local scale. The results of the regional western Pacific and local Vanuatu analyses are then combined in an attempt to address the ultimate goal of this thesis: the development of a model of rock-art transformation for the western Pacific region.
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1
Rock-art and history in the western Pacific: a review

For many authors rock art seems to be a fascinating but enigmatic part of the landscape, to be noted but never understood. Specht 1979: 58

1.1 Rock-art: the invisible component of Pacific archaeology

In a recent book advertised as a synthesis of 'the grand sweep of history in the Pacific Islands', and written by one of the most influential of Pacific archaeologists, the rock-art of the Pacific Islands is barely acknowledged (Kirch 2000). Indeed, the relative absence of any attempt to integrate the region's rock-art into historical reconstructions is remarkable. The study described in this thesis emerged in response to the lack of coverage of rock-art in general archaeological texts on the Pacific (e.g. Kirch 1997; Spriggs 1997; Bellwood 1997). The challenge, as I see it, is to develop a model for western Pacific rock-art which might contribute to archaeological reconstructions of regional prehistory, which have been dominated by analyses of more conventional materials, such as ceramics and stone tools.

There have been several attempts to document aspects of the region's rock-art, but these studies have tended to be restricted in their geographical focus and thus in their ability to enhance our understanding of Pacific prehistory. This can be attributed largely to the fact that Pacific rock-art studies remain in a 'data procurement and reporting' stage. Inter-regional collaboration is in its infancy, with most researchers adopting rock-art recording methodologies appropriate to their own area of study. Examples of these local studies include Röder's (1956, 1959) analysis of the rock-art of the MacCluer Gulf, Roe's (1992a) study of the rock-art of Guadalcanal (Solomon Islands), Spriggs and Mumford's (1992) overview of sites in Southern Vanuatu, Frimigacci and Monnin's (1980) inventory of rock-art motifs for New Caledonia, Lee's (1992) analysis of the rock-art of Easter Island, Millerstrom's (1990) Masters research on the rock-art of the Marquesas, Lee and Stasack's (1999) recent synthesis of the rock-art of Hawai'i, and Trotter and McCulloch's (1971) summary of the rock-art of New Zealand.

There has been only a handful of attempts to understand how the rock-art of each of these regions articulates with one another. Comparative analyses of western Pacific rock-art which have aimed to relate findings to broader reconstructions of Pacific prehistory have been undertaken by Hugo (1974), Specht (1979), Rosenfeld (1988) and Ballard (1992a). The task for each of these researchers, however, was invariably inhibited by a lack of
comprehensively recorded and inter-regionally comparable data. As a result, none of the rock-art models constructed by these authors derives from a systematic comparison of regional *motifs*. David Hugo (1974) embarked on a brief motif analysis but employed a relatively limited data set to do so.\(^1\) The two most comprehensive studies of western Pacific rock-art, by Specht (1979) and by Ballard (1992a), relied almost exclusively on the analysis of *non-motif* data. Attention was paid by these authors to the relative distributions of rock-art techniques, colouring agents, and the locational contexts in which rock-art sites were found to be situated.

### 1.2 The AES and the APT

One of the most significant outcomes of these previous comparative studies was a widespread assertion that the rock-art of the western Pacific is divisible into two broadly defined *styles* or *traditions* of painting and engraving (Specht 1979, Rosenfeld 1988, Ballard 1992a). It is the distinction between the techniques of painting and engraving that provide the point of departure for this thesis.

For the purposes of this thesis I define style as a ‘manner of doing’ (Sackett 1977: 370; see also Hodder 1990; Chippindale and Taçon 1998b). My understanding of style is that it is not just applicable to the graphic object (e.g. motifs), but to all behaviour integral to the rock-art production process. For instance, throughout the western Pacific rock-artists had a propensity to paint pictures high up on rock-surfaces. While the act of rendering pictures inaccessible in this way may have performed a certain function (deliberately rendering rock-art beyond reach), such an act also constitutes a particular ‘manner of doing’ something, or style.

Elaborating on passing observations made by previous authors (e.g. Egloff 1970, Hugo 1974), Jim Specht (1979) postulated the existence of a widespread engraving style in the western Pacific. This style was said to be defined by sites portraying examples of a particular set of curvilinear motifs, found on boulders and open rock faces, and located either within or adjacent to water sources. It was also said to correspond with the distribution of current Austronesian-speaking language areas.

Ballard (1992a), on the other hand, identified a repeated set of features found at numerous sites across the western Pacific which he defined as an ‘Austronesian painting *tradition*’ [my emphasis]. Ballard used the term ‘tradition’ as an analytical tool to generate a chronology

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\(^1\) While not denying the merits of Hugo’s study, his motif analysis was based on a total of only 77 different motifs. The present study employs over 600 different motifs.
for a widespread rock-art style that corresponded with the distribution of current Austronesian-speaking areas. Based on visual correlation observed between motifs associated with rock-painting assemblages and other material items (e.g. pottery, metal objects), he argued that the Austronesian painting tradition emerged around 2000 BP, after the initial incursion of Austronesian speakers into the western Pacific region.

Here I define a ‘tradition’ as an analytical unit which links together similar attributes (including style attributes) in time and space. This notion of a ‘tradition’ is an analytical fiction because it abstracts archaeologically observable attributes from original contexts of production which would have involved other media and functional attributes that are lost to us now. An archaeological tradition thus does not equate to an ethnographic tradition where these other attributes can be observed and understood as part of a coherent living tradition.

With these definitions understood, we can begin to examine the spatial, temporal and, where possible, cultural relationships between the ‘Austronesian engraving style’ (AES) and the ‘Austronesian painting tradition’ (APT). Three questions now need to be asked:

1. Are the AES and APT appropriate analytical units, or do they require redefinition?

2. Are all of those sites which have been identified as belonging to the AES part of a spatially and culturally related tradition, and can any sub-styles within the AES be observed?

3. Is the APT constituted by a single style, or is it represented by a number of spatially and temporally discrete sub-styles?

1.2.1 The role of Vanuatu

The conceptualisation by Specht and Ballard of the AES and APT has opened the door for a novel exploration of social and cultural dynamics in the western Pacific. However, curbing any form of comprehensive investigation of the relationship between these two analytical entities is a persistent lack of spatially and temporally coherent data throughout the region. One way in which this problem might be overcome is through an in-depth study of the rock-art of a single region where elements of the APT and AES appear to be present. Vanuatu was considered ideal for this purpose.
One of the most important features shared by the APT and AES is that their distribution has been independently linked to Austronesian-speaking areas. Vanuatu – a region likely to have been first visited and settled by Austronesian-speakers and one where both engraved and painted sites were already known to exist – thus presented an optimal region for exploring the spatial and temporal relationship between the AES and APT. The methodological program which has been developed in order to investigate the relationship between the rock-art of Vanuatu and the western Pacific is explored in further detail below.

1.3 The archaeology of rock-art: what does it have to offer in the Pacific?

Some sense of the scope of future rock-art studies in the Pacific can be gauged from a brief consideration of several developments in global rock-art research. Since the 1960s rock-art studies have increasingly moved away from basic analyses of formal variability towards an assessment of the role of rock-art within specific social contexts. This has come about through comprehensive analyses of the ways in which rock-art articulates both synchronically and diachronically with other forms of archaeological and ethnographic evidence (examples from Australia include McDonald 1994; David and Chant 1995).

In much of Europe, where studies of Palaeolithic rock-art have not been able to draw upon direct ethnographic analogy, researchers have adopted and developed the structuralist approaches of Lévi-Strauss in an attempt to uncover meaning from the distribution of rock-art within sites (e.g. Leroi-Gourhan, 1965, 1982). Such approaches have been challenged, however, for their common assumption that 'behind exotic images lay familiar mental oppositions such as male:female or culture:nature.' (Layton 2000: 48). The structuralists considered that culture could be divided up into 'familiar categories', and that it was 'transparent and unchanging' (Layton 2000: 48). In Southern Africa, where direct historical analogies have been drawn from ethnography and ethnohistory, rock-art has been largely understood in terms of shamanism and trance experiences (Lewis-Williams 1981). This approach is still widely in favour, and has been adopted for the interpretation of rock-art in many parts of the world (see various papers in Chippindale and Taçon 1998a). Another important area of focus is the view that the stylistic component of rock-art conveys social information; a notion spearheaded by Martin Wobst’s (1977) theory of ‘information exchange’. The basic tenet of Wobst’s argument is that patterning in rock-art assemblages is indicative of social proximity and relative degrees of social connectedness. In a succinct statement of this position, Smith (1992: 34) notes that,
Proponents of the information exchange theory suggest that relative stylistic homogeneity indicates the functioning of open social networks in areas of low population density or resource scarcity, or both. The converse of this is that stylistic heterogeneity is more likely to be found in rich environments where people are principally concerned with maintaining primary rights to resources in their own territory. Groups of people in such regions therefore choose to emphasise differences between themselves and their neighbours and stylistic heterogeneity functions to define and reinforce those differences.

The principal value of information exchange approaches which specify the communicative role of rock-art is that human actors are seen as active in the production of meaning through rock-art, and style is seen as active in social process (Conkey and Hastorf 1990). From this perspective, style is imbued with power, having the ability to guide behaviour and evoke responses and change.

More recent conceptions of style are critical of the way in which ‘social actors’ are distinguished from the ‘material world’, such that stylised objects are conceived of as ‘out there’ (Boast 1997; David and Wilson 1999). Such criticism draws heavily upon phenomenological approaches which treat landscapes (such as rock-art settings) as meaningful, socially constructed places involving bodily and cognitive experience (e.g. Relph 1985; Rodman 1992; J. Thomas 1993). This landscape approach to rock-art as a means of interpreting past human behaviour has emerged recently as one of the more popular perspectives.

Only a handful of projects in the Pacific, specifically in Polynesia, have adopted some of these theoretical approaches in attempts to situate rock-art within a social realm (e.g. Lee 1992; Millerstrom 1997, Lee and Stasack 1999, Lee 2002). It is anticipated that future studies in the Pacific will not only examine the role of rock-art within changing social contexts, but will also entail detailed comparisons of motifs and structural elements of art across a suite of different media, such as tattooing and barkcloth, within which the region’s rock-art increasingly appears to be embedded (Wilson 1998).

As noted at the beginning of this chapter, Pacific rock-art studies are rarely situated within archaeological frameworks of interpretation. I suggest that this is primarily due to the fact that Pacific prehistory is strongly driven by the ‘mega-questions’ of the region (Bellwood 1998: 966) which are associated with colonisation processes and the reconstruction of social change at a broad inter-regional scale. In order for rock-art to be incorporated into broader reconstructions of the past, particularly in the western Pacific where there has been
comparatively little research, a basic comparative framework for rock-art is required. In this respect it is worth recalling a recent statement by Spriggs (2001a: 246), who observes that,

Chronology-building, while unfashionable at present, is absolutely basic to theory building in Pacific archaeology. We will never get to the ‘why’ questions or even the more-than-basic ‘what’ questions unless we resolve a whole series of chronological issues of timing and duration of archaeological phenomena in the region.

The study of western Pacific rock-art is at present devoid not only of a chronological foundation, but also of a rigorous spatial framework. In order for Pacific prehistorians to appreciate the potential of western Pacific rock-art as a field of study which can actively contribute to our knowledge of the past, a fundamental understanding of the space-time relationships between rock-art sites is required. This thesis represents a first step in this direction, with the ultimate aim being to develop a preliminary model of rock-art transformation for the western Pacific region.

1.4 Thesis methodology: choosing between informed and formal methods

Chris Chippindale and Paul Taçon (1998b: 6) suggest that rock-art studies tend to invoke two basic analytical methods: the ‘informed’ and the ‘formal’. By ‘informed’ methods these authors refer to,

those that depend on some source of insight passed on directly or indirectly from those who made or used the rock-art – through ethnography, through ethnohistory, through the historical record, or through modern understanding known with good cause to perpetuate ancient knowledge; then, one can hope to explore the pictures from the inside, as it were.

For several reasons, the use of informed methods is inappropriate for the current study. Informed methods of rock-art analysis are useful if one is interested in exploring the social framework in which rock-art was produced. In most parts of the Pacific, however, ethnographic insights into rock-art production and iconography are rare. Moreover, in the context of the present study, which seeks to explore rock-art variation on a much larger regional scale, such insights are basically redundant. For this reason I have elected to use formal methods of rock-art analysis. Formal methods are described by Chippindale and Taçon (1998b: 7) as,

those that depend on no inside knowledge, but which work when one comes to the stuff ‘cold’, as a prehistorian does.
In this sense it is the pictures themselves, and their relationship to each other and their surroundings, which are the subject of study.

1.4.1 A formal approach to studying meaningful versus coincidental similarity

Based on our current knowledge about the distribution of rock-art in the western Pacific, a formal study of the similarities and differences within the body of the region’s rock-art should be expected to result in the identification of two major groups; one defined by paintings and the other by engravings. But how can we be certain that the similarities identified are meaningful? In this thesis three related steps are considered critical in enabling this distinction to be made:

1. Recognising the degree of schematisation and the cross-cultural occurrence of motifs. According to John Clegg (1995: 81), what makes a schematic picture unrecognisable to cultural outsiders is the addition of ‘diagnostic bits of information’. Clegg (1995: 81) uses the example of a political cartoon as an example of how this process of cultural modification of a universal schema takes place. Caricatures of Australian politicians involve ‘...[t]he grafting of exaggerated diagnostic features onto a neutral base.’ (Clegg 1995: 81-82). Throughout this thesis I differentiate between motifs which are described as ‘standardized schemas’ (which are recognised cross-culturally and are therefore less informative about cultural relations), and ‘diagnostic schemas’, which are graphic attributes generally confined to the study region and therefore more likely to be culturally specific.

2. Calculating the degree of motif replication in a given region. Even if a motif can be described as a ‘standardized schema’ it is still important to determine how often this motif is replicated in any given region. If, for instance, a generic or standardized depiction of a face (comprising, for example, a circle for the face, two circles for the eyes, and an upwardly arched line for the mouth) is the predominant motif at several geographically proximate sites, then some form of shared cultural process is most likely responsible for the similarities observed. Replication, however, is not simply about counting pictures. Significance is also defined in this thesis in terms of the number and quality of coincident similarities and differences between a range of other factors associated with rock-art production. Ballard (1992a), for instance, found a repeated association between a particular body of painted rock-art, found almost exclusively in Austronesian language areas, on cliff faces by the sea, and in inaccessible locations.

3. Calculating the presence and absence of rock-art features. As well as calculating the number of times particular combinations of features (e.g. motifs) are replicated, it is also
necessary to examine their distribution across space. The absence of a motif within a particular region can be equally as significant as its presence.

Interpretative preference is thus accorded to the inter-site presence of culturally diagnostic traits with high frequencies. The aim is to identify combinations of traits, bounded in time and space, for which cultural explanations may be invoked. Because the significance of rock-art similarities is measured on the basis of the number of times particular combinations of attributes are found together, a methodology for simultaneously analysing multiple traits is required. Particular statistical methods have been selected for this purpose.

1.4.2 The use of statistics in comparing rock-art

Engaging in a regional study of rock-art of the magnitude attempted in this thesis inevitably requires a methodology which will facilitate the comparison and quantification of exceptionally large data-sets. The type of data generated for this study consists of matrices of sites (rows) characterised by a large number of motifs (columns). One useful and proven method for searching for patterns among rock-art data defined by large numbers of variables of this kind is multivariate statistics (Hyder 1991; Magne and Klassen 1991; Taçon, Wilson and Chippindale 1996; Wilson 1998). By employing a range of ordination methods (correspondence analysis, principal components analysis, and multidimensional scaling), and comparing the results obtained from these different methods, the degree of overall similarity between rock-art sites throughout the western Pacific can be defined. The results are displayed as graphical summaries, in which each site is represented by a point in two-dimensional space. Sites which are similar plot more closely together, while dissimilar sites plot further apart. The distance on a graph between two sites is taken as a measure of cultural and historical relatedness, bearing in mind variation which may have been caused by factors such as the medium used and the skill of the artist.

1.4.3 Phenetic similarities

One type of similarity relation used by numerical taxonomists (Sokal and Sneath 1963) to describe correlations between living creatures is *phenetics*, which is defined by the overall similarity among specimens to be classified (Figure 1.1). Since no strategy is known for weighting rock-art attributes according to their evolutionary importance, similarity is initially defined in this thesis by the *phenetic* relations between many correlating motifs, without differential weighting of certain motifs over others.

In order to develop a model of rock-art transformation for the western Pacific we need some means of differentiating between traits which have been transmitted from a common origin.
(e.g. homologous motifs) and those which are the product of diffusion or borrowing. However, given the common lack of an adequate chronological framework within which to situate rock-art evidence, this is not a straightforward task. It is therefore necessary to defer to a range of circumstantial evidence, models for which have already been proposed by other authors.

Pacific colonisation is usually thought to have occurred in a broadly west to east direction, offering a basic spatial and temporal framework within which to examine similarities and differences between archaeological and other historical data (e.g. Kirch and Green 1987). If phenetic relationships between motifs demonstrate a clinal pattern on multivariate graphs that corresponds with this basic framework, it is likely that such a result reflects distance from a common ancestral origin. This interpretation would appear even more probable if an entire suite of motifs and other rock-art traits was transmitted from one region to the next, with the degree of difference between a site and a source region corresponding to the geographic distance between them. Such a schematic model for tracking the distribution of art motifs across the Pacific and attributing them to historical continuity from common ancestral populations has previously been employed by Mead (1971), Green (1979), and Wilson (1994; 1998).

In addition to this general model of colonisation, Kirch (1997: 130) has proposed a more specific means of distinguishing between motif repertoires which emerge as a result of 'ancestral connections'. Kirch argues that for Lapita dentate-stamped ceramics to have been transmitted from one region to the next through processes of borrowing or diffusion, evidence of individual Lapita design elements being 'recombined in new patterns or structural codes' should be detectable. Instead, however, Kirch (1997: 130) suggests that,

the entire complex design system (including the core set of design elements, common motifs, and process rules) is replicated from site to site. Such structural consistency can only reflect a shared, ancestral tradition [my emphasis].

Other examples of rock-art which has been thought to reflect processes of colonisation derive from Australian evidence. Wobst's (1977) model of information exchange (described above) has been used as a means of distinguishing between an early body of 'homogeneous' engraved rock-art (often referred to as 'Panaramitee'), and several later, stylistically heterogeneous, bodies of painted rock-art (Smith 1992). The early and homogeneous engraved rock-art is thought to reflect efficient colonisers with a 'high dispersal ability, high rates of reproduction and low levels of territoriality' (Wilson 1975; cited in Smith 1992: 34).
One explanation for the production of stylistically indistinguishable rock-art across a broad region is the benefit which results from maintaining widespread social cohesion. A similar argument has been applied to the Lapita context where the widespread reproduction of a set of Lapita designs is conceptualised as a symbolic ‘lifeline’ between colonising communities (Green and Kirch 1997).

If there is no evidence of a clinal pattern in the rock-art of the Pacific which is indicative of a process of colonisation from shared ancestry, then other explanations for the similarities and differences between rock-art must be sought. Homogeneous rock-art patterns may also suggest processes of interaction and communication involving the borrowing and diffusion of motifs. Without a chronology for rock-art, however, directions of influence are difficult to detect. Problems also arise in circumstances in which the motif correlations observed on multivariate graphs are the result of both colonisation and processes of inter-archipelagic contact, as the latter (interaction) would probably obscure evidence of clinal variation caused by transmission as a result of colonisation. This methodological issue pertaining to the use of multivariate statistics is discussed as it becomes relevant throughout this thesis.

1.5 The sample area

The primary unit of analysis used in this thesis is the ‘site’. Sites are compared at two main geographic scales, the western Pacific and Vanuatu:

1. Western Pacific: By definition, this region extends from East Timor in the west, to Tonga and Samoa in the east. However, due to the time constraints imposed on this study, formal comparisons are made only within and between rock-art sites from eastern mainland PNG (including Central Province, Milne Bay Province and Morobe Province), Island Melanesia, and Fiji-Western Polynesia. Island Melanesia is defined here as inclusive of the Bismarck Archipelago, the Solomon Islands, Vanuatu, and New Caledonia. Fiji-Western Polynesia consists of the islands of Fiji, Tonga and Samoa.

2. Vanuatu: statistical analyses involving both frequency counts and multivariate methods are used to compare rock-art sites within Vanuatu, and between Vanuatu and the area delineated in (1) (Chapters 6-9).

1.6 Definition of terms

1.6.1 Rock-art

For the purposes of this thesis, Chippindale and Taçon’s (1998b: 6) unconventional hyphenation of the term ‘rock-art’ is adopted, as opposed to the conventional ‘rock art’. In
accord with these authors I believe that ‘art’, as defined and understood by recent western societies, is ‘not suited to those many societies where the crafty making of images and pictures was a business centrally integrated with other concerns’ (ibid).

My definition of a rock-art site is derived from Flood (1997: 357), who includes ‘...non-utilitarian intentional [marks] or pictures painted, drawn, stencilled, imprinted or carved on a rock surface...’. Rock surfaces include non-portable canvases such as boulders, shelters, caves and other naturally occurring outcrops. Omitted from this definition are mobile and statuary artefacts, such as portable stone carvings or painted stones. In addition, due to time constraints imposed on this thesis, the vast majority of carved monoliths are neither described nor statistically analysed. However, the Boianai and Wedau stones in the d’Entrecasteaux Islands (Williams 1931; Egloff 1979) and the carved heads on Unea in West New Britain (Reibe 1967) have been deliberately included to enable some level of comparison to be made between conventional rock-art sites and carved stone monoliths.

1.6.2 Rock-art techniques: painting and engraving

In this thesis, the term ‘painting’ is taken to include pictures which have been applied with both ‘wet’ and ‘dry’ pigments. It is conventional in rock-art research to differentiate between these two types of application: wet pigment rock-art is usually ‘painted’, and dry pigment is usually ‘drawn’ (Flood 1997: 352, 356). Much painted rock-art in the western Pacific, however, is located on hydrologically active limestone surfaces, often making it difficult to assess whether a liquid binding agent was used. I have therefore adopted the term ‘painted rock-art’ to refer to rock-pictures which have been produced using either wet or dry pigment.

The term ‘engraving’ is used to define a picture resulting from a process of stone extraction. There are various technologies associated with engraving production, such as pounding, abrading, pecking and incising. The individual technical classes associated with painting (e.g. stencilling) and engraving (e.g. abrasion) are defined later in this thesis as they become relevant to the study.

1.6.3 Picture and motif

My definition of a ‘picture’ corresponds with Clegg’s (1978:42; cited in Flood 1997: 355) definition of a ‘mark’ which, adopting his terminology, I take as ‘any drawing, painting,

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2Here I distinguish between naturally occurring boulders and stones which have been moved or modified as a result of human agency.
engraving or other modification of nature which is probably a human artefact.' Throughout this thesis the 'picture' is the primary graphic unit employed.

In defining a ‘motif’ I follow Flood (1997: 355), who describes it as ‘a repeated form or recurrent type or class of [figure]’. Thus, for example, a site may consist of two pictures (both circles with central crosses), but only one motif (a circle with a central cross). A picture cannot contain more than one motif.

1.7 Research process

Prior to this thesis, growing numbers of major rock-art sites in Vanuatu were gradually becoming known through fieldwork conducted by the Vanuatu Cultural Centre’s site survey program (VCHSS) and by Matthew Spriggs from the Australian National University. Already familiar with much of the literature on the rock-art of the Pacific (Wilson 1994; 1998), I identified Vanuatu as an ideal location in which to directly test many of the existing models defining the rock-art of the western Pacific (see 1.3 above). A moratorium imposed on researchers working in Vanuatu was lifted in 1994, after which the Australian National University-Vanuatu National Museum archaeological project commenced. As part of this project, and for the purposes of this dissertation, I undertook two major field seasons in Vanuatu in 1996 and 1997, targeting areas where rock-art was already known to exist. Working in collaboration with Vanuatu Cultural Centre (VCC) fieldworkers Jeffrey Uli Boe, Jimmyson Sanhambath, Douglas Meto, Jerry Taki, and Sophie Nempan Sei, I surveyed and recorded rock-art sites on the islands of Maewo, Malakula, Lelepa and Erromango.

The analytical component of this thesis was conducted in two parts: the first involving a broad scale comparison of rock-art across the western Pacific (excluding Vanuatu), and the second a more detailed local-scale comparison of the rock-art of Vanuatu. The differences in the level of detail associated with each analysis are largely a reflection of data availability. Collation of data for rock-art sites in the western Pacific proved to be an inordinately difficult task due to a dearth of published (or even unpublished) illustrations, and the fact that relevant data were often stored only in personal field diaries and slide collections, rendering them difficult to access. Added to this was the problem raised above of the lack of comparability between individual site records which had been produced largely without the possibility of inter-regional analysis in mind.

Conversely, the system of site recording I employed in Vanuatu was specifically designed to permit inter-regional comparisons. As a consequence, the level of recording detail for the Vanuatu sites now exceeds that available for most other sites in the western Pacific. For
Vanuatu I have recorded both qualitative and quantitative data; that is, both the type and incidence of motif and non-motif variables at a site. Together, these data provide a reliable means of determining degrees of inter-site correlation. For example, two sites may contain paintings of circles and crosses. At one site, however, the ratio of circles to crosses may be 10:1, while at the other it may be 1:10. Alone, the qualitative data indicates a 100% correlation between the two sites (they both contain exactly the same types of motifs), while the quantitative result indicates only a 10% correlation. This example demonstrates that interpretations derived from both quantitative and qualitative data differ significantly from those derived from just one of these approaches alone.

One of the major methodological problems confronting this study was that the data available at a western Pacific scale are insufficiently detailed to provide quantitative information (e.g. the number of times a particular motif is found at a site). I therefore decided to conduct three separate analyses: one comparing western Pacific sites (excluding Vanuatu) using qualitative data only; another comparing sites within Vanuatu using both qualitative and quantitative data, and a third comparing western Pacific sites to sites within Vanuatu using qualitative data only. The following discussion situates these analytical processes within the overall framework of the current study.

1.8 Thesis outline

This thesis consists of two volumes. Volume One comprises a total of nine chapters (the contents of which are outlined below), and Volume Two includes most of the accompanying figures, as well as chapter appendices and several subsidiary publications. Volume One is presented in four parts, of which this introduction is the first.

Part two of this thesis is focused on the broader relations between rock-art sites in the western Pacific. Before embarking on the statistical analyses of these sites, an overview of the history of archaeological research in the western Pacific is presented in Chapter 2. Contemporary theoretical issues and debates are reviewed, and a range of methodologies for using rock-art to contribute to the resolution of these debates are outlined. In Chapter 3 the existing regional models pertaining to western Pacific rock-art are surveyed, and the current state of rock-art research in the region is summarised. This is followed by detailed descriptions of the rock-art found in each Pacific region, the objective being to provide a regional context for situating the results of the statistical analyses presented in Chapter 4. In Chapter 4 several statistical methods are employed to compare the non-motif and motif data which characterise western Pacific rock-art sites (excluding Vanuatu). The results are
assessed in light of the notion that there are two distinct groups of rock-art in the western Pacific: one defined by engravings and the other by paintings.

In Part three of the thesis the aim is develop a detailed spatio-temporal model for the rock-art of Vanuatu. In Chapter 5, an overview of the archaeology of Vanuatu is provided, the aim being to provide an historical context for analysing and interpreting the rock-art of this archipelago in later chapters. Chapter 6 provides a brief history of rock-art research in Vanuatu followed by a series of quantitative and qualitative analyses which are performed on non-motif and motif variables. Emphasis is placed on the distribution of these variables through space. In Chapter 7, transformations in the rock-art of Vanuatu through time are considered using both chronometric and relative methods of dating. In Chapter 8 the results of the previous three chapters are assessed together, and a model of rock-art transformation for Vanuatu is proposed.

The thesis is concluded in Chapter 9 (Part 4) with a final comparison between the rock-art of Vanuatu and other western Pacific sites. A preliminary model for the genesis and transformation of various ‘traditions’ of rock-art in the western Pacific is presented. In returning to the questions posed in Part two, the thesis closes with reference to the ways in which future rock-art studies might come to take a more central role as one amongst many lines of evidence in the archaeological reconstruction of Pacific prehistory.

1.9 Working with the Vanuatu Cultural Centre

Since 1998 I have been engaged in two further projects in Vanuatu, both of which bear significantly on the issues raised in this thesis. The first is an ongoing collaboration with Vanuatu Cultural Centre (VCC) staff and local community members to conserve and manage Yalo cave, an important kastom site in Northwest Malakula. Part of this project has involved compiling a detailed record of this site, currently the largest and richest rock-art site in Vanuatu. The project is being conducted under the auspices of the VCC, which has a policy that ‘[a]ll research projects … include a cultural product of immediate benefit and use to the local community’ (Vanuatu Cultural Centre 2001).

The second project is a study funded by the Australian Research Council (ARC) led by Dr. Bruno David (Department of Geography and Environmental Science, Monash University), which involves dating the rock-art of Vanuatu using chronometric methods. Two field seasons have been conducted for this project so far and some of the results, which have been

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3 In 1998 and 1999 this project was funded by the East-West Centre (Honolulu, Hawai‘i). The 2001 season was funded by Asia-Pacific Focal Point, administered through Environment Australia.
processed by the Australian National Science and Technology Organisation’s (ANSTO) AMS dating facility, are reported in this thesis.

One of the most rewarding aspects of each of these projects (including the thesis fieldwork) has been the opportunity to work in close collaboration with Vanuatu Cultural Centre fieldworkers, staff and members of local communities. As a result of this experience, greater account has been taken of ni-Vanuatu methods of controlling information collected for doctoral and other research. This thesis includes visual material which is strongly protected by traditional copyright. With the aim of upholding the customary rights of the owners of traditional forms, approval to present the material recorded from Vanuatu has been granted by the Vanuatu Cultural Centre.
Pacific contexts: colonisation and change in the islands

2.1 Introduction

This chapter sets Vanuatu prehistory in a broader regional context by reviewing the existing literature on colonisation and cultural change in Pacific island societies. Of necessity, the debates presented are selective. Rather than offering an exhaustive review of the extensive literature on Pacific prehistory, I have elected to discuss only the most recent theories that have major implications for my own research into rock-art. Themes explored in this chapter include colonisation and settlement, economy, exchange systems, environmental impacts, the ‘Lapita phenomenon’ and post-Lapita developments. Emphasis is placed in particular on the ‘indigenist versus intrusionist’ debate which concerns the putative origins of Lapita, with a view to contributing to its resolution through the analysis of rock-art.

The Pacific Ocean constitutes nearly one third of the surface of the earth (Fig. 2.1). Since European contact, the islands of the Pacific have been divided into three broad geographical zones – Polynesia in the east, Melanesia in the west and Micronesia in the north. Surrounding this oceanic expanse are Australia to the south, Indonesia and Southeast Asia to the west, and the Americas to the east. However, the appropriateness of this tripartite division has not withstood the test of time, having been recently deconstructed by both N. Thomas (1987) and Green (1991a). Green (1991a), who questioned these geographical divisions primarily on the basis of biogeographical differences, draws a useful alternative distinction between Near and Remote Oceania. Near Oceania includes all inter-visible islands extending from the Huxley-Wallace Line (which separates Asian from Australasian faunas) to the eastern end of the Solomon Islands, while Remote Oceania comprises all island groups separated from Near Oceania by ocean gaps exceeding 350km, including the whole ‘Micronesian’ region (Green 1991a: 495). On the basis of this redefinition of the Pacific, ‘Melanesia’ – the principal geographical area considered in this study – is not a unified concept.

The initial colonisation of the various islands dotting this expansive seascape is now almost unanimously considered to have occurred in an easterly direction. The vast waters of the Pacific, particularly across its eastern stretch, were evidently a barrier to human occupation until the last 3500 years, making it one of the last corners of the world to have been settled by humans. Coinciding with or following just after the initial colonisation of Sahul...
(including Australia) during the late Pleistocene, people moved into the western Melanesian islands of the Bismarck Archipelago and the Solomons. But it was not until the late Holocene that the major sea-crossing from Makira (at the end of the Solomon Island chain) into Remote Oceania took place with the settlement of the eastern outer islands of the Solomons, Vanuatu and New Caledonia. On Eastern Polynesia's doorstep, colonisation may have faltered for up to c. 1500 years in Fiji, Tonga and Samoa, a region long seen as an island-hopping bottleneck in the eastward expansion of Pacific colonisation. This threshold was finally breached, culminating in eventual landings on Easter Island in the east and Hawai’i in the north in about the 9th century AD, and in New Zealand in the south in the 13th century AD (Spriggs and Anderson 1993).

Over time, 'Island Melanesia' (defined in Chapter 1) is thought to have experienced a series of major linguistic events (Spriggs 1997: 9). The first occurred perhaps 40,000 years ago or earlier with the arrival of people in Near Oceania (communities whose descendents now speak a wide variety of languages commonly grouped together as 'non-Austronesian'); the second is generally attributed to an influx of Austronesian speakers, possibly around 3500-3300 BP; and the third is associated with a backwash of Polynesians into Island Melanesia, most likely within the last 1000 years. Many finer-grained linguistic changes resulting from migrations and extinctions certainly occurred but these are not so easily detected. These three major linguistic events have been linked to correspondingly significant archaeological changes thought to have a similar chronological order.

Historically, Island Melanesia was the locus of a cultural phenomenon commonly referred to as 'Lapita' (see below). The 'Lapita Peoples', as described by Kirch (1997), are generally thought to have engineered the first crossing of the biogeographic boundary that separates the main Solomon Islands from Vanuatu, thereafter continuing to expand into Polynesia. The means by which voyagers achieved these sea crossings is unknown but various models examining the possibilities of landfall using particular voyaging strategies have been proposed. One such example is Irwin's (1989, 1992, 1993) coloniser model, based on upwind searches for new islands and downwind returns.

The archaeology of the Lapita period forms an important focus of this chapter because its emergence coincides with the colonisation and settlement of Vanuatu. The considerable movement of people and things through Island Melanesia at this time would have impacted on all aspects of island social practices, including art. It was at this time that decorated pottery first appeared, providing an archaeologically datable material with which rock-art can be formally compared.
2.2 The Pleistocene

Prior to the research of the Lapita Homeland Project which commenced in 1985 (Gosden and Allen 1984; Allen and Gosden 1991), the only Pleistocene site known in Island Melanesia was Misisil Cave, New Britain (Specht et al., 1981). Since then, several sites dated at between 40,000 and 20,000 BP have been discovered, including Yombon (New Britain), Matenkupkum (New Ireland), Buang Merabak (New Ireland), Kilu (Buka) (Allen et al. 1989; Pavlides and Gosden 1994; Rosenfeld 1997; Wickler and Spriggs 1988) and Pamwak (Manus) (Spriggs 2001, pers. comm.) (Figure 2.2). By 20,000 BP, Yombon, Matenkupkum and Kilu all appear to have been abandoned.

Is there a Pleistocene rock-art in the Pacific and, if so, can it be distinguished from later rock-art styles? Spriggs (1997: 66) believes that any rock-art which may have been produced prior to around 3500-3300 BP would have long since disappeared:

That the early Island Melanesians had an aesthetic sense is obvious. They were after all modern humans like us. If they painted on cave walls the tropical climate would long ago have removed all traces. Other canvases for their art were likely to have been even more ephemeral. They had no fired clay pots to paint or incise. Their songs have gone.

As evidenced by the Australian evidence, however, Pleistocene cave art can survive under certain conditions, such as paintings and stencils in protected limestone caves, and engravings in both open and sheltered settings (Flood 1997; and various papers in Ward and Tuniz 2000). In those parts of Island Melanesia where human occupation can demonstrably be shown to span many thousands of years, we should not discount the possibility of a long artistic record. Few of the possible contexts for Pleistocene rock-art have been explored, although subterranean cave sites have been discovered in the southern Highlands of New Guinea containing engravings which resemble Pleistocene rock-art in southern Australia (Ballard 1992b). In Island Melanesia, three sites with Pleistocene occupation contain rock-art: Panakiwuk, Balof 2 and Buang Merabak (New Ireland). While no attempts have yet been made to directly date the paintings at these sites, the motifs and their contexts are examined in Chapter 4 for clues as to their possible age.

2.3 The Southeast Asian ‘Neolithic’

After about 6000 BP, when sea levels were approaching their current position, cultural changes associated with what Spriggs (1989, 2000) has described as the spread of the ‘Island Southeast Asian Neolithic’ began to take place. Spriggs (1989) has reviewed the radiocarbon determinations from the region, concluding that a series of new traits first emerged in the
north — perhaps in Taiwan — and subsequently spread southward. These included pottery production, polished stone and *Tridacna* shell adzes, agriculture, domesticated animals (pig, dog, chicken), and items such as stone ‘hoes’, clay spindle whorls, bark-cloth beaters, shell ornaments and fishhooks. Bellwood (1985; 1997) and Spriggs (1989) have both suggested that these cultural innovations occurred in tandem with the spread of Austronesian languages:

If a map of major AN sub-groups with an understanding of the sequence of language splits from Proto-Austronesian is put down over a map of the spread of the Neolithic in the region, it fits almost perfectly (Spriggs 1989: 608).

Further to the east, in the Near Oceanic regions beyond New Guinea, the picture around and immediately after 6000 BP is relatively blurred (Kirch 2000: 83). This is largely a result of the apparent lack of immediately pre-Lapita sites known in the region; a situation which will only be remedied by future research.

2.4 What is Lapita?

At approximately 3500-3300 BP (Kirch and Hunt 1988; Specht and Gosden 1997;), Island Melanesia witnessed a major cultural transformation with the ‘penecontemporaneous’ appearance of Lapita pottery and a range of associated artefacts and features (Kirch 2000: 91). The spread of this ‘cultural complex’ occurred over a period of about 500 to 750 years, and constitutes the first archaeological signature of colonisation in Remote Oceania. Many researchers attribute the emergence of the Lapita cultural complex and this new ability to voyage, visit and colonise islands beyond the then-settled Pacific to the same group of people — the Austronesians (Spriggs 1997; Bellwood 1997; Kirch 2000). Others tend to the view that Lapita is part of a local development within the Bismarck Archipelago which may have been inspired by contacts with communities to the west (Allen and White 1989; Ambrose 1997).

The dominance and focus on Lapita as a lens through which to view Pacific culture and people during this time beg the question: what is Lapita? While various authors have addressed this question (e.g. Green 1991b), Spriggs (1992: 221) narrows its definition to a set of five points which he believes covers the range of views in the literature:

1. an exchange network of goods produced by specialist centres (this would seem to be Terrell’s 1989 viewpoint);
2. affective links to a homeland, witnessed by the long-distance distribution of obsidian from the Bismarcks to areas such as Santa Cruz in the southeast Solomons, long after local sources of this and other items were available (Green 1987, 1994);
3. a new economic system involving improved subsistence gardening, domesticated animals (pig, dog, chicken), fishing and shellfishing, hunting of previously unexploited faunal resources on pristine islands, and new cooking and food preparation technologies utilising pottery containers;
4. a shared religious ideology and social system, reflected in elaborate pottery decorations on ritual vessels, exchange valuables, 'clan' emblems and an assumed social hierarchy necessary to mount organized expeditions for colonization (Friedman 1981; Hayden 1983; and others);
5. language and ethnicity, shared by an initially endogamous, genetically distinct group intrusive into an already settled area and speaking an Austronesian language (Bellwood 1989; Shutler and Marek 1975; and others).

The appearance of Lapita is important for this thesis because it signals a period of major cultural change in the Island Melanesian region, when the colonisation of Vanuatu and other Remote Oceanic islands took place. Rock-art, if it was produced during this period, should reflect both the spatial and temporal extent of the Lapita 'cultural network', and the nature of interaction between participant islands. Some of the features of Lapita which might play a role in the analysis of rock-art are briefly detailed below.

2.4.1 The Lapita ceramic series

For a long time Lapita dentate-stamped ceramics have been classified into three groups: Far Western, Western and Eastern (Anson 1986) – each thought of as spatially and temporally discrete categories but with common design elements occurring between all three. Far Western Lapita is restricted to the Bismarck Archipelago (3500-3200 BP); Western is found in the Bismarcks, Solomons, Vanuatu and New Caledonia (from c. 3200 BP); and Eastern in Fiji-Western Polynesia (from c. 2900-2700 BP). The general trend is towards simplification of both decoration and vessel forms as one progresses eastwards. Anson’s general model has since been expanded by Kirch (1997: 71) who suggests that there is now sufficient evidence to propose the presence of four ‘provinces’ within Lapita, adding ‘Southern’ to the repertoire. The characteristics of the ‘Southern Lapita Province’, which is focused in New Caledonia, have since been explored and expanded upon by Sand (2000; 2001a).

In a major revision of these ‘regional’ models, however, Summerhayes (2000a) redefines Anson's categories as temporal rather than spatial, i.e. Early, Middle and Late. Summerhayes (2000b) argues that movement (in the form of people and ideas, not pots) must have persisted across the entire Lapita cultural sphere in order for synchronous changes in Lapita pottery decoration to have occurred. On the basis of this temporal model, if rock-art was practised during the Lapita period and within the same cultural milieu which supported the production of Lapita pots, then we should be able to detect an homogeneous network of rock-art design within the spatio-temporal parameters of the Lapita complex.
2.4.2 Lapita exchange networks and Lapita as ‘trade ware’

Exchange networks associated with early Lapita movement appear to have been extensive and diverse, with settlements such as Talepakemalai on Eloua accessing clay and obsidian sources from a relatively broad region. Subsequently, resource catchments, and hence interaction networks, appear to have become more constricted. For instance, while early Lapita levels at Talepakemalai were dominated by obsidian from both the Admiralty Islands and Talasea, later levels contained Admiralty obsidian only. In some areas, these economic contractions appear to occur with a concomitant decline in dentate-stamped pottery and an increase in other ceramic types (Kirch 1990). Such evidence of regionalisation has major implications for the anticipated spread of rock-art conventions during the Lapita period. The earlier and more expansive exchange networks should be reflected by broad scale homogeneity in the rock-art. However, we might expect later restricted networks to be expressed in terms of more regionalised rock-art.

On the subject of ‘exchange’ within the Lapita period, mention must be made of the nature of contact within the Lapita regional sphere. John Terrell (1989, 1999), a major protagonist in debates concerning Lapita, has suggested that orthodox ‘culture-history’ approaches in Pacific prehistory rely on ‘ethnicity’ as a means of organising the past. By pointing out that Lapita involves the trade of items such as obsidian beyond the spatial and temporal boundaries often used to enclose Lapita (Allen et al 1989, Bellwood and Koon 1989), Terrell (1989: 625) argues that ‘we cannot seriously maintain that trade objects during the Lapita period only passed to and fro between Lapita kinsmen or that the exchange of goods in ancient Melanesia honoured the boundaries of an ethnically exclusive Lapita ‘colonizing exchange system’ (Allen and White 1989: 141; Green 1979).

Green and Kirch (1997: 20-21) offer a counter-argument to Terrell’s statements in relation to the colonisation of Remote Oceania, claiming that:

the historical origins of the Remote Oceanic exchange systems lay not with some already established networks pre-dating Lapita (as in the Bismarcks), but far to the west in the antecedent Far Western Lapita exchange system. Thus despite Terrell’s (1989: 625) claims to the contrary, it is possible to assert that trade objects during the initial phase of Lapita expansion into Remote Oceania did pass to and fro between Lapita kinsmen and communities of ‘ethnically-exclusive’ Lapita colonising and exchange networks, though this situation was not to persist indefinitely, especially in eastern island Melanesia (Green 1996).

In an attempt to dispel the view of Lapita as ‘nothing more’ than a trade ware, Green and Kirch (1997: 24) suggest that while trade in ceramics was certainly a post-Lapita event, it is
not a useful description for Lapita pottery, which is said to be locally produced in most cases (Summerhayes 2000b). Even at those locations where Lapita ceramics were imported, such as Mussau, the pottery was derived from many different sources of manufacture in a series of what the authors refer to as a ‘one-stop reciprocity exchange’.

My comparative analysis of western Pacific rock-art could provide some insight into this issue as rock-art, unlike pottery, is not a tradable item; fixity of location being one of its distinguishing features. If the initial phase of expansion out into Remote Oceania was engineered by genetically, linguistically and culturally related communities (‘Lapita kinsmen’), then rock-art practiced during this time should be extremely similar.

As a final point in relation to the issue of exchange, Green and Kirch (1997) note that networks in Remote Oceania did not really extend beyond individual archipelagos. This is explained as the result of a rapidly moving ‘colonisation front’ (Green and Kirch 1997: 30), which saw local exchange networks developing in these previously unoccupied regions. Rather than frequently participating in the larger (down the line) exchange network of their forebears, Remote Oceanic communities operated within more localised networks.

This proposition can also be tested against the evidence of rock-art. If similarities amongst rock-art assemblages in the western Pacific are based to some extent on inter-regional exchange, then the early rock-art of Vanuatu and other regions of Remote Oceania should fairly quickly evolve their own regional styles in keeping with more localised exchange networks.

2.4.3 Lapita through space

Lapita period settlement appears to have been associated with more intensive activity on the smaller, off-shore islands (at least in the Bismarcks) than during previous times (Gosden et al. 1989: 573), with subsistence during the Lapita period involving a combination of horticulture and marine exploitation. We might assume as a point of departure that if rock-art was practiced during the Lapita period and it has survived, then it could be detectable on these smaller islands.

Some parts of Island Melanesia do not appear to have been touched by the ‘Lapita Cultural Complex’. Archaeological and palynological evidence from Guadalcanal in the Solomons, for example, has revealed a cultural sequence persisting from about 6000 BP through to about 2300 BP, with no evidence of Lapita (Roe 1992b; 2000). Elements often associated with Lapita only start to appear after this time, evidenced by the arrival of the pig, shifts in
exchange networks, and major forest clearance. There is a large body of rock-art in Northwest Guadalcanal recorded by David Roe (1992a) which may reflect the apparent lack of Lapita evidence around 3000 BP (see Chapter 4).

2.4.4 Lapita through time

Much debate has centred on the speed at which colonisation by Lapita people took place. Some have argued for a very rapid dispersal of Lapita communities across the Pacific (Kirch and Hunt 1988), while others prefer a slower movement, as informed by the application of 'chronometric hygiene' to the existing archaeological data (Spriggs 1990a). There also appears to have been 'an acceleration in the eastward expansion of colonisation' coupled with a contraction of the duration of the Lapita cultural period in an easterly direction (Anderson 2001: 17-18).

The degree of similarity between rock-art associated with colonising movements across the Pacific may be instructive in this regard. A rapid colonisation front would presumably register in the rock-art record as an internally cohesive and homogeneous design system across the entire Lapita cultural sphere. A slower movement would allow for greater modification to this design system. Notably, however, without insight into the historical processes which impact on design systems and affect rates of design modification, there are limits to the effectiveness of this kind of test. An eastward acceleration of Lapita colonisation combined with a contraction of Lapita tenure should be represented by an easterly decrease in the volume of rock-art dating to the Lapita period.

2.5 Indigenous or intrusionist? The Lapita debate

Since the identification of Lapita as a community of culture by Golson in 1971, scholars have been divided on whether it developed amongst existing Island Melanesian culture(s), or whether it involved the arrival of a new group of people at around 3500 BP. In the following discussions these two competing views are distinguished as the indigenist (e.g. Allen and White 1989; Ambrose 1997; Gosden and Specht 1991; Terrell 1989; White et al. 1988) and the intrusionist (e.g. Bellwood 1997, 1998; Kirch 1988, 1990, 1997, 2000; Spriggs 1997).

The core of the argument between the indigenists and the intrusionists is the nature of the interaction and influence between outsiders and the resident Island Melanesian populations. The intrusionists argue that most of the changes which took place at the time of the emergence of Lapita were introduced from Southeast Asia, and have sought and identified features which occur in Southeast Asia prior to their appearance in Island Melanesia. The indigenists, on the other hand, suggest that external factors served only to mediate internal
developments. One of the main problems with this polarised debate ‘... is that positions depend on whether people, languages or archaeological assemblages are the issue of concern, and these categories are not always very precisely separated’ (Bellwood and Koon 1989).

2.5.1 The intrusionists

Spriggs (1997), an intrusionist, argues that many of the traits which define Lapita are of Southeast Asian origin, such as pottery (or at least particular kinds of pottery), domestic animals, quadrangular adzes, polished stone chisels, various shell ornament types, rectangular houses (some on stilts), large villages, Austronesian language, and probably aspects of boat technology, tattoo chisels, pearlshell knives, trolling hooks and various stone-artefact classes (Spriggs 1997: 101).

Both Kirch (2000: 88) and Spriggs (1997: 74-76) emphasise that sites of the immediate pre-Lapita period, such as Talasea in New Britain, indicate distinct cultural phases before and after the emergence of Lapita, the former being associated with the resident Island Melanesians pre-Lapita, and the latter with the incoming Lapita populations. Spriggs (1997) further suggests that the Witori eruption of New Britain 3600 years ago, archaeologically visible between the pre-Lapita and Lapita horizons, may have played a major role in facilitating the movement of the bearers of Lapita into Island Melanesia:

It is an intriguing possibility that the progenitors of Lapita were following an established trade route from the west, one that had suddenly shut down. Moving into a now empty landscape but with supply links back to the west which gave them the ability to establish themselves there, they may have gained control of [the obsidian source of] Talasea as an untenanted land or were at least able to insert themselves strategically into whatever system was trying to re-establish itself (Spriggs 1997: 76).

Historical links between the movement of Lapita and the spread of Austronesian languages across the Pacific have been claimed by the intrusionists (Bellwood 1989, 1991, 1997; Green and Kirch 1997: 27; Kirch 1997; Spriggs 1991, 1997). According to Pawley and Ross (1993), this fit between the linguistic and archaeological chronologies has been a source of criticism by indigenists who believe that archaeology should be considered independently of linguistic data because it has a different history to tell (cf. Terrell et al. 1997: 166). Terrell (1988) has suggested, for example, that the modus operandi of historical linguists has been adopted by many prehistorians such that the issues of origins and the development of branching patterns have come to dominate Pacific prehistory. The following description of Island Southeast Asian Proto-Austronesian (PAN) language splits by Spriggs (1997) – the
geographical patterning of which he contends bears a striking resemblance to that of ‘an archaeological horizon or cultural complex’ culminating in the Lapita region of Island Melanesia – is a case in point:

Proto-Austronesian (PAN), probably spoken on or near Taiwan, split into a Formosan and a Malayo-Polynesian grouping around 5000 BP or earlier with a movement south to the Philippines and Sulawesi. Proto-Malayo-Polynesian (PMP) broke up with a move from Sulawesi across to northern Maluku at about 4500 BP or slightly earlier. The next linguistic split (the break-up of Proto-Central/Eastern Malayo-Polynesian or PCEMP) occurred with a language movement to the east. This new settlement probably centred in Cenderawasih Bay on the north coast of Western New Guinea, perhaps (there are no dated sites in the area) around 4000 BP, where Proto-Eastern Malayo-Polynesian was spoken (PEMP). A further spread east resulted in an Austronesian and Lapita settlement in the Bismarcks by 3500 BP and the break-up of Proto-Oceanic (POC) as Lapita settlements spread south and east through the Solomons and out into the Pacific after about 3200 BP (Spriggs: 96-97).

The relationship between distributions of archaeology and language is a common assumption in Oceania, and has led to a general acceptance among intrusionists that the break-up of POC coincided with the arrival of Lapita pottery (Pawley and Ross 1995: 59). Kirch (2000: 98) describes the Lapita region as ‘... a sort of core, out of which populations speaking Oceanic languages centrifugally expanded.’

According to Spriggs (1997: 99), the ‘genetic history established so far does seem consonant with the histories derived from the other two disciplines’ of archaeology and linguistics. Kirch (1997), who provides a detailed history of biological research directed at understanding Pacific origins, also claims that there is a ‘gratifying’ strong convergence between the archaeological, linguistic and genetic patterns. According to the intrusionists, the emerging patterns indicate that pre-Polynesian populations derived mainly from Southeast Asia and moved rapidly through Near Oceania (where some genetic exchange with existing populations took place) and thence to Remote Oceania, where they were most likely the founding colonists (Hagelberg and Clegg 1993; Hertzberg et al. 1989; Serjeantson and Hill 1989).

2.5.2 The indigenists

The core of the indigenist argument is that certain features of the Lapita cultural complex already existed in one form or another in Island Melanesia before the emergence of Lapita sites around 3500 BP. The implication is that Lapita is not entirely an introduced

4Slight revisions to this chronology have been proposed more recently by Spriggs (1999: 22), who now places the break-up of PMP at around 4000 BP, and of POC at around 3200 BP.
phenomenon, but rather represents a continuation of internal developments (e.g. White et al. 1988; Smith 1995; White 1999). For example, it is suggested that obsidian exchange, already in operation during the late Pleistocene, underwent a period of expansion after 3500 BP. Certain plant domesticates utilised during Lapita times also appear to have emerged from pre-existing Island Melanesian domesticates, such as Colocasia taro, Australimusa bananas, sugarcane, coconuts and breadfruit (Green 1994: 36; Yen 1990, 1991). Tridacna shell adzes, a component of the Lapita cultural complex, were already present in Island Melanesia by 7000 BP (e.g. in Manus) (Frederickson et al. 1993: 149). Earth ovens have been dated to 6200 BP in New Ireland, and shell beads and Trochus shell arm-rings occur in pre-Lapita sites on Guadalcanal (Green 1994: 31). On the Willaumez Peninsula (West New Britain), Lapita sites are located in areas where previous occupation also occurred (Specht et al. 1991), suggesting some sort of continuity from the previous obsidian stemmed-tool phase in that region.

Ambrose (1997) presents the major tenets of the indigenist perspective, arguing that the weak fabric of the early Lapita pottery found in the Bismarck Archipelago is consistent with experimental pottery-making by groups perhaps only partially familiar with the craft (although see Summerhayes 2000a who suggests that multiple fabrics are associated with dentate-stamped ceramics). He states that the long history of sailing in the Bismarcks, which extends back into the Pleistocene (as evidenced by the region-wide transmission of obsidian), is testimony to the sailing and navigational skills of the Bismarck populations. On this basis, he argues that local skilled seafarers may themselves have propagated the development of pottery-making through contact with groups to the west, and suggests that the gradual improvement of pottery fabric over time, particularly with the emergence of more utilitarian wares (such as Podtanéan in New Caledonia and later Mangaasi-like wares), could reflect the learning curve experienced by budding potters. Thus, according to Ambrose, the notion that skilled potters arrived from Southeast Asia, as advocated by the intrusionists, runs counter to the evidence. Instead, as Ambrose (1997: 535) argues, ‘...sailing vessels were the signal innovation that led to other developments, including the incorporation of pottery into local Bismarck communities’.

Ambrose suggests that given the local development of sailing abilities over a very long period, by the time Lapita pottery was manufactured people probably favoured sheltered waters and areas of easy sea-access as settlement locations – the precise environmental conditions associated with Lapita sites. He further suggests that increases in such coastal settlement sites are indicative of a move from a pattern of dispersed settlement to one focussed on ‘canoe-centred locations’. In response to the intrusionist claim for a rapid

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exploitation of settlement locations by incoming Lapita agriculturalists (see above). Ambrose suggests that it is equally feasible that ‘coastal land clearance, gardening concentration and increased soil instability’ were precipitated by indigenous moves to coastal ‘canoe-centred locations’ (1997: 534).

Upon finding Talasea obsidian in Sabah on the island of Borneo, intrusionists have argued that Lapita colonists of the Bismarck region were maintaining links to their Southeast Asia homeland (Bellwood and Koon 1989). But, as Ambrose observed, the Sabah site is 500 to 1000 years later than the Bismarck Lapita sites, which would imply a scenario in which Bismarck Islanders fostered continued links with their western forebears. Ambrose (1997: 535) concludes by stating that,

no wave of migrants went out of Island South-east Asia to the Bismarck Archipelago with strong continuing links to a western Lapita ‘homeland’. The Bismarck Archipelago was a relatively self sufficient region where selective acquisition of items by its mobile islanders was the standard pattern.

Terrell et al. (1997; and more recently Terrell et al. 2001) are equally critical of the intrusionist stance, not so much in terms of their notion that people entered from Southeast Asia around 3500 BP – indeed at least one of the authors suggests that a more balanced approach to the events of this time is required – but in terms of their research program for the Pacific. Terrell et al.’s (1997) primary criticism concerns the intrusionists’ emphasis on origins and ‘branching patterns’, which, they say, has dominated the agenda of Pacific prehistory for decades. They trace this back to ‘the myth of the primitive isolate’ which, they suggest, has captured the imagination of Pacific archaeologists and led them to assume that the convergent distributions of languages, genes and customs can be mapped, and thus the prehistory of the Pacific understood. Terrell et al. (1997) wish to tell a story of Pacific prehistory that questions the need to explain the emergence of Austronesian languages in the Pacific through migration. Instead, they are keen to explore the role of interaction in cultural, linguistic and genetic diversification across the Pacific. More importantly, they are wary of the ability claimed by archaeologists to differentiate between similarity as explained by shared ancestry or as a result of social interaction (Terrell et al. 1997: 175):

[w]e should adopt as a working hypothesis the universality of contact and influence as a fundamental feature of human existence. We should think of social life and human history as a time and space continuum of human association, a weblike field of social relations, a social field...
Commenting on Irwin’s (1992) concept of a ‘voyaging corridor’, Terrell et al. (1997) propose that the development of Austronesian languages within the region was the result of contact and language convergence. However, this proposal is rejected outright by nearly all linguists (e.g. Ross 1988, 1997; Pawley and Ross 1995) who argue that the similarities between Austronesian languages can only be explained through shared ancestry.

2.5.3 A middle-ground approach

Terrell (1988: 642) has summarised the two main interpretative frameworks – intrusionist and indigenist – in Pacific prehistory:

In the first approach, Pacific prehistory is seen as the answer to questions long asked about the origins, migrations and historical relationships of different pre-existing races who are thought to have entered and colonized the region at different times. In the second (somewhat more recent) approach, the Pacific Islands are thought of as a geographic set of local and island populations more or less in touch with each other, who have followed separate but often connected historical pathways of local adaptation and culture change. The aim of this approach is to look for patterns of similarity and difference among the islands and how they live to determine exactly what circumstances, actions and events, when combined, explain their diversity.

I see this as an overly binary view of archaeological research in the Pacific, in that most authors (in their work overall, if not in individual papers) rarely forfeit one approach for the other. For the most part the indigenists allow for some outside influence to explain the emergence of certain features around 3500 BP, while the intrusionists recognise the impact that indigenous people would have had on incoming people or ideas (Bellwood 1997). Indeed, the general call now is for a balancing of ‘external and local factors’ (Gosden et al. 1989: 577; see also Kirch and Weisler 1994: 291).

This call is perhaps best answered by Green’s (1991b) ‘Triple I’ model which, as a compromise, regards the colonisation of Island Melanesia as a composite of intrusion, innovation and integration. Intrusion is the arrival of people and/or materials from outside the Lapita region. Integration is the incorporation of traits already existing in Melanesia into the ‘Lapita Cultural Complex’. The concept of innovation is designed as a possible explanation for the appearance of features which have no antecedents in the west or in Island Melanesia itself, the obvious example being Lapita dentate-stamped ceramics which, apart from two possible sherds on or close to the New Guinea mainland (Swadling et al. 1988; Terrell and Welsch 1997: 559), are restricted in their distribution to Island Melanesia.

More recently, Green (2000) has revised the Triple I model to take account of criticisms directed at his methodology for differentiating between elements which may be intrusive or a
product of integration. For instance, as Spriggs (1996a) has noted, Lapita elements which occur in pre-Lapita assemblages in both Island Southeast Asia and the Bismarck Archipelago cannot be seen as evidence of local integration. Green (2000: 374) therefore distinguishes Island Southeast Asian intrusions on the basis that Lapita elements must occur in pottery-bearing contexts in Island Southeast Asia between 3400-4000 BP or before.

One aim of this thesis is to assess the relative impacts of integration, intrusion and innovation on artistic systems around 3300-3500 BP. What is certain from the foregoing discussion is that a restructuring of social systems took place around this time in Island Melanesia. Processes of integration, intrusion and innovation are each likely to have usurped aspects of artistic systems entering, or already existing in, Island Melanesia, such that certain artistic conventions were lost, replaced or modified. For example, for various reasons (e.g. a lack of suitable resources) visual symbols entering Island Melanesia on some media, such as barkcloth, may have quickly been transferred to rock or other media (a concept raised by Green in 1979; see also Spriggs 1989; Kirch 1997). Indeed, if this sort of process was occurring, then attempts to trace Island Melanesian design elements back to an origin somewhere in Southeast Asia would be futile.

This issue of design transference is pertinent to the appearance of dentate-stamped Lapita pottery in Island Melanesia around 3500-3300 BP, for which no western prototypes have been located. One explanation offered by Bellwood and Koon (1989: 612) is that

the archaeological signatures of the Lapita cultural complex, apart from the basic techniques of pottery making and firing, were not introduced fully formed into Melanesia from some region of Indonesia, but evolved during the colonisation process itself.

Reasons for the appearance of Lapita pottery are unclear, but it has been suggested that there was perhaps a desire to develop a medium that could be exchanged and used to maintain links between people extended across islands separated by many hundreds of kilometres. The distinctiveness and unity of the pottery design, both in structure and content, may have developed in accord with the colonisation process, such that ties with homelands were not severed. Or perhaps, as Ambrose (1997: 527) notes, Lapita 'indicates some common purpose by its uniformity: from despotic coercion, or self-imposed emulation, or carrying some special message for resourceful explorers who became nostalgic ultra-conservative settlers, or the simple result of adopting specially made dentate-stamping tools to execute the designs'. The interpretative possibilities seem endless and unavoidably speculative. However, as noted in the introduction to this thesis, patterns derived from both pottery and
rock-art offer greater interpretive potential than models derived from only one of these sources of evidence. We can begin, at least, to generate ideas about the geographical extent of design systems, and to make more definitive statements about the spatial origins of these systems. If, for example, the stylistic conservatism associated with Lapita pottery is also present in aspects of rock-art in the same region, then we may need to revise models which attribute the emergence of such art systems to incoming populations.

Comments by Terrell (1989), Bellwood and Koon (1989), and others regarding the nature of Lapita are relevant here. While some of the archaeological signatures of Lapita suggest a complex confined to Island Melanesia and West Polynesia, the extension of trading networks beyond this region during the Lapita period (from c. 3500 until c. 2700 BP) means that any analysis of art systems at this time must take into consideration possible two-way impacts (through direct or indirect contact) between design systems in Southeast Asia and Island Melanesia. One only has to look at the apparently instantaneous spread of metal into Island Southeast Asia around 2200 BP, which included Manus in the Bismarcks (Ambrose 1988), the presence of Talasea obsidian in Borneo (Bellwood and Koon 1989), and the similarities between Lou Island’s double-spouted pottery vessels and those in northern Sabah (Kennedy 1982), to recognise that two-way contacts existed. The introduction of metal and the subsequent spread of Dong-son influences (into eastern Indonesia and western New Guinea c. 2000 BP) also seem to mark the beginnings of the region’s trade in spices and other natural products (Swadling 1997, Spriggs 1998).

That design systems were transferred in both directions between Southeast Asia and Island Melanesia has been proposed by Spriggs (1989), who suggests that the late appearance of decoration on pottery in Southeast Asia could have been inspired by the Lapita pottery-making complex further east. The lime-infilling of the later Southeast Asian pottery, a feature of Lapita ceramics, is a possible clue in this regard. Contacts between Southeast Asia and Island Melanesia during the ‘Metal Age’ may have impacted on rock-art production throughout the region, and may provide some clue as to the timing of the emergence of particular rock-art styles. Ballard (1988b: 154-5) has previously noted, for instance, a resemblance between rock-art motifs found in Eastern Indonesia and those found on bronze artefacts. Based on this and other comparative evidence he argued that a particular tradition of red painting emerged in the western Pacific around 2000 years ago. While Spriggs (1989) has argued that the arrival of metal marks a time when the archaeologies of Island Melanesia and Island Southeast Asia begin to diverge, until we have a more concrete understanding of the cultural histories of regions immediately to the west of Island Melanesia (i.e. West Papua and eastern Indonesia) the nature of post-2000 BP links remain tentative.
2.6 Out to Polynesia

While the rock-art of Polynesia is not directly addressed in this thesis, the results of an examination of Island Melanesian rock-art feed into debates concerning the Polynesian region. For example, the degree of similarity between the earliest rock-art of Island Melanesia and Polynesia could be significant in addressing the question of the length of the colonisation pause in Fiji-Western Polynesia, and also the speed of the colonisation of Island Melanesia.

Lapita colonists are thought to have reached Fiji-Western Polynesia no earlier than around 2900 BP (Anderson and Clark 1999). The precise timing of the first crossing of the Andesite Line to the islands of Central and East Polynesia remains in contention. Most researchers agree that colonisation halted in Western Polynesia for between 1000 and 500 years. Spriggs and Anderson (1993: 211) argue for a longer break (up to 1500 years) suggesting that East Polynesia was settled no earlier than 1650-1350 BP, whereas Kirch and Ellison (1994) argue for a pause of no more than about 500 years, based on evidence of anthropogenic impacts on Mangaia from as early as 2500 BP. Irwin (1992) suggests a virtually instantaneous colonisation of Polynesia with no pause in Tonga and Samoa, although later concedes that the evidence for both an early and a late settlement of East Polynesia is ‘open to criticism’ (Irwin 1998: 136).

Kirch and Green (1987) propose that ‘Ancestral Polynesian Society’ first emerged during this pause in the colonisation process in Fiji-Western Polynesia, although Green (1994: 42) is cautious on the matter of its likely character:

Reconstructions of Ancestral Polynesian Society using linguistic, biological and archaeological evidence are still very tentative. The methods to be used are fairly well understood (Green 1986; Kirch & Green 1987), but the evidence on which they are based is still too limited to ensure any certainty. Something is known of the technology and economy which is, not unexpectedly, typically Polynesian (Kirch 1984, pp.53-62), but aspects of the housing, settlements, social and religious organisation and art remain inferential and controversial (Dye 1987; Green 1979; 1986; Kirch 1984, pp.62-69; Sutton 1990). However enough is now known to make it unprofitable to seek Polynesian origins elsewhere in Asia, the Pacific, or South America. Rather they are to be found within the western region of Polynesia itself with antecedents in the Eastern Lapita cultural complex and its associated language and people.

Whether or not the colonisation pause in Fiji-Western Polynesia was long or short, there is a general consensus that the subsequent colonisation of Central and Eastern Polynesia occurred relatively rapidly,
starting around 1600-1300 BP. Most of East Polynesia was first settled between 2000 and 1000 BP: the Marquesas in AD 300-600, Hawai‘i at about AD 650, the Cooks and Tahiti at about AD 750-800 and Rapanui (Easter Island) towards the end of the first millennium. New Zealand was first settled even later, in the period AD 1000-1200 (Spriggs, in Denoon 1997: 64).

Kirch and Green’s (1987) assertion that all Polynesian cultures derive from the Lapita Cultural Complex originating in the Bismarck Archipelago, and their idea that linguistically and biologically the Polynesians form a cohesive group deriving from a single ancestral population, led to their construction of the ‘phylogenetic model of evolution’. This model is founded on a notion of cultural continuity, such that an underlying cultural substrate in Polynesia can ultimately be traced back to an origin somewhere in Southeast Asia. Linguistic, genetic and cultural traits are often considered in combination in the search for prototypical forms. Art has also been subjected to this form of analysis, with Green (1979) claiming similarities between the decorative elements on Lapita pottery to the west (in Island Melanesia), and ethnographic barkcloth designs in Polynesia.

2.7 The colonisation of Micronesia

Although little rock-art has been discovered or systematically recorded in Micronesia, the presence of certain rock-art motifs (e.g. the enveloped cross) hint at direct cultural connections with Island Melanesia where the same motifs occur. In this section the history of settlement in Micronesia is briefly outlined to provide a historical context for a later analysis of rock-art at a site on Pohnpei in the Caroline Islands (Chapter 4).

There appear to have been two main colonisation episodes in the islands of Micronesia, the first movement at around 3500 BP into the Marianas (Butler 1994), and the second around 2000 BP when the rest of Micronesia was settled (Rainbird 1994) (Figure 2.1). Intoh (1997), however, argues for a four-stage colonisation which includes a dispersal from the west to Palau and Yap about 2000 BP, and a later Polynesian dispersal to the atolls of Nukuoro and Kapingamarangi. The languages of Micronesia are all considered to be part of the Austronesian language family, but those of the Marianas and Palau are very different both to each other and to the Nuclear Micronesian languages spoken in the Caroline and Marshall Islands to the east (Rainbird 1994: 299). The language of Yap is considered to be different again, with some relationships to the languages of the Admiralty Islands (Manus) (Ross 1996).

The first people to have ventured to the Marianas are thought to have derived from different western origins, perhaps eastern Indonesia, Taiwan or the northern Philippines. Both the
linguistic and ceramic lines of evidence suggest the most likely origin to be the Philippines (Reid 1998; Spriggs 1999).

Several Micronesian archipelagos were settled at about 2000 BP, around the same time as the supposed Lapita-related settlement of coastal New Guinea. On the basis of a shared ceramic tradition in the form of Lapita plainware, Athens (1990: 29) suggests that the islands of Yap, Kosrae and Pohnpei were most likely colonised from either the southeast Solomon Islands or Vanuatu. Ayres (1990) favours a less geographically confined origin in southeast Melanesia and/or Fiji-West Polynesia.

In order to engage rock-art within debates concerning the colonisation and settlement of Micronesia, in Chapter 4 the rock-art of one of Micronesia’s most intensively recorded sites (from Pohnpei) is compared to rock-art motifs from elsewhere in the western Pacific. The broadly accepted settlement date of 2000 BP for Pohnpei (Rainbird 1994; Irwin 2000; although see Ayres et al. 1981) provides an important maximum age for this rock-art.

2.8 The demise of Lapita?

The study of the events associated with the Lapita period have for a long time dominated the research agendas of Pacific archaeologists. As a result, our knowledge of the subsequent periods remains somewhat sparse. Of the various propositions that have been put forward to explain the demise of Lapita, the most significant have been summarised by Spriggs (1992: 222):

1. trade system contraction/specialisation
2. local adaptation
3. sociopolitical transformation
4. absorption
5. secondary migration.

Spriggs (1997) has recently explored each of these aspects in detail, reaching much the same conclusion he did five years previously (Spriggs 1993a), that the main emphasis in Pacific archaeology to date has been the collection of data, and that the gaps in our knowledge are as yet too great to pinpoint which of the above options (or an alternative) most closely fits the evidence. As he points out (Spriggs 1993a, 1997), the archaeological signatures for each of these options might look very similar.
Around 2000 BP various cultural changes are witnessed across the Western Pacific, including the colonisation of various archipelagos in Micronesia, and transformations in settlement pattern and material cultures in the Massim and on the south Papuan coast (Lilley 1999). Both of these are possibly, but not securely, related to late population movements correlating with the expansion of Oceanic speakers (Kirch 2000: 127). The arrival of the ‘Metal Age’ in Island Southeast Asia is also a turning point in the nature of contacts between Island Southeast Asia and Island Melanesia at this time, involving the movement of a new set of material items with distinctive decorative motifs (Spriggs 1989; Bellwood 1997).

A number of volcanic events in the Bismarck Archipelago are reported to have occurred over the last 2500 years, disrupting the settlement of the region. Around 1400 BP there was a massive ‘sterilising’ eruption at the northeastern tip of New Britain which resulted in the creation of Rabaul Harbour. On Watom, 16 km away, a tephra ashfall is said to have led to the temporary abandonment of the island (Kirch 2000: 129). As demonstrated later in this thesis, such events can be important for providing maximum ages for rock-art assemblages. In the Rabaul case it may also be possible to attribute the production of the art from this region to the Tolai who, according to oral tradition, moved into the Rabaul area during the period subsequent to the eruption (Salisbury 1972; Green and Anson 2000).

Some researchers have suggested that elements of the Lapita cultural complex in Island Melanesia endure after the disappearance of dentate-stamped pottery (between c. 2700 and 2100 BP) (Kennedy 1982, Spriggs 1984b, 1997). Drawing largely on the results of Wahome’s (1997) ceramic study, Spriggs (1997) argues for broad synchronic changes across the region from the ‘classic’ Lapita period through to the Mangaasi period (defined by ceramics decorated with incised and applied relief styles). Such continuities are thought to persist until as recently as 1500-1000 BP (Spriggs 1997: 162), after which time networks of interaction and exchange become significantly contracted (and/or realigned), and material assemblages begin to express far more regionalised behaviour. This notion of ceramic continuity, however, has recently been challenged by Bedford (2000) and others (e.g. Clark 1999), who propose that the apparently region-wide ‘Incised and Applied Relief Tradition’ is more plausibly a result of independent evolutionary processes from a Lapita baseline rather than a result of continued interaction.

Spriggs (1997: 161) attributes the overall lack of archaeological visibility during the period from 2000 BP to around 700 BP to the fact that many areas abandoned pottery production and use (e.g. Mussau, the Arawes, Talasea and parts of the Solomon Islands). But in some areas pottery continued, as in the cases of Sasi and other plain, incised and relief wares on
Manus (Ambrose 1988, 1991; Kennedy 1982, 1983), Sio, Madang and Type X pottery in the Vitiaz Strait (Lilley 1988), and Lossu and Lasigi pottery on New Ireland. Plain ware and incised pottery, imported from further north, is said to be found on Nissan until 750 BP (Spriggs 1997), and varieties of incised and applied relief styles are found on Buka for the same period. Three pottery styles – Sivu, Asio and Pidia – have been defined in central Bougainville, and various incised, stick and fingernail impressed and rarer applied relief ceramics have been found in New Georgia (on Ndora). Incised and applied relief pottery (probably derived from northern Vanuatu) occurs on both Tikopia (where it is known as Sinapupu) and Vanikoro (Kirch 2000: 135). Incised and applied relief wares also occur throughout Vanuatu, ceasing in the southern islands around 2000 BP but continuing in the central islands until around 1200 BP. Only on Santo is there evidence of pottery production into the European contact period. In New Caledonia, Balabio pottery has been identified in the north and the Plum style in the south, both styles beginning around 2000 BP. The former is regarded as an offshoot of Podtanén (considered to be part of the ceramic production of the first Lapita settlers; Sand 2000: 27), and the latter a development of Puen pottery. Around 950 BP two new pottery forms emerged in New Caledonia: Oundjo in the north and Nera in the south (Spriggs 1997: 188). The dates for the emergence of some of these post-Lapita ceramics are important to this study as they assist in the development of a relative chronology for regional rock-art assemblages. The Plum pottery, for instance, which emerged around 2000 BP, includes enveloped crosses among its repertoire of motifs. These motifs are ubiquitous among both painted and engraved rock-art assemblages throughout the western Pacific.

There is no doubt that scholars have paid far more attention to the Lapita cultural horizon than to subsequent timeframes (Terrell 1993: 22). Caution needs to be exercised, therefore, when referring to the post-Lapita period. The apparent dwindling of the main signatures of Lapita does not necessarily infer a process of 'regionalisation', such that communities were in less contact with one another. For instance, in their recent study on the north coast of New Guinea, Terrell and Welsch (1997) argue that changes in pottery style occurred even when levels of interaction were not noticeably reduced.

Heeding these cautions, each of the contrasting views concerning post-Lapita interaction are directly addressed in this thesis through a comparative analysis of rock-art. Stylistic transformations in pottery sequences throughout the region are compared with chronologically comparable transformations in rock-art assemblages. The degree of similarity between motifs, and continuities and discontinuities in style sequences, are assessed as a potential measure of the level of interaction across the region.
2.9 The last 700 years

Much of what has been said of the last 700 years of history in the Pacific Islands has been derived from ethnography. Of particular interest to the central theme of this thesis is the potential impact on art systems of the recent Polynesian ‘backwash’ movements into Island Melanesia during this period. The difficulty, however, is being able to differentiate social circumstances which have evolved from Lapita beginnings from those which represent later intrusive influences. Some scholars, for instance, would attribute the chiefly organisation seen in Island Melanesia today to the influence of a recent backflow of Polynesian people into Melanesia within the last thousand years. But, as Spriggs (1993a: 198) asks,

Do the chiefdoms represent recent innovations in sociopolitical organisation under Polynesian influence or intrusion (‘elite dominance’ in Renfrew’s [1987] term), or are they continuities from Lapita, perhaps with superficial trappings?

Various rock-art motifs found in Vanuatu, particularly on Maewo and Erromango, closely resemble rock-art motifs found in Polynesia (especially the Marquesas and Hawai‘i). The question is whether rock-art motifs found in Vanuatu and other Island Melanesian societies are proto-Polynesian forms, or the result of later migrations or contacts from Polynesia.

2.10 Conclusion

The rock-art of Vanuatu and other western Pacific regions can only be understood if it is placed in a broader archaeological context. Accordingly, this chapter has aimed to establish such a context for interpreting the results of rock-art analyses presented in later chapters. I conclude by offering several methodological procedures that might allow us to employ rock-art to address some of the issues and debates raised thus far:

1. While some authors (e.g. Spriggs 1997) may feel that Pleistocene (or indeed early- to mid-Holocene) rock-art is unlikely to be found in Island Melanesia, the possibility cannot yet be discounted. However, the absence of Pleistocene decorative elements on non-rock-art media restricts the likelihood of being able to date Pleistocene rock-art by comparative means. ‘Direct’ dating methods, such as AMS radiocarbon, are likely to be the only way of ascertaining the earliest ages of the rock-art of the islands with any confidence. As a preliminary measure, however, it can be assessed whether the rock-art from sites known to contain Pleistocene deposits is similar to or different from rock-art known to have been produced in later periods.

2. After about 3500 BP there is evidence for major cultural transformations in the Pacific, including a possible influx of people and language from Southeast Asia, an expansion of
trading networks, the colonisation of Remote Oceania, and the emergence of various new items of material culture, including dentate-stamped pottery. The archaeological signatures of the Lapita and immediate post-Lapita period (c. 3500/3300-2000BP) suggest that an extensive network of interaction existed during this time. While debates continue as to ‘who’ was involved in this interaction, and about its precise nature, the presence of a cohesive and similar set of material culture items across a vast region would seem to suggest a shared ancestry and/or the presence of continued communications throughout the Lapita period (and possibly up to 1500 BP). If rock-art was being produced in Vanuatu during the Lapita period, we might expect a more or less unified set of conventions throughout much of this archipelago, as well as in the Bismarcks, the Solomons, New Caledonia and Fiji.

3. Green and Kirch (1997) have suggested that during the Lapita period the islands of the Bismarck Archipelago were involved in more extensive inter-regional interaction than those of Remote Oceania (including Vanuatu) through which the ‘colonisation front’ was apparently passing rapidly. It might be possible to test this proposal in Vanuatu. If the colonisation front did move quite quickly through Vanuatu, rock-art conventions would be almost identical to those in surrounding regions, especially those from the closest parts of Remote Oceania. A slow-moving front, on the other hand, would presumably leave more time for generative design modification.

4. Anderson (2001) has noted that Lapita colonisation accelerated in an easterly direction but that the length of ‘Lapita tenure’ decreased. It should follow, therefore, that rock-art bearing the signature of the Lapita period decreases in an easterly direction.

5. The speed of the colonisation front and the extent of the colonisation pause in Fiji-Western Polynesia can also be assessed via an examination of rock-art in Central and Marginal Polynesia. Strong polytypic similarities between the earliest rock-art assemblages of Remote Oceania would attest to a fast moving front.

6. The intrusionist-versus-indigenist debate provides a central focus of this thesis. Artistic traits which may either have entered Melanesia from Southeast Asia or developed through local innovation are sought, taking into account that two-way contacts with Southeast Asia after about 3500 BP were likely, and that these may make the identification of ‘ancestral traits’ difficult.

7. Information on exchange systems between Vanuatu and other islands is limited for the period after 2000 BP, although major transformations in social and economic life, and major movements of people, appear to have occurred throughout the region from this
Some scholars (Wahome 1997; Spriggs 1997) have argued that synchronous changes in ceramic styles throughout Island Melanesia are indicative of persistent inter-archipelagic interaction up until perhaps 1000 BP. Others (e.g. Bedford 2000) suggest that inter-island similarities in ceramics reflect parallel evolution from a common Lapita baseline. Unlike pottery, rock-art is fixed in the landscape, and is thus an ideal medium for assessing these opposing views. First, the degree of similarity between rock-art assemblages across the western Pacific will be evaluated through an analysis of motif and non-motif variables. This will enable some assessment of Wahome’s (1997) conclusion that inter-regional ceramic similarities are a result of continuous interaction. Second, the degree of continuity within rock-art sequences will be examined to see whether transformations in rock-art reflect an evolution from a common baseline. If major digressions are observed in patterns of rock-art across Island Melanesia (as opposed to design continuity) then factors other than a shared ancestry may need to be invoked in explanation.

8. In the statistical comparisons of western Pacific rock-art in Chapter 4 a rock-art site from the island of Pohnpei, located in the Caroline Islands of Micronesia, is included. According to Rainbird (1994) this island was colonised around 2000 BP, thus providing a maximum age for the island’s rock-art. The objective is to determine whether the motif range in the rock-art of Pohnpei also occurs in Island Melanesia and, in turn, whether it might be possible to identify a homeland, or at least an interaction sphere, which may have influenced its production.

9. The impact on the rock-art of Island Melanesia of Polynesians during the last millennium is also addressed via the analyses of Chapter 4. In doing so, however, I note Spriggs’s (1993a) warning about the difficulty of teasing out similarities as derived from shared ancestry (e.g. Polynesian prototypes) from those which may have been the result of later contacts between Melanesian and Polynesian peoples. However, without conducting a more detailed and formal comparison between the rock-art of Polynesia and Island Melanesia (a task deserving of future study), potential influences between the art systems of these two regions can only be inferred in a preliminary way.
3

Pacific rock-art: a summary of research

The drawings, hand stencils and engravings all seem to tell a different story. (Ollier et al. 1970: 27)

3.1 Introduction

The aim of this chapter is to develop a preliminary spatial and temporal framework for the rock-art of the Pacific as a context for interpreting the results of the statistical analyses presented in later chapters. Several authors (Specht 1979; Rosenfeld 1988; Ballard 1992a) have proposed the existence of broad spatial and temporal patterns in western Pacific rock-art. In general, these patterns have been situated within popular interpretive frameworks constructed from other types of evidence (such as archaeology, linguistics or genetics). For instance, when Rosenfeld (1988: 134) noted that 'the existence of certain recurring motifs throughout the area suggests that developments have occurred through differential adoption and adaptation from shared origins', she was drawing directly on the 'intrusionist' orthodoxy which (based largely on a linguistic model) seeks to identify branching patterns from a common source region. While such a notion of unity (and continuity) has influenced much rock-art research undertaken so far in the western Pacific, it has hitherto been based on a rather limited data set. With a considerable body of new information now available, it is timely to review the existing data and models derived from them.

This chapter is presented in two sections. First, I review the existing models for western Pacific rock-art in order to outline the issues and debates which have evolved over time and to aid in the development of an analytical agenda for this thesis. Second, I present a region-by-region description of the rock-art of the Pacific, with an emphasis on the distributions of motifs and with the ultimate aim of generating questions which can be answered via the comparative analyses conducted in Chapter 4.

Each region generally corresponds to a current political territory which is unlikely to reflect socio-historical relationships. I use these regions as a heuristic device as I have no prior knowledge of how rock-art sites across these boundaries may be historically related. The level of detail in the descriptions of rock-art in each region varies in accordance with the
amount of published and unpublished material available, and in relation to what each region can offer in terms of reconciling some of the main issues raised in this thesis.

### 3.2 Previous regional models of western Pacific rock-art

One measure of the lack of interest shown by archaeologists in rock-art is the absence of any regional reviews until 1974, when an honours student, David Hugo, undertook a comparison of motifs from rock-art sites in New Guinea. As stated in Chapter 1, prior to Hugo’s (1974) work comments were restricted to the rock-art of a site or regional assemblage (e.g. Röder 1956, 1959). Given that this thesis concerns regional connections between rock-art sites and how these connections inform about historical processes of colonisation and post-settlement interaction, in this section I review and appraise four individual studies which have previously attempted to make some sense of the relationships between rock-art in the western Pacific.

#### 3.2.1 David Hugo (1974)

As part of his 1974 Honours thesis at the University of Queensland, David Hugo conducted a comparison of painted and engraved rock-art in Papua New Guinea. His results, derived from presence and absence matrices for selected motifs and motif categories, revealed some overlap between the motif ranges defining engraved and painted assemblages. While the Highlands of Papua New Guinea were seen to stand out in terms of the number and range of painted motifs present (and the lack of engraved rock-art), coastal engraved and painted rock-art sites were shown to share several similarities, particularly in terms of non-figurative motif categories (e.g. circles). The parallels observed between the two media were tentatively linked to common influences on the different art media from Southeast Asia. However, some quantitative differences were noted between the two media. For instance, painted rock-art sites were found to be characterised by higher numbers of figurative motifs, such as ‘ancestor figures’, anthropomorphs, and lizard-crocodiles (Hugo 1974: 49). Enveloped crosses were also seen to be twice as common among painted assemblages as in engraved assemblages.

It is difficult to assess the merits of Hugo’s study. While he provided a reasonably extensive list of illustrated motifs in an appendix to the thesis, it is unclear from his descriptions how many sites were included in his analyses, or how he derived the motif categories used. With the benefit of hindsight, Hugo drew one particularly important conclusion based on the distribution of engraving sites:

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5 Large quantities of information are available for the rock-art of Papua New Guinea, and particularly the New Guinea Highlands. Some of the most active reporters of rock-art are speleologists who have
... there appears to be a restricted spread of rock engraving techniques – limited to the Island Melanesian sites and a few inland and coastal sites near to this island region (Hugo 1974: 51),

As I will attempt to demonstrate in this thesis, the perceived difference between the distributions of painted and engraved rock-art has become a fundamental tenet upon which models of western Pacific rock-art have been developed.

3.2.2 Jim Specht (1979)

In 1979, Jim Specht published a major paper on western Pacific rock-art in which he examined 383 sites between Torres Strait and Tonga. This was the first study to synthesise existing rock-art data on a regional scale and to offer systematic analyses. One of Specht’s (1979: 58) aims was to compel researchers to ‘... move beyond a purely descriptive approach and start asking questions that would enable rock-art to become integrated into mainstream western Pacific research’.

Due to the essentially ad hoc and inconsistent way in which rock-art sites had been recorded in the past, Specht was unable to analyse traits such as site extent, the accessibility of the art (height above ground level), motif form, composition, chronology, and style. He was, however, able to examine the distribution of features such as rock-art techniques, geology, pigment colours and site topography.

Nine of Specht’s major findings are outlined here.

1. Echoing Hugo’s earlier finding, one of the major outcomes of Specht’s study concerned the spatial patterning of artistic techniques (Fig. 3.1). Painted rock-art was found to predominate in the west (Torres Strait, Indonesia and Papua New Guinea) and to occur in both coastal and highland regions (i.e. the New Guinea Highlands), while engravings were shown to occur mainly in the east (Island Melanesia, Fiji, Samoa and Tonga) and to have a predominantly coastal distribution. The New Britain and New Ireland area, and perhaps also Milne Bay, appeared to be ‘intermediate between the two areas of technique dominance.’ (Specht 1979: 63). Overall the distribution indicated an eastward reduction in the incidence of painted art and a corresponding increase in engraving.

documented most of their findings in the journal Nuigini Caver.
2. Specht observed that distributional differences between painted and engraved rock-art correlate with several biogeographical and cultural divisions. Vitiaz Strait is a major biogeographic boundary separating the island of New Guinea from the Bismarck Archipelago. Painted rock-art was seen to be more prevalent to the west of this ocean gap, and engraved rock-art more prevalent to its east. It is within the Bismarck Archipelago – where engravings begin to dominate – that the earliest signs of the ‘Lapita Cultural Complex’ have been found (see Chapter 2).

3. Another regional trend observed by Specht (1979: 70) was that rock-art sites tend not to be located within current habitation areas. This point had also previously been made by White (1972: 51) for the Papua New Guinea Highlands, and Kamminga (1972) for sites in Morobe Province.

4. Specht also looked at the relationship between rock-art and geology, noting that ‘... painting occurs mostly on limestone whereas engraving occurs mostly on rocks of igneous origin.’ (1979: 65) (Figs. 3.2, 3.3). This trend was said to occur irrespective of the presence or absence of either geological type in the same region. For this reason Specht (1979: 65) proposed:

   a conscious selection of rock type for a certain technique or vice versa. Painting requires backgrounds against which the colours will be visible, and for this the light-coloured surfaces of coral limestone are ideal; perhaps the dark surfaces of igneous rocks were considered unsuitable for painted designs. In areas where only limestone seems to be present, as in the MacCluer Gulf of Irian Jaya or along the coast near Sialum in the Morobe District of Papua New Guinea, only paintings are found. In New Caledonia a wide variety of rocks, including sedimentary types, have been used for rock art, but the only technique represented is that of engraving. The absence of painting may be related to the absence of recently raised coral limestone.

Two exceptions to this pattern were observed. One was in Talasea where a series of red paintings were reported on volcanic tuff. Specht’s explanation for this was that since the tuff is light in colour it may have provided a good contrasting background for the paintings. The other was the Hapao site (near Finschhafen, Morobe Province), where engravings occur on a limestone boulder. In this case, Specht argued that the darkness of the boulder may have rendered it more suitable for engraving than painting.

5. Also noted was that most painted art (90%) is located on surfaces which are in some way protected from the weather (e.g. caves or shelters) (Specht 1979: 67). In contrast, most engraved rock-art sites (80%) were found to be located on exposed boulders in open contexts, such as on or adjacent to rivers, near the sea, or on valley or hill slopes.
6. Specht also found that red painted rock-art occurs at more than 50% of painted sites, and that black is the second-most frequent colour used (1979: 63). Other colours, including yellow, white, green, brown and blue, were found to have a relatively sparse distribution.

7. Hand and foot stencils were discovered in 36 of the 383 sites and, in such cases, red was the main colour used. Black and red hand stencils were rarely found to occur at the same sites, Vanuatu being the only exception. The number of sites with black hand stencils appeared to increase towards the east. Hand prints were found to be much rarer than hand stencils, with only a few examples occurring in the Baliem Valley (West Papua) and Central Province, Papua New Guinea (Specht 1979: 64).

8. Specht also noticed variations in the incidence of rock-art between sites on a local scale. For example, at Hapao (see above), only one amongst many boulders is engraved, whereas at Malapapua (West New Britain), the majority (over 100) of the existing boulders are decorated.

9. In summing up his findings, Specht tentatively proposed the presence of a 'style' for the engraved rock-art of the western Pacific. This style was said to be based on similarities between motifs and other characteristics at various engraved sites at Goodenough Bay, New Hanover, New Caledonia, New Britain and Vanuatu, where motifs were said to consist of 'generally curvilinear geometric forms such as spirals, concentric circles, facelike forms, and various other concentric forms' (Specht 1979: 74). Specht (1979: 74) noted that, in addition to sharing common motif forms, these sites share other features: they are all on boulders or open rock faces, never in caves or shelters; they are all situated by water courses or the sea; and they are all in areas where Austronesian languages are spoken today. The similarities between these sites are sufficient to suggest that they constitute a widespread rock-art style. To this group could, perhaps, be added several painted sites which seem to share in common certain designs.

While Specht acknowledged the scope for a cross-over between painted and engraved rock-art motifs, his study was not focused on the degree of comparability between the two media or the precise nature of the motifs involved. One of the objectives of this thesis is to provide some exegesis of the extent to which painted and engraved rock-art articulate with one another through time and space, and to determine whether formal similarities between the two media are historically meaningful.
3.2.3 Andrée Rosenfeld (1988)

Specht’s pioneering review of the rock-art of the western Pacific was followed almost a decade later by that of Andrée Rosenfeld (1988). While Rosenfeld was cautious about presenting a synthesis limited by a paucity of rock-art and complementary data, she nevertheless specified some general patterns. As had been the case with Specht’s earlier review, a lack of chronological evidence limited Rosenfeld’s ability to situate the rock-art within a temporal framework.

Although Rosenfeld observed considerable localisation of artistic expression across the western Pacific, especially in the MacCluer Gulf and in the Highlands of Papua New Guinea, she noted that much of the rock-art of the region appeared to be homologous. She commented on an overall lack of animal depiction in the region (with the exception of ‘fish’ in some coastal sites), instead observing a predominance of non-figurative and anthropomorphic motifs.

Like Specht (1979), Rosenfeld saw minimal overlap in the motif ranges of engravings and paintings for the region as a whole, leading her to suggest that ‘it seems valid to examine the art of the region within the framework of two major artistic traditions’ (1988: 134). She did qualify this statement, however, noting that the occurrence of particular motifs, such as the enveloped cross, in both painted and engraved assemblages might have rendered this twofold schema an oversimplification. On the basis of continuities observed in the engraving component, which Rosenfeld observed as being at its ‘fullest... development’ in New Caledonia, it was tentatively suggested that New Caledonian engravings represent the outgrowth of a tradition that began in the west and, through time, moved eastwards.

3.2.4 Chris Ballard (1992)

Chris Ballard (1992a) extended Specht’s (1979) analysis by examining painted rock-art in the western Pacific and its relationship to certain locational characteristics and language areas. Inspired by similarities in painted motifs across the region (from Timor in the west to Bougainville in the east), Ballard sought to understand the rock-art of Western Melanesia within a broader historical framework. He examined 187 sites in relation to the following four variables:

1. Distance from the nearest current coastline;
2. Topographic or physical context:
   i. cliff-faces only;
   ii. caves and/or within cliff-face;
   iii. caves set in uplifted coral terraces;
   iv. caves or rock shelters only;
v. boulders;  
3. The maximum height (in metres) of the location of the art at each site;  
4. Whether the art was located in Austronesian or non-Austronesian-speaking area at the time of European contact.

Ballard’s sample of sites containing painted art included those previously considered by Specht plus an additional 63, increasing the total number of documented rock-art sites (including engraving sites) in the western Pacific to 446. Ballard considered sites from locales which had been intensively surveyed (IS), and from areas which had received only cursory attention. Of the 187 painted art sites sampled, 110 derived from IS areas, and 77 from non-IS areas.

Not every site in Ballard’s sample had information relating to each of the four variables listed above. Bearing this in mind, Ballard generated the following results:

1. Most western Pacific sites with painted art were found to occur within 1km of the current coastline (Fig. 3.4) and in ‘cliffed’ contexts (cliff faces and caves within cliffs; Fig. 3.5).

2. Of the 92 sites with known distances from the coast, 92% were found to be sea-cliffs.

3. Twenty-four of 31 sites were found to display rock-art located 5m or more above the base of cliffs.

4. ‘High visibility’ was found to co-occur with ‘inaccessibility’. Painted rock-art was noted in highly visible locations, such as on exposed cliff faces or at or near cave entrances often visible from the sea. A high degree of correlation was found between painted sites and current Austronesian-speaking communities. Such a correlation became most apparent when the IS sites were omitted from the sample (Fig. 3.6).

Ballard derived a number of conclusions from his results. First, that the lack of an oral tradition for the rock-art provides a *terminus ante quem* for its production (at least prior to contact in most places). Second, that the geographical correlation of the art with the

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6It is important to note, however, that Ballard decided to exclude sites from the New Guinea Highlands.

7Ballard’s rationale for distinguishing IS sites and, on occasion, excluding them from analyses, was that the high numbers of individual sites in these intensively researched and documented clusters of sites (such as the sites of Sialum and Sogeri areas) tended to skew the results of analyses.
distribution of Austronesian-speaking communities provides a *terminus post quem* of c.4000 BP (now considered to be 3500-3300 BP) for the painted art. Third, that people deliberately selected inaccessible locations to produce painted rock-art (1992a: 96). And lastly, that the cohesiveness of the motif range suggests that a tradition of painted art developed in tandem with the migration of Austronesians. In relation to this last point, however, Ballard argued that

>[i]f the symbolic tradition represented at these sites formed part of the cultural baggage accompanying the initial spread of AN-speakers, we might expect some divergence of motifs and locational characteristics, particularly over the time lapse between 4000 BP and the date of about 2000 BP for initial AN settlement of the South Papuan Coast (Allen 1984; 430). (Ballard 1992a: 98)

The regional uniformity among painted motifs suggested to Ballard that the tradition may have begun after the initial spread of Austronesians into the region – perhaps closer to 2000 BP than to 4000 BP – and that it moved via existing networks of communication between Austronesian-speaking enclaves. In further support of the idea that the tradition coincides with a later Austronesian movement, Ballard noted the presence of formal similarities between rock-art motifs and those found on bronze artefacts dating after 2100 BP. Red designs on pottery from Eriama rock-shelter (Papuan south-coast) dated to post-1830±230 BP were also thought to bear a close resemblance to red painted rock-art at the same site and elsewhere in the western Pacific (1992a: 98).

### 3.3 Discussion

Regional studies of western Pacific rock-art have primarily used non-motif variables to invoke the idea of two distinct spheres of rock-art, one defined by engravings and the other by paintings:

1. A widespread engraving style (hereafter ‘AES’) has been linked to Austronesian-speaking areas, and is described as being associated with boulders located in open locations, often within or beside water courses (Specht 1979). The motif range affiliated with the AES is said to consist of curvilinear geometric forms, including spirals, concentric circles, facelike forms, and various other concentric forms (Specht 1979: 74). Several painting assemblages bearing similar motifs are also regarded as possibly associated with the AES.

2. The ‘Austronesian painting tradition’ (hereafter ‘APT’) has been proposed as a collective description for a repertoire of painted sites found in Austronesian-speaking areas and associated with inaccessible coastal cliff locations often visible from the sea (Ballard 1992a). Red pigment has been noted as the primary colour represented at these
sites, and inter-site homogeneity among the motifs has been observed (but not described) (Ballard 1992a). The APT is thought to have emerged in conjunction with a late movement of Austronesian speakers around 2000 BP from east to west along the south coast of Papua, although it may subsequently have influenced painting styles in non-Austronesian-speaking areas.

One of the problems that has emerged as a result of this dichotomised view of western Pacific rock-art is that it is unclear how traditions or styles of painting and engraving articulate with one another through time and space. This problem was exacerbated by Ballard's (1992a) decision not to look at engravings, and because neither Specht (1979) nor Rosenfeld (1988) identified Ballard's region-wide tradition of paintings - instead noting the occurrence of more localised painting styles. This leaves us with a somewhat confused picture. For instance, Hugo found correlations between engravings and paintings, particularly in coastal areas, on the basis of a shared range of motifs. Specht and Rosenfeld found differences in that painted assemblages are generally found to the west of the Vitiaz Strait, while engravings are more an Island Melanesian phenomenon. Ballard and Specht, on the other hand, linked both painted and engraved assemblages to Austronesian-speaking areas. How might these seemingly disparate lines of argument be evaluated? Is painted art—which occurs mainly in the west according to Specht and Rosenfeld—replaced by engraved rock-art in conjunction with a movement of Austronesian speakers? Do the differences between painted and engraved pictures represent traces of two separate movements of Austronesian speakers? Or might they be indicative of social or taphonomic variation?

In the introductory chapter to this thesis it was pointed out that one of the major deficiencies of past research into western Pacific research is the lack of a systematic analysis of motifs. The AES is founded not only on a systematic study of locational variables but also on an impressionistic link between motifs. The APT is also constructed on the basis of a systematic study of locational variables and a 'hunch' that it is also constrained by a cohesive set of motifs. At the conclusion to this chapter a series of methods for systematically examining motif variability within the AES and APT is offered that might allow us to establish whether these are in fact discrete entities, and to determine whether the similarities and differences between them have to do with spatial, temporal, or other factors.

### 3.4 Pacific rock-art: a description

In the following section region-by-region descriptions of the rock-art of the Pacific islands are presented. The aim is to produce a comprehensive picture of spatial and temporal trends in the rock-art of the region prior to conducting more detailed statistical analyses in Chapter
4. Many of the rock-art sites mentioned in this section are located on distribution maps, particularly those included in the statistical analyses presented in Chapter 4 (see Figures 3.7-3.11). Each of the site numbers on Figures 3.7-3.11 correspond with the site names listed in Figure 4.1. Most of the Highland and lowland sites of Papua New Guinea have not been mapped.

In this section I treat the AES and the APT as if they are real entities and describe the rock-art of the region in relation to them. Then in later chapters, when the results of the statistical analyses have been determined, I re-evaluate whether the AES and the APT remain appropriate frameworks for accounting for variation observed in rock-art across the region.

3.5 Eastern Indonesia, East Timor and West Papua/Irian Jaya

Rock-art sites share a range of common characteristics in Eastern Indonesia, East Timor and West Papua (formerly Dutch New Guinea), most notably those defined by the APT, which include being coastally located in inaccessible ‘cliffed’ locations and situated within currently Austronesian-speaking areas. The majority of sites in these regions appear to be painted, although further systematic survey may alter this perception. The region paid most attention in the literature is the southern coast of Teluk Berau, more commonly known as the MacCluer Gulf. However, numerous sites in other parts of West Papua, the Moluccas (Seram and Kei), East Timor, Sulawesi and Borneo have also been described.

Rather than examine the rock-art of each of the above regions in detail, I limit my discussion here to an overview of the painting sites of the MacCluer Gulf. The MacCluer Gulf represents one of the few areas in the western Pacific for which a relative chronology for rock-art has been proposed, and is also the region which Ballard (1992a: 98) suggests represents ‘the clearest expression’ of the APT. The MacCluer Gulf therefore presents itself a potential point of departure for the development of a temporal framework for the painted rock-art of the western Pacific as a whole.

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*8 Irian Jaya is now officially referred to as ‘Papua’. However, so as not to confuse this province with the former colonial territory of Papua in neighbouring Papua New Guinea, I refer to it here as ‘West Papua’.
*9 e.g. Léon 1880; Röder 1938a, 1938b, 1939, 1956, 1959; Galis 1964; Singer and Ballard 1988; Chaloupka 1994; Arifin 1998.
Most of the MacCluer Gulf sites occur in shelters or on cliff faces overlooking the sea along a 30km stretch of the Gulf's southern coast and string of islets between Koka and Goras. These sites were first studied in detail by Josef Röder (1956, 1959), a member of a 1937-38 expedition to the Moluccas and (then) Dutch New Guinea sponsored by the Frobenius Institute. Röder recorded a total of 40 sites in the region, although since then at least another 17 have been discovered (Arifin 1998). The art is mostly painted in red and is generally found at inaccessible locations up to 30m above the water level. Many of the decorated rock shelters contain platform burials which Röder (1956: 388) suggests are contemporaneous with the most recent black rock-art of the region (see below).

Röder’s five-phase chronology for the MacCluer Gulf assemblages is based on patterns of superposition of various ‘styles’ of painted art. The four earliest phases consist of red painted rock-art and the latest of black and white. Röder suggests a continuation from the beginning to the end of the sequence based on the transmission of motif forms from one style to the next.

*Tabulinetin style:* This earliest style consists largely of silhouette forms infilled with red, including images resembling artefacts, fish identifiable to species level, many hand and foot stencils, a few anthropomorphs (these are more prominent in later styles), and the occasional ‘human-lizard’ form (Plate 1). Images tend to be densely distributed such that it is not uncommon to find an entire surface completely covered in red designs. According to Röder (1956: 394), the hand stencils of the Tabulinetin style provide a background canvas for some of the later linear art. Where stencils do not occur, it is common to find areas of limestone sprayed with red paint upon which other art is painted. Stencils of axes – thought to be Dong-son bronze axes – would place the beginning of the Tabulinetin style, and indeed the entire MacCluer Gulf rock-art sequence, at no earlier than c. 2200-2100 BP (Spriggs 1989; Bellwood 1997).

*Manga style:* This style departs from the Tabulinetin style in several distinct ways. Tabulinetin silhouette figures and fish motifs are largely superseded in the Manga style by carefully executed and elaborate red outline figures, including a diverse range of human-lizard forms. Silhouettes, including fish and anthropomorphs, are often dissected by a median line and/or infilled with chevrons. Particularly striking is the wide-range of non-figurative forms, including elaborate variations of the circle, a diverse range of symmetrical designs, and various interlocking spirals and scrolls. The solidly filled panels which denote the Tabulinetin style are no longer observed. Röder (1956: 400) compares the Manga material to decorative motifs assigned to the ‘Indonesian Bronze Age’.
The following two red styles, *Ota I* and *Arguni*, are geographically restricted relative to the two earlier styles but are described as variants of the Manga style. Berger-Kirchner (1961) describes the Ota I and Arguni motifs as being ‘coarser, more ungainly and ... larger’ than the Manga.

The *Black (or Ota II)* style is described as linear, sketchy in appearance, and occasionally consisting of broad-stroked applications of pigment (Rosenfeld 1988). It is also described as consisting of ‘drawings’, as opposed to the ‘paintings’ which define earlier styles. It differs from the Manga style in terms of colour and in that the artistic approach is ‘freer’ and ‘less standardised’ (Rosenfeld 1988). However, there are some continuities from earlier styles in content, with the presence of human-lizard forms, certain non-figurative motifs and simple ship motifs. The black painted ships, which occur in considerable numbers, often consist of high curving prows and standing elements said to resemble Dong-son ‘ship-of-the-dead’ motifs. These are thought to be connected with the boat coffins (soul boats) found in various shelters containing rock-art.

White figures have also been noted in the MacCluer Gulf assemblages, but they are restricted in their occurrence and have not been assigned a style classification. They tend to be sketchy in appearance, rendered in thick bold lines or silhouettes (Chaloupka 1994). Röder (1956: 393) suggests that, because they are only slightly weathered in appearance, they probably ‘represent very recent artistic manifestations’.

Despite the stylistic variation observed in the MacCluer art, Röder (1939: 177) suggests that a uniformity in subject matter does exist. One figure which Röder proposes cross-cuts each of these styles, and which must therefore be of considerable antiquity, is what local people describe as *Matutuo* – a spirit figure with a human-lizard form. Similar figures are found at painted sites throughout West Papua and mainland New Guinea, including the Yagondo figures of Chimbu Province and other highland, lowland, and coastal regions (see below).

The MacCluer Gulf rock-art corpus – which manifests all of the features of the APT – provides a critical comparative basis for examining the rock-art of the rest of the western Pacific. Possible representations of Dong-son axes in the early Tabulinenetin style would place the beginning of the MacCluer Gulf sequence at around 2200-2100 BP, a date which corresponds with the proposed emergence of the widespread APT (Ballard 1992a). One of the aims of the next few sections is to evaluate whether the rock-art of the MacCluer Gulf and the adjacent regions underwent comparable transformations.
3.6 Mainland Papua New Guinea

In this section the focus is on the rock-art of mainland Papua New Guinea,\(^{11}\) with summaries of the distributions of sites in three geographic zones: the Highlands, the Lowlands interior, and coastal. The division between Papua New Guinea and West Papua (the western extent of my sample area) is not conceived of as a cultural one. Rather, it represents a convenient arbitrary boundary to bracket the area under review. Rock-art in Papua New Guinea is very common and provides a large enough sample to address all of the major issues raised in this thesis without having to describe all of the rock-art west of this region. One issue which requires considerable attention is the relationship of the APT and the AES to the rock-art assemblages of non-Austronesian (NAN) speaking areas. Are the components of the APT and AES found exclusively in Austronesian-speaking areas, or do they overlap with non-Austronesian-speaking areas? And how might such overlap be accounted for?

3.7 Papua New Guinea (PNG) Highlands

Almost all of the rock-art of the PNG Highlands is found in rock shelters and consists of either red or black painted motifs, although some bichrome and polychrome forms have also been noted. Engraved motifs are known but occur much less frequently than paintings. Certain motifs are replicated at different sites throughout the region, such as Yagondo figures (anthropomorphs with either exaggerated genitalia or tails; see below); human-lizard forms; leaf-shaped motifs; variants of the circle; crosses; enveloped crosses; chains of triangles; chevrons, and rectangular grids. Such motifs are not restricted to a particular site type or rock-art technique.

3.7.1 Simbu Province and Eastern Highlands Province

Wilde’s (1974a, 1975a, 1978a) study of Simbu and Eastern Highlands rock-art has revealed that, while some internal variation exists, a broad and cohesive style defines the region. The majority of rock-art consists of black infilled geometric drawings of linear structure, which are different from the rock-art of surrounding provinces where a greater range of red painted art is found. Circular designs are common, most being elaborated with dividing lines, spokes, rays, dotted lines and/or infill. Triangles, lozenges and chevrons also occur, with chevrons in a rectangular or leaf-shaped outline being particularly prevalent. Other designs are more localised, such as the infilled shield-shaped motifs found only in Simbu Province.

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\(^{11}\)Throughout this thesis ‘mainland Papua New Guinea (PNG)’ is taken to mean only the eastern half of New Guinea. Likewise, the ‘Papua New Guinea (PNG) Highlands’ define the highland regions of the eastern half of New Guinea.
Simbu rock-art includes two different kinds of anthropomorphs. One of these – the *Yagondo* – is a silhouette figure with a square or triangular shaped head. Its legs are characteristically bent, its arms point either up or down, and it often features a tail-like appendage (Plate 2). The other, *Gerigl Ambu*, is more elaborate and varied than the *Yagondo*. Its body is triangular, the arms (if they are depicted) are short and raised upwards, the head is small and either round or triangular, and the legs are bent. The figures are embellished with elaborate infill patterns of chevrons, triangles and other designs. The entire form is surrounded by multiple short ‘spiky’ lines.

The ages of the charcoal drawings at Ak Kagamugl and other Simbu sites remain unknown, although local views are that the ochre paintings in the Simbu region were executed both before and after the arrival of Europeans in the 1930s (cited in Wilde 1974a: 164).

A number of caves have been reported in the Sinofi and Henganofi areas of the Eastern Highlands (Wilde 1974b, 1978a). These contain painted or drawn anthropomorphs (some resembling the *Yagondo* figures of Simbu Province), zoomorphs, crosses (including enveloped crosses), leaf-shapes, linear designs, ‘chevrons, circles (some concentric), circles with “sun-rays”, chains of filled-in inverted and upright triangles’ (Wilde 1974b: 250-251). Shield shapes are also found in this region but they are more elaborate than those in Simbu Province, with rectangular or hooked appendages and scrolls surrounding the outside of the main shield shape (Wilde 1978a). Pigments include red, yellow, white, pink and black. All of the rock-art was produced beyond the living memory of Wilde’s informants (Wilde 1974b: 251).

Also in the Eastern Highlands are a series of decorated granite outcrops located on the eastern side of the Ramu River in the Arona Valley (Giddings 1973). On one of these outcrops, known as Orna’maiya, are several geometric motifs painted in red. They are quite high up and can only be accessed by a ladder, a characteristic reminiscent of the coastal sites of the MacCluer Gulf and adjacent regions. Within the same complex is the engraved site of Oya’parari, a boulder displaying some 110 longitudinal grooves. On another outcrop – Oni Paiya’i – is a set of 11 very worn, shallow, engravings consisting of oval and near-circular forms partially bisected by a vertical line. The Kundana say that these motifs represent female genitalia, an interpretation matching that assigned to similar forms reported from the Jimi/Wahgi valley sites (see below).

White and White (1964) report five rock-art sites in the area around Kainantu in the Eastern Highlands. Four of these, Bari’ira, Batari, Isna and Asara, are located to the south of Obura.
The fifth site, Aibura, lies between Obura and Kainantu. Apart from Asara, all of the art occurs on limestone outcrops. At Aibura, the rock-art consists of numerous linear charcoal drawings as well as a unique set of motifs composed of outlined dots of white clay, including human-lizard motifs. At the four sites south of Obura the rock-art consists mainly of red, and occasionally yellow, pigment, on sheltered overhangs or on exposed vertical surfaces. Red painted art is relatively rare in the Eastern Highlands, its occurrence here in exposed locations being especially reminiscent of the cliff-art of the MacCluer Gulf and adjacent coastal regions. Some of the rock-art, such as that at Batari, cannot be reached without assistance, being several metres above the ground (White 1967b). The most common motif at these sites is the hand, in the form of stencils, prints and outlines. Hand stencils also feature prominently in the early Tabulinten rock-art of the MacCluer Gulf. Human-lizard forms and several non-figurative motifs (including enveloped crosses) are also present.

Other painting sites in the Eastern Highlands include the Kafiavana, Patadzavana, and Niobe (now Nombe) rock shelters, all located in the Chauve area. Kafiavana displays some of the more spectacular rock-art of these sites, including bichrome circular and ‘occuli’ motifs, ‘abstract human figures’ and ‘diagonally rectangular’ forms (Wilde 1976c). The motifs stretch along 8.6m of the rear wall of a limestone overhang and range from 0.8 to 3.2m above present ground level (White 1967a: 379). The most common motif at the site is a ‘spoked’ white circle with internal divisions of multiple colours. The pigment colours found at the site include black, white, one or two shades of red, yellow-brown and a bluish-grey. The age of the rock-art is unknown. However, White (1967a) offers several lines of evidence to suggest that they are pre-European but probably no older that a few hundred years. Firstly, his informants can identify the rock-art; second, his informants indicated that the rock-art was produced by their forefathers (no more than fourth generation ancestors); third, the paintings are located in a highly exposed tropical environment and are therefore unlikely to survive indefinitely; and fourth, there are no paintings below the current ground level. With regards to this latter point, however, White (1967a: 389) concedes that one or two of the paintings are more than 3m above the floor level and an artificial support would have been needed to produce them. ‘All paintings might therefore have been done in this way and need not relate to the present ground surface at all’ (1967a: 389). The rock-art at Patadzavana is described as ‘crudely done’ in red or black paint, with some of the designs bearing similarities with those found at Kafiavana (White 1967a: 390). The rock-art at Nombe is also similar to that at Kafiavana with segmented and rayed circles featuring among the more prevalent motifs. Other forms include ovals, crosses and a few ‘semi-representational’ figures (White 1967a: 391). Four colours have been used in the production of the images (black, yellow, light and dark red) which are either monochrome or bichrome.
3.7.2 Western Highlands Province

This province includes the rock-art of the Jimi and Wahgi river valleys. Recorded in some detail by various researchers (Aufenanger 1958; Bulmer 1960; Christensen 1975; Gorecki and Dallas 1989), it is clearly different to the Eastern Highland and Simbu rock-art in terms of colour, technique, and design. Gorecki and Dallas (1989) recorded 12 sites in this region. Most consist of red ochre paintings, some of which are particularly difficult to access (Gorecki and Dallas 1989: 236; Aufenanger 1958: 623). The painted rock-art of this region is diverse in content but three motifs are reported to be more pervasive than others:

1. the human-lizard form;
2. short spirals creating heart-shaped motifs; and
3. a pointed oval surrounded by rays (locally interpreted as a kina shell board used during certain ceremonial events).

Two of the Jimi/Wahgi sites – Tembinde and Nimnimbil – are reported to contain engraved motifs, including ‘pointed’ ovals with central lines interpreted as vulvae. These forms are comparable to those found at Oni Paiya’i in the Arona valley (Eastern Highlands) which have been accorded the same interpretation. A number of the Jimi/Wahgi engravings have been recently infilled with black charcoal, and one shows traces of red ochre.

Some of the Jimi/Wahgi paintings resemble both Sepik wood carvings as well as particular engraved rock-art motifs observed in Island Melanesia. Scroll and heart shape motifs recorded at the Tembinde cliff site, for example, resemble engravings seen in New Britain and New Ireland. Scroll motifs are pervasive throughout the western Pacific, in the Manga style paintings of the MacCluer Gulf, here in the painted and engraved assemblages of the Jimi/Wahgi river valleys, and in the engraved assemblages of Milne Bay, New Britain and New Ireland (Plate 3). One of the important points that the distribution of these motifs raises is that certain motifs are represented in both painted and engraved assemblages across the region, while others, such as the engraved ‘vulvae’, are represented in one medium only.

Two more sites in the Wahgi valley, Western Highlands Province, were recorded by John Burton and Chris Ballard in 1989 (Ballard pers. comm. 2001). Kora 1 and Kora 2 are both limestone shelters containing red paintings. The most common image present is a lizard-like form similar to the ‘human-lizards’ recorded by Gorecki and Dallas in the adjacent Jimi valley. A zigzag, concentric circle and a diamond bisected by a single line are among the non-figurative motifs present at these sites.
No attempt has been made to date the rock-art of the Western Highlands although Bulmer (1960) reports that red pigment is superimposed by black pigment at one site. This chronological sequence emerges as a regional pattern encompassing not only coastal rock-art sites but also sites within the lowland and highland regions of New Guinea.

3.7.3 Southern Highlands Province

The rock-art of the Southern Highlands is diverse, and in some areas quite different from rock-art found elsewhere in Papua New Guinea. For instance two bichrome (red and black) paintings at Pirua cave (south of Poroma) are described by Bourke (1973: 65) as being unlike those already known from Simbu, Kainantu, Port Moresby, Kitava Island (Trobriands), and Jafi and Jegriffi (West Papua). One of these paintings resembles a face, a motif which is rarely represented in the painted rock-art of the western Pacific.

A unique set of rock-art sites has also been reported around the Tari region. Two sites within 30km of each other contain examples of digital fluting (Ballard 1992b; 1995: Appendix C10, p. 55); a rock-art form which is found extensively in southern Australia. One of these sites, Kalate Egeanda, is a narrow cave about 400m long which contains a panel of linear grooves (or finger fluting) on a 1m long section of soft calcite (mondmilch). According to Ballard (1992b: 120), superimposition in the central part of this panel and differences in the degree of weathering on some of the grooves suggests that not all of the rock-art was produced at the same time. Ballard (1992b: 121) postulates that if the fluting of southern Australia was produced during the late Pleistocene when New Guinea and Australia were joined as Sahul, perhaps, then, we are looking at a single tradition which spanned the original Sahul continent.

Other rock-art sites in the Southern Highlands do bear similarities to sites elsewhere in Papua New Guinea and eastern Indonesia, such as those around the southeastern end of Lake Kutubu (Williams 1940/2; Haberle 1989) and several sites in the Strickland River area (Hook 1963; White 1969; Ballard 1995). The rock-art at Lake Kutubu resembles the rock-art of both the MacCluer Gulf in West Papua and the Buang Valley in Morobe Province (see below). The Lake Kutubu motifs are red and occur in association with lake-side cliff-burials. Among the images are a range of non-figurative rectilinear motifs and human-lizard forms (Plate 4). The rock-art of the Strickland River is both red and yellow painted and occurs in limestone shelters, overhangs and on boulders. The paintings, which are similar to those found in the nearby Telefomin Valley (see below), consist of hand-prints, 'men in
squatting position', 'arrows' (Hook 1963), simple stick figures with arms and legs at 90 degrees to the body, chevrons, diamonds and enveloped crosses (White 1969).

Two sites at Mt. Bosavi – Melokolosen and Sorosoro – also display engraved motifs which are similar to those elsewhere in Papua New Guinea (Mandui 1998). A number of the engravings at these two sites are described as depictions of female genitalia, an interpretation offered for similar engravings in the Eastern and Western Highlands provinces and the Sogeri Area.

3.7.4 Situating the rock-art of the PNG Highlands within a regional context

This piecemeal account of the rock-art of the Highlands of PNG draws on a disparate range of sources which have never before been collated within a regional summary. In spite of this, it is becoming increasingly clear that Highlands rock-art needs to be built into the theoretical frameworks underpinning the APT and AES. Throughout this section I have identified characteristics at several Highlands rock-art sites (e.g. Lake Kutubu) which display most of the characteristics defining the APT. These similarities are manifest in terms of the use of red pigment, the occurrence of certain motifs commonly found at APT sites, and the inaccessibility of the art. A number of these sites are also found in close proximity to human remains.

Despite the fact that there is very little engraved rock-art in the New Guinea Highlands, there appear to be certain motif consistencies across the region. The most striking of these are the leaf-shaped or ovular motifs with central lines, commonly described as depictions of female genitalia. These motifs have been found in the Eastern, Western and Southern Highlands and, as described below, in Central Province. In the absence of clear illustrations of these motifs (the Jimi/Wahgi examples being an exception), it is difficult to say whether they are connected with the AES. Apart from these particular motifs, none of the other criteria (or motifs) which define the AES have been identified in the engraved rock-art of the Highlands of New Guinea. Several forms which have been attributed to the AES (e.g. scissor and scroll-shaped motifs) do, however, occur at some of the painted rock-art sites of the Highlands (e.g. the Jimi/Wahgi valley). Thus, as for the APT, in defining at least the spatial parameters of the AES it will be important to include parts of the non-Austronesian (NAN) speaking areas of the New Guinea Highlands.

The geographic associations between current Austronesian-speaking regions and both the APT and AES appear to be less definitive than formerly thought. While the rock-art sites of the non-Austronesian Highlands of Papua New Guinea display considerable thematic and
stylistic diversity, there is sufficient evidence to suggest that certain components of the APT and AES find their way into the heart of New Guinea. The implications of these findings will be discussed throughout this thesis.

### 3.8 Papua New Guinea lowlands interior

The majority of sites listed in this section are located in the ‘lowlands interior’ of Papua New Guinea, which is a useful geographical category for differentiating those rock-art complexes located inland from the coast but not in the Highlands. Several of the sites in this category are not strictly in the ‘lowlands’, e.g. the Telefomin-Bufulmin Valley sites of West Sepik Province, but are included here as the strongest artistic influences in this Mountain Ok region of the Sepik Valley (Craig 1995).

#### 3.8.1 Sepik provinces

The rock-art of the Sepik consists of both engraved and painted art. Here, as elsewhere, red rock-art predominates at ‘cliffed’ sites and black pigment at cave sites. Among the painted motifs are a number of black or white lizards and red diagonally set and enveloped crosses. Enveloped crosses, like scrolls, are represented in both engraved and painted assemblages from Eastern Indonesia to Island Melanesia.

Bragge (1976) reports a small number of charcoal drawings and scratches in one of the six Piri caves, in West Sepik Province. There are said to be a number of engravings at this site which are arranged in an ‘untidy unrelated mess’. The charcoal drawings include lizards, and spiral and scissor (scroll) motifs which bear similarities to the painted rock-art of the Jimi/Wahgi valley and the engraved rock-art of Milne Bay (see below). They are also said to be very similar to rock-art at a complex of sites just across the West Papuan border (Galis 1957b; see sites 233-7 on Figure 3.7)

A number of sites are also found among the limestone outcrops of the Telefomin-Bufulmin Valley, in the highlands area of West Sepik Province (Wilde 1976a, 1976b, 1977). One of these, Selminum Tém, is a cave containing both painted and engraved rock-art, including an engraved bird on a limestone slab, some incised horizontal and parallel lines, and some faded white paintings. One of the white paintings resembles an anthropomorph and is located c. 4 m above the ground surface.

Kenengkeneng Tém, a limestone overhang 18 km west of Telefomin, contains both burials and rock-art. The burials are placed on ledges and wedged in solution features. The painted rock-art is mainly red, and motifs include diamond shapes and a diagonally set cross. Tém
Luu Tém, a cave in the same area, contains both black charcoal drawings and a ‘red clay’ painting. The charcoal designs include circles and concentric circles, lizards, meandering lines, rectangular grid patterns, crosses and an anthropomorph. The red clay design is a ‘diagonally set red cross’ (Wilde 1975b: 119). The rock-art motifs at these sites are similar to the geographically close Strickland River material.

To the north of Telefomin, on the eastern side of Table Mountain (Inikia de Bom), lies a sandstone cliff face some 120m long and 40-50m high. Rock-art is located beneath a protective overhang situated approximately 15-20m above the cliff base, accessible from a ledge. Among the motifs are upright and diagonal cross motifs, enveloped crosses, circles, spirals, concentric circles, open and filled crescents, negative and positive ‘cassowary tracks’, anthropomorphic figures, triangular and rhombic motifs, and other geometric and abstract designs. The art is red, yellow, orange, brown and white, and the pigments are said to be composed of clay materials from local creek beds (Wilde 1978b: 116). There is a complete absence of black paintings in this area, and no local knowledge of the art. The site itself is believed to belong to the ancestors.

A cave site located in a limestone cliff near Seraba (East Sepik Province) has also been described in unpublished field documents (Jones 1987), and is said to contain hand stencils, circles with central crosses (polychrome with red, yellow and black), enveloped crosses, bat designs, lizard-like forms and other motifs which are comparable to images observed in both the highland and coastal regions of Papua New Guinea.

Some of the most spectacular rock-art of East Sepik Province, located in the Upper Arafundi and Upper Karawari River areas, has been subjected to preliminary recording by Gorecki and Jones (1987a and 1987b). This study involved an examination of sacred material and has not yet been published.

3.8.2 Morobe Province

Much of the known rock-art of Morobe Province is found in two dense clusters of sites in the Buang Valley and at Sialum on the coast of the Huon Peninsula (Figure 3.8). The Buang Valley sites are located on the cliff faces among the ossuaries of the Buang people (Girard 1957; Gallasch 1973, 1974b; Zimmerman 1978). Almost all of the rock-art consists of painted anthropomorphs, many of which are said to depict the individuals whose remains are deposited in the cliff-side shelters (Plate 5). The bodies of these anthropomorphs are spindle-shaped, the legs are linear and bent, and the arms are raised. The head generally consists of an arc with rays, with some figures bearing a ‘feather headdress’. The facial
features are often limited to the depiction of two arcs, said to be eyebrows. An appendage between the legs is described as the tassles worn from a waist-belt during dancing events. The figures look similar in form to the human-lizard shapes found elsewhere in the painted rock-art of New Guinea and eastern Indonesia, though their decoration is considerably elaborated.

Whether the paintings are functionally associated with the ossuaries is unknown. Vial (1936) and McWilliam (1936), who both collected information from the Mapos people regarding the burial cliffs, report that each village or group of villages has its own burial place, usually located on the ledges of a limestone cliff. The ledges are difficult to climb and can only be reached with the aid of a rope or scaffolding. Exactly where a person’s physical remains were placed on a cliff ledge depended on the individual’s status in life. Women and children were positioned at the base of cliffs; men who had not achieved any significant status were located on higher ledges; men of high status within the community were placed higher still. Future studies might consider examining the relationship between particular rock-art motifs and the height of cliff-burials, not just in the Buang Valley but elsewhere in New Guinea and eastern Indonesia.

A socio-cultural association between rock-art and burials across the region has yet to be demonstrated, but concise documentation of the motifs featured close to burial remains would be one way of determining whether there is in fact a region-wide tradition of mortuary art associated with cliff burials. Anthropomorphic images, such as the ones here in the Buang, and in the MacCluer Gulf, Lake Kutubu and Sialum (see below), are particularly worthy of further analysis. The Buang Valley sites are unique in the sense that they are located within an area currently inhabited by a small enclave of Austronesian-speakers who migrated inland from the adjacent coast. This is one of the more convincing examples of a strong association between Austronesian settlement and a particular tradition of painted art that involves the reproduction of a unified symbolic system associated with ‘cliffed locations’, red pigment and funerary remains.

Another major assemblage of painted sites in the Morobe district occurs in the Sialum region on the Kwangam River (Kamminga 1972; Specht 1973). Like the Buang Valley sites, human skeletal material is found in close proximity to the rock-art at some sites. Only one engraving (a ‘scratching’) was found among the 20 sites recorded (Kamminga 1972). Most of the paintings consist of red painted linear motifs and hand stencils, although a few white, black, green, and blue coloured images have also been noted. All of the sites consist of either caves or shelters within uplifted coral terraces. Few examples of superimposition were
reported, offering little insight into the relative age of the rock-art. Motifs consist of a variety of figurative and non-figurative forms, including circular motifs, crosses (including an enveloped variety), triangular and diamond-shaped figures, arcs, lines, leaf shapes, herringbone forms, scrolls and other indefinable marks. Figurative motifs include stick figures, and forms resembling a centipede, a bird, and several lizards. Intersite similarities between the rock-art of Sialum have been noted.

The linguistic history of the Huon Gulf region is particularly turbulent, having probably experienced a migration of Austronesian-speakers at around or some time after 3000 BP (noted as a rough estimate) after which it was affected by contact with both Austronesian and non-Austronesian-speaking communities at different times (Ross 1988; Bradshaw 2001: 285). Given that the Sialum sites manifest each of the criteria defining the APT, the possible historical presence of Austronesian-speaking communities in the vicinity of Sialum provides a measure of support for Ballard’s (1992a) argument that the tradition emerged and spread with the movement of (or contact with) Austronesian-speakers.

Also in Morobe Province is the Gao River site (Finschhafen region) which has received a mention in various accounts over the years (Pilhofer 1938; Bodrogi 1961: 132; Proske 1964; Pretty 1966: 49; Jim Specht also visited and reported on the site in 1969). The site consists of several engravings on a volcanic boulder balanced on the side of a river bed. Most of the motifs consist of incised non-figurative images, although an outlined hand and some possible depictions of axes are also present. The engravings contrast markedly with the curvilinear pecked and abraded rock-art characteristic of adjacent New Britain and sites elsewhere on the New Guinea mainland.

An engraving site has also been reported on Umboi, an island located in the Vitiaz Strait (Morobe Province), which appears to have several large face-like designs on it (Neuhauss 1914). Engraved faces are largely an Island Melanesian phenomenon which would seem to suggest that the rock-art at this site was manufactured within a cultural sphere which involved contact with communities in the Bismarck Archipelago and adjacent Island Melanesian regions. Ian Lilley (pers. comm. 2001) reports a painted rock shelter in the centre of the same island. The rock-art is said to be just above head-height and to consist of ‘orange-red’ images comprising non-figurative circles and lines. A considerable amount of ‘modern black graffiti’ is also said to be present at the site, including an image resembling a ‘guitar’.
Both paintings and engravings have been recorded in the Sogeri area in the Port Moresby hinterland (Figure 3.8). It is common to find both techniques at a single site, and often combined within the same motif. Some of the more common engravings in the shelter sites across the region include deeply incised ovals with dividing lines, similar to those described as vulvae at the Jimi/Wahgi river valley sites and others in the Eastern and Southern Highlands. According to Williams (1931), ‘barred ovals’ are found at the following five sites: Wagava, Isakerikeri, Serinumu, Wureva Yani, Wakuia Wai. Other forms include circles or ovals with an off-centred cupule, cupules, rayed stars, concentric arcs, human figures, a ‘closed M’ motif, and an open ended enveloped cross (Williams 1931; Strong 1923, 1924; Leask 1943; Kleckham 1966; White 1967b). A unique engraving site in Central Province is Lohomonidabu – a granite boulder decorated with anthropomorphic motifs comparable to those on Normanby Island in Milne Bay Province (see section 3.9 below) (Williams 1931).

Paintings are more common than engravings in this region and display considerably more inter-site variation. They are mostly monochromatic (red or black), although bichrome figures (red and white) have been reported at Wagara and Serinumu rock shelters. At a few sites a mass of one colour is used as a background for a series of linear drawings in another colour (e.g. Rouna and Wurera Yani, in the Laloki River Gorge). This production trait is reminiscent of the Tabulinetin style in the MacCluer Gulf where expanses of rock-surface are blocked-out with red ochre as a background for linear motifs (see section 3.5 above). Painted forms in the Sogeri area include ‘sun symbols’, concentric arcs, sinuous lines, chevrons enclosed in leaf or rectangular outlines, human-lizard and lizard forms – images which largely correspond with painted rock-art observed to the west, in the MacCluer Gulf and the Moluccas as well as other parts of Papua New Guinea. Paintings are occasionally located in inaccessible locations, occurring 6m high on a limestone block at one site (Strong 1923), and at another some 3m above the present floor level (Williams 1931: 127). Even though the painted rock-art of this region is located in a non-Austronesian-speaking area of Papua New Guinea, it expresses a number of the traits belonging to the APT. As in the Huon Gulf, the history of extensive inter-cultural contact and language shifting in this area may account for the presence of features of the APT.

The bichrome and polychrome rock-art of the Sogeri area bears a strong resemblance to motifs observed in and around the Eastern Highlands. According to Ballard (pers. comm 2001), these motifs are also represented on tapa cloth in the Highlands, a technology he
believes to have spread from coastal Austronesian-speaking areas into the New Guinea Highlands. The movement of tapa between the coast and Highland communities may account for the presence of aspects of the APT in the non-Austronesian-speaking areas of the Highlands. If this were indeed the case, then there is all the more reason to be wary of ascribing the 'Austronesian painting tradition' to rock-art alone. The interplay between various design media needs to be considered if the APT is to be engaged in historical reconstructions of social interaction between coastal and highland communities.

As for most other rock-art regions of Papua New Guinea, few clues as to the age of the rock-art of the Sogeri/Port Moresby region are available. At Rouna, red is invariably superimposed by other colours (Leask 1943), whereas at nearby Wurera Yani, red has been found superimposing white images. At Serinum, it has been suggested that two faded yellow figures might be older than other images at the site (Williams 1931). At Wakuia Wai, black drawings superimpose certain red paintings (Williams 1931: 127). The engravings at Lohomunidabu are said to be 'obviously ancient' because '[t]hey are smooth and weather-worn and of the same colour as the surface of the rock (Williams 1931: 130).'

No obvious pattern of superimposition or sequence emerges from these limited observations.

### 3.9 Papua New Guinea coast

#### 3.9.1 Milne Bay Province

Milne Bay Province has proportionately more engravings than any other region in Papua New Guinea (Figure 3.8). A number of standing stones adorned with engravings are located in the Goodenough Bay region at the villages of Boianai and Wedau, (Etheridge 1908; Newton 1914; Williams 1931; Egloff 1970). The motifs at Boianai – often decorating stones in a circular arrangement – are referred to as giripipina, a Boniki word used to refer to female tattoos (Egloff 1970: 152). Forms at both Boianai and Wedau are generally curvilinear, and include circles, concentric circles, circles with rays and spokes, rosettes, concentric arcs, spirals, linked spirals, interlocking S-shaped double spirals, enveloped crosses and stylised faces (Plate 6). Rosenfeld (1988: 129) writes that a crescent shape with a spiral at either end, found at Wedau, is a pervasive motif in the contemporary art of the Admiralties, northern New Guinea, the Massim, and the Solomons. Reference to its iconic association with a ship-of-the-dead motif has been made by Badner (1972). Egloff (1970: 154) has observed parallels between the curvilinear rock-art (including enveloped crosses) of Goodenough Bay and that of the Sepik River (Wirz 1959), New Caledonia and New Hanover. Similarities between aspects of the Manga phase of the MacCluer Gulf and the Goodenough Bay engraving material are also notable.
On Normanby Island (d’Entrecasteaux Islands) engravings occur on both standing stones (often in circular arrangements) and natural features. At the site of Bisiai, several rocks and a cave are decorated. Images include anthropomorphs and concentric circles with attached spirals, rays and spokes, some of which have an internal cupule. At Sisiana, engravings occur on top of a rock locally referred to as Bureva Pouia. A large number of ‘pock-holes’ (probably cupules) are present, said to be caused by a local spirit cracking mapwea nuts on the rock. Unlike at Bisiai, where there is a large figurative component, motifs at Sisiana tend to be non-figurative, including spirals, concentric circles, a spiral attached to a reverse coil, and an oval with a lateral cross-bar and a little ‘tail’ (Williams 1931:133). There is a strong correlation between the non-figurative motifs on Normanby and those at Boianai and Wedau at Goodenough Bay. The anthropomorphic figures at Bisiai on Normanby are unlike rock-art anywhere else in Milne Bay Province, their nearest parallels being the anthropomorphs at Lohumunidabu in Central Province (Egloff 1970). Several engraved motifs with similar scroll-like forms have also been reported at the site of Kwaianewanewala, on Fergusson Island (Young 1987: 36).

The age of the engravings in Milne Bay Province is not known, but decorated shell found in a mound deposit at Collingwood Bay resembling the Goodenough Bay rock-art (including an S-shaped double spiral, and a stylized face resembling the Type1 faces identified by Spriggs 1990b) has been dated to between 500-1000 BP (Egloff 1979). Pottery with designs similar to the rock-engravings of Milne Bay has been noted elsewhere in southeastern New Guinea, including Mailu, Woodlark, and Paneati (Louisiade Archipelago) (Tindale and Bartlett 1937; Solheim 1964; Golson 1972a).

The Milne Bay pottery and rock-engraving motifs, which share various allomorphs of the curvilinear scroll, are said to be absent among the motif range characterising decorated pottery in Island Melanesia (Golson 1972a: 582), although the pedestaled ‘Ceramic Group P’ bowls identified by Egloff are thought to be of ‘striking Lapita affinity’ (Kirch 2000: 122). On the basis of motif analogues, Golson (1972a) has argued for possible connections between the art of Milne Bay (pottery, rock-engravings, incised shells), the Sa-huynh-Kalanay pottery tradition of Southeast Asia, and Dong-son bronzes – all of which bear comparable curvilinear scroll/spiral motifs. On the basis of these associations, Golson (1972a: 582) suggests that the Milne Bay pottery with curvilinear scrolls may have made an appearance ‘...later than the movements that effected the colonisation of Oceania.’
Motif correlations between the pottery, shell and rock-art of Milne Bay, and ‘Metal Age’ items certainly accords with the idea of a late colonisation of the Papuan coast sometime around 2100 BP. Lilley (1999: 31) has recently argued that there may have been a chain of connection after this time extending from ‘... the southeastern tip of Papua through the Vitiaz Strait to the north New Guinea coast and beyond to the west.’ A close relationship between the languages of the North New Guinea and the Papuan Tip clusters also agrees with this model (Lilley 1999). This in turn would provide an explanation for the links between the scroll/spiral art of Goodenough Bay and the Sepik region. Further connections west, towards the Bird’s Head, would also account for the striking similarities between the Goodenough Bay and Sepik art and the Manga style rock-paintings of the MacCluer Gulf. The core of this argument is elaborated upon later in this thesis.

Painted sites are also present in Milne Bay Province: on Goodenough and Fergusson Islands (Jenness and Ballantyne 1920; Williams 1931), and on Kitava in the Trobriands (Ollier and Holdsworth 1970a, 1970b; Ollier et al 1970). The Goodenough Island site contains a number of black and white paintings which bear similarities to motifs (especially the human-lizard forms) observed in the rock-art of the Admiralty Islands (see below) and Morobe (the Sogeri district and the Buang Valley sites) (Egloff 1970). The rock-art of Koko-weo-weola shelter in the Ebididi district on Fergusson Island is said to display paintings in red, black and white, but no mention is made of the types of motifs present (Williams 1931: 130). Likewise, the rock-art of Mapamoiwa, a series of low coral cliffs on the southwestern corner of Fergusson, is described as possessing ‘three very small designs in red’, but little has been said of the images themselves (Williams 1931: 130).

Over 30 caves have been explored in the Trobriand Islands but only one, on Kitava, has been found to contain rock-art. Motifs include ‘mutilated hands’ (presumably stencils), ochre patches (including a V-shape), and black linear drawings. The ochre patches occupy a higher position than the other rock-art at the site, a feature which suggests connections with the APT (Ollier et al, 1970). The linear drawings are thought to have been produced from black mud collected from the cave floor, and applied with the finger. Among them are possible depictions of swordfish, sharks and turtles. Other black motifs resemble fish, some of which appear to have arrows or spears sticking into them. Possible paintings of an adze, a snake and a jellyfish are also present. A non-figurative engraving (spiral) located at the entrance to the main chamber has been compared to the local Wanigela pottery and ‘stone megaliths’ (Ollier et al: 27).
3.10 Selecting PNG sites for detailed motif analyses

Three of the rock-art regions described so far in this chapter are to be included in the statistical analyses which compare the rock-art of Island Melanesia (Chapter 4): Central Province, Milne Bay, and Morobe. In light of the volume of material available, I have decided to exclude sites from the Papua New Guinea Highlands, West Papua, Eastern Indonesia and East Timor, and to include sites from those regions which are closer to Vanuatu. Central Province, Milne Bay and Morobe are particularly appropriate for comparison because they possess very different rock-art which does not appear to be the product of mutual influences.

Central Province, and the Sogeri area in particular, contains engravings similar to those found in the Highlands of New Guinea (i.e. vulvae) and the Bismarck Archipelago. The analysis of these Central Province sites will thus be critical for indicating possible rock-art connections between the Highlands and lowlands of Papua New Guinea and Island Melanesia.12

Milne Bay contains both painted and engraved rock-art. The painted art, particularly that on Kitava, appears to be firmly entrenched within the APT. The engraved rock-art shares similarities with both AES engravings and several painted sites on the New Guinea mainland, including scrolls and enveloped crosses. The latter will enable some assessment of the relationship between painted and engraved sites in the western Pacific which share a similar motif range.

Despite its non-Austronesian status, the rock-art of Sialum (Morobe) could be described as a classic example of the APT. Its inclusion in a comparative analysis with the rock-art of Island Melanesia may therefore provide an important link with comparable site complexes to the west, such as the MacCluer Gulf, Lake Kutubu and the nearby Buang Valley.

3.11 Island Melanesia

In the following section I describe the rock-art of Island Melanesia, most of which is included in the statistical analyses presented in Chapter 4.13 Specht (1979) and Rosenfeld (1988) have both commented that engraving is the most prolific rock-art technique found in

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12 Even though Central Province contains both painted and engraved rock-art, the motif analyses of the following chapter mainly address the engraved rock-art from this region because it has been recorded in much more detail than the painted rock-art.
13 Sites excluded from the statistical analyses presented in the next chapter are those for which motif illustrations are unusable (due to inadequate recording) or otherwise unavailable.
Island Melanesia, and that similarities occur across the region in terms of both motif content and structure. The aim of this discussion is to tease out not just the similarities within the rock-art of this vast region, but also differences, both obvious and subtle.

3.11.1 New Britain

New Britain’s rock-art consists of both painted and engraved rock-art, with the two media occasionally occurring at the same site (Figure 3.8). The painted art has many of the characteristics already described for the rock-art of Papua New Guinea and regions to the west which fall under the rubric of the APT. It is primarily red and often occurs on coastal cliff faces many metres above the high water mark. The engravings of New Britain Province, on the other hand, are characterised by striking diversity, ranging from possible grinding grooves to heavily carved faces with a relief quality. Most engravings have a curvilinear structure, and several fit into the region-wide motif repertoire of the AES.

West New Britain

On Unea, a high volcanic island off the northwest coast of New Britain, seven carved stones decorated with stylised faces and clusters of engraved cupules have been described (Riebe 1967). In almost every case, a natural ridge-line in the rock forms the median line of the face. Elsewhere on the island there is an engraving site displaying 'simple geometric' motifs said to be associated with initiation ceremonies (Reibe 1967: 374), and a rectangular shaped stone bearing sharply incised rectilinear motifs, including a double outlined cross enclosed in a double outlined teardrop shape.

An engraving site has recently been reported on the southeastern side of Garua Island (Torrence and Mulvaney 1998). The site consists of four clusters of volcanic tuff boulders for which three primary classes of motifs have been defined: cupules, geometrics and grinding hollows. Common among the geometric motifs are circles (rings), circles with central cupules (cup and ring), and concentric circles (Plate 7). Three double concentric circles occur together on the same boulder face in the form of a triangle, giving the impression of two eyes and a mouth (or nose). The curvilinear form of the Garua engravings is comparable to other AES rock-art, although notably absent are the spirals and enveloped crosses which characterise a number of sites elsewhere (e.g. New Ireland and Milne Bay).

At Voganakai village on the Willaumez Peninsula are a series of red paintings on a consolidated volcanic ash cliff face. The art reaches heights of 10-15m above the ground surface and consists of ‘dots and straight lines’ (Specht 1974). On the north coast of West New Britain are a further two sites recorded by Kamminga (1972): Apoe shelter and Akono
Sogo. Apoe shelter, near Dengga village, contains in excess of 100 sharply incised lines, many of which may be grinding grooves. Akono Sogo shelter, located about 2km inland but also near Dengga village, contains both paintings and engravings. I have not seen illustrations of the paintings at this site but the engraved rock-art consists of cupules, circles (rings), circles with a central cupule (cup and rings), concentric circles, face-like designs, and a small number of more rectilinear motifs, such as zig-zags. Slightly to the west of Dengga, and about 11km inland in the Angal-Benim region, lies the site of Titikolo. This site is listed in the Papua New Guinea Archaeological Site Survey files and is said to include both paintings and engravings (Janssen 1972; Specht 1979).

On the far western side of the island, near Gie village, is Cao-go, which was visited by Specht in 1967 (Specht pers. comm. 2001). The site consists of engravings on a series of volcanic boulders located on a hilltop and nearby river bed. Motifs are mostly curvilinear and include cupules, various circular forms, faces, parallel lines, semi-circles and spirals. Nearby at Garamati lies the site of Malapapua, which consists of a cluster of volcanic boulders located along a small ridge. Numerous non-figurative forms are present, including circular designs, scrolls, scissor-shaped motifs, wavy lines, triangles, spirals and a few figurative motifs, especially faces and birds. Both of these sites share several scroll/spiral motifs in common with sites elsewhere in the region (e.g. New Ireland Province, Milne Bay Province).

South of Malapapua, on Pililo Island (Arawe Islands), is a rock-art site consisting of red painted forms, including a hand stencil, located 15-20m high on the face of a Pleistocene raised limestone cliff (Specht 1985). A further painted site listed in the Papua New Guinea Site Survey files is Waisisi, located on the Hoskins Peninsula.

**East New Britain**

The area most intensively surveyed for rock-art in East New Britain is Watom Island. Six sites have been recorded here: four with engravings and two with painted art. All of the engraved art occurs on volcanic boulders, the motifs comprising curvilinear forms such as concentric circles and ovals, circles with central cupules or lines, contiguous circles, and faces. The two painted assemblages are located on exposed limestone cliffs. The paintings at Turtur are composed of a reddish-brown ochre and include an S-shape, a group of short vertical lines, a triangle and another group of vertical lines. Those at Pangulalau are also mostly red (a couple of black motifs have been noted) and include hand prints, triangles, zoomorphs, groups of lines running in different directions, a face-like form, a circle and oval motif, a star, a possible fish, a circle with an internal cross, an anthropomorph, some possible
stick figures, and other geometric forms (Specht 1994). Approximately 100 ‘individual and multiple items’ are said to be represented across a 150m expanse of cliff face (Specht 1979: 79, 1994).

Specht (1994: 6) has observed broad similarities between the painted motifs of Watom and those at Dudumahan (Kei Kecil, Moluccas; Ballard 1988a), lending support to Ballard’s (1992a) proposition that the APT is expressed at many coastal painted sites in the western Pacific. Like Watom, many painted sites which express the features of the APT are located on small off-shore islands, such as Pililo in the Arawe Islands, Boeng on Tanga Island (see below), several islands in Manus Province (see below), and Vatulele in Fiji (see below). The tendency for APT sites to be located on off-shore islands in Near Oceania matches the distribution of a number of Lapita settlements which are thought by some to be associated with an initial movement of Austronesian speakers in Island Melanesia.

Both painted and engraved sites have also been discovered on adjacent New Britain. The Beehive Rocks consists of a painted assemblage on the rock face of a volcanic plug which emerges out of the water in Simpson Harbour, Rabaul. The paintings have been executed in red pigment and stand out on the light tuff rock surface at about 3m above the water level. The motifs include crosses, a circle with an internal cross, an indistinct human figure, a ‘phallic’ motif, and a possible hand (Specht 1966). Other motifs were too indistinct to make out.¹⁴ The Beehives rock-art is exceptionally important from the perspective of developing a rock-art chronology for this and perhaps other sites with comparable rock-art. According to evidence presented by Nairn et al. (1995), the volcanic feature on which the rock-art is located can be no older than around 1400 BP. A catastrophic volcanic eruption at this time is said to have devastated the region out to at least 50 km from the source, now underwater somewhere around the middle of the Rabaul Caldera.

The rock-art of New Britain largely conforms with the characteristics defining the APT and AES. One motif which we do find in this region that has rarely been observed in rock-art to the west (except Milne Bay and Umboi) is the face. This motif is especially common in the engraved assemblages of Island Melanesia. Another interesting pattern observed among the engraving sites is the lack of certain motifs found in sites elsewhere in the region; in

¹⁴ A painted cliff site has been reported by Bourke (1976a: 149) in the Rembar Range, but no details of the motifs have been made available. Four other rock-art sites located on the southeast coastline also lack detailed descriptions of the art. These include an engraving site at Ruach village; a site with ‘drawings’ on the Melkko River on the south coast; an engraving site at Malmal Mission; and another engraving site at Pomio (listed on the University of Papua New Guinea Prehistory File, 1972).
particular the enveloped cross and spirals. Scroll-like motifs have been found at Malapapua and Cao-go in West New Britain, but otherwise there is a predominance of circular motifs embellished with central cupules (e.g. Garua; Akono Sogo).

Painted rock-art in New Britain is a classic example of the APT, though I would argue that they lack the curvilinearity (the scroll-like features) of the linear art noted in the APT sites of the MacCluer Gulf. The picture which seems to be emerging in this west-to-east summary of the rock-art of the Pacific is that certain painted motifs associated with the APT appear to find their way into the AES assemblages of Island Melanesia. In Island Melanesia, the APT incorporates a new motif range which is more characteristic of some of the linear rock-art of mainland New Guinea (such as Lake Kutubu, the Sepik and Sialum) which has a far more rectilinear quality. In dating these sites, the rock-art at the Beehives may be instructive. The rectilinear component of the APT, which is distinct from the broadly curvilinear expression of the APT in Eastern Indonesia, appears to have commenced at the Beehives no earlier than c.1400 BP. This date is consonant with Ballard’s (1992a) c. 2000 BP date for the commencement of the APT.

3.11.2 Manus Province (Admiralty Islands)

Some 16 sites have been recorded in Manus Province. Of these, eight have been recorded in some detail, and six are formally registered with the PNG Museum. Most of the rock-art is painted at inaccessible heights on coastal cliffs, and thus falls within the definition of the APT (Plate 8 and Plate 9). Two engraving sites have been recorded on Manus Island. One is a basalt boulder located on a hilltop known as Polomou, and the other, Asa-ne-aluh, is a basalt boulder located in a river bed. Both sites are located more than 2km inland. The motifs at Polomou include rows of cupules, hands, feet, and lizard motifs. Bühler (1946-49) was told by an informant that some of the designs depict turtles, cuscus, the moon, sun and crocodiles. Descriptions of the rock-engravings of Asa-ne-aluh suggest a motif range quite different to Polomou (Ballard 1988a). Here, the motifs are mainly non-figurative, and include clusters of concentric circles, a diamond shape with an internal cross, and a complex curvilinear motif consisting of a bisected heart shape. Notably absent from the Manus engraved rock-art are the face-like motifs found in most other regions of Island Melanesia.

Painted rock-art in Manus consists of bichrome and monochrome images in red and/or white, with red being the primary colour used. The rock-art at most sites is highly inaccessible, sometimes occurring tens of metres above the high water mark on sea-cliffs. Among the more densely decorated and intensively recorded assemblages are Papi and Kolmey on Mouk Island, and sites on Malapin and Small Sivisa islands in the Fedarb Group (8km east
of the obsidian stone source of Lou Island) (Ballard 1988a). At all sites the most common motif categories include circles, crosses, zigzags, diamonds and triangles, as well as a number of zoomorphs and anthropomorphs. The 'lizard' form is especially common, and comparable to figures observed at painted sites elsewhere in New Guinea and regions further west. A couple of motifs resembling birds and turtles are also present. The non-figurative motif range is, generally, rectilinear in nature, matching the style of the painted motifs observed elsewhere in Island Melanesia, especially New Britain.

Very little in the way of chronological information has been ascertained from the Manus data, and that which exists does not lend itself easily to interpretation. Ballard (1988a) reports examples of red superimposing white pigment at Papi. At Kolmey, however, a sun motif appears to have been initially painted with red pigment but later outlined in white. At the engraving site of Asa-ne-aluh there are said to be differences in the degree of weathering of some motifs, but it is unclear exactly which motifs are more weathered than others, nor whether certain areas of the rock surface are more susceptible to erosion than others (Ballard 1988a). Spriggs (pers. comm. 2001) has noted that the red pigment art at Pamwak is highly weathered (flaking off the walls) and is therefore unlikely to have survived more than a couple of thousand years. On this basis he argues that the rock-art probably relates to occupation which began in the last 2000 years, as there was a 3000 year hiatus of occupation prior to this time. The perceived similarities between the non-figurative motif range in Manus and New Britain may also provide a clue to the age of the former, based on the dating of the Beehives site. Notably, Dong-son-like motifs, as described by Badner (1972) are missing from the painted sites of Manus and are not very prominent among engravings (Kennedy 1982).

3.11.3 New Ireland Province

New Ireland Province possesses both engraved and painted rock-art sites (Figure 3.8). Much of the painted art conforms to the general description of the APT, while the engraved rock-art – which includes concentric circles, spirals and face motifs – shares many of the features of the AES of Island Melanesia and Milne Bay. One of the most striking features of New Ireland rock-art is its remarkable internal diversity, even though most motifs have inter-regional correlates.

**New Hanover**

All of the known rock-art on New Hanover is engraved and occurs on boulders in open locations. Similar motifs are found among engraved assemblages in Milne Bay Province,
and in the painted assemblages in the Sepik and Highland regions, including circular and scroll forms and enveloped crosses.

Lampert (1967) reports a rock-art site at Likding, New Hanover, which is located at the western end of the Tirpitz range. The engravings occur on a flat rock which sits on a narrow ridge. Motifs include several enveloped crosses, pecked-out feet, an outline of a human figure, scroll-like (spiral) geometric, and other geometric shapes. Bühler (1946/9) also reported rock-art at Likding but it is not entirely clear whether he is describing the same site recorded by Lampert.15 Lampert (1967: 492) comments on the regional extent of the enveloped cross as follows:

The two forms seen at Likding are present on New Caledonia where they are known as croix simple à double enveloppe and croix à enveloppe simple (Oriol, 1948: 35). Both appear as ornamentation on a tapa cloth from the north coast of New Guinea (Bodrogi, 1959: 91) while the doubly enveloped cross together with multi-enveloped examples appear as rock paintings at Batari in the New Guinea Highlands (J. P. White, personal communication; White and White, 1964: 777).

As noted above, the enveloped cross is also present in the engraved rock-art of Milne Bay.

Bühler (1946/9) also describes rock-art at Meteinge, Issibang, Lavongai, Soula, and Meteranga. All of the rock-art at these sites is engraved, with motifs including concentric circles, rosettes, spirals, enveloped crosses, anthropomorphic figures, footprints and faces. Pitts (1967) mentions another engraved boulder located near a mangrove swamp on the southern coast of the island, the motifs including circles, a concentric circle, a concentric circle with internal spokes, an ovoid shape, and three evenly spaced linear designs.

Due to a lack of examples of superimposition, no chronological information has been gleaned for the rock-art of New Hanover.

New Ireland
Two engraving sites are known on New Ireland. Gallasch (1974a) reports engravings at Umarah, a limestone cave located on the eastern coast of New Ireland. The motif range is limited, consisting of four faces, lines, and several 'small holes' (presumably cupules). It is suggested that apart from a face motif at the base of the decorated panel, which appears to be recent, the remaining engravings look 'ancient' (1974a: 160). The faces are very large and located about 3m above the floor of the cave. Contrary to the suggestion of Gallasch (1974a: 160), similar engraved faces are known throughout Island Melanesia. The convention of a

15For this reason I have allocated two separate site numbers to Likding (85 and 86).
single line joining the eyes and nose is particularly prevalent in the region (cf. Big Tabar, below), and bears resemblances to the Type2 Lapita face designs identified by Spriggs (1990b). Bühler (1946/9: 245) has written about a second engraving site in the Tigak area near Kavieng, said to comprise groups of overlapping concentric circles and a semi-circle located on a boulder in a large reef cave.

Peterson and Billings (1965) have reported a rock-painting site at Paruai, located a few kilometres inland from the east coast of New Ireland. The images are all in red ochre, and located on a rock-face about 20m above the ground. There are 10 pictures in total, situated in a more or less horizontal line above a ledge. Peterson and Billings’ informants suggested that the rock-face was at one time a major feature in the landscape, and could be seen from the sea. The inaccessibility of the art and its former coastal location would place it firmly within the framework of the APT. Motifs present include six anthropomorphs (one accompanied by a bird) in relatively dynamic postures, a design resembling a face, and two others which ‘do not immediately suggest any definite subject matter’ (1965: 255). Peterson and Billings’ (1965) description of the site was augmented by Robinson (1969), who identified a further panel of red paintings at the same site located directly below the one already recorded. Anthropomorphs were found on this section of the rock-face, but were described as more ‘stick-like’ and static than those recorded by Peterson and Billings. Spiral/scroll motifs were also recorded in this lower panel. Other regions where painted spiral/scrolls have been noted are the Highlands of New Guinea (e.g. Jimi/Wahgi river valleys), the Sepik provinces, Milne Bay and the MacCluer Gulf (Manga style).

Other limestone caves found on New Ireland containing painted rock-art include Kameribuk (Buang Merabak), Panakina (or Panakiwuk), and Balof 2, each of which was inhabited in the Pleistocene. The rock-art at Buang Merabak includes several black and red hand stencils and prints (Brown et al 1976: 127; Wilde 1975c: 11). The rock-art at Panakiwuk consists of a number of black stencils, including hands and elaborately infilled leaf shapes, located c. 6m above the current floor level. Balof 2 also contains several black hand-stencils. Each of these sites mark further transformation in the patterns observed in this summary of the rock-art of the Pacific. Does the painted art of New Ireland proper represent an eastern rendition of the APT whereby black pigment replaces red? Or are we witnessing an entirely different form of rock-art which is linked to the Pleistocene settlement of the region? An attempt to ‘directly’ date the pigment at these sites is of pressing importance as there is a possibility that it may yield dates earlier than 3500 BP. However, given the rate of preservation observed in other limestone caves in Island Melanesia, it is more likely that the paintings at these sites are related to more recent occupation levels.
**Tabar Islands**

Thirteen rock-art sites from Simberi and Big Tabar islands have been recorded by Gunn (1986). One of these is a cave containing red paintings; the remaining twelve are engraved boulders, most of which lie in open locations in the middle of river courses. The images at the painted site are simple linear constructions, including a human form. The engraved art consists of a broad range of non-figurative and figurative forms. Most of the non-figurative motifs are curvilinear, including variants of the circle and spiral which resemble some of the rock-art seen on New Hanover. There is considerable stylistic variation amongst the figurative images which include a range of anthropomorphic and face-like forms. One type of anthropomorph, with an outlined elongated torso and flexed arms and legs, is reminiscent of some of the painted rock-art of the Buang Valley and other regions to the west. Other anthropomorphs are more curvilinear in appearance and have no regional counterparts. Gunn (1986: 463) also identified depictions of birds, fish, an eel, sharks, porpoises and a wallaby among the engraved assemblages of this island group.

**Tanga**

Bell (1938, 1940) reports rock-art in a coastal cave site on the north coast of Boeng Island (Tanga Group) which is said to be associated with love-magic. The cave is nestled into a sheer cliff that rises out of the ocean. To access it requires negotiating a perpendicular rock-face clinging to vines. Bell (1940: 79) writes that the cave contains hundreds of paintings in red ochre, although in the published sketches only two types of motifs are represented: stick figure anthropomorphs and chevrons connected by a central line. One of each of the paired anthropomorphs is depicted with an appendage between the legs, and is interpreted by Bell as a male (1940: 80). The location of this red pigment art, in a coastal cliff which is difficult to access, is typical of the APT identified by Ballard (1992a).

The diversity within New Ireland’s rock-art assemblages presents an interesting picture of possible inter-regional connections. The motifs associated with the New Hanover engraving assemblages are characteristic of a particular component of the AES which appears to have a very specific regional distribution. I refer here to the presence of scrolls, spiral and enveloped crosses which comprise the vast majority of the motifs on this island. In the Island Melanesian region these motifs are specifically (but not exclusively) found on boulders and share strong parallels with the engravings of Milne Bay and the paintings of mainland New Guinea and Eastern Indonesia (e.g. the MacCluer Gulf). There are few examples of the rock-art which is particularly prevalent in the New Britain assemblages,
such as the art of Watom and Garua which consists of a vast range of circular motifs (often contiguous) with central cupules.

The engraved Lapita Type2 (Spriggs 1990b) faces found in Umarah cave on New Ireland are consistent with the Island Melanesian occurrence of this form. Notably, however, these faces are not found in the assemblages of New Hanover where spiral and scroll forms prevail. In the statistical analyses of the next chapter I will be seeking to establish whether there are differences in the spatial distributions of Type2 faces, the circular motifs typical of New Britain, and the spiral forms prevalent in New Hanover. What is becoming increasingly clear is that the motifs which constitute the AES appear to be differently distributed through space.

The Paruauai painting site is interesting because, while it falls categorically within the realm of the APT, it is not located on the coast. What is also interesting is that it includes spirals in its motif range, which is a rare find in Island Melanesia as spirals are usually associated with AES assemblages. Likewise, the flexed leg anthropomorphs found in the Tabar islands are more particular to APT assemblages, particularly those in the Buangs. It is these types of sites which may eventually provide clues as to how the APT intersects with the AES through space and time.

3.11.4 Solomon Islands

According to Roe (1992a: 107), in excess of 60 rock-art sites have been identified in the Solomon Islands but few have been fully documented or published. There are apparently several painted sites in the region, but information is only available only for those from Bougainville (Roe, pers. comm 2000).

Bougainville

John Terrell (1969; 1976) writes of two painted sites, Bubun and Sanopar, located in northern Bougainville on wave cut features in limestone cliffs facing the sea (Figure 3.8). Sanopar consists of both red and black pigment motifs, including a face, several markings (said to be associated with the death of a Big Man), an anthropomorph, a cross and several patches of pigment. The Bubun motifs include a red pigment cross and anthropomorph, both of which bear a resemblance to the motifs at Sanopar. More recently, Matthew Spriggs (2001b) has been told of the presence of several caves and shelters in the Teop-speaking area, including some with painted rock-art, but these sites await systematic recording.
The only report of engraved rock-art on Bougainville comes from Blackwood (1936: 175-176), who describes a ‘large stone’ (its exact whereabouts are not given) with ‘a series of wavy lines’ on one side, and a ‘deep groove’ on the other. Wavy line engravings are also known from Northwest Guadalcanal (see below).

**Northwest Guadalcanal and surrounding regions**

The most intensively surveyed rock-art region in the Solomon Islands is Northwest Guadalcanal (Roe 1992a) (Figure 3.9). The most common engraved image recorded here is the canoe, which constitutes around 33% of the total number of motifs counted (n=209). Canoe motifs are rarely found elsewhere in Island Melanesia, indicating that much of the rock-art of Guadalcanal may have been produced independently of cultural influences from adjacent island groups. Other motif categories in the Guadalcanal assemblages include footprints, birds, anthropomorphs and crescent shapes, each of which have regional analogues (Plate 10).

While most of the rock-art sites in Northwest Guadalcanal are similar to one another, one stands out from the rest. The rock-art of Vatuluma Posovi (site 119, Figure 3.9), a large solution cave in Poha Valley, appears to be quite different from rock-art observed elsewhere in the Solomon Islands. There are two interesting features to this site which may explain why it is so distinctive. The first is that it is a cave. As noted by Specht (1979, and see above), most engraving sites in the western Pacific are associated with boulders rather than caves. Could it be, therefore, that boulders and caves are associated with different types of engraved motifs? The second feature is that much of the engraved rock-art at Vatuluma Posovi is inaccessible. Inaccessibility is usually a trait associated with the painted rock-art of Island Melanesia, although inaccessible engravings have been recorded in both the Solomon Islands and Vanuatu (see Chapter 6). Is it also possible, therefore, that the inaccessible engraved rock-art of limestone caves is more similar to the inaccessible painted motifs found elsewhere in the western Pacific? Unfortunately, the inaccessible rock-art at Vatuluma Posovi was not recorded due precisely to problems of access (Roe 1992a), and is therefore unavailable for comparison. However, there is now sufficient data on the inaccessible engraved rock-art of Vanuatu to enable this question to be addressed (see Chapters 6-8).

Strong similarities are said to exist between the rock-art of Guadalcanal and Vella Lavella, as both share serpentine forms, rows of dots, canoes and fish (Roe 1992a). Motifs on a boulder in the Vangunu crater (south of New Georgia in the western Solomons) also resemble the Guadalcanal material, especially the canoe forms and an anthropomorphic motif. One of the
major differences between Northwest Guadalcanal and other Solomon Island assemblages is the lack of scroll and spiral forms in Guadalcanal, both of which are found at the Simbo and Vella Lavella sites (Roe 1992a: 112).

A comparison between the Guadalcanal motifs and Frimigacci and Monnin's categories for New Caledonian rock-art revealed that 50% of the New Caledonian categories are represented in Guadalcanal. One of the major differences exists in terms of the frequency of canoe forms, with only three cases found in New Caledonia (Roe 1992a). Guadalcanal rock-art also shares footprints, enveloped crosses and face designs with New Hanover, and concentric circles and anthropomorphs with Tabar.

The best dated engraved rock-art in the Island Melanesian region derives from Guadalcanal. Roe's re-analysis and re-survey of Vatuluma Posovi considered a number of sub-surface engravings, yielding a minimum age for their production of 2920±110 years b.p. (Roe 1992a: 111). Among the sub-surface engravings were a cross encased by an irregular shape, a linear motif, a fish, and a curvilinear form incorporating a circle and central cupule. Roe (1992a: 111) concluded that "[o]n present evidence ... the tradition of rock engraving in the southern Solomons is certainly as old as the Lapita settlement of the area and could possibly be much older".

One of the most striking features of the Vatuluma Posovi material is its curvilinearity. While curvilinearity is a feature of much of the engraved rock-art of Island Melanesia, it is less so of other sites in Northwest Guadalcanal. The age of other rock-art in the Guadalcanal corpus cannot therefore be easily inferred from the minimum age obtained for the rock-art of Vatuluma Posovi. Having said this, an enveloped cross motif recorded at a boulder site in the Upper Poha Valley is comparable with a design observed on a Lapita sherd from Gawa in the Reef Islands. This suggests that at least some of rock-art elsewhere in Guadalcanal could be as old as Lapita.

Fox (1924) describes three engraving sites in the Arosi area of northwest San Cristobal (now Makira), all of which display depictions of footprints, some larger than life-size. Footprints are found in the engraved rock-art of various Island Melanesian regions (e.g. New Hanover), with oversized varieties occurring in Kiribati and on Pohnpei in Micronesia (Rainbird and Wilson 1999). Two of the San Cristobal sites include what are regarded as depictions of frigate birds (Fox 1924), and one site – Mada – displays anthropomorphs, a 'crescent-moon ornament', a turtle and a crocodile.
One of the most important issues arising from this review of Solomon Islands rock-art is the difference between motifs found on boulders and in limestone caves. Apart from a single spiral at a site on Kitava in Milne Bay (PNG), and an enveloped cross surrounded by a circle recently discovered at a cave site in north Efate in Vanuatu (Spriggs pers. comm. 2002), there are no examples of enveloped crosses, scrolls, spirals or Type 1 faces (Spriggs 1990b) in limestone caves in Island Melanesia. Even in areas where engravings are found in limestone caves, such as the Solomon Islands and Vanuatu, each of these motifs always occurs on boulders or at open sites. The presence of enveloped crosses on Lapita pottery provides a minimum age for the occurrence of this motif in Island Melanesia and elsewhere.

3.11.5 New Caledonia

Although there is some painted rock-art in New Caledonia, engraving is the only category to have been studied in any detail. Engraving sites occur throughout New Caledonia, and have been subjected to one of the most intensive rock-art recording programs in the western Pacific (Luquet 1926; Oriol 1948; Chevalier 1959; Frimigacci and Monnin 1980; Monnin 1986). Daniel Frimigacci and Jean Monnin, who are responsible for most of the recent recording and analysis of New Caledonian rock-art, have developed a classification system for the art which places each motif into one of thirty motif classes, including circles, cupules, spirals, enveloped crosses, zigzags, sinuous lines, bands of concentric arcs, rectilinear and rectangular motifs, human figures, human footprints, vulvae, lizards, fish and turtles. Motifs are predominantly non-figurative.

Four techniques of engraving have been described by Monnin (1986: 41-42): (1) pecked and abraded; (2) pecked (although these are uncommon, and thought to be possibly unfinished ‘pecked and abraded’ forms); (3) incised; (4) intermediate between 1 and 3 (in between a ‘u’ and ‘v’-shaped groove). Group 4 motifs tend to be found at coastal sites, and many of them appear to be recent as they include names and other words. Group 1 images are found in all states of preservation from poor to well preserved, whereas 2, 3 and 4 are fairly uniformly preserved. Some of the group 4 motifs are protected by sand on beaches. Comparisons with old photographs show that there has been little deterioration of the engravings since about the 1920s. The antiquity of New Caledonia’s engravings can really only be speculated upon in terms of differential conservation (Monnin 1986: 43). There has been no real study yet of locational characteristics but it appears that engravings are distributed across all rock types (i.e soft and hard rocks).

Only one painted site has been reported in the publications on New Caledonian rock-art – a cave site (Wanaham) located on Lifou, in the Loyalty Group. According to Frimigacci and
Minnin (1986: 38), both positive and negative images of hands are present. Another painted cave site has also been found on the island of New Caledonia but no further details of the nature of the art have been provided (Spriggs and Mumford 1992: 135; Christophe Sand, pers. comm. 2001).

3.12 The rock-art of Micronesia

Rock-art in Micronesia seems to be relatively rare by comparison with other parts of the Pacific. In the west, figurative drawings are found in caves in the Marianas (Thompson 1932; Henrickson 1968; Fritz 1989: 41); bas-relief carvings have been noted on the stone platforms on Yap (Hunter-Anderson 1985); and both engravings and paintings are known in the Palau Islands (McKnight 1964; Schmidt 1974; Gregory and Osborne 1979). According to Gregory and Osborne (1979: 299), similar geographical and stylistic conventions are shared by six rock-art sites in Palau. Paintings at a limestone cave on Aulong include red motifs located between 10m and 20m above the ground, and those on Aluptaciel – which are also red – are located high up on a white cliff (Osborne 1966: 439). Both sites thus display attributes which situate them within the APT, with strong connections to the painted assemblages of Eastern Indonesia (Schmidt 1974). Particularly strong relationships have also been noted between the motifs at Aulong 4 and those of the Admiralty Islands, the four-pointed star being one of the more unusual motifs shared by the two regions.

Petroglyphs have been reported by Clune (1977) from Chuuk Lagoon (Wonei peninsula), on Tol Island, as well as on Moen. The Tol Island rock-art includes what have been described as ‘pandanus’ trees, and the Moen Island rock-art includes images resembling boats. Petroglyphs have also been reported by Turbott (1949) on Kiribati, including a combination of very large footprints and life-sized ones, as well as depictions of lizards and a basket.

The largest assemblage of rock-art known in Micronesia is a petroglyph site on Pohnpei known as Pohnpaid (Figure 3.11). Among the motifs are oversized and normal-sized footprints (comparable to those on Kiribati) and a form which resembles a combination of a sword and paddle, termed ‘swaddles’ by the recorders (Rainbird and Wilson 1999). The rock-art at this site is located on two geological components, a terraced outcrop of metamorphic rock and a nearby cluster of metamorphic boulders. The motifs on the boulders are quite different to the motifs on the terraced outcrop and include a large number of enveloped crosses. Other sites on Pohnpei include an engraving associated with a lolong (stone tomb) in Nett, and a footprint petroglyph located at the top of a waterfall in Kittu.
The predominance of enveloped crosses on the boulders at Pohnpaid (one case has been found on the adjacent terraces) accords with a prior statement linking this motif to boulder rock-art in Island Melanesia and the Massim area. Oversized footprints, noted on Kiribati and at Pohnpaid, resemble those described on San Cristobal in the Solomon Islands. Boat motifs, recorded on Moen and at Pohnpaid, have also been recorded in the Solomon Islands. Some of the engraved motifs seen in Micronesia have analogues in painted assemblages elsewhere in the western Pacific, including sun-symbols (Pohnpaid) and lizard forms (Kiribati).

As described in Chapter 2, the Micronesian region was colonised by historically separate movements, starting at the Marianas around 3500 years ago and ending with the settlement of most of the central and eastern islands by about 2000 BP. Due to its diverse historical origins, ‘Micronesia’ as a geographical term has no cultural significance (Rainbird forthcoming). For the purposes of this thesis I have selected one site in the ‘Nuclear Micronesian’ language area for comparison with rock-art elsewhere in the western Pacific: Pohnpaid. A maximum age of 2000 BP is available for the rock-art site by virtue of the fact that Pohnpei appears not, on current evidence, to have been settled prior to this time.

3.13 Fiji-Western Polynesia

It is possible that some of the rock-art of Vanuatu and other parts of Island Melanesia was produced during a period of direct contact with western Polynesian communities (especially over the last 1000 years when episodes of migration from the east occurred), and that this contact may have had a direct impact on Island Melanesian graphic systems.

3.13.1 Fiji

Apart from an impressive painting site on Vatulele, most of the rock-art of Fiji is engraved (a total of 16 sites), and consists of (a small range of) non-figurative motifs (Figure 3.10). Palmer and Clunie (1970) propose two main categories for the engravings of Fiji: rectilinear and curvilinear (dominated by the concentric circle). Much of the engraved rock-art of the Society Islands, the Marquesas and Hawai’i has a rectilinearity reminiscent of the non-figurative engravings of Fiji.

In the rectilinear category are two engraving sites described by Snow (1953): Dakuniba (southern Vanua Levu), and Sawa-i-lau (Yasawa Group). Dakuniba consists of a cluster of

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16 As I have not seen the images of boats from Moen, it is unclear whether they are stylistically similar to those in Northwest Guadalcanal.
17 Ewins (1995: 68) reports being told of a further two painting sites, neither of which he has seen, located on Ovalau and Lau.
inscribed stones (*vatuvolavola*) dissected by a walking track. The Sawa-i-lau engravings are located on a boulder inside a limestone cave. From the images in Snow’s publication it appears that most of the engravings at these sites are non-figurative and consists of arrays of sharply angled and often overlapping lines.

In the curvilinear category are two sites described by Hill (1956): Vuinadi and Na Savusavu. The Vuinadi engravings (Netawa Bay) are situated on a large boulder, the range of motifs including concentric circles, a leaf-shape, a circular motif, a T-shape with circles at each end of the horizontal line, and horizontal lines of cupules. At Na Savusavu (Yasawa Group) the motifs include variations of a circle with a central cupule. Some motifs consist of multiple concentric circles, while others are decorated with rays emanating from the outer rim. Also among the sites in the curvilinear category is a boulder on the island of Beqa which displays spirals according to Phillips (1951) and concentric circles according to Palmer and Clunie (1970).

The most intensively recorded site in Fiji is a painting assemblage located on the coastal cliffs of north-west Vatulele. According to Ewins (1995: 23), degrees of weathering and calcareous accretions associated with some motifs suggest a considerable antiquity for the site, possibly of ‘Lapita’ age. Ewins (1995) divided the site into nine panels and eight motif categories: (1) human figures, (2) human faces, (3) hands, (4) birds, (5) leaves, (6) sea creatures, (7) voyaging canoes, and (8) abstract symbols. Some of the ‘muscled’ human figures at the site display characteristics which Ewins regards as Polynesian in both ‘stance’ and ‘form’. These are thought to most closely resemble engraved motifs common among Hawai’ian rock-art assemblages (Ewins 1995).

The most common images at Vatulele are human faces, but these are significantly different from the face motifs observed among the engraving assemblages of the Bismarck Archipelago (e.g. Umarah, New Ireland). The rayed lines emanating from the head and the elaborate linear detail on the face of the Vatulele paintings are attributes observed among engraved face motifs at Bisiai (Normanby), Lohomunidabu (Central Province), Pohnpald (Micronesia), and several sites on Malakula (Vanuatu). Painted face motifs are rare in the Pacific region.

Vatulele falls well within the boundaries of the APT. The primarily red paintings occur on a cliff-face at a considerable height above the high water mark (Ewins 1995: 65). Based on

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18 It is possible that Snow (1953) also makes reference to this site, although he states that the rock-art is located on a cliff-face rather than a boulder.
both stylistic and technical criteria, Ewins draws parallels between some of the Vatulele images and the Tabulinetin rock-art of the MacCluer Gulf (West Papua). Similarities include the presence of hand stencils (which are regarded as among the earliest motifs at this site), the use of red ochre, and the presence of anthropomorphs, fish and animals. Ewins (1995: 63) concludes that:

Vatulele artists chose a remarkably similar gallery site to those chosen by Austronesian peoples in a large number of sites in Western Melanesia, that both use red staining material, and that both included zoomorphic and anthropomorphic elements in their art.

Intriguingly, one of the more unusual ‘hand stencils’ at Vatulele is identical to examples observed at Panakiwuk (Panakina), New Ireland. If cultural connections spawned this similarity then it is unlikely that this motif at Panakiwuk is of Pleistocene age.

Concentric circles and other curvilinear forms are commonly found in the rock-art of Island Melanesia, suggesting the possibility of influence (in either direction) between the engraved rock-art at Vuinadi and Na Savusavu and similar art to the west. The rock-art assemblages of Dakuniba and Sawa-i-lau, however, have a distinctive rectilinear quality rarely found in Island Melanesia, being more common in Polynesian engraving assemblages. A lack of dates for the engraved rock-art of Fiji (and indeed anywhere in the region) makes it extremely difficult to situate this rock-art within a temporal framework or to speculate on directions of influence. On present evidence, however, the combination of Island Melanesian and Polynesian elements in the rock-art of Fiji suggests an ‘intermediate’ status, and implies possible cultural links to both the west and east. The presence of painted anthropomorphs on Vatulele which resemble engravings in Hawaiian rock-art is suggestive of Fiji’s eastern connections, while their coastal location and relative inaccessibility imply links to the west.

There has been little speculation concerning the age of Fiji’s rock-art, other than Ewin’s (1995) proposal that the paintings at Vatulele may be of ‘Lapita age’. At Vuinadi (Natawa Bay, on Vanua Levu island), Hill (1956: 76) remarks that the curvilinear art gives the impression of being of ‘great age’, as the edges of the incised grooves are blunt as a result of weathering over a long period of time. In contrast, rock-art located inland from Malake (between Yasawa and Valovoni, Vanua Levu) is thought have been produced relatively recently due to the presence of post-contact images, including an ‘aeroplane with a propeller’ (Hill 1956: 83). Circular motifs with central cupules which are similar to forms observed at Na Savusavu have a minimum age of c. 3000 BP in the Solomon Islands. If a connection
between the rock-art of the Solomons and Fiji can be established, Na Savusavu may contain some of the earliest art in Fiji.

3.13.2 Tonga and Samoa

Very few sites are known from Tonga and Samoa, and those that have been documented consist entirely of engravings (Figure 3.10). Whether the paucity of rock-art in these regions is indicative of sampling bias is difficult to judge at this stage; only systematic survey will determine this for certain.

Three petroglyph sites are known from Tonga: one on Tonumea, another on the langi walls on Tongatapu, and a third on an upraised limestone rock on Telikitonga (although a conflicting description places the site on Telekivava) (Palmer 1965). Only the rock-art at this third site has been described in any detail, the motifs including ellipses, circular motifs with linear appendages, a cross, and anthropomorphic forms. Palmer (1965) suggests that the anthropomorphs at this site are comparable to those found in the rock-art galleries of Pitcairn, the Marquesas, and the Society and Hawaiian Islands (see section 3.14 below). Burley (1994: 511) has also reported the existence of a carved foot motif (right plantar view), and 'a series of enclosed, spaced perpendicular bars spread along a panel of 1.8m', located on stones which forms part of a royal tomb on 'Uiaha Island (Ha'apai).

Engravings have been found at three sites in Samoa – at Leone and Leata on Tutuila, and at Fitiuta on Ta'u. Four groups of petroglyphs have been defined at Leone, the most common motif among them being a central cupule surrounded by a circle of pecked holes (Kikuchi 1963: 165). Other motifs at this site include a possible anthropomorph, a paddle, a human foot, and a squid or octopus. The engravings at Leala include 'sailing craft', names and squares, most of which are known to have been produced by boys from a nearby school in recent times (1963: 165). The site at Fitiutu on Ta'u consists of only two engravings, one resembling a fishhook with nine holes surrounding it, and the other a cluster of four to five holes.

The rock-art of this region appears to be distinctly unlike that reported from the western Pacific and, as noted by Kikuchi (1963), more similar to the engraved rock-art of central and eastern Polynesia. To test this perception, some of the rock-art of Tonga and Samoa is included in the motif analyses presented in Chapter 4. It is assumed that the rock-art of this region will distinguish itself statistically from that found further to the west.
3.14 The rock-art of Central Eastern and marginal Polynesia

While the rock-art of Central Eastern and marginal Polynesia is not directly considered in this thesis, it is briefly described here in order to provide a sense of the continuities and discontinuities between the rock-art of the western Pacific and adjacent regions.¹⁹

3.14.1 The Marquesas

The Marquesas Islands Rock Art Project, which commenced under the direction of Maeva Navarro in 1984, has since been further developed by Sidsel Millerstrom (1988, 1990, 1992, 1997). Much of the rock-art of the Marquesas is homogeneous, suggesting to Millerstrom (1997: 181) that it was produced within a framework of inter-valley and inter-island contacts. A total of 6331 individual petroglyphs, 110 paintings, and 81 ‘human stone sculptures’ have been recorded. Five motif categories have been identified: anthropomorphs (including disembodied portions, such as faces), zoomorphs, material objects, geometric designs, and plant forms. Circular geometric motifs represent the most common category but cupules are also common, often being incorporated into the designs of other forms. Engravings are exclusively found on basaltic stones, the main methods of production being pecking, pecking and abrasion, and incision. Intaglio and bas-relief (produced by pecking and abrading) images also occur. Evidence of superimposition in the region suggests that the earliest rock-art consists of rectilinear anthropomorphic forms that were either pecked, bruised, or pecked and abraded. Bas-relief, a technique used in the engraved art of Easter Island, New Zealand and occasionally Hawai‘i, is thought to have emerged later. Much of the rock-art of the Marquesas is found in association with specific architectural features, such as raised house features (paepae), sacred stone structures (ahulme‘au) and communal ceremonial complexes (tohua).

Rock paintings are found in six shelters on Hiva Oa. All have been produced using red pigment and are stylistically similar to each other. The motif categories present among the painted assemblages are similar to the engravings of the Marquesas, although stylistically quite different. Motifs include anthropomorphs, quadrupeds (e.g. dogs), marine animals and a range of non-figurative forms.

The engraved and painted rock-art of the Marquesas demonstrates a stronger affinity with the rock-art of other parts of Polynesia than with Island Melanesia, although several engraved

¹⁹ In this section I describe only the larger bodies of rock-art of Central Eastern and marginal Polynesia; however sites are also known from the Australs, Tubuai, Rapa and Pitcairn. There are no reports of rock-art from the Tuamotu or Cook archipelagoes (Millerstrom 1997: 194).
circular and face motifs (*mata komoe*) do bear a close resemblance to rock-art documented in the Bismarck Archipelago.

### 3.14.2 The Society Islands

The engraved rock-art of the Society Islands, originally examined by Kenneth Emory (1933) under the auspices of the Bernice P. Bishop Museum, has received little archaeological investigation by comparison with other rock-art regions of Polynesia. One of the most common images is the turtle, which is found extensively throughout the Pacific (Rolett 1986), but there are also a large number of stick-like forms which closely resemble engraved figures from Hawai‘i and the Marquesas.

### 3.14.3 Hawai‘i

The rock-art of Hawai‘i is currently being systematically recorded by Georgia Lee and Edward Stasack (1999), with 31,640 petroglyphs already listed in a computer data-base. A relative chronology has been proposed for the art of this region based on a perceived evolution of the anthropomorphic form, from simple rectilinear stick figures through to triangular torsos and finally to muscular-bodied forms. Chronometric dating on some of the rock-art of Kaho‘olawe Islands offers support for this relative sequence (Stasack *et al.* 1996). Most of the figurative rock-art in Hawai‘i is rectilinear and very different in style to that of Island Melanesia (apart from Fiji). However, the (mainly curvilinear) non-figurative component, which consists predominantly of circle and cupule combinations, has a number of western Pacific counterparts.

### 3.14.4 Easter Island

The most intensively and thoroughly recorded rock-art region in the Pacific is Easter Island. In 1981 Georgia Lee directed a survey of the island’s rock-art, her work culminating in a monograph (Lee 1992). Most of the rock-art on the island takes the form of curvilinear engravings, occurring primarily on volcanic boulders but occasionally also in caves. A variety of techniques appear to have been used, including incision, pecking and/or abrasion, bas-relief and intaglio. A few paintings have also been discovered on the island, generally located in caves and often found in association with engravings. At one site – Ana Kai Tangata – a panel of red painted birds (some partially outlined in white) is found on the ceiling of the cave well out of arm’s reach. Painted rock-art is also found on the offshore islet of Mota Nui, famous for its role in the bird-man cult.

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20 This also casts serious doubt on Ewin’s (1995) proposition that the muscular-bodied painted figures on Vatulele represent a proto-Polynesian art.
Lee (1992: 30) has defined 11 motif types for the rock-art of the Easter Island. Much of the rock-art is figurative, including anthropomorphs, disembodied anthropomorphs (including vulvae, hands, feet, faces, eyes), man-bird combinations, birds, marine creatures, terrestrial creatures, ceremonial objects and ornaments, watercraft, plant forms and objects of material culture. A range of geometric motifs are also represented, the most common being the cupule (n=4600). Komari (vulvae) are the most common figurative motifs, followed by faces, and bird-men.

Of the figurative motifs, Easter Island’s engraved faces bear the closest resemblance to rock-art seen elsewhere in Polynesia (particularly the Marquesas), and Island Melanesia. The stick figure anthropomorph, the most common figurative motif in the Marquesas, Hawai’i and the Society Islands, is entirely absent from Easter Island. The only connection between the rock-art of Easter Island and Hawai’i appears to be the ‘bird-man’, with several bird-man images found on three different islands of Hawai’i. Lee (1992: 5) rejects the idea put forward by Lavachery (1976) and Ferdon (1961) that the bird-man arrived as an ‘artifact or memory from South America’, claiming that imagery combining human and avian traits can be tracked back across the Pacific to Southeast Asia.

3.14.5 New Zealand

Both painted and engraved rock-art is found in New Zealand. Given that the settlement of New Zealand has occurred by about 800 BP (Anderson 1991), none of the rock-art of the region should be older than this. Engravings are generally described as being more common in the North Island, and paintings are thought to predominate in the South Island (Fomison 1962; Ambrose 1970; Bain 1985; Furey 1989). Much of the engraved rock-art is pecked and abraded but there are also several forms which have been produced in bas-relief, a technique used in other parts of Polynesia (especially on Easter Island). The painted art of the South Island has largely been rendered with dry pigment, and features both red and black images. The engraved rock-art of the North Island is diverse in both style and subject matter, while the rock-drawings of the South Island are relatively homogeneous.

Some of the painted rock-art in the South Island is found high up on rock-surfaces in inaccessible locations. Trotter and McCulloch (1971: 11) report that ‘[s]ome of the most inaccessible are found in South Canterbury where twenty to thirty feet up a rock face are a number of black drawings’. A large proportion of New Zealand’s painted rock-art is found in limestone shelters and consists of figurative motifs, particularly anthropomorphs. The most common is a frontally depicted anthropomorph with flexed arms and legs. The torso is often partially infilled with pigment with a blank strip down the centre. Other
anthropomorphs occur in profile, and occasionally two anthropomorphs are figured back to back. Also common are depictions of images which have been termed 'bird-men'. Formally these figures are very different to the 'bird-men' of Easter Island rock-art (above), their legs and torsos being more similar to the South Island depictions of anthropomorphs described above. Other figurative motifs are found in both North and South Island rock-art, including dogs, seals, birds and fish. Anderson (pers. comm. 2001) has suggested that the similarities between many of the figurative drawings of the South Island, particularly in terms of degrees of 'stylisation', render many images ambiguous. For instance, through only slight alteration, a human figure can be transformed into a bird, or a dog into a dolphin.

Large numbers of non-figurative forms are also known throughout New Zealand. '[S]ome appear to be purely geometrical, some abstractions from vertical forms, while others are random curvilinear designs often incorporating geometrical or abstract components' (Trotter 1971: 239). Rock-art is also known from the Chatham Islands, including a spectacular cave containing clusters of what look like engravings of seals. These islands are more renowned, however, for their dendroglyphs, commonly depicting anthropomorphs carved into the bark of karak trees (Trotter and McCulloch 1971: 25).

Stylistically, the rock-art of New Zealand is unlike rock-art seen elsewhere in Central Eastern and marginal Polynesia. The only perceptible similarities are the presence of particular figurative categories in the rock-art of the South Island (e.g. anthropomorphs, dogs) which are common to engraving assemblages in both the Marquesas and Hawai‘i. The curvilinearity and design elaboration associated with some of the North Island engravings are also reminiscent of engravings found on Easter Island. The ‘flexed’ posture associated with much of the South Island figurative ‘drawings’ and the trait of ‘inaccessibility’ are more commonly observed among the painted rock-art of Island Melanesia, mainland PNG and Island Southeast Asia. Whether or not these similarities can be attributed to shared influence is a question for future research. However, unless there was direct contact between South Island and western Pacific communities, or the ‘flexed’ trait was transmitted via media other than rock-art, it is unlikely that an argument for cultural continuity could be convincingly made.

The South Island Maori Rock Art Project (Te Kaupapa I Nga Tuhituhi Tawhitio o Te Wai Pounamu) was started in 1989 by Atholl Anderson with the support of the New Zealand Historic Places Trust, and was adopted in 1993 as a tribal project by the Ngai Tahu iwi, when Anderson moved to Australia. Aimed at recording all the evidence of Maori rock-art in the South Island of New Zealand it employs a full-time project officer, Brian Allingham,
and, using both large format photography and dot-for-dot tracing, it has produced 8 volumes of unpublished reports, plus a massive archive of recorded material. This remains under tribal embargo until the end of the project. In some areas of the project the number of recorded rock-art sites has increased by 300%, of which a significant proportion is engravings, once thought scarce in southern New Zealand (Anderson, pers.comm.)

3.15 An overview of the rock-art of the Pacific

In this chapter I have outlined the principal models available to account for western Pacific rock-art, and provided a region-by-region description of the rock-art of the western Pacific (excluding Vanuatu which is reviewed in Chapter 6). The first part of this thesis has elaborated upon two of these models, referred to here as the APT and AES, both of which are founded on a systematic analysis of the distribution of non-motif variables (e.g. technique, geology, accessibility) and an intuitively derived connection between sites based on motif similarities. In the process of summarising the rock-art of the Pacific islands, it seems reasonably clear that elements of the APT and AES are indeed found throughout the region, and that inter-regional similarities may reflect inter-cultural connections. What has also become evident, however, is that current perceptions of the APT and AES have two main shortcomings. The first of these relates to the relationships between the APT, the AES and current language areas, and the second relates to the distribution of motifs. These shortcomings suggest that neither the APT nor the AES is as distinct or cohesive as might once have been thought:

3.15.1 The APT, AES and language

The main components of the APT and AES are not restricted exclusively to Austronesian (AN)-speaking areas. In the case of the APT, red rock-art has been noted in inaccessible locations in non-Austronesian (NAN) speaking areas, such as Lake Kutubu in the Southern Highlands. While it remains highly probable that the APT developed with the movement of Austronesian-speaking people (the close correspondence between rock-art attributable to this tradition and isolated pockets of AN speakers is fairly convincing), a more developed model is required to account for the diffusion of APT traits into the NAN-speaking Highlands and lowlands areas of Papua New Guinea. Ballard (pers. comm. 2001) has offered a feasible explanation for this diffusion based on motif transfer between rock-paintings and barkcloth. The movement of barkcloth and associated rituals and ceremonies involving burial between coastal and highland regions may indeed account for the presence of APT traits in NAN-speaking areas such as Lake Kutubu and the Sogeri area.
Motif elements considered to be associated with the AES are also found in the NAN-speaking Highland regions, such as scroll and scissor forms (e.g. Jimi/Wahgi river valley and the Sepik). Both of these motifs are found extensively on a range of ethnographic materials which would seem to indicate that they have been transmitted across a range of media, perhaps over several millennia. As for the APT, the AES needs to be built into a model of design transfer which accounts for the presence of AES motifs in NAN-speaking areas, perhaps via the movement of a range of mobile decorated items. Such a model should also take account of the occurrence of Proto Oceanic linguistic terms which are used among non-Austronesian-speaking Highland communities, such as PAN *beRek “domesticated pig” (Blust 1995: 473).

3.15.2 The AES, APT and motif distribution

The second problematic feature associated with the APT and the AES relates to the illusion of a cohesive set of motifs being associated with each entity. Admittedly, neither entity was originally conceived on the basis of a clear picture of the motif distributions associated with each. However, in reviewing the presence and absence of motifs found in each Pacific region, dramatic differences between the motif contents associated with the APT can be seen from west to east. Some of the motifs which Ballard originally associated with the APT were said to be found on Metal Age artefacts, such as the boat motifs on Dong-son kettle drums. Painted motifs associated with the Metal Age, however, are generally more prevalent amongst the APT sites of Eastern Indonesia and West Papua than they are at the APT sites of Island Melanesia. In Island Melanesia, motifs found in connection with APT sites tend to be far more rectilinear than the art seen in the MacCluer Gulf, for example. In fact, APT motifs appear to be more similar to motifs observed on mainland PNG, particularly at those lowland and Highland sites which may bear the traces of some affiliation through contact with the APT phenomenon.

Variations in the distributions of motifs that have been linked to the AES have also been observed. In Island Melanesia, for example, I have discerned at least two sets of differently distributed motifs. The first includes variants of the scroll and the enveloped cross. These motifs, often found together within a single engraving assemblage, have been observed at specific sites in Milne Bay, New Ireland (New Hanover, Tabar), New Britain (Cao-go), the Solomons (Vella Lavella, Simbo), New Caledonia, and Micronesia. It is most common to observe these motifs on boulders, which are usually of volcanic origin. Notably, variants of the scroll are commonly associated with the APT in Eastern Indonesia, especially within the Manga style in the MacCluer Gulf. The enveloped cross has been noted in numerous painted assemblages throughout mainland New Guinea, in both NAN and AN-speaking regions.
Whether or not there has been a transfer of these particular motifs from the APT to the AES is a possibility that will be explored again in Chapters 4 and 9.

The other group of engravings which is commonly associated with the AES are circles with central cupules and face-like motifs. In general, circles with central cupules and the scroll and spiral forms just described are not commonly found together at the same site (Cao-go and Malapapua, West New Britain, being two exceptions). One of the aims of the next chapter is to determine whether the distinction between these two sets of motifs has any statistical basis.

Throughout this chapter I have alluded to various pieces of evidence which will assist in developing a chronological framework for the rock-art of the Pacific. I am reluctant at this stage, however, to present a case for the emergence of particular groups of rock-art motifs and styles without having yet determined whether the motif connections I have proposed have any statistical basis. I will revisit the significance of the spatial evidence presented in this chapter at the end of Chapter 4, in the conclusion to this part of the thesis devoted to western Pacific rock-art. In Chapter 9, after examining the rock-art of Vanuatu, a temporal sequence for the emergence of various western Pacific rock-art traditions will be defined.

3.16 Conclusions

While there is clearly considerable local variation in the rock-art of the western Pacific, such as the unusual leaf stencils at Panakiwuk (New Ireland Province), there are also trans-regional similarities, such as the presence of red pigment high up on cliff faces, and the recurrence of the enveloped crosses in the painted sites on the Papua New Guinea mainland and in engraved boulder art of Island Melanesia. Various scholars have proposed models to explain both trans-regional similarities and local diversity in the rock-art of the western Pacific. These models are summarised here, with a view towards testing and refining them via a series of statistical comparisons of rock-art motifs, as presented in Chapter 4.

1. The rock-art of the Pacific has thus far been assessed primarily within pre-existing interpretive frameworks derived from archaeology, linguistics and other disciplines. Evolutionary paradigms have been the focus for a great deal of research undertaken in the Pacific region, resulting in projects which ultimately search for the origins of particular cultural features (Kirch and Green 1987, 2001). Thus, for example, in the same way that Polynesian languages have been traced back to a homeland in Southeast Asia, the recurrence of certain rock-art motifs across the region has been attributed to ‘adoption and adaptation from shared origins’ (Rosenfeld 1988). If, as originally
proposed by Rosenfeld (1988), the rock-art of the Pacific transforms as a result of movement away from shared origins, then a clinal distribution should emerge in a statistical comparison of motif forms across the region.

2. Golson (1972a, 1972b) and Specht (1979) have proposed that many of the rock-art motifs seen in the engraved rock-art of the western Pacific were influenced by the Dong-son ‘ship-of-the-dead’ complex, which is thought to have originated in South China or North Vietnam and to have moved through Indonesia and the Pacific Islands. It is expected that rock-engravings which were influenced by Dong-son art (or by art traditions ancestral to both Dong-son and the rock-engravings) will form a statistically identifiable group that extends across a broad region.

3. Hugo (1974) has argued that the geographic and formal distinctions between painted and engraved rock-art are illusory. He proposed that, if the sites of the New Guinea Highlands are excluded from consideration, there is in fact a strong overlap between painted and engraved motifs in coastal regions, especially those of circular form. This statement is later challenged by Rosenfeld (1988: 134), who wrote that,

There seems to be surprisingly little overlap between the motif range of paintings, which are primarily a mainland trait, and of engravings which are predominantly a trait of island Melanesia.

The first multivariate analysis presented in Chapter 4 addresses this issue directly by statistically comparing circular forms between coastal rock-art sites in eastern New Guinea and Island Melanesia.

4. Specht (1979) and Ballard (1992a) have both related the distribution of painted and engraved rock-art traditions/styles to current Austronesian-speaking areas. Specht (1979) and Rosenfeld (1988) have both observed that painted and engraved rock-art have different regional distributions. And Hugo (1974) has suggested that the motif ranges associated with paintings and engravings are similar. The statistical analyses presented in Chapter 4 seek to explore the merits of each of these propositions. The first aim will be to ascertain whether the rock-art of the region falls into two statistically distinguishable groups: one which includes painted sites and another which includes engraving sites. The next step will be to assess the relationship between paintings and engravings according to regional variation. If painted and engraved rock-art motifs are indistinguishable across the region, but paintings are more prominent in the west and engravings in the east, then it might be possible to propose a single tradition of rock-art involving a clinal transformation from paintings in the west to engravings to the east. If,
on the other hand, painting and engraving sites differentiate on the basis of motifs but show no regional variation, then other types of explanations may need to be invoked. Perhaps, then, painted and engraved rock-art emerged in Island Melanesia at different times, or were associated with distinct social functions? These and other explanations are considered in light of the statistical results presented in Chapter 4.

5. Ballard (1992a) has proposed that the APT probably commenced around 2000 BP. Few attempts, however, have been made to place the AES within a temporal framework (although the c. 3000 BP date for engravings at Vatuluma Posovi are a potential indicator). The initial challenge for Chapter 4 is to establish whether the APT and AES exist in their own right, and if so, whether they express any overlap in terms of their motif ranges and the geographic areas they occupy. Once this has been established, the results will be examined for chronological indicators.
A comparative view of western Pacific rock-art

4.1 Introduction

In this chapter I use a variety of statistical techniques to generate patterns of similarity and difference from 160 rock-art sites in the western Pacific region, excluding Vanuatu (Figure 4.1). The results are used to re-examine previous models for western Pacific rock-art, particularly those proposed by Hugo (1974), Specht (1979), Rosenfeld (1988) and Ballard (1992a), and to develop a regional framework for examining the rock-art of Vanuatu (Chapters 6-8).

This chapter is divided into four sections. In the first section the data set which forms the basis for each analysis is described. In the second section the results of a series of frequency analyses on ‘non-motif’ data (e.g geology, the height of motifs, topography and technique) are presented and compared with previous results obtained on similar data by Specht (1979) and Ballard (1992a). In the third section the results of various multivariate (MV) analyses on ‘motif’ data are presented and described, and the usefulness of MV statistics as a tool for studying rock-art in the western Pacific is evaluated. In the final section, the results for both non-motif and motif data are discussed in light of the issues and questions raised at the conclusions to Chapters 2 and 3.

4.2 Analytical methods

4.2.1 Data quality

I have noted previously that one of the limitations confronting Pacific rock-art research is the lack of standardisation in the recording and presentation of data. The analyses presented in this chapter compare rock-art from a variety of different sources, including published and unpublished images (the latter provided by individuals who have visited rock-art sites but not

21 Figure 4.1 provides several categories of information for the first 160 sites, including:

1. Site numbers: a sequential site numbering system (from 1 to 160).
2. Site names: these are derived from the original site records. None of the Sialum (Morobe) sites are named so their site codes have been entered instead.
3. Site codes: most site codes for PNG can be found on the national site register (PNG Museum). Codes for other areas follow those employed by the original site recorder (e.g. David Roe for the Northwest Guadalcanal sites, Solomon Islands). If site codes have never been accorded to a site then no code has been entered.
4. Region: these are the geographic units I have defined for the statistical analyses conducted in this thesis.
published about them), unpublished manuscripts and fieldnotes, and published papers in
journals and books. The information extracted from these sources include: (1) non-motif
data, e.g. technical, geological and locational information examined and quantified in some
detail previously (Specht 1979; Ballard 1992a); and (2) motif data, which have not been
systematically analysed for the western Pacific region before.

All of the data collected for the statistical analyses presented in this chapter derive from site
level information (except for New Caledonia; see below). I have generally included data
only from sources which provide illustrations of the rock-art present at a site. Exceptions
include sites for which there is considerable information available on non-motif variables.
Where it is unclear whether a report or publication illustrates all of the rock-art present at a
site, I have assumed that what has been made available constitutes a representative sample.
Potential biases resulting from this assumption are explored in the discussion chapters later
in the thesis.

Due to variation in the level of recording detail available for each rock-art site, the number of
sites included in each analysis varies. For instance, those sites for which pigment colour has
not been recorded are excluded from the analysis which calculates the distribution of
pigment colours across the region.

4.2.2 Data registration

Information about each site has been entered into an Excel spreadsheet. Each row in the
spreadsheet contains information relevant to a particular site. Each site has been
investigated for the presence or absence of 641 different variables. The last row in the
spreadsheet (site 160) contains information on the rock-art of a country (New Caledonia)
rather than an individual site; the rock-art sites of New Caledonia have been combined and
treated as a single site due to a lack of data available at the site level (see Frimigacci and
Monnin, 1980).22

Some sites in the sample (e.g. many of the sites in the Sogeri area, Central Province, PNG)
consist of both paintings and engravings. For the purpose of statistical analysis, these sites
have been accorded two rows of information, one for paintings and another for engravings.
Even though there is a large number of sites which contain both paintings and engravings,
there are only a few sites for which illustrations of pictures in both media have been made
available by the site recorders.

22Only after I had completed my analyses did I become aware of an unpublished paper by Frimigacci
and Monnin (M. Spriggs pers. comm.), which contains information at the site level.
The first 27 column headings of the spreadsheet list the non-motif variables selected for analysis. The remaining column headings \((n=614)\) list each motif type.

### 4.2.3 Motifs

A total of 67 motif categories, further subdivided into 614 individual motif types have been defined for the western Pacific. Motif information has been entered onto a spreadsheet as presence/absence (binary) data. The presence of a motif at a site has been registered as a ‘1’, and its absence as a ‘0’. As noted in Chapter 1, frequency data – not readily available in most site records – have been omitted from consideration. A lack of available data has also precluded an examination of motif composition (i.e. how pictures are configured in relation to each other on a panel).

A total of 1232 individual pictures have been assigned to motif categories and motif types. Each motif has been further classified as belonging to one of three groups on the Excel spreadsheet:

**Group 1: C - PT (590 columns):** These columns include presence/absence data for non-figurative rock-art motif types. The number of pictures which have been assigned to this group clearly outweighs figures for other groups (92%).23 Pictures were initially assigned to a non-figurative motif category based on their geometric properties. Each motif category is (usually) defined by a mathematically definable shape, such as a circle, trapezoid, or quadrilateral. Pictures which could not be accorded mathematical nomenclature have been assigned names which best describe their shape, such as ‘teardrop’ or ‘star’. These names are not intended to suggest what the picture represents, being used for classificatory and analytical purposes only. Each variant within a **motif category** is referred to as a **motif type** (or **motif**). An example of a circular motif type might be a ‘circle with outer rays’ or a ‘circle with inner spokes’. There are 43 motif categories and 590 motif types in this group.

**Group 2: CSC - SA (4 columns):** These four columns indicate presence/absence data for non-figurative motif categories (motif types have not been defined for this group). However, unlike Group 1, most non-figurative pictures assigned to this group cannot be

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23 Note however that this figure is based on the number of categories which I have subjectively defined for the data. Group 1 data has been divided into both ‘motif categories’ and ‘motif types’, whereas data from groups 2 and 3 have been divided into ‘motif categories’ only. However, based on an impression of the number of independent pictures, ‘non-figurative’ pictures clearly outweigh ‘figurative’ pictures. Although precise figures are not available, I would estimate the ratio of non-figurative to figurative pictures to be around 10:1.
defined on the basis of mathematical shape. The first three columns are a register of ‘complex forms’ which tend to combine (within the one motif) a number of the mathematically definable shapes listed in Group 1. Three different complex forms have been defined: ‘complex curvilinear’, ‘complex rectilinear’ and ‘complex rectilinear/curvilinear’. The fourth column is a register of ‘amorphous shapes’. These include non-figurative pictures which do not conform to any of the above categories. No two amorphous shapes are the same.

Group 3: Anthro - Zoo6 (20 columns). These columns contain presence/absence data for figurative motif categories. A picture which resembles an animate or inanimate object in the everyday world has been assigned to one of these motif categories (e.g. anthropomorphs). Motif types have not been defined for this group. That is, the motif category ‘anthropomorph’ has not been divided into sub-categories such as ‘stick figure anthropomorph’, or ‘anthropomorph with facial features’. Figurative pictures constitute approximately 10% of the total number of pictures in the sample.

Each motif has been assigned an analytical code. For Group 1 and Group 2, each motif category (e.g. circles) is identified by one or more uppercase letters (e.g. C = circles). For Group 3, codes for figurative motifs are generally identified by all or part of the name of the form that the motif most closely resembles (e.g. ‘turtle’). Figure 4.2 is a list of all motif category codes present in the spreadsheet.

Each column code in Group 1 contains information about both motif categories and motifs. Thus, C1 and C2 both belong to the motif category ‘circle’ but represent two distinct motif types. Also incorporated into some of the motif codes are lowercase alphabetical letters ranging from ‘a’ to ‘aa’ which are used to define aspects of the structure of a motif. These structural codes are repeated across different motif categories. For instance, Ca1 and Oa1 both share the structural code ‘a’. While they belong to different motif categories (one is a circle and the other is an oval) they both have a single line extending from them (‘a’ = single line extension). Definitions for these structural codes are listed in Figure 4.3.

At some sites (e.g. Vatuluma Posovi, in Guadalcanal, Solomon Islands), pictures have a tendency to merge into one another. That is, surfaces are so densely engraved or painted that it is difficult to separate out one picture from another. Analytical conventions have been devised to overcome this problem. If two lines are detached but appear to belong together as part of a continuous motif, then they have been treated as a single picture. If two or more detached pictures form part of a single (unified) geometric pattern, then they have also been
treated as one picture. If neither of these structural rules apply, then detached forms have been treated as separate pictures.

4.2.4 Description

Sites included in the sample to be analysed derive from regions most likely to have the closest cultural connections with Vanuatu, either through shared ancestry or via post-settlement interaction. Thus all known rock-art sites in Island Melanesia are included, as are a number of sites at the eastern end of New Guinea (see Chapter 3). While sites in the New Guinea Highlands, West Papua, Indonesia, East Timor and parts of Southeast Asia are omitted from the statistical analyses, they are considered in the interpretation of the statistical results.

4.3 Frequency results: regional distributions of non-motif variables

In this section I explore the frequency distributions of the non-motif variables located in the first 27 columns of the data matrix. While most of these variables have been considered in detail by previous researchers in relation to a much larger number of rock-art sites (e.g. Specht 1979, Ballard 1992a), some of the sites in my own data set have not been examined according to these criteria before. Thus, the results in this section serve both as an internal check of previous results on similar data, and as a cross-check of the results of the multivariate analyses on rock-art motifs presented later in this chapter.

The total number of sites available for analysis is 160, but because sites containing both paintings and engravings are treated separately, calculations are based on a total of 174 'sites'. Figure 4.4 indicates the total number of sites in the sample containing engravings, paintings, or both.

Figure 4.5 shows the total number of rock-art sites located in each geographical region. In later analyses I attempt to minimise the statistical effect of the smallest samples by amalgamating adjacent regions (e.g. by combining Sogeri with the rest of Central Province, and Sialum with the rest of Morobe).

4.3.1 Distribution of painted and engraved sites

Figure 4.6 indicates the total number of painted and engraved sites in each region. The largest numbers of painted sites are found in the western parts of the sample area, namely Manus, Milne Bay, Sialum (Morobe) and Sogeri, with significant representation also in East and West New Britain and New Ireland. South and east of these regions there is a decrease in painting relative to engraving sites.
This distribution – showing a clinal reduction in painting sites from west to east – corresponds with Specht’s (1979) preliminary findings (cf. Fig. 3.1; Chapter 3). However, new data available since Specht’s paper suggest that there are many more painted sites in Island Melanesia than originally supposed. In the Bismarcks, for example, my own figures indicate that the number of known painted sites has almost doubled. Matthew Spriggs (pers. comm. 2000) has also been informed of an unrecorded body of painted rock-art in northeast Bougainville (Teop language area), and Christophe Sand (pers. comm. 2000) has indicated the presence of several painting sites in New Caledonia which have not previously been published. In addition, as I will show in Chapter 6, my own data from Vanuatu raise Specht’s (1979) figure of three painted sites for the archipelago to over 30. This more recent evidence indicates that the west/east division of painting and engraving sites may not be sustained by further intensive work, except perhaps in parts of Polynesia (e.g. the Marquesas, Hawai’i, and Easter Island) where detailed recording has revealed relatively few painted sites.24

It is also worth noting that in areas of the western Pacific where intensive site recording has been undertaken the number of known painted sites has significantly increased (e.g. MacCluer Gulf, Sialum, Manus and Vanuatu). Perhaps it is because engraving sites tend to be situated in more open and therefore ‘accessible’ locations (as opposed to painted rock-art which is often concealed in dark caves and requires torch light to be seen) that they have received more attention in the literature (see 4.3.4 for further discussion on site locations).

4.3.2 Colour

Figure 4.7 indicates the distribution of pigment colours at painted sites. In accordance with Specht’s (1979) results, by far the most common pigment colour in the western Pacific is red, followed by black. Sogeri area displays the greatest colour range, and is the only region under consideration here in which polychrome and yellow pictures have been found.25

Regions in the western half of the sample area (e.g. Sogeri, Milne Bay, Sialum (Morobe) and Manus) tend to display a relatively broad colour range and include bichrome and polychrome images. In regions to the east, and especially in Island Melanesia, monochrome images in

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24 Unlike Specht, I have not included figures for a category of site which is characterised by the presence of both paintings and engravings. The reason for this is that there are only seven sites in my sample (from only two of the 17 regions) which are represented by both media. Calculating the distributions for these sites would therefore not be a worthwhile exercise.

25 Outside the area considered in this chapter bichrome, polychrome and yellow rock-pictures occur extensively in the Highlands of Papua New Guinea, especially in the Eastern Highlands (e.g. Kafiavana)
either red or black are more common, with the frequency of black increasing towards the east. Whether this distribution reflects a lack of naturally occurring pigments in regions east of the Vitiaz Strait is a question for further research.

Overall, a clinal pattern for regional colour differences is detectable. The relative frequencies of polychromatic, bichromatic and red pigment pictures decrease in an easterly direction. Although the number of sites with black pigment rock-art is small, their relative frequency increases in an easterly direction.

4.3.3 Topographic context

Figure 4.8 presents the total number of engraved and painted sites occurring in different topographic contexts. My own figures correspond with Specht’s (1979: 68; see Table 3-8 and 3-9) in that boulders provide the predominant surface for engravings. Shelters, followed by caves and cliff-faces, are the primary locations for painted sites. There are some discrepancies between my results and those of Specht in relation to the overall percentage of engraved sites associated with cliff-faces. There are two main reasons for this:

1. Specht included New Caledonia in his calculations of the relationship between technique and topography. Eleven of the 17 cliff-face sites with engravings were found to derive from New Caledonia. Given that I have treated New Caledonia as a single site, I have been unable to provide distributions for topographic contexts represented in this region.

2. Specht and I appear to define ‘cliff-face’ differently. Whereas Specht described the Samoan sites as cliff-faces, I have categorised them as ‘platforms’, differentiating between surfaces which are vertical (cliff-faces) and horizontal (platforms).

Nonetheless, the results do imply the existence of specific region-wide conventions associated with the topographic placement of paintings and engravings, especially in New Guinea and western Island Melanesia.

4.3.4 Technique and location

Figure 4.9 presents the total number of engraved and painted sites occurring in different locational contexts. The majority of engravings are found on igneous boulders located either mid-river or on a river bank, a trait also noted by Specht (1979). Paintings, in contrast, are predominantly associated with ‘cliffed’ locations of limestone origin.
A further difference between the two media is that paintings tend to be associated with
topographic contexts on or near the coast, while engravings are more commonly associated
with boulders located further inland. A preference for painting on limestone and engraving
on igneous surfaces may explain this distribution, given that boulders of igneous origin are
more commonly found in inland regions. Differential erosion is likely to produce fewer
cliffs or caves inland than along coastal margins, which may account for the preponderance
of boulder sites in island interiors.

4.3.5 Distance from the coast

Figure 4.10 indicates the proximity of painting and engraving sites to the current coastline.
The percentage figures are more informative than the total counts as there are almost twice
as many engraved sites as painted sites in the sample. The percentages for engraved and
painted sites located between 0 and 3km from the coast are relatively similar, although if this
distance range is broken down further, painted sites are more commonly found on the coast
(i.e at ‘0 km’) and engravings tend to be located some distance inland. Engraving sites are
five times more common than painting sites between 3 and 12km from the coast. In contrast,
painting sites are twice as common as engraving sites at between 15-18km from the coast.
Three engraving sites and no painting sites were found between 18-30km from the coast.

While the high frequency of painting sites located between 15-18km would seem to
contradict statements made earlier in relation to painting sites being primarily coastal and
engraving sites being inland, it should be recognised that almost all of the inland (15-18km)
painting sites derive from one region (Sogeri area). If Sogeri is omitted from the sample
then almost all painted sites are coastally located.

It is also notable that most of the rock-art sites in my sample derive from coastal and coastal­
hinterland areas. If the rock-art sites from the New Guinea Highlands were included then, as
Specht has pointed out previously, painting sites would dominate over engravings in inland
regions. The main point that can be made in relation to the distribution of sites considered
here is that in coastal and coastal/hinterland regions, painting sites tend to be located closer
to the coast than engraving sites.

4.3.6 Language

Figure 4.11 shows the total number of painted and engraved sites in areas currently inhabited
by Austronesian (AN) and non-Austronesian (NAN) speakers. Painted sites are seen to be
relatively evenly distributed across both language groups, while engraving sites are
predominantly located in AN-speaking areas. Most of the NAN painted sites derive from
either the Sogeri or Sialum (Morobe) areas, both of which have complex linguistic histories. As I explore in later chapters, there is a distinct possibility that the rock-art in each of these regions was produced at a time when either Austronesian languages were spoken or there was extensive interaction with Austronesian speakers.

4.3.7 Height

The maximum height of rock-pictures at painted and engraved sites is recorded in Figure 4.12. In accordance with Ballard’s (1992a) findings, the majority of painted art is located high up on cliff-faces (more than 3.8m), either on sheer rock faces or nestled within shelters, alcoves or caves. Heights for engraved rock-art have only been recorded at three sites, and in each case it occurs at heights of less than 3.8m. As most engraved rock-art is associated with boulders, it rarely exceeds heights of 3.8m. Exceptions include some of the rock-art at the cave site of Vatuluma Posovi (Northwest Guadalcanal) mentioned in Chapter 3, and other cave sites in Vanuatu (see Chapter 6).

4.3.8 Topography and pigment colour

Figure 4.13 shows the total number of red pigment rock-pictures found in different topographic contexts. Most black rock-art (85%) is found in caves and shelters, whereas most red art is located in shelters and on cliff-faces. This finding is important because it confirms Ballard’s observation that the ATP (which is associated with visible cliff-faces or shelters) is predominantly associated with red pigment.

Figure 4.14 records the total number of red pigment and black pigment rock-pictures at different height ranges above the ground. The number of sites for which this information is available is very small (n=18), however red rock-art is generally found higher up on rock surfaces (and is thus more inaccessible) than black rock-art. Again, this result offers tentative support for the proposition that red rock-art at inaccessible heights is associated with the ATP.

4.3.9 Summary of results for non-motif variables

Nine main conclusions are derived from the analysis of non-motif variables across the western Pacific:

1. Recent reports indicate that there are now considerably more painted rock-art sites in Island Melanesia than originally thought; that is, wherever intensive rock-art surveys have been conducted (e.g. MacCluer Gulf, Sogeri, Sialum, Manus and Vanuatu). However, it is also the case that Vanuatu is the easternmost concentration of painted
sites. It is therefore likely that as more rock-art sites are found it will become less viable to conceive of painted rock-art as being a predominantly western trait (i.e. west of the Vitiaz Strait) and engraved rock-art as an essentially Island Melanesian trait. If a painting/engraving boundary can be defined for the Pacific region it will most likely lie between Vanuatu and Fiji.

2. The frequency of bichrome and polychrome rock-paintings decreases in an easterly direction. Although small samples limit interpretation, black rock-art appears to become relatively more common in the Island Melanesian region.

3. Boulders serve as the primary surface for rock-engravings. Shelters, caves and cliff-faces provide the predominant contexts for rock-paintings.

4. Most boulders are of volcanic origin and are situated within close proximity to a river course. Paintings tend to be found in limestone ‘cliffed’ locations, either on vertical cliff-faces or nestled within caves, shelters or alcoves.

5. Apart from the Sogeri sites, painted sites are more commonly located on the coast than engraved sites.

6. Painting sites straddle both AN and NAN-speaking areas, while engravings are predominantly associated with AN-speaking areas.

7. Painted rock-art is more often located at inaccessible (more than 3.8m) heights than engraved rock-art.

8. Red painted rock-art is most commonly found in shelters and on cliff-faces, whereas black painted rock-art is more commonly found in shelters and caves.

9. Red rock-art is possibly more inaccessible than black rock-art.

4.4 Multivariate (MV) Analyses

The following MV analyses are designed to explore similarities and differences between rock-art motifs across the western Pacific region. All statistical procedures are described in detail in Appendix 4.1. Of the first 160 sites listed in Figure 4.1, illustrations of rock-art exist for only 102 sites. Each of the analyses described in this section is therefore conducted on the motifs present at the sites listed in Figure 4.15.

26 Each of the statistical analyses reported in this section were undertaken in collaboration with John Maindonald, Statistical Consulting Unit, Australian National University.

27 There were originally 104 sites available for multivariate analyses, including two sites from Samoa (157 and 158). Unfortunately these two sites had to be excluded from the MV analyses due to an error at the data entry stage. This error was discovered too late to be corrected, but the sample size from the two Samoan sites was so small that their exclusion would barely have impacted on the overall results.
4.4.1 Motif data

One of the sites listed in Figure 4.15 contains both paintings and engravings (site 7). All calculations are therefore based on a total of 103 ‘sites’ rather than 102 sites. The total number of engraved sites is 67 (65%), and the total number of painted sites is 36 (34.9%). The total number of pictures available for analysis is 1232. Of these, 894 (72.6%) derive from engraved assemblages and 338 (27.4%) from painted assemblages. The total for engravings is heavily weighted by New Caledonia which consists of a sample of 248 pictures (20.1%). If New Caledonia is omitted from the overall sample, leaving a total of 984 pictures, then the representation of paintings relative to engravings is increased by around 7%. Unless otherwise stated, all calculations are based on a sample which includes New Caledonia. The motif types analysed in this section are illustrated in Appendix 4.2.

Before presenting the multivariate results, some comment on the way in which I interpret multivariate distributions is required. Archaeologists who use multivariate statistics often only feel comfortable interpreting results which show clear statistical groupings, e.g., artefact x is always found in region y. The results which I am about to present rarely show such discrete patterns, largely because the rock-art of the western Pacific manifests a high degree of homogeneity. However within an essentially homogeneous pattern it is possible to pick up less perceptible variation by closely examining the relationships (statistical distances) between pairs of sites. The distance between two sites (or regions) on a multivariate graph provides a relative measure of the similarity between them. As I will show in this section and in later chapters, examining the graphs at this level of detail generates information which is useful for exploring some of the more critical issues raised in this thesis. The interpretation of each graph requires a continuous tacking between the observed patterns and my original data records. It is only by returning to the original data that it becomes possible to assess accurately which motifs have caused sites to appear statistically similar.

4.4.2 Multivariate techniques

Three multivariate techniques have been used to conduct the remaining analyses presented in this chapter: correspondence analysis (CA), principal components analysis (PCA), and multidimensional scaling (MDS). All analyses have been undertaken using the statistical programme ‘S-Plus’ (Venables and Ripley 1999).
Correspondence analysis measures the chi-squared distance between variables (which in this case are regions and motifs). Unless otherwise specified, each of the data matrices examined using the CA method consists of the total counts of presence/absence data. Principal components analysis (PCA) is a statistical procedure which measures the Euclidean distance between points (sites). Multi-dimensional scaling (MDS) issues similar scores to sites with the same 1’s in common and the same number of 1’s in common. The MDS binary measure elicits similarities between pairs of sites, as shown in Figure 4.16. The dissimilarity coefficient used for these analyses is often referred to as Jaccard’s Coefficient.

Each of these techniques is potentially suited to investigating the type of data available for analysis in this thesis. The main objective for using more than one dissimilarity coefficient (e.g. PCA, MDS) for examining variation within rock-art is to establish whether comparable patterns are produced by different methods, thus increasing the integrity of the result. Notably, coefficients of similarity differ in the weight that they accord to rare data (e.g. unique motifs). As demonstrated throughout this section, this has a significant bearing on the selection of particular multivariate methods for certain types of datasets. Further details on the nature of these methods as applied to archaeological data can be found in Shennan (1988).

**Analysis I**

Hugo (1974) has suggested that engravings and paintings share circular motifs; a pattern that is particularly evident if New Guinea Highland sites are excluded from consideration. His findings contrast with those of Rosenfeld (1988) who has suggested that there is only very minimal overlap between the motif range representing each medium. The following analysis is designed to offer some resolution of this issue by examining variation among circle motifs located at rock-art sites across the western Pacific. A matrix of 110 circle motifs (columns) and 13 regions (rows) have been employed in this analysis.

The first CA (graph not included here) generated a dense cluster of points (regions), and a single outlier represented by Central Province. One conclusion that can be drawn from this pattern is that at least some of the circle motifs of Central Province are vastly different from those found elsewhere. In a follow-up analysis Central Province was omitted from the sample in an attempt to expose variation which may be resident within the main cluster. The result is expressed in the form of an XY scatterplot in Figure 4.17.

Six main observations should be made in relation to this distribution:
1. Tonga, located close to the lower right margin of the graph, is clearly distinct from other regions in the sample. New Caledonia and Micronesia, to the right of the centre of the distribution, are also set slightly apart from other regions. The rock-art of each of these Remote Oceanic regions consists almost entirely of engravings. Motifs range from simple circles with one or two linear extensions (e.g. Tonga), to more complex forms characterised by concentricity, spokes, and rays (e.g. New Caledonia).

2. A distinction between engraved and painted circular motifs is observed in the distribution. Manus and Sialum, both of which consist entirely of painted rock-art, form a discrete group in the lower left quadrat. Circular motifs common to these two regions are the simple ‘rayed’ forms often referred to as ‘sun motifs’. The only other region where comparable forms are found are Northwest Guadalcanal and New Caledonia.

3. A set of motifs at the top of the graph defines Sogeri, Morobe and West New Britain. Overall, the rock-art of these regions (which is mostly engraved) is distinct from the painted assemblages of Sialum and Manus and the engraved assemblages of Remote Oceania (New Caledonia, Tonga and Micronesia). Motifs common to these regions include circular forms with a minimum of elaboration, including plain circles, circles with central cupules and central lines, and contiguous and concentric circles (with between 1-3 rings).

4. East New Britain, New Ireland and Milne Bay are characterised by some of the ‘simple’ circular motifs found in Sogeri, Morobe and West New Britain, as well as several more elaborate forms. ‘Concentricity’ is a particularly common structural feature in these three regions.

5. Northwest Guadalcanal, known for its engraved art, is situated midway between the Sialum/Manus painting sites and the Sogeri/Morobe/West New Britain engraving sites. The engravings of Northwest Guadalcanal are more similar to the Manus/Sialum paintings than any other engraving region in the sample.

6. Fiji, which lies in the centre of the distribution, appears to be represented by motifs which are common to all other regions in the sample.

This result suggests a broad level distinction between painted and engraved sites in the western Pacific which in turn provides preliminary support for Rosenfeld’s (1988) notion of dual rock-art traditions. Analysis 2 examines this proposition further.
**Analysis 2**

The aim of this analysis is to determine whether there are discernible differences between (a) sites/regions, and (b) techniques. A CA has been conducted on the entire data matrix (Groups 1, 2 and 3) of 104 sites (rows) and 614 motifs (columns). The graph generated from the CA scores shows a dense cluster of points (sites) and three outliers (Fig. 4.18). Each of these outliers represents sites which contain one (usually rare or unique) motif. A common procedure for dealing with a CA result of this kind is to systematically peel away the outliers to expose any latent structure in the remaining data. Regardless of how many times the analysis was repeated, however, the same or a similar distribution was obtained. Sites in the sample with only one or two motifs were systematically assigned extremely high scores by the CA algorithm, placing them on the graph margins.

A complete list of the 20 outlying sites deleted over the course of this analysis is provided in Appendix 4.3. Interestingly, four sites in the Bismarck Archipelago (68, 78, 91, 104) each contain only one engraved ‘face’ motif. The occurrence of this motif at more than one site, unaccompanied by other motif types, raises all sorts of questions about the social significance of representations of the ‘face’.

**Analysis 3**

This analysis involved a Principal Components Analysis (PCA) on the entire data set (Groups 1, 2 and 3) to determine whether a better discrimination between sites could be achieved than for the CA. Figure 4.19 shows a very similar distribution to Figure 4.18, represented by a dense cluster of points around the axes centroid (0,0) and two outliers (New Caledonia [160] and Micronesia [159]). Both New Caledonia and Micronesia contain a large number of unique motifs which were accorded high scores by the dissimilarity coefficient. Outlier sites were omitted from the sample in an attempt to reveal variation in the main cluster but a similar result was obtained.

The PCA and CA results imply that many rock-art sites in the region possess a similar range of motifs, causing them to be statistically indistinguishable. On the other hand, the results also indicate that there is a large number of sites with unique motifs, suggesting a high degree of local variation. On the whole, however, CA and PCA are inadequate methods for dealing with the existing data set. The problem is twofold: (1) more than one-third of the motifs in the sample are unique; and (2) a large number of sites in the sample contain either one or a small number of motifs. The process of deleting outliers in response to these problems eventually undermined the integrity of the dataset to such an extent that the use of these two MV methods was no longer viable. In the following section a series of multi-
dimensional scaling analyses (MDS) are performed in an attempt to obtain a better discrimination between sites/regions without having to modify the dataset.

**Analysis 4**

Analysis 4 involved running an MDS binary metric on the entire data set (Groups 1, 2 and 3). Like the overall CA result for circles, the result of the MDS binary metric analysis attests to broad-scale similarity across the region, with no single region significantly differentiated from another (Figure 4.20). However, an examination of the motifs seen to be influencing the distribution suggests that a certain degree of inter-regional difference does exist. Most of the rock-art sites of New Ireland have plotted on the outskirts of the main cluster on the left hand side of the distribution. Several sites from East New Britain, West New Britain, Milne Bay, Sogeri, and Fiji have plotted close to the sites from New Ireland. This outcome is strikingly similar to the CA result for circles (Figure 4.17) which identified these regions as belonging to a loosely cohesive group (albeit with considerable internal variation).

Most of the painted sites from Sialum form a dense cluster on the right hand side of the distribution (opposite the main New Ireland distribution). Within the same general vicinity are painting sites from Manus and a number of engraved sites from Northwest Guadalcanal. The high degree of similarity between the rock-art of these three regions also reflects the CA result for circles (Figure 4.17).

The relative distances between points on the graph suggest that the rock-art assemblages of Manus, Sialum, Northwest Guadalcanal and a few sites in the Sogeri area are more similar to each other than to the (predominantly engraved) assemblages of New Ireland, New Britain, Milne Bay and other regions. Two painted sites from Bougainville have plotted close to a cluster of painted sites from New Ireland (Tabar and Boeng) at the top of the graph, with a site from Manus and a site from Sialum located nearby.

This overall pattern strongly suggests a distinction between painted and engraved assemblages across the western Pacific. Most sites on the left-hand side of the distribution consist of engraved assemblages from the Bismarck Archipelago, Milne Bay and mainland PNG. Sites located on the right hand side of the distribution, including the New Ireland and Bougainville sites at the top of the graph, account for most of the painted assemblages in the western Pacific.

Notably, however, this distinction between painted and engraved assemblages is less evident in the eastern regions of Island Melanesia. Sites from Northwest Guadalcanal and Fiji are
distributed relatively evenly across the graph, while sites from New Caledonia, Tonga and Micronesia can be found in the centre of the distribution. Each of these regions contains rock-art which appears to combine elements from both painted and engraved assemblages located at the western end of the sample area.

**Analysis 5**

As one test of the reliability of the result presented in Analysis 4 a Sammon method of the binary metric analysis was undertaken. In the statistical programme S-Plus, ‘Sammon’s non-linear mapping’ operates to separate out points which are densely clustered (Venables and Ripley 1999: 334). One of the requirements of the Sammon method is that sites with identical row configurations are deleted. As a consequence, five sites were omitted from the analysis (78, 91, 101, 104, 141).

The result (Figure 4.21) is a circular distribution which confirms several of the inter-regional similarities evident in Figure 4.20. The painting sites from Sialum form a general cluster in the lower half of the distribution accompanied by sites from Manus (at the base of the distribution), Northwest Guadalcanal, Sogeri and Bougainville. Most sites from New Ireland have aggregated at the top of the distribution and bear some correlation with sites from Milne Bay, Sogeri, East New Britain, Northwest Guadalcanal, and Fiji. Sites from New Caledonia, Micronesia, and Tonga are located in the central area of the graph.

When the same graph is represented on the basis of technical differences a reasonably clear distinction between certain painted and engraved assemblages is observed (Figure 4.22). This result confirms an earlier observation that differences between rock-art sites in the western Pacific are founded largely on variations between the motifs associated with the two principal techniques: painting and engraving. In the central area of the graph, defined as the ‘intermediate’ cluster, are both painted and engraved sites. A large number of the engraving sites in this part of the graph derive from Northwest Guadalcanal, reaffirming a previous observation (see Analysis 1) that many of the motifs represented in the Northwest Guadalcanal assemblages are similar to those found in a number of painted assemblages across the region.

**Analysis 6**

Up until this stage all three groups of rock-art data (figurative, non-figurative and complex/amorphous) have been included in each analysis. In this analysis I examine non-figurative data only (which accounts for some 90% of the total number of rock-pictures) to test whether variation observed in the dataset in previous analyses has been caused by
figurative or complex data. One of the main problems with the non-figurative data set, however, is that it includes a high number of unique motifs. It is these unique motifs which are most likely to be responsible for the 'outlier' responses observed in previous analyses. In an attempt to reduce the number of unique motifs in Group 1, I have aggregated them into several large motif classes (see Appendix 4.2). An MDS binary metric analysis has been run on a matrix of 93 sites and 106 non-figurative motif classes.\(^\text{28}\)

The result demonstrates that, by amalgamating non-figurative motifs, the pattern of similarities between rock-art sites concurs with earlier distributions which included Group 2 and Group 3 motifs. This concurrence is most evident in Figure 4.24 which shows a reasonably distinct separation of painted and engraved assemblages (with some notable exceptions, discussed below).

Consistent with previous analyses, the two regions which are most different to one another in this distribution are Morobe and New Ireland (Figure 4.23). There is no perceptible overlap of points representing sites in either of these regions. The rock-art of New Ireland is largely engraved, and the rock-art of Morobe (with the exception of one site on the Gao River) consists entirely of paintings. Manus is most similar to Morobe, and Milne Bay has clustered with New Ireland. West and East New Britain, Fiji and Tonga share some similarities with New Ireland, while Central Province, Bougainville and Northwest Guadalcanal are more closely aligned with Morobe and Manus. The Sogeri area, New Caledonia and Micronesia are generally located in the centre of the graph, suggesting that each possess motifs which are found throughout the western Pacific.

Based on an assessment of the motifs seen to be causing this regional patterning, and for ease of analysis, I have divided the plot into four clusters (Figure 4.23):

1. Cluster 1 includes three engraved boulder sites from West New Britain (Cao-go, Garua and Malapapua) located at the top of the distribution. The motifs which appear to be governing the close distances between these sites are the circular forms which distinguished West New Britain in Analysis 1, including circles with central cupules and contiguous circles. The only West New Britain engraving site which falls just outside this cluster of the graph is Akono Sogo, an assemblage associated with a limestone shelter. On the margins but still within this cluster are 3 Fijian sites – Nacula, Dakuniba and Na Savusaru. Their location here is not easily explained in

\(^{28}\)The omission of Groups 2 and 3 from the analysis required the deletion of several sites (24, 28, 42, 108)
that the rock-art of two of these Fijian sites (Nacula and Dakuniba) is mainly rectilinear and quite unlike most engraved rock-art elsewhere in the western Pacific (which is mostly curvilinear). Na Savusaru possesses a few motifs which are more like those in the West New Britain assemblages (e.g. circles with central cupules) and has plotted closer to Cao-go than any other site. A couple of sites from the Sogeri area and Northwest Guadalcanal are also situated in this region of the graph. One of the sites from Northwest Guadalcanal (site 130) has several rectilinear motifs which are structurally similar to those seen at Nacula and Dakuniba in Fiji.

2. Most of the rock-art in cluster 2 derives from Tabar and New Hanover (New Ireland Province), and Milne Bay. Sites from East New Britain and Northwest Guadalcanal are also found in this part of the graph. The motif category which appears to be governing the similarities between these regions is the spiral; a feature notably absent from the West New Britain engraved assemblages and most of the painted assemblages in the region. One exception is a painting site from New Ireland which includes a spiral among its corpus (site 96).

3. The third cluster is dominated by the painted rock-art sites of Morobe, Manus and Bougainville, with the painted sites of New Ireland also found in this area of the graph. The motifs which appear to be influencing this component of the distribution are simple ‘sun motifs’, diamonds, triangles, motifs with central axes, chevrons, wavy lines, crosses and leaf-shaped forms – all broadly linked by their rectilinear structure. Most of these motif categories are found in Northwest Guadalcanal which is also represented in this part of the graph.

4. The fourth cluster consists of sites located in the centre of the distribution. Most of the Remote Oceanic sites are found here, including those from Fiji, New Caledonia and Micronesia. Motifs common to these regions include enveloped crosses, scrolls, zigzags and circles with central spokes. Each of these motifs is found in most regions in the sample, implying the former existence of a network of communication throughout the western Pacific which has resulted in a region-wide transfer of specific visual information.

When the same distribution is re-coded according to the statistical relationships between painted and engraved assemblages, major differences can be observed between the two techniques (Figure 4.24). Within a single regional group (e.g. New Ireland), painting sites 47, 54, 63, 65, 66, 67, 85).
share more in common with other painting sites in the western Pacific than they do with the engraving sites from the same region. There are two exceptions to this general pattern:

1. Several engraving sites from Northwest Guadalcanal are statistically similar to the main cluster of painting sites. This result mirrors the outcomes of previous analyses (e.g. Figures 4.17 & 4.20).

2. One engraving site from East New Britain (site 75) and another from New Hanover (site 85) are also located within the main cluster of painting sites. Site 75 contains only one motif; not a sufficient sample to allow it to be identified with the majority of engraved assemblages in the sample. Included among the motifs represented at Site 85 are enveloped crosses, a human figure, a simple scroll motif, and some parallel lines – each of which have been recorded at a number of painting sites across the region.

Analysis 7
This analysis uses CA to measure the chi-squared differences between regions (as opposed to sites). Calculations are based on ‘total counts’; that is, the total number of sites which possess a particular motif in a given region. The aim is to assess whether similar patterns to the MDS results described above are obtained when sites are combined into regional groups. A total of 12 regions and 614 motifs have been defined for the analysis.29

An initial CA on the total counts produced a result which distinguished New Caledonia and Micronesia from other areas (graph not presented). As for the CA and PCA analyses conducted earlier (Figure 4.18 and 4.19), this outcome is probably due to the excessive number of unique motifs present in these two regions. Both regions were omitted from the following analysis in an attempt to reveal any variation in the remaining data set. Figure 4.25 shows Central Province and West New Britain located close to one another at the top of the distribution. Milne Bay, East New Britain and New Ireland form a second cluster at the base of the graph. Northwest Guadalcanal, Morobe, Fiji, and Bougainville form a third cluster in the centre of the graph. Manus is located independently on the right hand side of the distribution.

29 The regions included in this analysis are: New Ireland, Northwest Guadalcanal, East New Britain, West New Britain, Morobe, Central, Fiji, Milne Bay, Manus, Bougainville, New Caledonia, and Micronesia. These regions differ slightly from those used in the MDS analysis. The Sogeri sites have been subsumed within the Central region, and Sialum has been combined with the rest of Morobe. Tonga is excluded from the analysis due to its small sample size.
Manus was then excluded from the analysis to allow for even greater separation between the remaining regions. Figure 4.26 shows similarities between Milne Bay and East New Britain, with distant links to New Ireland and West New Britain. Central Province, which includes material from the Sogeri area, is different from Milne Bay, East New Britain and New Ireland, but appears to share some similarities with Fiji, Bougainville, Northwest Guadalcanal and Morobe. Fiji, located in the centre of the graph, would appear to manifest motifs common to all regions.

**Analysis 8**

A second CA was conducted on presence/absence data; that is, a matrix which indicates whether a particular motif is present or absent in any given region. After running several initial analyses, New Caledonia, Micronesia, Manus and New Ireland were all deleted because they appeared as outliers. The result for the remaining data set (Figure 4.27) resembles that obtained for total counts (Figure 4.26). Bougainville, Northwest Guadalcanal and Morobe are clustered together in the lower half of the graph. Milne Bay, East New Britain and West New Britain are grouped in the top left of the distribution. Central Province has distinguished itself from other regions on the right hand side of the graph. Fiji, once again, holds a relatively central position.

Together, the results of Analyses 7 and 8 suggest a broad similarity between the rock-art regions of the New Britain and New Ireland and Milne Bay, with distant relationships to Central Province and Fiji. The result derived from the presence/absence data indicates a much closer relationship between the rock-art of East and West New Britain than the result from total counts. There is a relatively high degree of similarity between the painted assemblages of Bougainville and Morobe and the engravings of Northwest Guadalcanal.

**Analysis 9**

This analysis is designed to examine the internal structure of motifs. As explained earlier in this chapter, many of the motif codes in Group 1 (Figure 4.2) incorporate a lowercase letter, ranging from ‘a’ to ‘aa’. Each lowercase letter is repeated across several motif categories (e.g. circles, semi-circles), indicating that certain structural properties remain consistent across different motif categories. This coding system was devised specifically to test a potential classification problem in rock-art studies. A common research approach is to develop only one typology for classifying rock-art motifs. For instance, for each of the analyses presented so far I have grouped motifs first and foremost according to motif categories (e.g. circles, diamonds). In this analysis my aim is to reclassify all motifs according to their structural characteristics, such as the appendage lines and infill within the
main form. Using the first typological approach, \( a \) (in Figure 4.28) would be grouped with \( c \), as both are circles. In this analysis, \( a \) is grouped with \( b \), as both share a central cross.

The objective is to test whether different typologies generate similar or different results. The data matrix includes all non-figurative motifs from Group 1 which incorporate a lowercase letter in their code; consequently a large number of sites have been omitted. Category ‘d’ has been disregarded because it does not include information about the structure of a motif. The matrix has been analysed using CA, and includes 26 structural variables and 75 sites. Each structural variable occurs at between 1 and 33 different sites. The most common variable is ‘n’ (concentricity), and the least common variables are ‘y’ and ‘z’.

The first result showed a dense cluster of sites and 3 outliers (graph not presented). The outlier sites (and the corresponding variable ‘1’) were deleted, and a CA was re-run on a matrix of 72 sites and 25 variables. The subsequent result – which shows a good separation of points – is extremely useful for identifying the structural properties which differentiate engraved and painted assemblages in the western Pacific (Figure 4.29). Four main observations can be made in relation to this distribution:

1. Most of the painted sites of the western Pacific are distributed in the top half of the distribution and are characterised by mainly rectilinear structural qualities, such as ‘outer rays’, ‘inner spokes’, ‘internal crosses’ and ‘central axis lines’. Compound motifs, which incorporate multiple triangles, diamonds and other geometric shapes within a single form, are also common.

2. In the centre of the distribution are most of the structural categories which define engraving assemblages from West New Britain, Sogeri, New Caledonia and Micronesia. The variables in this part of the graph (0,0) have very low scores and are therefore likely to be less ‘diagnostic’ of regional groupings than those located among sites on the outskirts of the distribution. The structural variables found in this part of the graph include central cupules or lines, contiguity, concentricity, and main forms surrounded by circles, ovals, bean-shaped and heart-shaped elements.

3. Motifs incorporating spirals are located to the lower right of the distribution and are mostly associated with sites from New Ireland, East New Britain and Milne Bay. A few sites from Northwest Guadalcanal are located at the very base of this distribution and share the variable ‘o’; a concentric form with ‘inner spokes and/or a cupule/dot’.

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4. A few rare structural properties are associated with sites located on the left margin of the graph. These include ‘parallel’ forms, ‘inner bars’ and ‘inner dots’. Most of these characteristics are associated with motifs from Northwest Guadalcanal.

This analysis has demonstrated that the differences between regions and between painted and engraved sites are replicated for both ‘motif types’ and ‘structural categories’. The structural categories which define the painted sites of the region include outer rays, inner spokes, internal crosses and other mostly rectilinear properties. Those which define the engraved sites of Milne Bay, East New Britain and New Ireland include spirals and several of the structural properties which have plotted in the centre of the distribution, such as concentricity. At the centre of the distribution are the more ‘simple’ structural properties which define a number of engravings from West New Britain, Sogeri, New Caledonia and Micronesia. Each of these regions appears to contain elements which are common to both painted and engraved assemblages elsewhere. West New Britain is particularly interesting because, while it contains many of the elements characterising sites elsewhere in the Bismarcks and in Milne Bay (spirals, scrolls, concentric circles), it is prominently characterised by a suite of motifs which incorporates cupules within their structure.

A metric analysis has also been performed on the ‘structural’ data set and a similar result was obtained.

Analysis 10
The aim of this analysis is to separate the data set into engraved and painted assemblages to enable an exploration of the similarities and differences within these two media. The dataset used for each analysis is the same as that used for Analysis 6, which includes all non-figurative data from Group 1 (Figure 4.2).

Figure 4.30 shows the similarities and differences between engraving sites in relation to ‘region’. The distribution pattern confirms the results from previous analyses. Overall, Northwest Guadalcanal, Bougainville, Fiji and Tonga (and site 65 – Akono Sogo – from West New Britain) are distinct from New Ireland, East New Britain, West New Britain, and Milne Bay. New Caledonia and Micronesia lie midway between these two broad regional clusters. The aggregation of sites dominated by Northwest Guadalcanal is represented by a number of motifs which are typically found at painted sites throughout the region.

Figure 4.31 shows the similarities and differences between painting sites in relation to ‘region’. Unlike Figure 4.30, intra-regional similarities are not evident, except perhaps for
some of the Sialum sites in the centre of the distribution and some of the Manus sites at the
top of the distribution.

The lack of ‘regionalism’ evident in Figure 4.31 suggests that painted rock-art sites in the
western Pacific are connected by a more or less unified graphic system. The engraved rock-
art, in contrast, appears to show evidence of at least two graphic systems. The primary
features of these graphic systems are outlined in the following discussion.

4.5 Discussion: centre or periphery?

Multivariate analyses have been employed in this chapter to examine similarities and
differences between rock-art motifs found throughout the western Pacific, excluding
Vanuatu. One of the primary outcomes has been the identification of distinct painted and
engraved assemblages throughout the region, with some evidence of overlap between the
two occurring in parts of Island Melanesia. In many respects this result confirms the
APT/AES dichotomy. However, as I endeavour to demonstrate in this discussion, both of
these entities require considerable revision. Based on the result of the non-motif and motif
analyses conducted in this chapter, Figure 4.32 provides an impressionistic but composite
picture of motif relationships between western Pacific regions. Notably, all variations of
rock-art in the western Pacific can be found in mainland PNG.

One of the most important outcomes of the multivariate analyses on motifs is that despite the
use of different MV techniques (CA, PCA and MDS), the same overall patterns have
emerged in each of the analyses. Both ‘motif-types’ (figurative and non-figurative) and
‘structural categories’ have been used to examine the relationships along two principal
analytical axes: variation in rock-art techniques and between sites or regions. The regional
analyses, particularly those derived from the use of MDS, generally demonstrated inter-
regional invariance. That is, there are sufficient numbers of rock-art motifs shared by most
regions to create a pattern of overall homogeneity. Contra Hugo (1974), most of the more
subtle inter-regional differences are a by-product of distinctive differences between painted
and engraved assemblages across the region (as proposed by Specht 1979 and Rosenfeld
1988). Thus, for instance, a region such as Morobe, which contains more painted sites than
engraved sites, is distinguished from regions where engraving is the predominant medium.
This lack of regional variation disproves an earlier proposition that a western painting
tradition transmogrifies into an eastern painting tradition through a single interrelated
colonisation movement. Instead it suggests that the similarities and differences between
painted and engraved assemblages throughout the region must be a factor of temporal,
functional or other differences.
On the basis of motif differences (both figurative and non-figurative) between painted and engraved assemblages in the Pacific, the following inter-regional groups can be defined. Regions are linked together on the basis of specific combinations of motif and non-motif variables.

1. **Manus, Morobe (Sialum), Bougainville.** These regions (as well as other painted assemblages elsewhere in the western Pacific) are defined by a primarily rectilinear painted rock-art associated with many of the non-motif variables that define the APT. In Figure 4.32 I have indicated that the connections between this group and Eastern Indonesia appear to be based less on relationships between motifs, and more in terms of the propensity for them to be found on inaccessible coastal cliff-faces, with red being the main pigment colour represented. There are a few motif similarities between these painted assemblages and those in the MacCluer Gulf (West Papua), including the occurrence of scrolls (e.g. in Sialum) which are characteristic of the Manga style. Overall, however, the strongest relationships between these regions are based on the locational characteristics which define the APT. The short distances between points on the MV graphs, which show that painted assemblages in the western Pacific are relatively close together, suggest a high degree of graphic unity across the region.

2. **Milne Bay, East New Britain and New Ireland.** These regions are defined primarily by curvilinear engraved rock-art assemblages which bear motif similarities to the painted Manga rock-art of the MacCluer Gulf, e.g. scrolls, and the painted rock-art of the New Guinea mainland (scrolls, enveloped crosses). One of the more distinctive motifs of Milne Bay, East New Britain and New Ireland is the spiral, or motifs which incorporate spirals in their overall structure. Faces and feet are also common.

3. **West New Britain (with some links to Central Province, especially the Sogeri area).** Many of the motifs characterising West New Britain are also found in Milne Bay, East New Britain and New Ireland (e.g. the faces and scroll-like forms at Malapapua), but what differentiates this region from the former is the presence of motifs dominated by ‘cupules’. Circles with central cupules, including unusual ‘contiguous circles’ are particularly common. Two sites which are overwhelmingly dominated by these sorts of motifs are Akono Sogo (65) and Garua Island (71). These are distinctive sites because they are not characterised by any of the spiral, scroll or enveloped cross forms which feature in the Milne Bay, East New Britain and New Ireland assemblages. Cao-go is additionally characterised by a number of ‘cupule-based’ motifs but it also contains a spiral form, linking it with the ‘Milne Bay’ group. The similarities between West New
Britain and the Sogeri area are based on the mutual occurrence of circles or ovals with either central cupules or a short central line (which does not touch the side). Circles with central cupules (often referred to as 'cup and ring' in the literature) have also recently been found at a site in Mt Hagen in the New Guinea Highlands (Robin Torrence, pers. comm.) These motifs, and the ‘non-motif’ variables which define the contexts in which they are found, have a distribution which is limited to mainland Papua New Guinea and Island Melanesia. Based on the density of their distribution, I would nominate West New Britain as the ‘centre’ of this engraving group.

4. **Northwest Guadalcanal, New Caledonia, Fiji, Tonga and Micronesia.** On first impression it might seem difficult to assess the relationship between the rock-art of these regions and that found elsewhere because of the different ways they have been treated by the various MV algorithms. For example, the CA algorithm employed in Analysis 1 placed Tonga, New Caledonia and Micronesia on the periphery of the distribution, whereas the MDS (Jaccard’s coefficient) placed these regions in the centre of the distribution. The CA and PCA both issued particularly high scores to the large numbers of unique motifs present in each of these regions, whereas the MDS algorithm preferred those motifs which are held in common with other regions. What can be concluded from these seemingly different results is that, while a large number of the motifs in Northwest Guadalcanal, New Caledonia, Fiji, Tonga and Micronesia are probably the result of local innovation, a significant number are also found in all other regions in the sample. The motifs present in these regions are similar to both the curvilinear engraved rock-art of New Britain, New Ireland and Milne Bay, and the rectilinear painted rock-art of Manus, Sialum and Bougainville (i.e. all regions to the west). In other words, it is within the more easterly regions of the sample that we see a convergence of motifs associated with either engraved or painted assemblages in the west. This convergence can also be seen in relation to non-motif variables. For instance, painted motifs which are usually associated with the non-motif attributes of the APT (inaccessibility and cliff-faces), can be found as boulder engravings in Northwest Guadalcanal and regions in Remote Oceania.

Before proceeding with this discussion, it is worth commenting on the limitations of the analyses conducted thus far. It is unknown whether the rock-art of the sites included in the sample has been produced within a single event or over many thousands of years. Thus, while the MV patterns indicate broad regional similarity among the rock-art of the western Pacific, it is impossible to tell whether many or only a few of the motifs at different sites are
causing the resulting patterns. The 'atemporal' nature of the data limits the extent to which many of following issues (which were raised in previous chapters) can be addressed:

1. The MV analyses have not differentiated sites which may contain Pleistocene rock-art. However, the broad similarity between motifs across the western Pacific implies that much of the rock-art was produced within a comparable timeframe and within an interactive sphere which included contact with Remote Oceania. Given that Remote Oceania was not colonised prior to around 3200 BP, most of the rock-art of the western Pacific was probably produced after this date.

2. Even without direct knowledge of the age of the rock-art of most regions in the sample, the overall homogeneity within the rock-art of the western Pacific suggests that most of it was being produced within a network of continuous inter-island interaction (and/or colonisation).

3. The MV patterns suggest that we may be able to identify rock-art motifs which were transmitted across the region via colonisation processes. Figure 4.33 is a version of the results of the correspondence analysis in Analysis 1.

The clinal distribution evident in this graph is compatible with a colonisation model which indicates that the rock-art of Remote Oceania derived from a source region in Near Oceania (e.g. Kirch and Green 1987). The rock-art of Tonga, at the farthest remove from the source region, is the most different. Figure 4.34 is a schematic version of the results of most of the MDS analyses.

Potential source regions for rock-art motifs lie on the outer circle. Regions at the eastern end of the colonisation process – which manifest most of the elements of rock-art found in the source regions – are located in the centre. This result, if it accurately represents historical processes, suggests various potential origins for the rock-art found in those regions of the sample which were colonised most recently; one origin associated with painted rock-art and two associated with engraved rock-art.

4. Some points can be made in relation to the intrusionist/indigenist debate outlined in Chapter 2. The only possible evidence for either intrusion (colonisation) from, or contact with, Island Southeast Asia are:

   a. the non-motif elements which Ballard (1992a) has identified as belonging to the APT (inaccessibility, coastal cliff-faces, red pigment). These are found
throughout the sample region in association with painted sites, most notably from Manus, Sialum and Bougainville. Similar non-motif elements are also associated with painted assemblages found on mainland PNG.

b. the curvilinear motif elements, such as spirals and scrolls, which are found in the Manga style rock-art in the MacCluer Gulf. These are mostly found in the engraved assemblages of Milne Bay, East New Britain and New Ireland, but are also found in the painted assemblages of mainland PNG, (e.g. in the Highlands and also, less frequently, at Sialum).

The cupule-based art discussed earlier is most prolific in West New Britain, but has also been found in mainland PNG (e.g. Sogeri area, Mt. Hagen). So far as I am aware (although future research may alter this perception), cupule-based rock-art is not found in Southeast Asia. Likewise, enveloped crosses, which are found in both painted and engraved rock-art in mainland PNG, have not yet been found in West Papua or Island Southeast Asia.

Most of these issues, however, cannot be critically assessed without a more acute understanding of how these various bodies of rock-art articulate with one another through time. Without a temporal framework it is impossible to begin to speculate on whether a motif exists in an assemblage as a result of being transmitted through an evolutionary process of Oceanic settlement or as a function of inter-regional interaction. In Chapters 6 and 7 I conduct a detailed set of analyses on the rock-art of Vanuatu. The aims are to (1) examine motif distributions through space, and (2) examine motif distributions through time. The results of these analyses are then tested against the rock-art of the rest of the western Pacific, the ultimate objective being to determine whether Vanuatu can inform about spatio-temporal relationships between rock-art assemblages in surrounding regions.
5

Vanuatu: the archaeology

5.1 Introduction

The antiquity and nature of colonisation, the intensity of inter-island contact through time, and the changing links between individual islands, have all left their mark on both the earliest and subsequent cultural practices in Vanuatu. These different historical processes have important implications for the rock-art of this archipelago in terms of its cultural links across the Pacific and amongst individual islands within Vanuatu. This chapter offers an overview of aspects of Vanuatu’s physical landscape and prehistory so as to provide a basis for analysing and interpreting the distribution of rock-art. In reviewing the archaeological evidence from Vanuatu I focus principally on ceramic sequences. There are two reasons for this. First, pottery has been the primary source of evidence used by archaeologists to develop models of cultural change in Vanuatu. Second, unlike other material remains, pottery is often decorated, and thus provides a potential spatio-temporal framework for certain motifs which it shares with rock-art. I have also elected to focus primarily on archaeological questions which have emerged since the moratorium on research was lifted in Vanuatu in 1994 as these are of most relevance to this research. My brief account of work produced prior to 1994 owes much to Bedford (2000) who provides the most recent comprehensive overview of Vanuatu archaeology.

5.2 The physical environment

Vanuatu (Fig. 5.1) is a Y-shaped archipelago consisting of over 80 islands. Oriented north-northwest/south-southeast, this tropical island chain extends some 830 km (from latitude 13° to 21° S) and covers a surface area of some 12,280 km². To the north of the ‘Y’ are the Banks Islands, comprising Gaua (330 km²) and Vanua Lava (331 km²), four smaller islands (Ureparapara, Moatava, Mota and Merelava), and the four Torres Islands – each from 15 to 39 km² in size – at the very northern tip of the archipelago. The two largest islands in Vanuatu - Espiritu Santo (3900 km²) and Malakula (2000 km²) – are located along the left arm of the Y. Along the eastern arm are a series of medium-sized islands, including Ambrym (665 km²), Ambae (400 km²), Maewo (275 km²), Pentecost (450 km²) and Epi (445 km²), together with several small islands collectively known as the Shepherd Group. Near the top of the main stem lies Efate (900 km²), with the modern administrative district of Tafea lying further south and east again. The latter comprises the islands of Tanna (572 km²), Aneityum (150 km²), Futuna (6 km²), Aniwa (7 km²), and the third-largest island in Vanuatu – Erromango (1000 km²) (Mueller-Dombois and Fosberg 1998: 93-94).
5.2.1 Geology

Vanuatu consists of three broad geological belts. The western belt contains the oldest islands in the archipelago, dating to Upper Oligocene to Middle Miocene age (22-14 million years old) and consisting of submarine lavas and derived volcano-clastics commonly capped or fringed by raised coral reef limestone (Cheney 1988: 2). This belt is represented by Malakula, Espiritu Santo and the Torres Islands. The eastern belt includes Maewo, Pentecost and Efate, and consists of basic lavas underlain by predominantly volcanic sediments which range in age from the Middle Miocene to Early Pliocene (11-4 million years of age). These are capped by <3 million year-old Pliocene-Pleistocene calcareous muds and limestones (Cheney 1988: 2).

The islands of the western and eastern belts are the oldest in Vanuatu (Mallick 1975, cited in Mueller-Dombois and Fosberg 1998: 95). The central belt is defined by a long, thin arc of volcanic islands, including Vanua Lava and Gaua in the Banks; Ambrym, Paama, Lopevi and Epi (each with active volcanoes); and the Tafea island group (Mueller-Dombois and Fosberg 1998: 94). This belt contains all of Vanuatu's currently active volcanoes (including the submarine ones near Epi), and consists of predominantly pyroclastic deposits, subaerial volcanics and lavas dating from the late Pliocene (3 million years ago) to the present day.

Cheney (1988: 2) states that, in general, capping and fringing limestones are virtually absent on volcanically active or recently active islands except for Erromango, Efate and Malakula, where upraised reefs are common. It is within these upraised reef contexts that most of the rock-art of Vanuatu has been found (Chapter 6). Cheney (1988: 2) also describes a fourth group which he calls the 'Marginal Province'. Both Futuna and Meralava are of this type, consisting of Pliocene-Pleistocene (5-2 million years old) volcanic lavas. Futuna is capped by coral limestone.

Geological processes are continually modifying Vanuatu's landscape. Volcanic activity is ongoing (e.g. Tanna, Ambrym) and reef limestones are uplifting around island shores at various rates (Neef and Hendy 1988). Ever since the earliest known occupation of Vanuatu, substantial modifications to the environment have taken place, with implications for the archaeological visibility of sites, and thus the interpretation of their distribution. In Chapter 6 I examine the current distribution of Vanuatu's rock-art sites in relation to geology, and predict where we might expect to find engraved and painted assemblages in future archaeological surveys.
5.2.2 Volcanism

Spriggs (1997: 179) has summarised the impact of volcanism in recent times. Two eruptions – at Kuwae and Ambrym – had such devastating affects on the region that they were classed among the world’s ten largest volcanic eruptions for the last 10,000 years. Yasur on Tanna – a continuously active volcano – has had two major eruptions in recent times, c.1400 BP and 800 BP (Spriggs 1997).

Archaeological research has shed light on the magnitude of these eruptions. In the 1960s, José Garanger (1972) suggested that the uppermost marine deposit at the site of Mangaasi (on Efate) may have been associated with the Kuwae eruption. Further work at Mangaasi, however, has revealed two tephras probably associated with the Kuwae eruption of 498 BP (Spriggs 1997) and a c. 2300 BP eruption of a volcano on Nguna Island north of Efate (Spriggs pers. comm. 2002).

Periodically, volcanism in Vanuatu has caused mass abandonment and/or otherwise disrupted existing settlement systems both within and between islands. The consequences of these disruptions would have varied from island to island, but in some cases their effects were significant enough to be incorporated into long-standing oral histories.

5.2.3 Seismic activity

The Vanuatu archipelago forms part of an island arc which extends from north to south through the Bismarck Archipelago, the Solomon Islands, and eastward through Fiji, Tonga and the Kermadecs. Vanuatu itself may be described as a submerged ridge underlain to the east by a dipping subduction zone and flanked to the west by a 6 km-deep trench. At the subduction zone, the edge of the Australasian tectonic plate intermittently slips beneath the edge of the Pacific plate, causing considerable earthquake activity across the archipelago. Earthquakes in Vanuatu are frequent. In an ORSTOM study (Prevot and Chatelain 1984; see also Fowler 1984), 4000 earthquakes were recorded between 1961 to 1980. The greatest number of large magnitude earthquakes occur in the Torres Islands, Santo, Malo, the northern tip of Malakula, Maewo, Pentecost and between Erromango and Aneityum. In January 2002 a major earthquake which many people described as ‘the worst in living memory’ caused extensive damage on Efate and resulted in major structural collapse within one of Vanuatu’s largest rock-art sites (Feles cave on Lelepa; see Chapter 6). Seismic activity (as well as a range of other natural phenomena such as salt deposition and the growth of micro-organisms on rock-art surfaces) have obvious implications for the long-term survival of rock-art sites.
5.3 The social landscape: archaeology

Understanding the timing and nature of Vanuatu’s colonisation, identifying the homelands of its colonisers and subsequent visitors, and appreciating the nature of cultural, social and political change within and between the individual islands are essential if the history of Vanuatu’s rock-art and its relationships to that of other Pacific islands are to be adequately traced. In this section, existing archaeological evidence and theoretical propositions concerning the colonisation and subsequent development of Vanuatu societies are discussed.

5.3.1 Early archaeological research in Vanuatu.

Felix Speiser ([1923]1996: 83-86) is the first person recognised as having conducted archaeological investigations in Vanuatu (in conjunction with his well-documented ethnological research). It was not until the 1960s, however, that archaeological research in Vanuatu started to gain momentum. Following an amateur interest, the French Overseas Territories Administrator Bernard Hébert (1965) conducted several preliminary investigations in the central islands, and is credited with identifying the first evidence of Lapita in Vanuatu at the site of Erueti on Efate. Formal archaeological research in Vanuatu was not initiated until after the 10th Pacific Science Congress held in Hawai’i (1961) at which Vanuatu was targeted as one of five essential research areas. As a component of the Pacific Area Archaeological Program (PAAP), a joint French and American expedition to Vanuatu was launched. The American focus was to be on the southern islands, and the French focus in the north, with shared interests on the central islands (Bedford 2000: 18).

5.3.2 The American component

Mary and Richard Shutler led the American expedition to the Tafea islands and Efate in 1963 and 1964 (R. and M.E. Shutler 1968, 1975; M.E. and R. Shutler 1965, 1967, 1968; R. Shutler 1969). Most of their attention was paid to rockshelters in coastal regions which related to present sea levels (Spriggs 1982a: 83). Sedimentation at these sites was recent (dated to within the last 1000 years), and no pottery emerged from their investigations. The Shutlers thus proposed that the Tafea Islands were occupied by aceramic communities. These researchers did encounter pottery in the northern islands, however, during a reconnaissance excursion to Santo and adjacent small islands (Aore and Araki) (R. Shutler 1970).

At the behest of the Shutlers (see below), Caroline Leaney (1965) was the first to provide a preliminary documentation of cultural sites on the island of Malakula. John Hedrick (1968), a student of Richard Shutler, initiated archaeological research on Malo in the late 1960s and early 1970s. Hedrick’s work added substantially to knowledge on Lapita settlements and the
engagement of Vanuatu in long range contacts between Malo, the Banks Islands, Talasea (West New Britain) and Lou Island (Manus Province). The collection of Lapita that emerged from his work also remains the largest and most diverse in Vanuatu (Bedford pers. comm. 2001).

5.3.3 The French component

José Garanger commenced the French component of the PAAP in 1964 when he began research in the central islands. Garanger’s (1972) renown derives largely from his use of ethnography to unearth the famous burial of the legendary Chief Roy Mata and his many courtiers and clan representatives on the island of Retoka (dated by Garanger to the later 13th century). In some ways akin to Schliemann’s investigations of Homer's history late last century, Garanger’s archaeology in the central islands involved the investigation of historical narratives, hitherto dismissed as mere myths, through the archaeological record. Garanger’s research direction was strongly influenced by the ethnographer Jean Guiart (1956, 1963, 1973).

One of Garanger’s (1972) most important contributions to archaeological research in Vanuatu and the broader Pacific region was his identification of ‘incised and applied relief ware’ – named ‘Mangaasi’ after the site where it was recovered in most abundance. Garanger believed Mangaasi to be the first ceramic ware to appear in the central islands, continuing unabated for around 2000 years (from c. 2600 BP to around 750 BP, or 150 BP at the Mangaasi site). While Mangaasi was found to be locally produced (Dickinson and Shutler 1979), this style of pottery was believed by some to extend across the western Pacific (Specht 1969; Kennedy 1982; Spriggs 1997; Wahome 1997; 1999).

Garanger (1972) also identified a range of wares which were more regionally restricted and had shorter temporal-spans than Mangaasi, including 'Mele impressed', 'Aknau internally incised', and 'Erueti Lapita' wares. Aknau ware did not appear to have any Melanesian counterparts, and appeared in the archaeological record just prior to the final disappearance of pottery in the central islands. Mele paddle-impresed ware was vaguely similar to Fiji's cord-impresed wares, although Garanger was unconvinced of any causal link. Erueti pottery, which was found in association with plain sherds and a unique repertoire of lithic and shell artefacts, was interpreted by Golson (1971) as typically Lapita and most like the Sigatoka pottery of Fiji.

Garanger attributed the cessation of pottery in the central islands to possible natural disasters (such as tidal waves and volcanic eruptions), but also suggested that from around 850-750
BP major material and social transformations registering in the archaeological record (e.g. the cessation of pottery, and the emergence of a new repertoire of shell artefacts) most likely signalled the arrival of Polynesians from overpopulated islands to the east of Vanuatu.

5.3.4 Les Groube and his successors on Aneityum and in the Banks

Following the Shutlers' initial forays into the southern islands, Les Groube took up archaeological research on Erromango and Aneityum in 1972. His work on Aneityum led to the discovery of hundreds of stone walls thought to be remnants of advanced agricultural systems (Groube 1975: 27). Both the Shutlers' and Groube's early research contributed significantly to the formulation of Matthew Spriggs's PhD research, for which he employed archaeological surveys, ethnographic observations, oral histories and textual sources to examine past irrigation techniques for the growth of taro (Colocasia esculenta) on Aneityum. Spriggs's 1978-79 archaeological excavations led him to argue that prior to 2000 BP, human modification of Aneityum's hill slopes caused large-scale erosion that resulted in extensive valley infilling and the progradation of shorelines. In turn it was suggested that evidence of early Lapita sites may be concealed under many metres of alluvial deposit some distance from the coastline (Spriggs 1980, 1981b, 1982a, 1982b, 1982c, 1997). Thereafter, dry-land gardening was said to have commenced on Aneityum around 1000 BP, and large-scale irrigation – in the form of canals traversing major watersheds on alluvial plains – around 500 BP. The transition to irrigation, and hence towards intensified agricultural production, was thought to have occurred in tandem with various political and social transformations (Spriggs 1981a; 1982a).

Other significant research on Aneityum included an analysis of pollen from Anawau Swamp. A major vegetation change from swampy forest to open grassland was registered at the site from around 2900 BP and said to show clear evidence of human presence in the form of burning (Hope and Spriggs 1982; Spriggs 1990a: 20). This finding added important weight to mounting evidence that islands located to the southeast of the Bismarck Archipelago were not occupied prior to 3200 BP, the age usually ascribed to the beginning of the Lapita expansion (Spriggs 1990a: 20).

In 1983 Spriggs continued his archaeological investigations in southern Vanuatu by initiating *The Southern Vanuatu Culture History Project* (the "Tafea Project"). As part of this project Spriggs was interested in investigating whether Tafea – which, as a result of the Shutler’s earlier work, could have been settled by an aceramic group of people – manifested evidence of pre-Lapita settlement (Spriggs 1984a). Four questions guided this project: (a) how many people were there on the islands at European contact; (b) when did initial human settlement
take place; (c) what environmental changes have occurred over time; and (d) what economic and social changes have taken place over time. Spriggs was also interested in the effects of contact between the Tafea island group and Polynesia. Polynesian kastom stories had apparently been incorporated into local world views in Tafea, and political organisation also appeared to have been influenced by Polynesian impacts.

Spriggs’s 1983 fieldwork on Aneityum revealed evidence of Polynesian contact during an excavation of a chiefly burial in the Anelcauhat chiefdom on the south side of the island. It was suggested that the Aneityum burial was probably that of a former chief and his wife (who was buried at the time of the chief’s death). The items buried with these individuals and some of the burial rites (e.g. the strangulation of the chief’s widow) were seen as reminiscent of Roy Mata’s grave on Retoka which has been linked to chiefly burials on east Uvea (Wallis) in Western Polynesia (Spriggs 1997: 212).

Investigations began on Erromango in 1983. Erromango was specifically targeted for fieldwork because of the presence of the Imponkor Limestone, an uplifted unit which backs onto older reef terraces. Sedimentation on the Imponkor Formation had been relatively slow compared to that on other high volcanic islands, and thus it was predicted that early ceramic sites would be found there. Pottery sherds were found, both as surface occurrences and in archaeological excavations, placing ‘Tafea firmly in the mainstream of Melanesian prehistory instead of it being an aceramic oddity’ (Spriggs and Wickler 1989: 86). Interpretation focused on the site of Ifo which, unlike the cave sites investigated, possessed a relatively intact cultural deposit (Layer IV). Ifo was said to contain three decorated pottery types: dentate-stamped (a single sherd found in a secondary context); incised (including a single ‘Lapita curvilinear incised’ sherd, three typical Mangaasi sherds, and a single relief decorated sherd); and impressed (mostly fingernail impressed), rarely found in the central islands. Vessel forms included pots and jars of spherical shapes with small apertures. The presence of Mangaasi and Lapita wares at the same site suggested to the authors that this was a ‘transitional site’, from Lapita to Mangaasi, dated to between 2500-2000 BP (see Spriggs 1984b for a discussion of ‘transitional sites’ elsewhere in the Pacific). It was argued that this 500-year timeframe marked a gradual transition from Lapita to post-Lapita ceramics in Vauatu, ‘within the context of continuing widescale regional interaction’ (Spriggs and Wickler 1989: 83).

In addition to his forays in the south, Les Groube conducted preliminary research in the Banks Islands in October/November 1972 (Ward 1979). The main outcome of this trip was the identification of pottery similar to the ‘incised and applied relief’ ceramics already
discovered by Garanger in the central islands. Groube also excavated a low mound feature on Pakea Islet (off Vanua Lava), recovering limited amounts of pottery and some faunal material.

The Pakea Islet site later became the main focus of Graeme Ward’s (1979) PhD research in the mid-1970’s. Ward identified three cultural layers, but only the lowest was regarded as in situ deposit (1979: 5-19). The earliest radiocarbon determination from the site was 2600±130 BP, but the majority of the material was associated with dates of around 2000 BP. The upper layers at the site, which were dated to between 1300 BP and 650 BP consisted primarily of shell midden, and were interpreted as possible evidence for more permanent settlement. Incised and applied relief sherds reminiscent of those previously documented by Garanger (1972) for the central islands were seen to be present from the earliest settlement date until around 2000 BP. Ward (1979) situated the Pakea Islet ceramics within Garanger’s Mangaasi ceramic tradition, although Bedford (2000: 34) has more recently suggested that the ceramics from the Banks show greater affinities with Late Erueti wares than Mangaasi wares. Kirch and Yen (1982) also challenged Ward’s 2000 BP termination date for the Banks pottery on the basis that they considered it to be (too) similar to the Sinapupu (Mangaasi-like) wares, thought at the time to have been imported from northern Vanuatu to Tikopia between c. 2050 BP - 750 BP.

5.3.5 A moratorium on research

A moratorium imposed on social science research in 1985 forced the suspension of most archaeological work (e.g. the Tafea Project) for the next decade. The only research to take place during this period was a limited amount of consultancy work (e.g Spriggs and Roe 1989) and around 40 projects associated with the Vanuatu Cultural and Historic Sites Survey (VCHSS). The VCHSS was managed by Jean-Christophe Galipaud and David Roe who collaborated with Vanuatu Cultural Centre fieldworkers in registering cultural sites between 1990 and 1995. The aim of the VCHSS was to:

1. Build a database of archaeological and other cultural sites;
2. Undertake field surveys to locate and record sites;
3. Train ni-Vanuatu staff in survey and excavation techniques;
4. Communicate survey results to the broader community;
5. Protect important sites across the country; and
6. Perform site impact assessments ahead of development projects.
Meanwhile, at a 1992 conference in Nouméa, Paul Gorecki suggested that Vanuatu may have been colonised earlier than the current evidence suggests. Gorecki (1996) made two points. Firstly, he argued that archaeologists in the Solomons, Vanuatu and New Caledonia had been looking for evidence of early colonists in the wrong places – that is, on the coasts rather than inland where older landscapes are found. Secondly, he suggested that cultural items he claimed to be present in northern New Guinea around 5500 years ago (bows and arrows, pigs, and pottery) could have feasibly reached Vanuatu during pre-Lapita times. He proposed that because Buka in the northern Solomons was colonised at least 28,000 BP, when sea levels were much lower and island-hopping much easier, people probably progressed to San Cristobal (at the south of the Solomon Island chain) at this time. He proposed that, if this was the case, then a much earlier colonisation of Vanuatu was also likely. His links between New Guinea and Vanuatu are largely derived from Garanger's (1972) earlier view that Mangaasi pottery pre-dates Lapita (see below for recent refutations of this view), and that Mangaasi-like pottery occurs in the Sepik.

5.3.6 The Australian National University-Vanuatu National Museum (ANU-VNM) Archaeology Project.

By the time the moratorium was lifted in 1994, archaeology in Vanuatu was still in its infancy. The timing of Vanuatu's initial colonisation was still in doubt, and aside from Garanger's work in the central islands, cultural sequences for other parts of the archipelago were little understood. To address these deficiencies, the Vanuatu National Museum and researchers of the Australian National University initiated a collaborative archaeology project. Research was initially focused on Erromango and later spread to include Efate and Malakula. Both Erromango and Malakula were perceived as being ideal for answering questions about early settlement due to the presence of tectonically uplifted limestone terraces containing caves which would have been suitable for early habitation.

Spriggs returned to Erromango in 1994 and turned his attention to four caves located on the west coast of the island (Velemendi, Velilo, Raowalai and Ilpin). None contained pottery, and all were found to date within the last 1500 years. A cultural sequence for one of these sites (Raowalai) indicated a lower horizon of human burials dating to 810±80 BP and 910±70 BP (marine shell), and an upper layer, consisting of a large stone oven, dated to 200±60 BP (Spriggs 1994b).

Pottery sites on Erromango were restricted to open areas such as Ifo and Ponamla. Ponamla, located near a large river and adjacent to a sheltered bay on the north coast of the island, was tested by Spriggs in 1994 and then re-excavated by Spriggs and ANU PhD student Stuart.
Bedford in 1995. A sequence of 15 radiocarbon determinations dated the main cultural deposit from around 2800-2700 BP to ~2400 BP. The earliest ceramics consisted of plain wares that graduated into more decorated pots (fingernail and incised). A single Lapita sherd was found in a secondary context. The site appeared to have been abandoned around 2400 BP, and then intermittently re-used again after around 1600 BP. No pottery was seen to be associated with this latter occupation.

Based on archaeological work at both cave and open sites on Erromango, Bedford et al. (1998) proposed that Lapita colonists and their immediate successors moved into a pristine landscape and settled prime locations (for habitation and canoe access) such as Ponamla and Ifo. As populations increased, and local resources were likely depleted, people are thought to have dispersed to other parts of the landscape, such as caves. Bedford et al. (1998) argue that the early ceramic sequences at Ponamla and Ifo display continuity from Lapita (or Lapitoid) to incised wares.

5.3.7 Further ‘Pieces of the Vanuatu puzzle’

Stuart Bedford’s (2000) doctoral thesis is the most recent and rigorous re-evaluation of the archaeological picture in Vanuatu. His study involved establishing cultural sequences for Erromango, Efate and Malakula and situating them in a region-wide context. The following summary of Bedford’s research focuses mainly on his detailed analysis of the ceramic record.

**Erromango**

Bedford’s work on Erromango was limited to the excavation of the open site of Ponamla and re-excavation of the site of Ifo, with Ifo providing the richest and most extended sequence. The initial settlement of Ifo around 3000 years ago was associated with the occurrence of Lapita dentate stamped and incised ceramics with outcurving rims, locally produced with a calcareously tempered clay. This ceramic was shortlived, in the order of 200-300 years, and rapidly replaced by a thicker fingernail-impressed ware characterised by a restricted range of vessel forms with predominantly incurving rims. Decorative elements became more frequent in the upper layers which are completely dominated by fingernail decoration. Ceramic production ceased at the site around 2000 BP (Figure 5.2).

Bedford (2000: 119) claims that there is sufficient continuity from one ceramic form to the next at Ifo to suggest that the post-Lapita forms developed out of the earlier Lapita ceramic repertoire, but that once the plainware ceramics disappeared around 2600 BP there was quite a dramatic development of a distinctly Erromangan ceramic style which continued for a
further 600 years. Such a claim directly challenges earlier notions that Erromango’s later ceramics are a regional variant of Mangaasi (Spriggs and Wickler 1989) or at least have clear parallels with Mangaasi (Bedford 1999), and forces a reassessment of the previously widely accepted notion that an Incised and Applied Relief Tradition can be identified across the Southwest Pacific, reflecting a temporal extension of the interaction networks originally denoting the Lapita era (see for example Spriggs 1984b, 1997; Wahome 1997, 1999).

**Efate**

The site with which Bedford was most concerned on Efate was Mangaasi, where Garanger conducted his original excavations. The extent of stratigraphic disturbance at the site, as discussed by Ward (1989), required a reassessment of the site. The site was re-excavated over several seasons by Spriggs and Bedford inland of Garanger’s original excavation, and revealed a relatively intact cultural sequence evidently less affected by marine disturbance than that originally encountered in the 1960s. The excavation extended some two metres beneath the levels reached by Garanger and revealed much earlier cultural material.

The fabric and texture of the sherds from Mangaasi are consistent throughout the site and are considered to be locally manufactured. Earliest occupation is associated with Erueti-style ceramics around 2800BP, denoted by outcurving rims, incised decoration, and lip notching. By 2500 BP there is a change to incurving rims, and decoration (which is predominantly still incision) becomes more frequent. From 2000 BP (now revised to 2300 BP, Spriggs pers. comm. 2002) there is a perceptible change in decorative technique heralding the beginning of the Mangaasi Phase, including the disappearance of lip notching and the appearance of discontinuous applied relief and plain bands. Pot forms are dominated by globular shapes with incurving rims. The Late Mangaasi period, from about 1800 BP, is characterised by notched applied bands and an increased range of decorative motifs. In conjunction with these changes a return to outcurving rims can be seen. The Mangaasi Phase at the site ceases around 1200BP when ceramic production in the area appears to come to an end. As for Erromango, Bedford (2000: 127) claims that ‘[a]n evolutionary transformation from Erueti to Mangaasi-style ceramics (much modified from Garanger’s original sequence) can be identified both in terms of vessel form, fabric and decoration.’ (Figure 5.3). Direct parallels between the Mangaasi and Shepherd Island ceramic sequences have also been identified.

The Mangaasi-style ceramics, with incised and applied relief decoration, do not appear in the revised sequence until the upper layer, after a deposit of tephra which may have derived from volcanic eruptions on Nguna some 2300 BP. One date of 1660±90 (1775-1333) was
obtained for the layer with incised and relief pottery, sealed above by a second layer of tephra believed to be deposited by the Kuwae eruption of 498 BP (Bedford et al. 1998).

The stratigraphic integrity of the recent excavations at Mangaasi has led Bedford et al. (1998: 187) to conclude that Garanger’s ceramic sequence ‘was largely a product of post-depositional sorting of occupational deposits that we can now determine are late in the sequence at the site’. Mangaasi appears to have been re-occupied after the Kuwae eruption, as suggested by radiocarbon dates of 490±60 BP and 220±60 BP (623-339 BP and 427-0 BP). This coincides with a revised date for the Retoka burial of Roy Mata, who was originally thought to have lived prior to the Kuwae eruption. Shell ornaments from the graves on Retoka produced radiocarbon determinations of 990±125 BP and 690±80 BP (762-386 BP and 479-136 BP), suggesting that Roy Mata may have lived and ruled during the 17th rather than the 13th century as was originally proposed by Garanger. However, accurately dating the period of Roy Mata is a difficult task, as oral traditions vary and there appears to have been more than one Roy Mata (Garanger 1996).

In 1999, the ANU-VNM research team commenced excavations at Arapus, an area located across the Pwanmwou Creek, immediately southwest of Mangaasi. The major outcome of these excavations was the identification of an early occupation phase not seen at Mangaasi, which dates to around 3000 BP. Ceramics from this early phase have been characterised as ‘plain globular cooking pots’ and interpreted as belonging to the ‘domestic cooking component’ of a Lapita assemblage (Bedford and Spriggs 2000: 120). This pottery has been named ‘Arapus style’ after one of the ancestral household areas in which it was first found.

Excavations at Arapus provided a much clearer chronological perspective on ceramic sequences than any other site in central islands of Vanuatu, attributable for the most part to the well stratified volcanic tephras which delimited different occupation levels. Arapus and Erueti style pottery were found only beneath the tephra which has now been dated to 2300 years ago (Spriggs pers. comm. 2002). Mangaasi-style pottery was found between the lower tephra and the Kuwae tephra which has been dated to around 500 years ago.

**Malakula**

Bedford’s work in Northwest Malakula, which focused on cave and open sites both on the coast and inland, sheds light on the initial and late phases of a 3000-year occupation sequence from around 2700 BP - 2500 BP and from ~1000BP to the present day (Figure 5.4). A dearth of archaeological material has rendered the intervening 1500 years difficult to characterise, possibly because the region was abandoned or less intensively settled during
this time (Bedford 2000: 129). The earliest ceramics on Malakula appear ~2700BP and are characterised by locally made, calcarously tempered plainware forms which have been assigned the label ‘Malua Ware’. A single dentate-stamped Lapita sherd was found among these.

Bedford drew on an extensive range of surface-collected sherds to augment his interpretation of the insecurely dated middle portion of the Malakulan pottery sequence. Some of these sherds bear a resemblance to Late Mangaasi ceramics on Efate, possibly signalling some form of interaction between these two regions up until c. 1200 BP. From this time onwards it is postulated that such interaction faltered, with Malakula developing a new ceramic repertoire more similar to examples located elsewhere in the central/northern islands, namely Santo, Malo, Pentecost, Ambae and Maewo. These new and innovative ceramics (Chachara Ware), occurring from around 1000 BP onwards, are bullet shaped and coil made, some with a ribbed finish, others with a smooth finish and added decoration. Such ceramics tend to be found in association with nasara (dancing grounds), which are integral to ceremonial life in the northern islands.

From this evidence it has been tentatively suggested that between c. 1000 BP and c. 500 BP there was a transformation in regional connections, including a separation between the central islands (Efate and the Shepherds) and islands to the north. Indeed, ethnohistorical accounts suggest that the northern islands were clearly engaged in sophisticated networks of trade and exchange by the time of European contact (Huffman 1996a).

To explain the appearance of this new pottery in Malakula and other parts of northern Vanuatu, Bedford (2000: 143-44) explored Green’s (1997, 1999) notion that over the last 1000 years non-Austronesian-speaking people, or people who have had sustained contact with indigenous non-Austronesian groups, may have migrated to Vanuatu from Near Oceania. Such an explanation would account for the changes in socio-cultural life in northern Vanuatu which are reflected by ceramic and other material innovations.

The onset of European contact in Malakula is accompanied by a change in the ceramic types on Malakula and an apparent breakdown of inter-regional contacts in the northern islands. This period saw the appearance of Naamboi pottery which is mostly probably an offshoot of the previous Chachara Ware. Naamboi are characteristically ‘bullet’ shaped pots, said to have been used for ceremonial purposes (Bedford 2000: 144-45).
A diagrammatic version of the ceramic sequences of Vanuatu proposed by Bedford is reproduced in Figure 5.5. Coinciding with the emergence of a new pottery style in Malakula and other northern islands was a transformation in certain non-ceramic items around 600 BP, particularly in the centre and south of the archipelago. As originally pointed out by Garanger (1972), and later confirmed by Bedford (2000: 242), there is a change in the variety of shells used in the production of adzes (*Lambis* and *Terebra* species) and an appearance of a variety of ornaments (e.g. pig tusk and *Trochus* sp. bracelets). Bedford (2000: 242-243) suggests that some of these changes may have been a result of Polynesian influences, but that contact with New Caledonia and islands to the north may also have played a role in the transformations that took place.

Perhaps the most compelling conclusion of Bedford’s thesis is the challenge he poses to the notion of a Pan-Melanesian Incised and Applied Relief Tradition. Bedford (2000: 246) argues that ‘... the ceramic remains [of Vanuatu] tend to demonstrate the ‘evolutionary primacy of local processes’ (Bedford 2000, citing Hunt 1987: 330) rather than inter-archipelago connections.’ Bedford (2000: 246) supports this point by suggesting that as elsewhere in Remote Oceania (e.g. Fiji, cf. Clark 1999), ‘...ceramic sequences... began to follow increasingly independent trajectories soon after initial Lapita settlement and up until at least 1000 BP.’ After 1000 BP Bedford (2000: 247) suggests there is increasing evidence of more frequent long-distance contact both within Vanuatu and between Vanuatu and neighbouring islands, attested by, for instance, the presence of basaltic glass from the Banks Islands in Fiji and Tikopia, New Caledonian serpentine on Tanna, and Polynesian-style ornaments and burial traits in the central and southern parts of Vanuatu.

In developing a picture of interaction and exchange in Vanuatu, the different lines of evidence and interpretations provided by Bedford suggest that an initial regional network of Lapita colonists infiltrated the islands of Vanuatu and continued for a short while to engage in certain practices which could be traced back to a homeland in the Bismarck Archipelago. This network was fairly rapidly replaced by the development of more regionalised (e.g. a network in the north) or island-specific social behaviour, denoted by pottery styles which followed relatively independent trajectories. Over the last 1000 years a re-opening of interaction networks is witnessed, albeit totally transformed from the early Lapita period. These networks form the basis of the connections (linguistic and material) observed ethnographically.
5.3.8 Recent archaeology in northern Vanuatu

In 1996 and 1997, the Vanuatu Cultural Centre and Jean-Christophe Galipaud of l’Institute Français de Recherche Pour le Développement en Coopération (formerly ORSTOM) collaborated on a project aimed at furthering understanding of the settlement histories of the northern islands of Vanuatu. Until then, Les Groube and Graeme Ward’s research in the Banks Islands and Hedrick’s discoveries of Lapita pottery on Aore and Malo constituted our only archaeological knowledge of this wide region. Galipaud’s research has unveiled further Lapita sites on Malo, and a number of rock-art sites in the Torres region (e.g. Woga, see site TR7, Figure 6.2). He has also been able to better define the pottery sequences of the region and situate them in a regional context.

In the Torres Islands Galipaud excavated a garden site on Toga, and an open site (Litetona) and cave site (Woga) on Tegua. The former garden/plantation site of Kurvot on the island of Toga was found to be first occupied more than 2200 years ago. Galipaud argues that the earliest pottery at this site – a plain ware of thin fabric with a decorated rim of parallel lines – is similar to that found on Malo where it immediately post-dates Lapita. He also compared this pottery to the plain wares of Erromango, Malakula and Fiji, and suggests affiliations with pottery found in the earliest occupation levels in Tikopia (the Kiki Phase). Links to Tikopia have also been found in northern Espiritu Santo (near the Naturtur River) where Sinapupu-like pottery has been found. Litetona, on Tegua, yielded little in the way of artefactual material, but a decorated sherd among the recovered ceramics was thought to be similar to Mangaasi wares (Galipaud 1998b: 163). Woga also yielded few artefacts, with only a small amount of shellfish and lithic material recovered. A date of 2100±60 BP was obtained for the site.

On Malo, occupation sequences were found to extend back to the Lapita period, with evidence of dentate-stamped pottery at the sites of Avunatari and Atanoasao dating to around 3000 years ago (Galipaud 1998a).

Galipaud’s investigations on the northwest coast of Espiritu Santo have provided the first detailed archaeological results from this area (Galipaud 1996a). His immediate interests included dating the timing of first settlement in this region, and establishing when water taro irrigation was adopted in the region. More than 60 sites were recorded during a survey between Wusi and Pelo, and two caves, Malsosoba 1 and Malsosoba 2, were excavated. The initial results of both survey and excavation indicated that people have occupied Hokua...
(northern Espiritu Santo) for over 1000 years; however the presence of undated Sinapupu-like pottery suggests that further excavation may push this date back another 1000 years.

5.4 Discussion: an overview of archaeological and linguistic evidence

Scientific archaeology in Vanuatu began in the 1960s with the works of Hébert, the Shutlers, Garanger, Leaney and Hedrick, followed closely by that of Groube, Ward and Spriggs in the 1970s. Since then, much survey work but little excavation was undertaken by Roe and Galipaud and carried on by locally trained staff as part of the Vanuatu Cultural and Historical Site Survey (VCHSS). Galipaud continues to work in the northern islands; the ANU-VNM team are furthering their research in the Central islands and, more recently, Stuart Bedford and archaeologist Glenn Summerhayes have begun to investigate the Small Islands of the northeast coast of Malakula (Summerhayes pers. comm. 2001).

The history of archaeological research in Vanuatu has been dominated by questions of origins. Unlike many of its western neighbours in Near Oceania, Vanuatu appears to have been first colonised by incoming Lapita settlers. Vanuatu and New Caledonia, both located at the southern reaches of the Island Melanesian chain and on the other side of a major ocean crossing, were probably not colonised until after c.3200 BP. Since then, Vanuatu has been engaged in contact with other island communities – and since at least 750-350 BP with Polynesian peoples from the east impacting significantly on social structures already in place (Spriggs 1997).

Due largely to Bedford’s research, there is now overwhelming evidence that Vanuatu was first colonised by the makers of Lapita pottery (Bedford 2000: 240). It is interesting, however, that so little Lapita pottery has been recovered from Vanuatu. One possible explanation is that Vanuatu was colonised some three centuries into the Lapita period, after the settlement of Nissan and other regions to the north and northwest. The early Western Lapita pottery is confined to the Bismarcks and does not occur in Vanuatu. By the time settlement was well and truly established in Vanuatu, Lapita pottery continued only for a few hundred years and then became replaced by other ceramic types at c. 2700 BP.

Spriggs (1997) suggests that incised and applied relief wares, which are said to increase in Vanuatu and elsewhere in Island Melanesia as Lapita dentate-stamped pottery declines, are a natural progression from Lapita and are not therefore indicative of intrusive communities. According to Spriggs (1997: 118), the demise of dentate-stamped pottery and the emergence of incised wares 'is no sudden occurrence ... but simply the unfolding of a pottery sequence where less and less effort has been invested in making and decorating pots'. Spriggs claims
that this trend is apparent in all lands of the Pacific where a transition from dentate-stamped to incised and other techniques (e.g. fingernail impression, applied relief) takes place, such as the Arawe Islands, Talasea Peninsula, New Ireland and Buka.

Spriggs based his conclusions largely on the work of Ephraim Wahome (1997, 1999) who sought to examine whether ceramic sequences across Melanesia developed in synchrony from Lapita until around 1500 BP in those areas where pottery was still being manufactured. The implication is that Incised and Applied Relief styles in the western Pacific were probably being produced within a reasonably broad network of regional exchange from the Lapita period until about 1500 BP, and that stylistic changes were therefore occurring in step over wide areas. There is some evidence that a contraction of exchange networks was taking place before this time, but the strongest evidence for gaps in pottery distribution and the onset of more regionalised behaviour is believed not to occur until 1500 BP-1000 BP (see also Bedford et al. 1998; Spriggs, in press).

However, this theory of ceramic continuity has recently been challenged by Bedford (2000) and other researchers working in Remote Oceania (e.g. Clark 1999; see also Bedford and Clark 2001), who propose that the so-called ‘Pan Melanesian Incised and Applied Relief Tradition’ is an unsupported theoretical construct. Rather than incised and relief wares delineating a network of continued interaction, they argue that any similarities between these wares across island groups is more likely a result of independent evolutionary processes from a common source, namely Lapita. Their conclusions are significant in terms of the way in which archaeologists have constructed the prehistories of Island Melanesia, and urge much closer scrutiny of local innovation and difference rather than a persistent focus on broad-scale similarity.

In general, evidence from linguistics provides several lines of support for the archaeological picture emerging from Vanuatu, particularly in terms of the direction of colonisation and settlement. Linguistically, Vanuatu constitutes part of the ‘Southern Oceanic linkage’ of the Central-Eastern subgroup of Oceanic languages (Lynch 1999: 441). Within this higher level grouping lies the ‘Southern Melanesian’ family (encompassing the languages of southern Vanuatu and New Caledonia), to which the South Efate language shows the closest relationship (Lynch 1999: 423). There is also thought to be a split among the languages of the north. Languages spoken from the Torres Islands to North Pentecost have been assigned to a Northern Vanuatu subgroup, while languages from the rest of Pentecost and as far south as Efate have been assigned to a Central Vanuatu subgroup (Lynch and Crowley 2001: 20). Three languages in Vanuatu are Polynesian ‘outlier’ languages (Emae, Ifira-Mele and Futuna-
Aniwa) and are said to belong to the Polynesian branch of the Central Pacific linkage (Lynch and Crowley 2001: 20).

From a linguistic perspective Lynch (1999: 447) agrees with the current archaeological evidence for an expansion of settlement from northern to southern Vanuatu. He also claims, however, that there was a significant gap between the settlement of Efate and that of Southern Vanuatu, attested by the divergence of the language of South Efate and its closest relative to the north (1999: 439). This latter notion cannot yet be tested against archaeological evidence, as the limited regional distribution of archaeological sites is insufficient to allow for finer discrimination of the sort being proposed by Lynch.

5.5 The last 1000 years in Vanuatu

Aside from the initial settlement of Vanuatu by Lapita potters, another archaeologically and ethnographically obvious wave of colonisation involved a ‘backwash’ of Polynesians from the east within the last 1000 years, impacting significantly on social structures already in place in the islands of Vanuatu. Spriggs (1996b: 78) notes that,

> [t]he existence of Polynesian speaking peoples on Outliers, Polynesian words in New Caledonia and Vanuatu languages, local myths involving Polynesian culture heroes such as Mauitikitiki and Tangaroa (possibly the same figure as Tagaro in northern Vanuatu), and oral traditions of ‘Tongan’ contact, all point to a period of important Polynesian influence in the last 700 years.

One further element of Vanuatu’s past is the European contact period, which commences with the arrival of Quiros in 1606. This event marks the beginning of a new phase in Vanuatu. Colonial contact led to many dramatic transformations through the processes of dispossession, dislocation, relocation, depopulation, increased and more devastating levels of warfare, political upheaval, shifting social boundaries, and a general revision of existing beliefs throughout Vanuatu.

After a relatively drawn-out period of European exploration by Quiros (1606), de Bougainville (1768) and Cook (1774), ending in the early 1800s, whalers, sandalwooders and missionaries became regular visitors to the islands from about the 1840s on (Howe 1978: 22). The beginning of the sandalwood trade was heralded by the arrival of the Irishman Peter Dillon on Tanna and Erromango in 1825 (Shineberg 1967). Dillon set in train a new era of contact between traders and ni-Vanuatu which often ended in bloodshed (MacClancy 1981). By the 1860s the sandalwood trade had become a less lucrative business, largely due to the drop in the price of wood, although on Erromango today sandalwood continues to provide an important supplementary income for local people.
By the 1860s Christianity had gained a secure foothold throughout the islands of Vanuatu (Tonkinson 1982; Philibert 1992). Only in the interiors of a few of the larger islands (Tanna, Santo, Malakula and Ambrym) was resistance entirely successful. Initially, the Presbyterians concentrated their efforts in the southern and central islands and the Anglicans focused on the north. The Roman Catholics arrived in 1887, and the Church of Christ, Seventh Day Adventist and Apostolic faithfuls followed later. The impact of Christianity was far-reaching in its ability to instrument major demographic shifts (Guiart 1951: 82). Missionaries encouraged people to move away from their inland villages to the coast, where communal villages were established with the church at the centre.

Between 1866 and 1906 scores of ni-Vanuatu became the (mostly) unwilling victims of indentured labour (although see Gundert-Hock 1991 and Jolly 1987 for the possible reasons behind cases of voluntary participation). Their destinations included Australia (to join the sugar industry in Queensland), Fiji, New Caledonia and Samoa. The social and cultural effects of such large scale dispersals of ni-Vanuatu to other parts of the world were far-reaching. The trade temporarily removed a large sector of the community, in particular young and middle-aged men, triggering major social realignments and dismantling important social institutions that relied on the participation of this absent population (e.g. the grade-taking systems in the northern islands). Language shifts also occurred at this time, labourers returning to Vanuatu with pidgin english.

One of the most devastating effects of the sandalwood trade, the arrival of missionaries, and the labour recruitment industry, was the introduction of new diseases to which local people had no immunity. These included pneumonia, dysentery, influenza, diphtheria and whooping cough. The effect was depopulation on a massive scale (e.g. McArthur 1978).

Each of these historical events and those that followed them have forced ni-Vanuatu to reconcile both incoming people and ideas. The social landscape was significantly destabilised. Mobility increased and people's worlds broadened; new material items were introduced, social boundaries were reconfigured, belief systems were questioned and warfare intensified. As demonstrated in forthcoming chapters, there is evidence that rock-art was being produced during the post-European contact period. The rock-art might be expected, therefore, to register local responses to colonial processes.
5.6 Conclusion

Several critical points emerge from the above discussion, each crucial to my own investigation of Vanuatu's rock-art which might be expected to graphically reflect at least some of the colonisation processes and internal socio-political developments which punctuate Vanuatu's history. Nine key issues raised in this chapter are particularly important. Methodologies for testing these issues through the analysis of the rock-art of Vanuatu is outlined.

1. People arrived in Vanuatu around or shortly after 3000 BP. Initial settlement was by Lapita colonists who targeted coastal locations. They probably came from the west or northwest, and had close affinities with other groups or individuals who colonised or already occupied other eastern Melanesian islands at the time of Vanuatu's settlement (e.g. note the occurrence of Lou Island obsidian in the Malo sites). If the earliest settlers in Vanuatu practised rock-art, then motif and non-motif variables should approximate those of the homeland(s).

2. Lapita ceramics in Vanuatu lasted only a few hundred years after initial colonisation. In some areas, such as at Ponamla on Erromango and Malua Bay in Malakula, Lapita settlement was focused at locations near perennial water sources and in sheltered bays facilitating easy canoe access. After a rapid period of resource depletion in these areas, people appear to have moved on. Evidence for early human modification of the environment causing large-scale erosion is best seen around 2900 BP on Aneityum. Links with other parts of Island Melanesia, as informed mainly by pottery styles, may have either continued until c.1500 BP (Spriggs 1997; Wahome 1997, 1999) or have begun to break down by 2500 BP (Bedford 2000; Bedford and Clark 2001). Rock-art provides one means of testing the extent of the continuity of interaction within Vanuatu and between Vanuatu and other Island Melanesian regions. If the concept of a Pan-Melanesian Incised and Applied Relief Tradition is valid, then rock-art should begin to diverge from original (Lapita-related) forms around 2700 BP, but continuities in motifs and/or motif structure may be detectable until c.1500 BP. If Bedford (2000) and Bedford and Clark’s (2001) notion that ceramic remains tend to demonstrate the ‘evolutionary primacy of local processes’ after c. 2500 BP, then rock-art should begin to manifest more island-specific conventions after this time.

3. Evidently by 1500 BP – 1000 BP pottery traditions across Vanuatu start to become more geographically distinct, as evidenced by the emergence of regional ceramic styles on
various islands (e.g. Chachara in Malakula; Aknau wares in the Shepherd Islands). The appearance of these ceramics implies the contemporaneous emergence of several more or less bounded social, cultural and political networks. This being the case, it could be expected that rock-art traditions will also reveal evidence of ‘regionalisation’ at this time.

4. Many areas which appear to have been abandoned after initial colonisation, such as Malua Bay in northwest Malakula, were again reoccupied from c. 1000 BP. In Northwest Malakula there is evidence of the use of more diversified landscapes as people move away from permanent water sources and occupy areas further inland. A number of cave sites on Erromango and in Malakula (e.g. Raowalai, Navapule A) became incorporated into the settlement system at this time. An increase in rock-art production might therefore be anticipated from c. 1000 BP onwards as an increasing number of sites become occupied.

5. A re-organisation of economic networks took place in the southern island of Aneityum with the advent of intensified, irrigation-based agricultural systems and the emergence of powerful political elites around 550-450 BP. That these developments differed from those on the nearby islands of Erromango and Tanna implies that by then, social, economic and political systems had become island-specific and relatively autonomous (see Spriggs and Wickler 1989). If this was so, at some stage during the settlement history of Tafea the design systems between islands may have become more island-specific, as groups were no longer exposed to the design ideas of their neighbours, focusing instead on crafting their own local identities.

6. Major cultural transformations took place in the central islands around 498 BP as a result of the Kuwae volcanic disaster, including major intra- as well as inter-island movements. It might therefore be expected that shifts in the scale of regional interaction and integration took place at this time, perhaps reflected in the rock-art by a change in the geographical distribution of rock-art conventions.

7. Overlapping somewhat with the Kuwae eruption, between 750-350 BP Polynesian-associated artefact forms (shell tools) and traditions emerge in Vanuatu. The impact of this late backwash of Polynesians was probably registered in the local art systems, particularly given its impact on other material items. Elements found in rock-art and other design media from the Polynesia may then start to appear in the rock-art of Vanuatu during this period.
8. Bedford (2000) proposes that during the 500 years prior to European contact there was an opening up of interaction networks in the northern islands and elsewhere, evidenced by the inter-island appearance of ceramics resembling Malakula's Chachara Ware, and the common occurrence of particular items in Vanuatu, Fiji, Tikopia and New Caledonia, which are indicative of long-distance contacts. If a former process of regionalisation or contraction of social networks was registered in the rock-art of Vanuatu from around 1500 BP (or perhaps earlier, as suggested by Bedford 2000), then from around 500 years ago this proposed redefinition and expansion of inter-island contacts may also be encoded in rock-art.

9. By the time Europeans made their impact in Vanuatu there was again a marked change in the production of material items and the exchange networks in which they operated. The Naamboi pottery is one example of such a transformation, exclusively manufactured and used in Malakula rather than being part of a broader network of contacts. Rock-art dated to the European contact period may in some way reflect the social upheaval that constitutes this time. For example, a keen resistance to social transformation may have prompted a resurgence in the production of traditional symbols, as a way of maintaining a former social order. Acceptance of incoming ideas, in contrast, may have seen the incorporation of entirely new motifs into the rock-art record.

This chapter has been the first of four chapters focusing specifically on Vanuatu. So far the aim has been to establish an archaeological and historical framework within which to examine the rock-art of the archipelago. In Chapter 6 I provide a brief summary of the history of rock-art research in Vanuatu (more detailed descriptions and a cursory comparison between motifs and other features associated with rock-art sites both within and outside the region can be found in Appendix 6.1). Chapter 6 continues with a detailed analysis and appraisal of the spatial distribution of motifs, and Chapter 7 teases out the various temporal patterns in the rock-art of the region. The results of these analyses are drawn together in Chapter 8 in the explication of a model of rock-art transformation for the Vanuatu.
6
The rock-art of Vanuatu: an analysis of non-motif and motif variables through space

Although widespread in distribution and probably a more common site type than is apparent from the literature, the Vanuatu region's rock art has been paid little more than cursory attention by many archaeologists working in Melanesia. (Roe 1996: 83)

6.1 Introduction

Over the course of the following two chapters both the spatial and temporal dimensions of the rock-art of Vanuatu is explored as a means of generating a model of rock-art transformation for the archipelago as a whole. In the first part of this chapter the distributions of rock-art sites in Vanuatu are described and each site is assigned an analytical code. This is followed by a brief description of the history of rock-art research in Vanuatu and a general overview of the types of the rock-art found in each region. A more detailed province-by-province description of the history and study of the rock-art sites of Vanuatu is provided in Appendix 6.1.

The remainder of this chapter is dedicated to an examination of the spatial distributions of non-motif and motif rock-art variables, with the aim of establishing the statistical relationship between rock-art sites throughout Vanuatu. In Chapter 7, I examine the temporal distribution of motifs so as to map these spatial distances in time. Finally, in Chapter 8 the results of both the spatial and temporal analyses are combined and assessed in relation to models of cultural change for Vanuatu which have been derived from archaeological and other forms of data.

6.2 Distribution of rock-art sites in Vanuatu

The locations of the 87 rock-art sites currently known in Vanuatu are shown on the map in Figure 6.1. Most of the archipelago's engraved and painted rock-art is associated with limestone caves, with a few exclusively engraved sites found on volcanic boulders and platforms. In the absence of field reports and speleological records for islands such as Santo, Pentecost, Ambae, Ambrym, Epi and Efate, it is unclear whether the lack of rock-art on these islands reflects a scarcity of suitable caves and volcanic surfaces (and thus a real absence of rock-art) or simply a dearth of archaeological survey. On Aneityum, where 90% of the island consists of volcanics, engraving is the only medium found. On Erromango, painted rock-art predominates in cave sites present among the uplifted Pleistocene limestone terraces in the south and west of the island. Most of the engraved rock-art on the island is found on
volcanic beach-rock platforms on the east coast. On Malakula, dense concentrations of both painted and engraved rock-art can be found in limestone caves in the uplifted northwest of the island. Based on these distribution patterns, future rock-art surveys in Vanuatu will most likely locate engraved rock-art on islands where volcanics predominate (e.g. Ambae and Ambrym), and both painted and engraved rock-art in areas of raised limestone where caves are found (e.g. Pentecost and Efate).

Figure 6.1 is a general distribution map showing the island locations of all of the known rock-art sites in Vanuatu. Not all sites in Figure 6.1 can be located precisely; their accuracy is dependent upon the level of locational detail provided by the original site recorder and the availability of site location information. Precise locations are provided for most sites in Figures 6.2-6.6. Figures 6.1-6.6 can be cross-referenced with the site list in Figure 6.7 which provides ancillary information such as the names of the main researchers who have visited and recorded each site, the different codes that have been accorded to sites over time, and a range of non-motif information. Some of the rock-art sites listed in Figure 6.7 have a VCHSS code (usually decimalised, e.g. 13.14) beside them indicating that they have been registered with the Vanuatu Cultural Centre. In addition, I have assigned a ‘V’ (Vanuatu) code to all sites; an alpha-numeric series ranging from V1 to V87, and an alpha-numeric code which specifies island provenance (e.g. MK16 refers to site V16 on Malakula). Hereafter the latter coding system is used when referring to sites.

During two field seasons in 1996 and 1997 I visited 53 sites in four separate island regions where rock-art sites were already known to exist: the west coast of Maewo, Northwest Malakula, Lelepa and Erromango. These regions were selected for the specific purpose of acquiring a north–south sample of the rock-art of Vanuatu. The sites which I have visited and recorded are identified with an asterisk in column 1 of Figure 6.7.

6.3 The rock-art of Vanuatu: a brief history of research

Much of the earliest documentation and recording of rock-art in Vanuatu was undertaken by Presbyterian missionaries on the islands of Aneityum and Lelepa (e.g. Copeland 1860; Patterson 1882; Inglis 1887; MacDonald 1889; Lawrie 1892; and Gunn 1906a, 1906b, 1909, 1914). A summary of this early work can be found in Spriggs and Mumford (1992). Most of these accounts include basic descriptions of the sites, the rock-art, and any associated oral histories, as well as the occasional (albeit coarse-grained) comparisons between rock-art within Vanuatu and further afield (e.g. MacDonald 1913; Gunn 1906b).
The only known historical reference to the physical act of rock-art production in Vanuatu is provided by Gunn (1909) in relation to Ehili (AN2) in southern Aneityum:

The ‘artists’ in those past years belonged to one tribe, and devoted themselves solely to their art. They received their food from the people, for they did not make plantations for themselves. ... Each day the artists prepared their materials - hard stones - and went to their ‘studio’ on the hillside. The volcanic rocks and boulders were very hard, but the artists had no harder material than stones, or perhaps coral, for wearing down, day by day, the outlines which composed their pictures (Gunn 1909: 10-11).

Missionary accounts were followed by early ethnographic and anthropological observations of rock-art on the islands of Ambrym (Speiser [1923]1996: 393), Malakula (Deacon 1934: 584), Maewo (Speiser [1923]1996: 86), Erromango (Skinner 1923: 97; Humphreys 1926, and Woodburn 1944: 187) and Emau (Somerville 1894; Hébert 1963-65). These were followed by a spate of very general references by archaeologists to the rock-art of Aneityum (Elizabeth and Richard Shutler in 1966, Les Groube in 1972, Norma McArthur and Winifred Mumford in 1973 and Matthew Spriggs in 1978 and 1979). Caroline Leaney (1965) was the first archaeologist to describe the Yalo (MK3) and Apialo (MK15) sites in Northwest Malakula. Richard Shutler (1967) provided the first record of rock-art in the Torres Islands (see also Langdon 1967), and Bernard Hébert (1965), followed by José Garanger (1972), were the first to visit and provide a relatively detailed record of the rock-art at Feles cave (LP1) on Lelepa. In 1979 Jim Specht visited the only known rock-art site on Tanna (TN1), and Spriggs (in 1983; cf. Spriggs and Roe 1989) documented several previously unrecorded sites on Erromango (e.g. ER19-ER24). A number of rock-art sites have been listed in the reports of the Vanuatu Cultural and Historic Sites Surveys (VCHSS) for Aneityum, Erromango, Efate, Malakula, Maewo and Pentecost. Most recently Jean-Christophe Galipaud (1996b, 1998b) has reported several sites in the Torres Islands (TR1-TR9).

Most reports on the rock-art of Vanuatu could be described as incidental, appearing sporadically in a range of publications usually as adjuncts to larger historical, ethnographic or archaeological studies. Only two serious attempts have been made at cataloguing and comparing the rock-art of Vanuatu and elsewhere; one by Spriggs and Mumford (1992) for the rock-art of Aneityum and other southern islands, and another by David Roe (1996) who collated information on 50 rock-art sites throughout the archipelago (Figure 6.8). Detailed descriptions of these studies can be found in Appendix 6.1.
6.4 Non-motif variables

In this section I conduct a series of frequency analyses on non-motif variables defining Vanuatu rock-art. Most of the non-motif variables examined here are the same as those analysed in Chapter 4 for western Pacific data. The aim of analysing a similar set of non-motif variables in Vanuatu is to facilitate a comparison with the western Pacific data in Chapter 9. Most of the rock-art variables analysed are listed in Figure 6.7, which includes data on technique, geology, pigment colours, topography and location.

6.4.1 Technique

Roe (1996: 85) identified three broad techniques of rock-art in Vanuatu:

- engravings (usually executed by percussive techniques but with some instances of abrading),
- paintings (applications of pigment to form positive images, including line figures), and
- stencils (pigment applied to form negative images).

Based on observations made during my own fieldwork (Appendix 6.1), and in order to account for the variation within and between the painted and engraved rock-art of Vanuatu, I have slightly revised Roe’s ‘technical’ categories. Generally, the weathered nature of the engravings and surrounding surfaces in Vanuatu preclude an accurate identification of the techniques employed to create them. Attempts to reconstruct the original technique used to produce an engraving were made only when I encountered examples of superimposition that were critical for developing a relative chronology for the rock-art at a site. Three classes of engraving have been identified: pecked (which is equivalent to Roe’s ‘percussive’ class); pecked and/or abraded, and incised. Each of these techniques has been used mainly to produce linear engravings, where the grooves form the outline of an image (e.g. a circle). Less frequently they are used to produce intaglio or bas-relief forms; the former involving the removal of a section of the rock surface to produce a solid image without outline, and the latter entailing the removal of the rock surface around the form of the image such that the figure stands out in relief. On occasion the contours of the natural rock are used to create an impression of relief or a third dimension.

I have divided the painted rock-art of Vanuatu into five ‘technical classes’:

1. Stencils
2. Solid (no outline)
3. Linear (outline) with solid or partially solid infill
4. Linear
5. Combined stencils and linear outline
These technical classes apply to all pigment colours. Thus, for example, a Black1 motif is a black stencil; a Red1 motif is a red stencil, and so on. There are also numerous painted pictures which are too faded to enable a technical class to be determined. These have been designated as ‘indeterminate’ (too faded to allow for accurate assessment).

Roe (1996) stated that engraving is the most common rock-art technique in Vanuatu. According to my own data this statement certainly holds in terms of the total number of sites represented by each medium (Figure 6.7), however it is not the case in terms of the total number of pictures represented by each medium (see section 6.7 below). Of the 87 rock-art sites in Vanuatu, 25 sites contain paintings, 36 contain engravings, and 16 contain a combination of both media.

6.4.2 Geology
Of the 87 known rock-art sites in Vanuatu, 45 are located within a limestone context, 23 are associated with an igneous matrix, and one site consists of a combination of limestone and igneous surfaces (Figure 6.9). The geological contexts of a further 18 are unknown.

The majority of engraving (E) sites are associated with an igneous geology (61%), but a reasonable number are also associated with limestone (22%). Paintings (P) are almost always associated with limestone (96%), and are commonly found together with engravings (E/P) (81.25%). One site on Maewo (MW6), containing paintings and engravings, is associated with both a limestone and igneous matrix. Critically, however, all of the painted rock-art at MW6 is located on the limestone surfaces and most of the engraved rock-art is found on the volcanic surfaces. These results therefore indicate a firm correlation between paintings and limestone and engravings and volcanic geology.

6.4.3 Colour
Roe (1996: 86) noted that the most common pigment colour at rock-art sites in Vanuatu is black (or blue-black), with less frequent occurrences of red and white, and even fewer occurrences of polychrome (two sites). Consistent with Roe (1996), my own results reveal that of the 40 sites in Vanuatu where one or more pigment colours are found, 39 contain black rock-art, 16 contain both black and red rock-art, one site contains red rock-art only, one site contains bichrome ‘red and black’ and ‘red and white’ pictures, one site contains black and white pictures, and one site contains white pictures. The dominance of black at rock-art sites in Vanuatu contrasts with Specht’s (1979) finding that red is the most common pigment colour in the western Pacific.
To date, no attempt has been made to establish the source of pigments used to produce painted rock-art in Vanuatu, although a study is underway to remedy this. My own research on the black rock-art of Erromango indicates that most pigments probably have a charcoal base (yielding a high carbon signature in SEM analyses), although pigments at two sites on Erromango (Raowali and Potvelia 1) contain high levels of manganese, particularly at Potvelia 1 (16.15% Mn).

Sources of red pigment rock-art have probably varied across Vanuatu given the diversity in the red hues observed. The local community in Northwest Malakula claim that most of the red colouring agents used derive from plant sources, including the crushed root of a vine (known as Le pwei in Big Nambas language), and the liquid around the seeds of a fruit deriving from a tree called Nawal (pronounced “Naul” in Big Nambas language). Speiser ([1923]1996: 169), who stated that red pigment ‘originated mainly in Santo and Malakula’ and from there went to Ambrym, Ambae and Epi, claimed that the fruit plant Bica orellata was used as a source of red pigment. Roe (1996) reported the use of Canarium sap as a rock-art pigment on Wala Island, Malakula. In the Roviliau District on Erromango, Robertson (1902: 9) reported the locality of a source of red pigment which was mined for use in body paint and traded to Tanna and Aniwa.

The peak of Nilpon-u-moap rises near Cook’s Bay, in the east of Erromango; the name of the place means “red clay” (Nilpon, ‘place’, moap ‘red clay’). From the mountain great quantities of the clay were dug, the people using it largely at their heathen feasts, when they smeared their faces and bodies in all available colours of the rainbow. The Tannese and Aniwans bought large supplies of “moap” taking it away in their canoes and giving the Erromangans pigs, white shells (which were greatly valued), and other articles in exchange. This may also have served as a source for the red pigments used in rock-art and should be targeted for future analysis.

A lack of oral information concerning rock-art production precludes an investigation of what motivated the use of particular pigment colours. However, there is an abundance of ethnographic detail about the social contexts in which different colours were (and still are) used for other design purposes. This information varies considerably for different islands. For instance, in west Santo, Speiser ([1923]1996: 169) reports that people painted their bodies black during times of mourning, and red during times of warfare. In contrast, in Northwest Malakula people blackened their faces and superimposed a pattern of red and white stripes for both war and mourning. On Epi, the colour of mourning is white and is

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30 The ‘Vanuatu Rock Art Dating Project’ is being conducted as part of a project funded by a Large
smeared all over the body (Speiser [1923] 1996: 170). Little information is available
concerning the nature of binding agents used in the creation of pigments. Speiser
([1923] 1996: 241), however, noted the use of both saliva and the juice of fig trees.

The issue of pigment colour is particularly relevant to the subject of rock-art chronology.
Researchers who have visited rock-art sites in Vanuatu have commented that red rock-art
tends to precede black. Matthew Spriggs (1994c) has taken this observation one step further
by suggesting that at Raowalai (ER16), a cave site in southern Erromango, red rock-art was
associated with an early funerary function and later replaced by a black rock-art which was
probably linked to a period of domestic activity (see Wilson 1999: 90 for further discussion).

A preliminary spatial analysis of painted rock-art on Erromango has revealed an association
between red stencils and red linear drawings and cave space (Wilson 1999, provided in
Appendix 6.2). In addition to being commonly located in inaccessible locations, red pigment
pictures are also frequently restricted to specific parts of caves, such as the entrances to
burial chambers. If, as Spriggs (1994c) has proposed, rock-art colour reflects change over
time, then shifts in the organisation and function of cave space may also be implicated.

6.4.4 Topography

Roe (1996: 85) has noted that painted and engraved art techniques tend to be associated with
different landscape formations. My results indicate that engravings occur in a diverse range
contexts: on exposed cliffs, on beach-rock platforms, in caves and shelters, and on boulders
(Figure 6.10). Painted rock-art has a more limited distribution, occurring primarily in
limestone caves and shelters. The fact that engravings are probably more durable than
paintings may explain the absence of paintings in more exposed landscape contexts although,
as Roe (1996: 85) mentions, pigment-art appears to have survived for long periods on coastal
cave-faces in other parts of the Pacific. Of the 87 known rock-art sites in Vanuatu, 55 are
caves and shelters, five are cliffs or cliffs/outcrops,31 21 are boulders, stones, pillars and
slabs,32 five are volcanic beach-rock platforms, and one is unknown.

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31 Cliffs/outcrops is a category used by Roe (1996). I was unable to obtain more fine-grained
information than this and therefore amalgamated his category with my own category 'cliffs'.
32 I am not sure whether the 'pillar' (TR9) described by Galipaud (1996b) is a carved monolith or a
naturally occurring stone. If it is a carved monolith then it does not fall within the definition of rock-
art used in this thesis. Likewise, I am not sure whether the carved 'slab' (SHD1) from Emae is a
naturally occurring stone or deriving from some kind of human-made structure. I decided to include
both of these sites but they could equally have been omitted.
6.4.5 Location

Each of the topographic features noted above (i.e. caves/shelters, boulders, platforms) is associated with particular landforms. Of the 87 known rock-art sites in Vanuatu, 51 are located on or within vertical cliffs of (usually limestone) upraised terraces. All caves and rock-shelters fall into this category and are listed as ‘cliffed’ in Figure 6.7. A total of 12 sites are located on the coast, including boulders and beach-rock platforms but excluding coastal ‘cliffed’ sites. The remaining three categories: slope (12 sites), ridge top (four sites), and river course (two sites), apply mainly to boulders. The landforms associated with six sites are unknown.

6.4.6 Human remains

Only five rock-art sites in Vanuatu are known to contain human skeletal material – one on Malakula and four on Erromango (Figure 6.7). Four sites contain skeletal material situated above-ground and are therefore classified as ossuaries. One site on Erromango (ER16) contains sub-surface human skeletal material and is classed as a burial. There are a number of other rock-art sites on Erromango which bear material signs of former ossuaries though no skeletal material has yet been identified. For instance at Nalavinaramai (ER1) on Erromango there is a low stone wall at the rear of a sheltered area. Stone walls of this kind commonly demarcate repositories for skeletal material.

There appears to be a close spatial relationship between human skeletal material and red rock-art at some sites, particularly on Erromango (e.g. Velemendi [ER2] and Raoviu [ER18]). Red motifs, for instance, tend to be found just outside the chambers/apses that contain the remains. However, due to the small number of sites containing skeletal material, the observed correlation between red rock-art and ossuaries/burials is a preliminary link which requires further investigation. Notably, there are 13 sites in Vanuatu which contain red rock-art but no visible remains of human bones.

6.4.7 Inaccessibility

Roe (1996) has noted that there are a number of instances in Vanuatu where rock-pictures are located at considerable heights above the ground. As outlined in previous chapters, ‘inaccessibility’ is a common feature of (mainly red) painted rock-art assemblages throughout the western Pacific (Ballard 1992a). One of the major differences in Vanuatu, however, is that inaccessible rock-art can be engraved or painted, and the inaccessible painted rock-art is not necessarily always red.
Hand stencils are the most common of the inaccessible black rock-art in Vanuatu, and red hand stencils and red solid amorphous shapes are the most inaccessible of the red motifs. At Apialo (MK15) on Malakula there are several black and white anthropomorphic figures with headdresses c.6 metres above the present floor level of the cave, and at Yalo (MK3) there are a number of engraved figures, including non-figurative motifs as well as an anthropomorph with a headdress, located a few metres above head-height. There are only two regions in the western Pacific where inaccessible engraved rock-art has been encountered: at Yalo (MK3) in Vanuatu, and at Vatuluma Posovi in the Northwest Guadalcanal (Roe 1992a).

Is this element of inaccessibility in the rock-art of Vanuatu derivative of a convention which originated elsewhere, or did it develop in response to a local visual mapping of social concepts (or a 'cultural syntax') pertaining to height? There is certainly some reference in early anthropological accounts to 'height' in Malakula and elsewhere in Vanuatu being 'symbolic of both spiritual and social aspiration.' (Layard 1942: 732). Notably, in north Malakula for instance, hawks' feathers are worn in the hair as a symbol of rank in the public grade system. On Vao, one of the Small Islands off northeast Malakula, the word Na-mbal (meaning 'hawk') was said to only have been used as a name by someone of high rank (Layard 1942: 734). Perhaps, then, it is no coincidence that 'anthropomorphic figures with feather headdresses' are among the highest images in the two largest rock-art caves in Northwest Malakula. Height, as a symbol of rank and power, was possibly integral to the social ontology of the people responsible for producing the rock-art of Northwest Malakula.

A relationship between rock-art and social rank has been noted elsewhere in the western Pacific and Southeast Asia. Both Vial (1936) and McWilliam (1936) have written about the spatial relationship between ossuaries and rock-art in the Buang Valley in Morobe Province (PNG). The Mapos people, who lay claim to these relics, state that the height of the limestone ledge on which a person's physical remains were placed was directly related to the individual's status in life. Thus women and children were positioned at the base of cliffs; low-ranking men were located on ledges higher than the women and children, and men of high status within the community were placed higher still.

Whether or not the social meanings linking 'height' and rock-art were transmitted from some ancestral homeland to Vanuatu is difficult to ascertain. What can be established through direct and relative dating, however, is whether the earliest forms of rock-art in Vanuatu were more likely to manifest this characteristic of height than later ones. This would lend some credence to the idea that the cultural concepts associated with height have been mapped onto visual images across a very broad region. I explore this notion again in Chapter 10 by
gauging the strength of the relationship between motif type, colour, height, and chronology throughout the western Pacific. While I have not recorded the exact heights of the various motifs in Vanuatu I have estimated maximum heights at most sites (Appendix 6.1).

6.5 Discussion: the distribution of non-motif variables

Five broad conclusions can be drawn from the analyses of non-motif variables conducted so far in this chapter:

1. While the number of sites with engravings exceeds the number of sites with paintings, the overall number of painted pictures exceeds the numbers of engraved pictures (see below). This result offers further support for the mounting evidence that paintings are far more common in Island Melanesia than formerly realised (see Chapter 4).

2. The majority of engraving sites are associated with an igneous geology while the majority of painted rock-art is associated with limestone. Vanuatu differs from other western Pacific regions in terms of its relatively high percentage of limestone caves and shelters containing engraved rock-art (although see figures for Sogeri area; Chapter 4).

3. Vanuatu also differs from most other western Pacific regions in terms of the colours represented among painted assemblages. Thirty-nine of the 40 sites with painted rock-art in Vanuatu contain black pigment (in contrast with the dominance of red pigment elsewhere in the western Pacific). This result accords with the patterns observed for colour distribution across the western Pacific which indicate a relative increase of black pigment rock-art towards the east (see Chapter 4).

4. Painted rock-art in Vanuatu is most often found in either shelters or caves, while engraved rock-art is found in a diverse range of topographic contexts (e.g. on exposed cliffs, on beachrock platforms, in caves and shelters and on boulders). The relationship between distributions of engraving sites and topographic categories in Vanuatu does not correspond with the results obtained elsewhere in the western Pacific where engravings are overwhelmingly associated with boulders. Most rock-art in Vanuatu is found in the uplifted coralline limestone terraces, either on cliff-faces (e.g Subeng on Maewo) or within shelters and caves at the base of cliffs (e.g Yalo on Malakula).

5. Inaccessibility, one of the fundamental components of the APT, is a ubiquitous feature among the rock-art of Vanuatu. Where Vanuatu differs from other western Pacific regions, however, is in terms of the techniques and colours defined by inaccessibility. Whereas inaccessible art in most other regions is mostly only associated with red pigment, in Vanuatu both red and black pigment and engraved rock-art are used.
The overall conclusion that can be drawn from this section is that, while Vanuatu is characterised by many of the non-motif variables expressed at other western Pacific sites (e.g. inaccessibility), the archipelago also demonstrates several quantifiable differences, such as the relatively high density of black pigment relative to red pigment, and the number of inaccessible black paintings. What do these results imply in terms of Vanuatu’s relationship to other western Pacific regions through space and time? Before attempting to answer this question, in the following section I conduct detailed analyses of the motifs exhibited in Vanuatu’s rock-art; examining their distribution through space.

### 6.6 Motif categories and motifs

Not all of the sites listed in Figure 6.7 are included in the motif analyses presented in this section. The suitability of a site for inclusion was assessed on the basis of the fulfillment of the following site recording procedures:

1. Each site was described on a site recording form.
2. A scaled plan of the site was produced noting the locations of rock-art and other relevant natural and cultural features.
3. The rock-art was sketched on ‘feature’ forms and divided into arbitrary panels.
4. The rock-art was photographed in an overlapping sequence. Long-distance panel shots were obtained first, followed by photographs of certain sections of a panel, before a series of photographs were taken of individual pictures. The rock-art captured in each frame was noted on photographic recording forms which correlated with the feature forms. Panels were alphabetically coded; photographed sections of panels were numerically coded, and photographed pictures were accorded a roman numeral.

Sites listed in Figure 6.11 were included in an intersite comparison of motifs. Upon completing my fieldwork I re-drew the rock-art at each site from both sketches and photographs (to scale where possible). Eight sites on Aneityum which had already been extensively recorded and illustrated (see Spriggs and Mumford 1992) were also considered. Two sites which were incompletely recorded were also deemed appropriate for analysis: Velemendi (ER3) on Erromango and Malangauliuli (MW5) on Maewo. All of the painted rock-art at Velemendi (which constitutes over 90% of the pictures at the site) was recorded. A small panel of engravings just inside the left entrance of the cave was not recorded due to time constraints. Likewise, a small panel of engravings on an outcrop adjacent to the main shelter at Malangauliuli on Maewo was not recorded due to persistent wet weather; however all of the rock-art on the main panel (which constitutes over 90% of the rock-art of the site) was adequately recorded.

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33 Limited time or access at some sites precluded comprehensive recording.
Five engraving sites on the east coast of Erromango [ER19-ER24] (collectively referred to as the Potnarvin sites) were excluded from the intersite analysis but are discussed in light of the results.\textsuperscript{34}

The total numbers of rock-pictures deriving from each of the five island regions included in the analysis are given in Figure 6.12. The variation between the sample sizes from each island are taken into consideration in the interpretation of results. A grand total of 5565 rock-pictures from rock-art sites in these five regions are available for analysis.

\textbf{6.7 The classification of motif categories}

As for the western Pacific data described in Chapter 4, each picture was classified as either a painting or an engraving and then assigned to a figurative and/or non-figurative motif category (Appendix 6.4). The total numbers of engraved and painted pictures present at each site are listed in Figures 6.13 and 6.14.

A total of 749 figurative pictures have also been assigned a non-figurative code. Thus, for example, several Anthrol motifs have been assigned a leaf-shaped (L) motif code due to their leaf-shaped torso. The aim here is to reduce the level of subjectivity imposed on the data through the perception of certain motifs as resembling objects in the real world. In this way, the categories ‘figurative’ and ‘non-figurative’ become redundant in some analyses as all motifs are equally weighted according to their geometric properties. For each result presented in this chapter I state whether duplicates (i.e. motifs split into a figurative and non-figurative category) are included in the total number of motifs analysed.

The following discussion is divided into four sections. In the first section I discuss the major quantitative differences within and between figurative and non-figurative motif categories. In the sections that follow I examine motifs found at three geographical scales: Vanuatu-wide, inter-island (including two or more adjacent islands), and island-specific. Each geographic region is further examined according to whether motifs are engraved, painted, or both, and according to whether they are figurative or non-figurative. In each section I describe the most common motifs found at each regional scale.

\textsuperscript{34}These sites (ER19-ER24) were visited in 1996 but their recording was interrupted by the death of a Chief, requiring me to return to Dillon's Bay (on the west coast) for the funeral. The level of recording at these sites was insufficient to include them in the statistical analyses. However, a summary table of the motifs recorded at these sites has been devised and is referred to in the discussion of the statistical results presented below (see Appendix 6.3).
6.7.1 Figurative versus non-figurative motifs

**Figurative motifs (Figures 6.15-6.18)**

A total of 2438 figurative pictures were recorded and analysed, constituting 43.8% of the total number of pictures in the entire sample. Of these, 647 (26.5%) are engraved and 1791 (73.5%) are painted (Figure 6.15 and Figure 6.16). There are a few major differences amongst the numbers of pictures assigned to each figurative category in the two different media (Figure 6.17 and Figure 6.18a/b). For example hands (primarily hand stencils) constitute the most commonly depicted motif with 1467 paintings (81.9%) and only six engravings (0.9%). Faces constitute the second largest motif category with 449 engravings (69.3%) and just 12 paintings (0.7%). The total number of pictures in the remaining nine figurative categories are relatively proportional across the two mediums. For example, anthropomorphs, the third largest category, is represented by 211 paintings (11.8%) and 83 engravings (12.8%). Differences between figurative engravings and paintings are more apparent at the level of the motif rather than the motif category.

**Non-figurative motifs (Figures 6.19-6.26)**

The total number of non-figurative engravings and paintings is 3876 (including duplicates). Of these, 1792 (46%) are engravings and 2084 (54%) are paintings (Figure 6.19 and Figure 6.20). There are perceptible differences between the total numbers of non-figurative categories represented by each medium (Figure 6.21 and Figure 6.22). Among engravings, the cupule is the most frequently encountered motif category (n=432). Among paintings, central line motifs are the most common (n=306). Circles, straight lines and leaf-shaped motifs have a high and relatively equal representation in both media. Painted assemblages throughout Vanuatu have a much higher representation of zig-zags, triangles and diamonds than engraved assemblages. Engraved assemblages are represented by considerably greater numbers of ovals, teardrops and ovoids.

As noted above, 749 figurative pictures have been accorded a non-figurative code. Figurative pictures which have *not* been accorded a non-figurative code include hand stencils (which, even if they have an unknowable social meaning, are undoubtedly portrayals of 'hands') and faded figurative motifs (e.g. AnthroF, FaceF). The total number of engraved non-figuratives without duplicate figurative codes is 1331, and the total number of painted non-figuratives without duplicate figurative codes is 1796 (Figure 6.23 and Figure 6.24).

Each of the following frequency analyses are based on the total number of figurative and non-figurative motives *including* duplicate codes (n=6314). The total number of figurative motifs with duplicate non-figurative codes at each site can be determined by subtracting the
site totals in Figure 6.26 from the site totals in Figure 6.25. The following results are based on the tabulated totals for engraved and painted figurative and non-figurative motifs. These tables are available for reference in Appendix 6.5.35

6.8 Vanuatu-wide motifs

6.8.1 Figurative engravings

The most common category of figurative engravings with a Vanuatu-wide distribution is the Face, with Face1 (n=13), Face9 (n=40) and Face13 (n=54) each heavily represented (Figure 6.27). Both Face1 and Face13 could be described as 'standardised schemas' (similar depictions are found outside the study region). Face1 is a circular or oval face with two cupules (circular depressions) for eyes. Face13 is identical to Face1 but with three cupules (perhaps) denoting facial features. Face9, the third most common engraved face in Vanuatu, is more unusual in that it is denoted by features which are replicated throughout the western Pacific and only in the engraved medium.

The Face motif category occurs most frequently in the north of the archipelago (on Maewo and Malakula) and less frequently on Erromango. On Erromango, one example of Face13 occurs at ER13, and both Face1 and Face9 occur at Potnarvin (where exact counts are unavailable). The engraved Face motif category is the most common and widely represented across Vanuatu. While it has a predominantly northern distribution, it does occur sporadically on Erromango. Though Face13 is the most commonly depicted motif, interpretive weight is given here to Face9 which is well represented across the archipelago and bears features which appear to be diagnostic throughout the western Pacific.

Two engraved fish motifs (Fish2 and Fish11) have Vanuatu-wide distributions. Fish2 (n=8), the second most common engraved fish motif after Fish1 (n=9), has a diamond-shaped body and belongs to a class of non-figurative diamond motifs which occur throughout the archipelago in both the painted and engraved media (including Dm6, D7, D14 and D21). Fish 11 (n=2) is rarely represented, but single examples occur in both the north and south on Maewo and at Potnarvin (Erromango).

BoatF (a faded motif which resembles a boat [n=6] and Boat16 [n=1])36 have both been recorded at MW5 and at Potnarvin on Erromango. Boat16 is an unembellished simple

35To avoid confusion when examining the results presented in this chapter, I note here that readers will observe illustrations of 'figurative' motifs in the results for 'non-figurative' motifs. This is because certain figurative motifs have been analysed as both figurative and non-figurative forms. For
depiction of a sea-craft consisting of a ‘hull’ and a single line (mast?) with an attached rectilinear form (flag?).

6.8.2 Non-figurative engravings
Most of the non-figurative engravings with a Vanuatu-wide distribution are curvilinear in nature and relatively homogeneous in form (Figure 6.28). The most commonly represented motifs are Cf30 (a circle with a central cupule; n=47) and Cf32, a circle with an off-centred cupule (n=22). Several of the more simple face motifs described in the figurative engraving section are also represented here, including Face1 and Face9. The most salient attribute among engraved non-figurative motifs with a Vanuatu-wide distribution is the central (or off-centred) cupule, which is associated with circles, semi-circles (SSf9), ovals (Of6), triangles (Tf6), leaf-shapes (Lf2) and ovoids (vEGf3).

6.8.3 Figurative paintings
By comparison with engravings there are very few figurative paintings with a Vanuatu-wide distribution (Figure 6.29). Only two motif categories are represented: Anthropomorphs and Zoomorphs. Anthro45 (n=8) is found on Malakula (n=2), Lelepa (n=3) and Erromango (n=3). This motif is defined by an outlined torso (usually infilled with solid pigment), flexed arms with digits, and an outlined head (with ears often depicted). The legs are represented in a variety of postures and genitalia can be seen on some of the figures.

The Zoomorph motif found on both Malakula and Erromango is Butterfly1 (n=2). While the two pictures at MK12 and ER6 are structurally similar, only single examples are found at each site.

6.8.4 Non-figurative paintings
The non-figurative painted rock-art found across the archipelago is fundamentally different to the non-figurative engraved rock-art (Figure 6.30). It is predominantly rectilinear, with diamonds, triangles, leaf-shapes, crosses, zigzags, stars and central lines all well represented. While a large proportion of non-figurative engravings found across Vanuatu are denoted by the inclusion of a central cupule, the non-figurative paintings are distinguished by features such as a central axis line or linear infill. Motif Ck46 (n=46), for instance, consists of a line of circles connected by a central axis line. The central line motif category is the most commonly represented non-figurative painting category with a Vanuatu-wide distribution. Motif CLd21 (n=16), the most frequently represented motif, is characterised by several

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36 Boat16 has only been counted once but also occurs at Malap on Erromango, one of the regions excluded from the frequency analysis.
parallel lines extending from one side of a straight line, having the appearance of a 'hair comb'.

6.8.5 Figurative motifs common to both paintings and engravings

A large number of motifs occur across Vanuatu in both painted and engraved media (Figure 6.31). The most common and widely distributed motif category is the Hand (n=1471), with 1465 painted and six engraved examples. The only island where hand motifs are not present is Maewo.

Anthropomorphs constitute the next largest category. Anthro1 (n=17), characterised by flexed arms and legs and an outlined (usually leaf-shaped) torso, is more common among engravings (n=11) than paintings (n=6) and more prevalent in the north of the archipelago (Maewo and Malakula). Anthro25, which falls into the group of diamond-shaped motifs described above (Dm6, D7, D14, D21), is usually painted (n=6), with only one engraved example recorded.

The next most common category is Fish, examples of which are more frequently engraved than painted. Fish1 (n=10) has a predominantly southern distribution and is characterised by the features described above as constituting a 'standardised schema' (see Chapter 1). Fish8 (n=9) is most commonly found among the engravings of Maewo and is characterised by an outlined leaf-shaped body and a two-pronged tail.

Bird1 motifs are also found throughout the archipelago and, like Anthro25, are slightly more often painted (n=7) than engraved (n=3). These forms are almost identical to Anthro25 except for the addition of a beak-like appendage. Engraved versions are found exclusively in the south of the archipelago while painted versions predominate in the north.

Boat motifs (n=6) occur relatively infrequently throughout the islands. Boat6, which resembles a European ship, is found in both painted and engraved media on Maewo (MW5 and MW6) and among the engravings at Malap in the Potnarvin region of Erromango. Boat7, which could be described as a generic depiction of a sea-craft with sails, is found in engraved assemblages in the south of Vanuatu and in painted assemblages in the north.

One of the most important factors emerging from this analysis is that certain motifs with a Vanuatu-wide distribution tend to occur more frequently as engravings in some regions and as paintings in others. For instance, Anthro25, Bird1 and Boat7, all occur more commonly as paintings in the north and as engravings in the south.
6.8.6 Non-figurative motifs common to both paintings and engravings

I noted above (6.8.4) that engraved non-figurative motifs are structurally different to painted non-figurative motifs, the former having a predominantly curvilinear structure and the latter a rectilinear structure (Figure 6.32). Non-figurative motifs in both media, however, are represented by both rectilinear and curvilinear features. Overall, motifs in this dual media category are more commonly painted than engraved. This can be demonstrated by examining the number of paintings and engravings representing each motif. Of the 93 motifs with a Vanuatu-wide distribution, only 26 are more frequently found in the engraved medium. If we examine the motifs with a higher percentage of engraved representatives, a critical pattern emerges. Most motifs with a higher representation of engravings are curvilinear (e.g. Cd21, Cn59, Od3), or otherwise characterised by a relatively simple form (e.g. vD14, Td5, vL15), and produced using a technique of abrasion. The small number of complex and rectilinear motifs which have a higher representation of engravings derive mostly from Maewo (e.g. Q30) or Aneityum (e.g. Cq91), and were produced using a technique of incision.

The remaining 67 motifs in this dual media category are more frequently painted than engraved. Among the more common motifs are circles with rectilinear infill (vC123, n=13); a group of diamond motifs: Dm6 (n=12), Dm7 (n=19) and vD21 (n=27); a contiguous triangle (Tc3, n=28) found in large numbers in the painted assemblages of both Malakula and Erromango; a plain zigzag (Zd1); a central axis with symmetrical and assymetrical cross-lines (CLd5 and CLd24 respectively); a plain cross (Xd1), and several varieties of straight-line motifs.

6.9 Regional motifs (inter-island)

Four regional areas are delineated in this section to assess similarities and differences between rock-art motifs in proximal and distant locales. The basis for this delineation is to ascertain regional distances in terms of rock-art similarities. The patterns of similarity and difference derived from these regional analyses can then be compared to regional distributions obtained from other types of data (e.g. archaeological and linguistic).

North: Maewo and Malakula
North-central: Maewo, Malakula and Lelepa
South-central: Lelepa, Erromango and Aneityum
South: Erromango and Aneityum
6.9.1 Figurative engravings
The total number of figurative engravings with a regional distribution is 107 (Figure 6.33). Of these, an overwhelmingly large number belong to the Face motif category (n=103). Four face motifs – Face2 (n=13), Face8 (n=86), Face11 (n=2) and Face29 (n=2) – are present only in the north of the archipelago. Face8, the most frequently depicted of these motifs, is characterised by an ovoid-shaped outline and two or three cupules marking facial features. Despite the presence of a small number of face motifs on Erromango (see 6.8.1), faces are generally limited to engraved rock-art assemblages in the north. Only two other categories of engraved figurative motifs have regional distributions: Anthropomorphs and Fish. Anthro3 (n=2), defined by an oval-shaped body with curvilinear legs and arms, is present in the north. Fish6 (n=2), characterised by an outlined leaf-shaped body and triangular tail, is present in the south.

6.9.2 Non-figurative engravings
There are several differences between northern and southern non-figurative engravings (Figure 6.34). On Maewo and Malakula, the ovoid represents the basic shape of a common figurative face motif (vEGf4; n=85) and an infilled non-figurative motif (vEG5). On Erromango and Aneityum a ‘U’-shaped motif and two leaf-shapes (resembling fish) are frequently represented. Most regionally distributed non-figurative motifs are also figurative. That is, non-figurative shapes resembling anthropomorphs are common in the north and non-figurative shapes resembling marine creatures are common in the south.

6.9.3 Figurative paintings
Only two figurative motif categories – Anthropomorphs and Birds – have regional distributions among painted assemblages, and both are found exclusively in the north-central region (Malakula and Lelepa) (Figure 6.35). Anthro20 (n=4) is similar in form to the more widely distributed Anthro45. Bird5 (n=6), which resembles a ‘rooster’, has no other motif analogues.

6.9.4 Non-figurative paintings
Regionally distributed non-figurative motifs include diamond (vD26, vD27) and leaf-shaped (vL34) motifs in the north-central region (Malakula and Lelepa), and a contiguous circle motif (Cc18) which is restricted to the north (Figure 6.36).

6.9.5 Figurative motifs common to both paintings and engravings
There are 55 regionally distributed engraved and painted pictures, of which 41 (75%) are anthropomorphs (Figure 6.37). Anthro4 (n=7), present in the north, has a leaf-shaped body with the arms and legs depicted in a variety of different postures. The head is usually ovoid and facial features are generally portrayed. Anthro5 (n=2), also with a northern distribution,
is a stick figure motif with a line through the torso and, where depicted, flexed arms and legs. Anthro7 (n=17), a common stick figure with flexed arms and legs, occurs on both Maewo and Malakula among engravings (n=4) and on Malakula and Lelepa among paintings (n=13). Anthro17 (n=15), found in the north, is similar to Anthro7 except that the legs are usually straight (at right angles to the torso) or configured in such a way as to imply movement (e.g. one leg flexed upwards and the other downwards). There are two examples of Anthro43 which occurs as an engraving on Maewo and as a painting on Lelepa (north-central). This motif has a rectangular shaped torso and stick limbs.

Face15 (n=7) also has a central-north distribution, occurring as an engraving on Maewo and Malakula and a painting on Malakula and Lelepa. It is characterised by a round face and variously placed facial markings. Eyes2 (n=3) has an exclusively northern distribution. An engraved version occurs on Maewo and a painted version on Malakula. This motif consists of two contiguous and concentric circles. Fish3 (n=4), which has an exclusively southern distribution, is similar in form to Fish1 (described above) except that internal markings (such as eyes or patterned rectilinear infill) are also present.

6.9.6 Non-figurative motifs common to paintings and engravings
The majority of regionally distributed motifs which feature in both media are rectilinear and painted (Figure 6.38). Only seven of the 26 different motifs in this group have a higher proportion of engraved representatives. Of these, most are curvilinear rather than rectilinear (e.g. vCc18, Aaa6). The most frequently represented non-figurative engravings and paintings are vCL74 and vCL78, both central-line motifs with a north-central distribution (Maewo, Malakula and Lelepa). All other engraved and painted regional motifs have a low representation in both media. Only three of the 26 motifs have an exclusively southern or central/southern distribution, including vL14 (a bird motif), vL39 (a fish motif) and an elongated geometric form (vEF7).

6.10 Island-specific motifs

6.10.1 Figurative engravings
Five figurative motif categories have island-specific distributions (Figure 6.39). Faces and eyes constitute the most common categories and are restricted to the north, and turtles, birds and material items have an exclusively southern distribution. While the motif categories have a trans-island distribution, the motifs themselves are found on one island only. Each of the eight engraved face motifs derive from Malakula (n=72). The two eye motifs from Maewo (Eyes1 and Eyes4) are characterised by contiguity, concentricity and asymmetry. Those from Malakula (Eyes5 and Eyes10) are defined by either two unattached circles with
central cupules (pupils?) or contiguous circles with rays. Turtle1 \((n=3)\) and Bird4 \((n=2)\) are found exclusively on Aneityum. Adze3 motifs, locally referred to as *nerom*, are present only at the Potnarvin sites on Erromango.

### 6.10.2 Non-figurative engravings

Most of the non-figurative engraved motifs with an island-specific distribution have figurative equivalents (Figure 6.40). The majority derive from Malakula – especially the faces which are commonly portrayed with rayed headdresses (or ‘hair’) and cupules (for facial features). Some faces are represented by cupules only (i.e. facial features without the outline of the face), including vCP26 – an abbreviated version of Face9 which is found throughout Vanuatu.

### 6.10.3 Figurative paintings

Anthropomorphs constitute the most common figurative motif category and are found exclusively on Malakula \((n=20)\) (Figure 6.41). Other figurative paintings which have an island-specific distribution are zoomorphs and material items, such as Zoo1 (resembling a dog, \(n=3\)) and Hook1 (resembling a fishhook, \(n=2\)) found on Malakula, and Butterfly2 \((n=2)\) found on Erromango.

### 6.10.4 Non-figurative paintings

A total of 18 non-figurative painted motifs have an island-specific distribution on either Malakula and Erromango (Figure 6.42). Malakula is the only island featuring Cc13 (resembling eyes), a circle with outer rays (Cq90), a circle with symmetrical rectilinear infill and appendages (vC128), vSS51 (resembling a dog), star-shaped motifs, a sea-craft (vL28), a zig-zag (vZ14), a cross (vX51) and several anthropomorphs (central-line motifs). Erromango features Cc10 (resembling eyes), vOm17 (a crab), a contiguous diamond (D8), a contiguous and relatively unembellished triangle (vT29 and vT33) and an elongated form (EFm3).

### 6.10.5 Figurative motifs common to both paintings and engravings

Anthropomorphs, boats and a face make up the range of figurative motifs with an island-specific distribution common to both media (Figure 6.43). Anthro22 \((n=10)\), Anthro24 \((n=10)\) and Face27 \((n=4)\) are found exclusively on Malakula. Boat5 \((n=5)\) occurs on Maewo, and Boat 10 \((n=2)\) on Erromango.

### 6.10.6 Non-figurative motifs common to paintings and engravings

Non-figurative motifs with an island-specific distribution common to both media and found on Malakula include a circle (vC138), a leaf with central cross (vL31), an anthropomorph with a leaf-shaped torso (vL32), a face (vCP18), and an anthropomorph with antennae...
On Lelepa there is an engraved ovoid with pigment infill (vEgf9); on Erromango a line with extensions (LWE1); and on Maewo a configuration of cupules/dots (CP5).

6.11 Discussion: the distribution of motifs in Vanuatu

The aim of this section has been to measure similarities and differences in the rock-art of Vanuatu. While most motif categories are common to both paintings and engravings there are several geographical differences at the motif level. Nine principal conclusions can be derived from the above results:

1. **There is a homogeneous set of engravings which occurs throughout Vanuatu that is not replicated in the painting medium (Figures 6.27 and 6.28).** The most common engraved motif category is the circle, and the two most common motifs are Cf30 (a circle with a central cupule), followed by Cf32 (a circle with an off-centred cupule). Various non-figurative motif categories are represented – including circles, semi-circles, ovals, stars, teardrops, triangles, leaf-shapes, ovoids, crosses and cupules. Most of the motifs represented in this group are defined by a central cupule and a curvilinear structure. Three figurative motif categories are also present: the face, the fish and sea-craft. The face is the most common figurative category, which, among engravings, is defined by curvilinearity and the inclusion of cupules.

2. **There is a set of mainly non-figurative paintings which occurs throughout Vanuatu and which is not replicated in the engraved medium (Figures 6.29 and 6.30).** The two most common motif categories represented are central lines followed by leaf-shapes. The two most common motifs are CLd21, and L11. The criteria which distinguish this painting set from the homogeneous set of engravings described above include rectilinearity, compound forms, and the frequent presence of a central axis or linear infill. Two main figurative motif categories are represented: anthropomorphs and zoomorphs.

3. **Certain motifs occur throughout Vanuatu which are represented by both paintings and engravings (Figures 6.31 and 6.32).** There are some major differences between the numbers of engravings and paintings representing motifs characterised by both media. Motifs which are more commonly engraved tend to be characterised by curvilinearity and simplicity. Motifs more commonly painted are mostly characterised by rectilinearity and relative complexity (including compound forms). The majority of motifs in this set are rectilinear in structure and therefore more similar (overall) to the set of Vanuatu-wide non-figurative paintings (see conclusion 2 above).
4. Regionally distributed engraved motifs suggest a north-south divide (Figures 6.33 and 6.34). Regionally distributed engravings are generally figurative (with non-figurative codes). Certain face motifs are exclusive to the north (Face8/vEgf4), while other motifs (often with a marine theme) are exclusive to the south (Fish6/vL20, vL40, Cd24, and vU7).

5. Most regionally distributed painted motifs are found in the north-central region (Malakula and Lelepa) (Figures 6.35 and 6.36). Among the figurative motifs are a painted anthropomorph (Anthro20) and a bird (Bird5). Among the non-figuratives are two diamond motifs (vD26 and vD27). Malakula and Maewo share only one painted motif (Ce18) – a compound circular motif.

6. Regionally distributed motifs common to paintings and engravings suggest a north-south divide (Figures 6.37 and 6.38). All motifs pertaining to the human form (anthropomorphs, faces, and eyes) are found on Maewo, Malakula and Lelepa (north-central). One fish motif (Fish3) is found exclusively in the south. Motifs tend to be engraved on Maewo (with one exception), painted and engraved on Malakula (3 engraved, 6 painted) and painted on Lelepa (with no exceptions). Most regionally distributed non-figurative motifs have figurative equivalents. In the north (Maewo, Malakula and Lelepa) there are several circular motifs (forming the basis of eye motifs), leaf-shapes (forming the basis of anthropomorphs and fish) and numerous central lines (forming the basis of several stick-figure anthropomorphs). In the south, (Erromango and Aneityum) is a leaf-shaped motif resembling a bird, and an elongated form. The majority of regionally distributed painted/engraved motifs are painted and rectilinear.

7. Engraved figurative and non-figurative motifs with island-specific distributions match trends identified at the Vanuatu-wide and regional levels (Figure 6.39 and 6.40). Engraved Face and Eye motifs have a northern distribution. Maewo’s eye motifs are distinctive in that they are generally represented by contiguous and/or mismatched circles. Malakula’s face motifs are distinguished by the presence of rayed headwear. Zoomorphic motifs are more common to the rock-art of Aneityum where the same Turtle1 and Bird1 motifs are repeated at different sites.

8. All painted figurative and non-figurative motifs with island-specific distributions derive from either Malakula or Erromango (Figures 6.41 and 6.42). A large number of Malakula’s painted motifs are figurative, including anthropomorphs, dogs and hooks. Malakula’s non-figurative range includes circles, semi-circles, stars, leaf-shapes, zigzags, central-lines and crosses. Erromango’s figurative painted range includes anthropomorphs and zoomorphs (butterfly), and its non-figurative range includes circles.
ovals, diamonds, triangles and elongated forms. Thus, these two island regions have developed distinctive local forms and styles.

9. **Motifs common to both engravings and paintings which have an island-specific distribution are predominantly figurative (Figures 6.43 and 6.44)**. Figurative motifs are more commonly painted and include anthropomorphs, faces and boats. Non-figurative motifs include cupules/dots and some very rare motifs (e.g. v138; vEGf9). The most common non-figurative motif resembles the ‘face’, frequently encountered in the assemblages of Northwest Malakula (n=18). These consist of three cupules (for the eyes and nose) and a line (for the mouth) but no facial outline.

6.12 **A multivariate impression of the similarities and differences between rock-art sites in Vanuatu**

So far the quantitative methods used to determine similarity relations amongst the rock-art of Vanuatu have involved frequency analyses. These have been extremely useful in assessing the distribution and frequency of individual motifs but it has been difficult to gain an understanding of how rock-art sites are statistically related to one another. In order to obtain a composite impression of inter-site similarities, a multivariate analysis was conducted. A binary metric MDS analysis was performed on a data set of 51 sites and 431 motifs. The result, presented in Figure 6.45, indicates that there are few inter-regional differences within the archipelago. Apart from the rock-art of Aneityum, which forms a more-or-less discrete group in the top right corner of the graph, there is an evident expression of overall homogeneity across the entire region.

It has been noted in this chapter that a large number of sites in Vanuatu contain engravings and paintings at the same site. However, in most other western Pacific regions, particularly in the western half of the sample area, engravings are generally associated with volcanic substrates and paintings with limestone. Does the presence of both engravings and paintings at a large number of sites in Vanuatu imply a more general pattern of convergence of engraved and painted assemblages in Remote Oceania?

In order to test this proposal the results presented in Figure 6.45 have been re-coded on the basis of the presence at each site of paintings only, engravings only, or a combination of both media (‘dual-media’). The outcome, illustrated in Figure 6.46, indicates that despite there being a large proportion of sites represented by both media, the rock-art of Vanuatu separates

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37 Two sites from Aneityum (AN4 and AN7) were included in an original CA analysis but were removed due to their ‘outlier’ response.
into two discrete technical spheres (painted and engraved). Sites with paintings only are distributed in the top half of the graph, above the dashed line. Sites with engravings only are confined to the area below the dashed line. Sites with both paintings and engravings are relatively evenly distributed across the graph.

6.13 Conclusion: a tale of two media

The focus of this chapter has been an examination of the distribution of non-motif and motif rock-art variables in Vanuatu. The non-motif study demonstrated that overall, the rock-art of Vanuatu is characterised by many of the features which define the rock-art of other regions in the western Pacific, but that it also departs from these other regions in various quantifiable ways. While I explore some of these differences in more detail in Chapter 9, one of the most important patterns emerging from Vanuatu is that certain 'rule-bound' features associated with the distribution of painted and engraved rock-art further west are considerably modified in Vanuatu. For instance, instead of only finding red pigment in inaccessible locations, Vanuatu is characterised by a substantial amount of black rock-art (particularly hand stencils) in hard to reach places.

One of the main results presented in the second half of this chapter, which focused on the distribution of motif variables, is that the painted rock-art of Vanuatu is predominantly rectilinear, while rock-art dominated by curvilinearity is usually engraved. Overall, the frequency analyses suggest a distinction between painted and engraved motifs across the archipelago. In Chapter 8 I test this distinction further by conducting a series of multivariate analyses on rock-art motifs.

Overall, the engraved rock-art illustrated in Figures 6.27 and 6.28 is homogeneous throughout Vanuatu, suggesting that it was produced within a relatively short timeframe. However, it also manifests a number of regional variants. For instance, the ‘face’ motif (with internal cupules) are overwhelmingly dominant in the engraved assemblages of northern Vanuatu (Maewo and Malakula), implying that the repertoire of engraved rock-art represented in Figures 6.27 and 6.28 has a strong northern focus. The relative frequency of this engraving repertoire in the north and its clinal reduction toward the south of Vanuatu suggests that the source of this engraving type is in the north.

The painted rock-art illustrated in Figures 6.29 and 6.30 also represents an homogeneous group. The relatively even distribution of this painted rock-art implies that it was produced within a framework of interaction, with no single regional stronghold.
A substantial number of motifs represented by both engravings and paintings are found throughout Vanuatu (Figures 6.31 and 6.32). On first impressions, and particularly given the large number of non-figurative motifs represented by both media (Figure 6.32), it would seem that the distinction between engraved and painted rock-art in Vanuatu is only marginal. However, once this 'dual media' category is considered in more detail it becomes evident that the curvilinear/rectilinear division between engravings and paintings is consistent throughout the archipelago. For instance, in Figure 6.32, rectilinear motifs such as CLd16 are common among paintings ($n=28$) and exceptionally rare among engravings ($n=1$). As noted in Chapter 1, such a result demonstrates the benefits of a dual consideration of both presence/absence and frequency data.

There is a general increase in the occurrence of figurative forms from a Vanuatu-wide to an island-specific scale in both media. Non-figurative motifs, which are more constant across Vanuatu, appear to have been the main forms transmitted between regions via processes of colonisation or interaction. Figurative motifs, which are more commonly found at an island level, most likely developed in situ and were less frequently moved or adopted into motif repertoires across islands.

Thematically there is a strong distinction between northern and southern rock-art repertoires, with Lelepa, which is centrally located, manifesting elements common to both the north and south. Anthropomorphic features are common in the northern repertoires but relatively rare in the south. In contrast, marine creatures are common in southern repertoires and relatively rare in the north.

The common thread running through each of the major patterns presented in this chapter is the distinction between painted and engraved repertoires, and the differences between them are most clearly seen in terms of motif structure. Even where there are overlaps between the two media (e.g. in the dual media categories presented above), the curvilinear/rectilinear dichotomy is retained. Curvilinear rock-art will almost always have a higher representation amongst engravings, and rectilinear rock-art a higher proportion of paintings.

One of the more crucial outcomes of the multivariate analyses conducted at the end of this chapter is that the principal axis of variability amongst rock-art sites in Vanuatu is based upon technical rather than regional variation; a pattern observed across the western Pacific. An analysis which would be worth pursuing at a later date would involve dividing the dual-media sites in Vanuatu into their respective painted and engraved components to ascertain
whether the painting components cluster with the *painting only* sites, and the engravings with the *engraving only* sites.

The overall distinction between painted and engraved media is consistent with the strong patterns observed at a western Pacific level in Chapter 4. Are the differences within the rock-art of Vanuatu caused by the same sets of cultural processes underpinning the variation within the rock-art of other western Pacific regions? In Chapter 7 I examine temporal changes within the rock-art of Vanuatu with the ultimate aim of developing a model of rock-art transformation for the region (Chapter 8). If the similarities and differences within the rock-art of Vanuatu are a product of broader western Pacific influences, then a sense of the temporal transitions in the rock-art of Vanuatu will provide a much better position from which to comment on the processes governing the distribution of painted and engraved rock-art at different regional scales.
Vanuatu rock-art through time: a preliminary chronology

7.1 Introduction

If, as appears likely, rock-art in Vanuatu was practised from initial colonisation through to the European contact period, then one might expect a pattern of early homogeneity in the rock-art across the entire archipelago to be replaced by a pattern of increasing regionalism (and therefore heterogeneity). In line with the archaeological evidence, transformations in rock-art may have taken place from either c. 2500 BP at the termination of the Lapita period (Bedford 2000), or c. 1500 BP (Spriggs 1997, Wahome 1997, 1999) when there appears to have been a contraction of inter-island communication networks. The period from 1500 BP and 1000 BP remains something of an enigma for archaeologists but we know from both archaeological and ethnographic evidence that, by around 1000 BP, a network of interaction existed again amongst the northern islands of Vanuatu. We also know that major social changes transpired throughout Vanuatu from around 1000 BP-750 BP as a result of Polynesian influences from the east. Major social changes were then experienced when Europeans visited and later settled in Vanuatu in the last 400 years, and most particularly during the last 200 years. We can expect these episodic changes in the settlement history of Vanuatu to be marked by graphic and other transformations including changes in the rock-art.

Prior to the program of ‘direct’ dating initiated for this dissertation, (direct) evidence for the antiquity of Vanuatu’s rock-art was sparse. Garanger’s (1972) excavations at Feles cave (LP1) on Lelepa yielded a date of around 1000 BP for cultural material lying above a frieze of cupules which had fallen from the cave wall on the adjacent floor deposit. This date does not indicate when the cupules were produced, informing us only on the date at which the cupule frieze was incorporated into the adjacent floor deposit (Spriggs and Mumford 1992). It does, however, provide a maximum age for the painted rock-art on the wall which overlies the scar left from the piece of exfoliated engraved rock (Spriggs and Mumford 1992; and see discussion of rock-art dating for LP1 in Appendix 6.1). The only other evidence for the age of rock-art in Vanuatu derives from depictions of European ships and other cultural material (e.g. clothing) suggesting a post-European contact date (i.e. after 344 BP).
In this chapter a model of the chronology of rock-art transformation for Vanuatu is proposed. A relative sequence is developed from two principal lines of evidence: radiocarbon C\textsuperscript{14} ages of carbon-bearing materials associated with rock-art; and the superimposition of rock-art motifs, techniques, colours and technical classes. Support for this sequence is also inferred from observed parallels between rock-art and decorated archaeological and ethnographic material of known age, such as pottery and barkcloth.

\textbf{7.2 Direct dating}

One technique which is currently being used to date rock-art is Accelerator Mass Spectrometry (AMS), a method of radiocarbon dating which involves the measurement of small amounts of C\textsuperscript{14} found in pigments and in rock varnishes which under- or overlie rock-pictures (Ward and Tuniz 2000). The term ‘direct dating’, used in association with this method, is misleading in that the date refers to the death of the organic substances incorporated into the pigment or varnishes rather than the event of rock-art production itself. ‘Direct dating’ therefore provides either a \textit{terminus post quem} or a \textit{terminus ante quem} for rock-pictures. For instance, a radiocarbon date on charcoal pigment ‘directly’ dates the death of the organic substance from which the charcoal derived (i.e. the tree), and thus provides a maximum age for a painting event. Likewise, a date from organic carbon overlying an engraving groove provides a minimum age for an engraving event.

As part of this dissertation, funding was secured from the Australian Museum to commence a program of direct dating of the rock-art of Vanuatu. The results of this initial project were published in \textit{Rock Art Research} (Volume 18, No.1, 2001; see Appendix 7.1). A brief summary of the paper is presented below.

A total of 11 AMS radiocarbon dates was obtained from carbon-bearing substances relating to rock-art: charcoal pigment, pollen present within abandoned mud-wasp nests, and insects trapped in the core of mud-wasp nests both underlying and overlying hand stencils. The aim of this preliminary project was not to present a chronology for the art, nor to focus on the age of one motif or another, but to present an initial series of radiocarbon ages relating to items of rock-art of known absolute or relative antiquity in order to evaluate the dating methodology prior to a full dating project. The study was therefore methodological, and designed to assess the suitability of AMS for dating different substances associated with rock-art.

All of the samples which were dated derive from the limestone cave of Hopnarop (MK4) on Malakula. Decorating the side walls and ceiling of this cave are thirty-three black hand
stencils and thirteen black-linear paintings/drawings. A further thirteen images were identified as marks of human origin but were indistinguishable as either black stencils or paintings/drawings. In 1997 I collected samples from seven black (charcoal) hand stencils, two of which were known to have been produced between 1996 and 1997 (Hop19 and Hop20). It was agreed in collaboration with the local community that, for this initial dating project, we would only collect rock-art if it was already partially flaking off the walls or if the paint was sufficiently thick that its removal would not expose the underlying rock surface. The selected pictures needed to yield sufficient carbon for AMS dating to increase the reliability of the results. Preference was also given to pictures which occurred in superimposition with mud-wasp nests, themselves capable of being AMS-dated (Roberts et al. 1997). A total of three nests and five (of the seven) hand stencil samples were subjected to AMS radiocarbon dating (Figure 7.1). The nest sampled as Hop15 was specifically selected so as to test the integrity of the internal stratigraphy of the nest and superimposed charcoal pigment (Hop 19). The nest had patches of charcoal pigment on its external surface which meant that a minimum age for the hand stencil could be obtained. Pollen and an insect from the inner and outer portion of Hop15 were selected for dating. The charcoal sample from Hop19 was divided and submitted to the Australian Nuclear Science and Technology Organisation (ANSTO) for dating as two separate samples, providing an internal check of the results.

The results (Figure 7.2) show that all of the nests and charcoal pigments are modern (i.e. dating to within the last 200-300 years). The radiocarbon determinations in all cases accord with the relative stratigraphic positioning of the samples. They are also consistent with the following expectations:

1. The percentage of modern carbon in the two paint samples deriving from the hand stencils produced between 1996 and 1997 (Hop19 and Hop20) indicate a post-bomb date (i.e. after 1950).

2. The two samples taken from hand stencils known to have been produced before 1996-7 (Hop22 and Hop24) have substantially less modern carbon than Hop19 and Hop20 and were most likely produced within the last 200-300 years. They show no trace of the bomb pulse and were therefore produced before 1950.

3. Consistent with the observed sequences of superimposition, the mud-wasp nest and associated insect (Hop15) contained less modern carbon than the overlying hand stencil (Hop19A and B).
4. Likewise, the charcoal from hand stencils Hop22 and Hop24 contained less modern carbon than the overlying nests (Hop3 and Hop6).

5. Hop19, which was submitted for dating in two parts, yielded statistically similar dates, indicating the internal consistency of results produced by ANSTO.

6. The radiocarbon dates on the hand stencils at Hopnarop are similar to an AMS date previously obtained by Matthew Spriggs on charcoal from a black hand stencil from the cave site of Velemendi (ER2) on Erromango: 140±45BP (calib. 288-0 BP) (OXC 828) (Bedford et al. 1998).

The European contact age of the rock-art dated at Hopnarop provides evidence that the most common motif type in Vanuatu, the black hand stencil, was being produced between the arrival of the first European explorers and 1950; at a time when Vanuatu communities were experiencing major cultural and social transformations. This result is curious, however, given that black hand stencils in superimposition almost invariably underlie black linear painted motifs (see below). Does this mean that the majority of the black linear rock-art was also produced within the European contact era? Or are hand stencils at Hopnarop atypically recent? These questions are addressed over the course of this chapter.

In 2000, a Large ARC grant was awarded to a team of archaeologists and dating experts to conduct a rock-art dating program in Vanuatu. The results obtained thus far are presented in Figure 7.3. 38

Various conclusions can be drawn from these results:

1. All of the black hand stencils listed in Figure 7.3 derive from Yalo (on Malakula) and Valnatamat (on Lelepa). Apart from Yalo(9) (OZE561) – a back-to-back hand stencil which returned an age of 261 [42] 0 BP – all other hand stencils in the sample exceed the age of those at Hopnarop.

2. Black hand stencils on Malakula were probably being produced from 2308 [2177] 2131 BP through to the European contact period. The gap of around 1400 years between the production of Yalo(17) and Yalo(23) indicates a possible lapse in the production of black hand stencils at Yalo, but not in the production of rock-art at this site generally (see below).

38The ‘Vanuatu Rock Art Dating Project’ was initiated outside the framework of this thesis but permission to present the results in Figure 7.3 was provided by the project coordinator, Dr. Bruno David (Monash University).
3. The 261 [42] 0 BP date for the back-to-back hand stencil at Yalo suggests a relatively recent introduction of variants of hand stencils on Malakula.

4. Two other stencil motifs on Malakula yielded statistically similar ages of 1330 [1290] 1260 BP and 1296 [1284] 1190 BP. Both of these motifs derive from the same chamber in the cave site of Yalo (MK3). One is a stencil of a ‘fish’, and the other is a straight-line stencil which has been interpreted locally as a ‘walking stick’. The dates for these figures fall into the timeframe in which there are no dates available on black hand stencils (i.e. between 2308 [2177] 2131 BP and 914 [719] 652 BP). Based on these dates it is possible that stencilling of fish and other forms replaced an earlier emphasis on hand stencil production on Malakula, with hand stencils being re-introduced after around 1000 years ago.

5. The oldest black linear motif derives from the inland cave site of Pitah Funtah (MK18) on Malakula. The motif is located on a relatively old limestone surface which is experiencing rapid exfoliation. Surfaces such as this are rare in Malakula, suggesting that some of the oldest rock-art on the island may have been lost. The 2308 [2043] 1885 BP age of this motif is important because it demonstrates that at least some black linear rock-art was being produced in Malakula at around the same time as the black hand stencils at Yalo.

6. Overall, black stencilling is a more ancient form of rock-art in Vanuatu than black linear. Apart from the Pitah Funtah motif, all other black linear motifs on Malakula were produced within the last 1000 years. Two simple black linear motifs (APO26 and APO24) yielded almost identical ranges of 932 [916] 790 BP and 931 [916] 791 BP. One of these (APO24) overlies an amorphous-shaped red linear motif, providing the only minimum age for red linear rock-art available thus far.

7. The three radiocarbon dates on rock-art from Valnatamat (LP2) on Lelepa Island support the overall sequence of dates on Malakula. The black hand stencil (Valnatamat HS1) was produced around 2000 years ago and the two black linear figures were produced within the last 650 years.

In the following section patterns of superimposition are analysed for each site and island region and then, in conjunction with a consideration of the direct dates presented above, a model of rock-art change is proposed for the archipelago as a whole. The limitation of relying on superimposition alone as a means of identifying rock-art change derives from its inability to distinguish whether two motifs in superimposition were created within the same artistic event or many hundreds or even thousands of years apart. As I seek to demonstrate,
it is only when considered in conjunction with the radiocarbon dates presented above that more reliable and detailed chronological patterns of rock-art transformation can be identified.

The frequent cases of superimposition in Vanuatu, coupled with the observation that certain types of motifs and technical classes (e.g. hand stencils) are regularly superimposed by others belonging to a different motif type and technical class (e.g. black linear central line motif), indicate that certain individual predilections and social imperatives probably governed the patterns of superimposition observed today. These may have ranged from an individual’s desire to mimic earlier art (which may explain the ‘smiling faces’ at Apialo B [MK16]), to a community’s will to stake their claim at particular places by over-writing the graphic signatures belonging to a previous group. However, an exploration of the intentional and unintentional behaviours underpinning the relative distributions of Vanuatu’s rock-art fall beyond the parameters of this thesis. The aim at this stage is to develop a framework for understanding rock-art transformations through time. Once this has been achieved, a more thorough and accurate investigation of the myriad social processes which inevitably motivated these transformations can be undertaken.

7.3 Relative dating

One means of determining the relative age of rock-art is to examine cases of superimposition. During my fieldwork on Maewo, Malakula, Lelepa and Erromango, a total of 264 cases of superimposition were recorded. This includes the total number of cases in which a pair of motifs occur in superimposition. For instance, where more than two motifs occur in superimposition (e.g. a ‘red solid’ motif – superimposed by a ‘black stencil’ – superimposed by a ‘black linear’ motif), three separate levels of superimposition are present:

1. the black stencil superimposes the red solid
2. the black linear superimposes the red solid
3. the black linear superimposes the black stencil

The total number of cases of superimposition recorded for each island is presented in Figure 7.4. Patterns of superimposition were not recorded for the island of Aneityum (Spriggs and Mumford 1992; M. Spriggs, pers. comm. 2001).

The tables accompanying this section list the recorded cases of superimposition for each island region under three columns. The first column identifies the superimposed motifs, and the second column the superimposing motifs. The last column provides details of site
provenance and indicates whether an engraving groove has been infilled with pigment. Each painted motif listed in the data tables has been accorded codes for both colour and ‘technical class’. The ‘technical class’ codes are listed in Figure 7.5. Based on this system, a black pigment hand stencil is referred to as Black1; a red linear oval (without any solid pigment infill) is referred to as Red4, and so on.

7.3.1 Maewo

As shown in Figure 7.6, most cases of superimposition on Maewo involve engraved rock-art. As noted previously, it is often difficult to identify the type of engraving technique an artist used due to the various natural processes that have affected the preservation of engravings over time. Engravings with deep, rounded, ‘U’-shaped grooves were probably produced using a technique of pecking and abrasion, while those with shallow, ‘V’-shaped grooves were probably produced by incision. In the following discussion engravings are generally described in terms of groove dimensions. When I use the term ‘abrasion’ or ‘incision’ I assume that these techniques have been used to produce the groove dimensions observed. It will become evident over the course of this discussion that particular groove dimensions are associated with specific motif types.

On Maewo, there are clear intersite differences between the motifs present and the texture and dimensions of engravings. For instance, at Malangauliuli (MW5), a shelter comprised of highly friable (and presumably easily carved) limestone, most of the engravings consist of grooves of considerable depth and width. Four examples of superimposition were recorded at this site (Figure 7.6). Three of the superimposed motifs are large single circular depressions, or cupules (CP1). These are overlain by a row of cupules (CP7), a fish/leaf-shaped motif, and an image resembling a European-style ship. The relief circle is also superimposed by a European ship. The fourth superimposed motif is a relief circular shape (Cn59) with a large central depression. While there are few cases of superimposition at Malangauliuli, non-figurative large circular depressions and circular relief forms are probably among the earliest motifs produced at the site. The cupule row which superimposes one of the large circular depressions extends for many metres horizontally along the rock-shelter and is a later addition. The ‘fish’ and the European ships suggest a more recent introduction of figurative forms at the site.39

At the two volcanic boulder sites on Maewo – Huti and Siligi (MW1 and MW2) – engravings tend to be much shallower and smaller than at Malangauliuli (MW5). Their shallow depth may be due either to the hardness of the rock (making the engraving process
more difficult and time-consuming) or to weathering due to exposure. The engraved volcanic surfaces on Maewo are also much smoother and more fine-grained than the limestone surfaces and therefore more amenable to the production of fine-lined engravings. The small size of individual pictures is almost certainly a function of the limited size of the rock surface area.

Both the Huti and Siligi sites display a combination of fine-lined engravings which appear to have been produced by single stroke knife incisions, and engravings with wider and deeper grooves which were probably engineered using an abrasive motion. In all cases, the former superimpose the latter. At Huti the rock-art is mostly rectilinear and consists of many sharp, angular lines. In contrast, the earlier motifs at Siligi are distinct from the later ones in terms of form, structure and technique. The sequence of relative superimposition indicates that curvilinear and deeply grooved enveloped crosses were manufactured prior to the more rectilinear fine-lined incised motifs (such as zigzags, diamonds and straight lines).

The only other site on Maewo where superimposition is found is at the cave site of Malangatavarsoso (MW6). Two examples have been recorded. One involves a white diamond design superimposed by white modern writing. The other consists of a circular depression superimposed by black pigment infill. Due to the small number of examples of superimposition at this site little can be said about changes in motifs and rock-art techniques.

One of the questions raised by the superimposition evidence on Maewo is whether cave/shelter art and boulder art was practiced contemporaneously? This question is reconsidered in Chapter 8 where I situate the temporal evidence for Vanuatu's rock-art within a broader historical context. Figure 7.7 shows the relative chronological relationships of motif techniques and styles on Maewo. This diagram is modelled loosely on the Harris matrix approach to archaeological stratigraphy (Harris 1979). Contemporaneity is not implied between the techniques which appear on the same horizontal axis. The diagram should be read vertically, from 'early' at the top to 'late' at the bottom. Older techniques/styles are thus positioned above younger techniques/styles in a relative chronological sequence.

As stated earlier, the engravings in the first column of Figure 7.6 underlie those in the second column. Most of the engravings in the first column were probably produced using a technique of abrasion, while most of those in the second column were probably produced by incision (apart from 'cupules', for example). The Black2 motif listed in Figure 7.7 is shown

39 For more information about the interpretation of rock-art chronology at this site see Appendix 6.1.
superimposing an abraded motif. While only a single example of this superimposition relationship has been found on Maewo, it suggests that pigment supersedes abrasion in the sequence of rock-art production on the island. The chronological relationship between incision and black pigment remains unclear. Likewise, due to a lack of superimposition evidence there is no way of assessing the chronological relationship between white pigment rock-art, black pigment rock-art and engravings. Given that white is the main colour used at MW6 to produce European ships and modern writing, however, a recent antiquity for white pigment on Maewo is implied (within the last 400 years). Maewo is the only island in Vanuatu where white pigment has been used on its own to produce rock-art.

7.3.2 Malakula

Figure 7.8 presents the 123 cases of superimposition found on Malakula. The evidence for superimposition within the rock-art of Malakula indicates that red pigment precedes black pigment. It is difficult to define the chronological relationship between red paintings and engravings due to a lack of superimposition evidence, apart from the few examples of cupules which clearly supercede red rock-art. As shown in Figure 7.8 a red hand stencil at MK3 is superimposed by several configurations of cupules and a black hand stencil. At both MK3 and MK13 several patches of solid red pigment (Red2) are superimposed by Black1 (hand stencils), Black3 (anthropomorph), Black4 (one circle, one central line, one complex rectilinear) and several amorphous shaped (SA) motifs. At MK15 an amorphous red linear motif (Red4) is superimposed by a Black4 (central line) motif. There are no instances in Northwest Malakula of red pigment rock-art superimposing black pigment or engraved rock-art.40

Black hand stencils appear to replace red hand stencils and other red forms in the sequence of rock-art production on Malakula. This observation is supported by one of the primary custodians of Yalo (MK3) on Malakula who was informed by his father that red rock-art preceded black rock-art at this site (Pita Dan Senembe, pers. comm. 1999). In more recent contexts on Malakula, however, such as in ceremonial dancing, red and black pigment have been used together, often covering either side of the face (Deacon 1934: 282). A total of 69 black hand stencils are superimposed by engravings (various formations of cupules), Black3 motifs (figurative forms including fish and anthropomorphs), and an extensive range of figurative and non-figurative Black4 motifs (including fish, anthropomorphs, faces, straight lines, a central line, diamonds, circles and several amorphous shapes). There is one example

40There is one example of a red substance superimposing a row of cupules at Yalo (MK3) but, according to geochemist Alan Watchman (pers. comm. 2000), this red substance is most likely a
of a Black1 (hand stencil) motif superimposing an engraving (CP7). Since black hand stencils both precede and supersede cupules, neither category can be regarded as temporally exclusive. However, given that there is only one instance of a cupule form underlying a black hand stencil, but there are nineteen cases of cupule forms overlying black hand stencils, it would seem likely that cupules generally post-date the production of black hand stencils on Malakula.

Black hand stencils superimpose cupules but no other engraved motif. This presents a problem in terms of defining a relative chronology for the engraved rock-art of Vanuatu because cupules represent such a small proportion of the engraved motif range in Northwest Malakula. One of the reasons why cupules are more likely than other engravings to be involved in contexts of superimposition is because they often occur in long rows which extend over wide areas of accessible surface.

It is likely that black hand stencils were extensively produced prior to the production of black linear (Black4) motifs in Northwest Malakula. There are no examples of black linear (Black3 and Black4) or black solid (Black2) forms superimposed by black hand stencils or other Black1 (stencil) motifs. However, the modern radiocarbon dates on rock-art from Hopnarop indicate that while the production of black hand stencils probably preceded the production of most black linear forms, black hand stencils continued to be produced into the European contact era.

Black2 (a teardrop) and Black4 (a straight line and leaf-shaped) motifs superimpose an engraved teardrop (MK16), a set of cupules (MK13) and an engraved face motif (MK15). Engraved cupule formations superimpose two Black3 anthropomorphic forms and an amorphous Black 4 motif. At Apialo (MK15), a Black4 circular motif (Cb6) superimposes a unique engraved face. At the same site a row of cupules superimposes a Black-and-White3 anthropomorph. Importantly, the cupule is the only engraving category which superimposes painted forms in Malakula.

There are several examples of black pigment rock-pictures (excluding stencils) engaged in superimposition. The most common scenario is Black4 motifs superimposing other Black4 motifs, indicative of the large number of pictures assigned to the Black4 category. There are five examples of Black4 motifs superimposed by Black3 motifs. Apart from two amorphous Black3 shapes, all of the Black3 motifs engaged in superimposition are figurative naturally occurring mineral within the rock-surface. A sample of this red substance was collected by Watchman in 2000 and its elemental composition is currently being examined.
(anthropomorphs), and all of the Black4 forms which underlie them are exclusively non-figurative. As well as a transformation in the use of certain painting styles (i.e. Black 4 to Black3), there may have been a concomitant shift in the choice of subject matter from non-figurative to figurative forms. The relative superimposition of rock-art in Northwest Malakula is presented in Figure 7.9.

7.3.3 Lelepa

Figure 7.10 presents the 29 cases of superimposition recorded on Lelepa. As on Malakula, painted rock-art using red pigment is always superimposed on Lelepa by engraved and black painted rock-art. There are no examples of Black1 rock-art in superimposition with other techniques. We know from the direct dates presented earlier, however, that a Black1 hand stencil at Valanatamat (LP2) is older than two Black4 non-figurative motifs.

Black rock-art and engravings on Lelepa superimpose each other. A number of cupule formations and other engravings (arcs, semi-circles, a circle, egg-shaped, straight-line and anthropomorphic motif) are infilled with Black2 and Black4 forms. Whether or not the pigment infill was added to the engravings during a single artistic event or later is impossible to determine. A Black3 motif resembling fish motifs on Malakula is superimposed by a row of cupules. Three figurative and non-figurative Black4 motifs (a face, a diamond and a straight-line) are also superimposed by cupule formations (CP9). As on Malakula, the only engravings superimposing black paintings are cupules.

While cupules clearly overlap black pigment rock-art on Lelepa, little can be said about the relative chronology of other engraved motifs at the site, except that some are infilled with black pigment. Several Black2 diamond shaped motifs (resembling birds) are superimposed by Black3 anthropomorphic and bird-shaped motifs. On Malakula it was difficult to situate Black2 rock-art within a framework of relative chronology because they are rarely engaged in superimposition with other techniques/styles. On Lelepa however, Black2 motifs are never superimposed by other black pigment techniques. As on Malakula, figurative Black3 forms on Lelepa tend to occur later in the relative sequence. Figurative motifs also occur late in the engraving sequence on Maewo. The relative chronology for the rock-art of Lelepa is illustrated in Figure 7.11.

7.3.4 Erromango

Figure 7.12 presents the 96 cases of superimposition recorded on Erromango. The superimposition relationships on Erromango are slightly different to those from both Lelepa and Malakula. On Erromango, red rock-art occurs throughout the sequence rather than
exclusively at the beginning. While there are 39 cases of black-on-red, indicating that this is the dominant pattern, there are four cases of red-on-black. Ethnographic records indicate that Erromango was engaged in a red ochre trade with other southern islands, which may account for its continued use in the production of cave art until relatively recently (Robertson 1902: 9).

As on Malakula and Lelepa, examples of red rock-art on Erromango are superimposed by other technical classes. For instance Red1 motifs (stencils) are superimposed by engraved cupules (CP7), black hand stencils, and Black4 motifs (non-figurative circles, zigzags and diamonds). Red2 motifs are superimposed by black hand stencils and Black4 motifs (e.g. non-figurative straight-line, central-line, quadrilateral and diamond-shaped motifs). Red4 motifs are superimposed by Black1 and Black4 motifs. The 39 cases in which red rock-art is superimposed by other technical classes suggests it constitutes the earliest component of Erromango’s rock-art. There are four cases of red paintings superimposing black paintings. At the cave site of Velemendi (ER2) on Erromango’s west coast, a Red4 circular motif superimposes a black hand stencil, and a Red1 hand stencil superimposes a Black4 wavy-line motif. At Potnangai (ER6), a cave on Erromango’s south coast, an amorphous Red4 linear motif superimposes a Black1 hand, and a Red4 oval-shaped motif superimposes a Black4 leaf-shaped motif.

Red2 rock-art never superimposes other technical classes. The most common motif in the Red2 category is an amorphous solid shape (SA), often found at unreachable heights on cave surfaces. The colouring of the Red1 hand stencil at Velemendi, which is superimposed by a Black4 wavy-line, does not resemble other red stencils at the site. There are two possible reasons for this. It may have been produced relatively recently and has therefore not had the time to fade to the colour of other hand stencils at the site, and/or the ochre used in its production may have derived from a different source to the ochre used to produce other red rock-art at the site (also implying that it may have been produced at a different time).

The only category of red rock-art which appears to have continued into the period when black rock-art was more commonly produced is Red4, which includes red linear motifs. At Potvelia 2 (ER14), a shelter in southern Erromango, the presence of bichrome red and black motifs supports the idea that red and black linear art was produced contemporaneously.

There are 25 examples of Black1 motifs superimposing other Black1 motifs. At Velemendi (ER2), six circular stencils which possibly represent navela (see Chapter 6, and Spriggs and Mumford 1992: 130) superimpose black hand stencils. There are a large number of Black4
linear motifs superimposing Black1 hands \((n=20)\). Only one faded Black4 linear motif is superimposed by a Black1 hand. As on Malakula, Black1 hands appear to constitute a relatively early component of Erromango's rock-art sequence. Black1 hands rarely overlap with Black4 motifs which are probably a more recent addition to the rock-art assemblages of Erromango. There are four cases of Black4 motifs superimposing other Black4 motifs but there is no indication of an evolution of forms. On the contrary, over the time period in which Black4 motifs were produced the motif range remained homogeneous.

There are only three examples of engravings superimposing other engravings, each of which are found at the shelter site of Ilpin (ER5). As on Maewo and Malakula, forms with deep, U-shaped grooves are superimposed by shallower V-shaped forms. It is probable that one is an axe-grinding groove superimposed by a shallow incised line. The other two cases of superimposition involve cupules. One is superimposed by a motif resembling a European ship, and the other by a plain cross. The relative chronology for the rock-art of Erromango is illustrated in Figure 7.13.

### 7.4 Discussion: space, time and motifs

In Chapter 6 it was demonstrated that rock-art techniques and motifs are differently distributed through space. In this chapter it has been shown that the rock-art of Vanuatu varies through time. The following summary combines this spatial and temporal evidence, laying the foundations for a model of rock-art transformation for Vanuatu, presented in Chapter 8.

Figure 7.14 isolates those motifs which have either a Vanuatu-wide, regional, or local distribution and which occur in superimposition. The following motifs are excluded from the diagram:

1. Superimpositions which involve an engraving infilled with pigment: in such cases it is uncertain whether the infill was added in the same event as the underlying engraving.
2. Superimpositions involving modern writing: these invariably overlie other motif types and are already known to be of post-European contact age – which refers to the last 150 years, since missionaries arrived in Vanuatu and introduced written language (Spriggs 1985).
3. Complex figures: these have not been assigned individual motif codes and would therefore have no bearing on the patterns in Figure 7.14.
4. Faded figures (except where they occur in red): there are large numbers of faded black paintings which have not been assigned individual motif codes. Like complex figures, they would have no bearing on the patterns in Figure 7.14.

5. Amorphous shapes (if they occur in superimposition with a motif of the same technique): these have an indeterminate and unique form and are therefore not useful in the development of relative chronologies.

6. Motifs of the same form and technical class which are in superimposition (e.g. a Black1 hand superimposing a Black1 hand): these cases of superimposition would be useful in terms of 'direct' dating to determine the temporal range for single motifs, but are of no use for the purpose of determining how Vanuatu’s rock-art changes in terms of form and technical class.

Each of the superimpositions represented in Figure 7.14 (a-d) is listed in one of the tables presented in the previous section. Most of the motifs represented are found across Vanuatu and are indicated by the letter 'v'. Where two motifs are linked by a line the lower motif superimposes the upper motif. For example, CLd5 (Black4) superimposes a Hand (Black1), and Cm49 (Black4) superimposes CLd5 (Black4). The relationships of superimposition exist exclusively between pairs of motifs linked in this way by lines. In other words, while Cm49 (Black4) always superimposes CLd5 (Black4), it has never been found superimposing Hand (Black1). Its chronological position in relation to Hand (Black1) is based on the intervening motif (CLd5). The chronological relationship between Cm49 (Black4) and Hand (Black1) is thus inferred through their relationship with the intermediate CLd5 (Black4), rather than demonstrated. The following 12 statements derive from the motif relationships observed in Figure 7.14.

1. The various technical classes of red rock-art almost always underlie all other types of rock-art in Vanuatu. Two exceptions include STD13 (Black4) which underlies a Hand (Red1), and Ou29 (Red4) which overlies a leaf-shaped motif (Lg3; Black4). Both of these examples derive from Erromango, the only island in Vanuatu presenting an anomalous sequence of rock-art transformation. As noted above, while red motifs always precede other technical classes on Malakula and Lelepa, a small number of Red4 linear motifs occur later in the sequence on Erromango. Red4 linear motifs bear a significant resemblance to motifs diagnostic of the Black4 motif category which appear to have been produced after the majority of Red1 and Red2 rock-art in Vanuatu (see below).
2. The two earliest forms of red rock-art in Vanuatu are hand stencils (Red1) and amorphous-shaped (SA) solid pigment motifs (Red2). Both tend to be situated at inaccessible heights (more than 2-3m) within limestone caves and in close spatial proximity to human skeletal material, particularly on Erromango (e.g. Velemendi [ER2], Raoviu [ER18]). Apart from the exceptions already mentioned, Red1 and Red2 motifs never superimpose other technical classes. It is therefore probable that they were produced within a relatively short time period coinciding with the initial settlement of Vanuatu, and were eventually replaced by other types of rock-art.

3. The CPI engravings from Maewo are the only engravings in Vanuatu which may be contemporaneous with or older than red rock-art. These large circular depressions manifest structural qualities found within the Vanuatu-wide engraving class described at the conclusion of Chapter 6. CPI motifs are superimposed by two European ships and a fish motif (Fish16). The fish motif has a leaf-shaped structure characteristic of much of the Black4 linear rock-art which occurs relatively late in Vanuatu’s rock-art production sequence (see below).

4. It remains extremely difficult to situate Vanuatu’s curvilinear engraved rock-art within a sequence of relative chronology. No motifs have been ‘directly dated’ and none (apart from Xd3 and cupules) occurs in superposition with other rock-art forms. However, several factors suggest that the traits denoting this engraving group (simplicity, curvilinearity, central cupules) are earlier than motifs characterised by rectilinearity and complexity (e.g. CPI, a simple curvilinear motif, is superimposed by Fish16, a complex rectilinear motif). In addition, three engraved motifs are found exclusively in the north of the archipelago: enveloped crosses (vX57, Xn22), a face motif (Face8/EGf4), and a complex quadrilateral form (vQ25). Each are defined by relatively deep grooved engravings (abraded) and are superimposed by shallow (incised) straight-lined engravings (STd12). Motif STd12 is commonly represented in the painted Black4 category which occurs relatively late in Vanuatu’s rock-art production sequence (see below). By implication, incised engraved and Black4 painted motifs probably post-date deeply abraded engraved motifs.

5. Both enveloped crosses (vX57, Xn22) and Face8/EGf4 motifs have a curvilinear quality, with the latter also being characterised by central cupules. Such traits are diagnostic of the Vanuatu-wide engraving group. Enveloped crosses and Face8 motifs are possibly a northern variant of this widely distributed and homogeneous engraving class.

6. The engraved quadrilateral (vQ25) from Maewo is more similar to some of the rectilinear painted rock-art seen on other islands, such as vQ37 (Black 4) which
superimposes SA (Red 2) (see Figure 7.14). In comparison, vQ25 was probably produced after most of Vanuatu's red rock-art and is most likely contemporaneous with Black4 rock-art.

7. It was noted in Chapter 7 that there is a clinal distribution of techniques in the north-central region. Many of the painted/engraved motifs (which are mostly rectilinear) have a higher representation of engravings on Maewo and a higher representation of paintings on Lelepa. Malakula has relatively even numbers of both engravings and paintings.

8. Rectilinear rock-art was probably introduced late in the sequence of rock-art production in Vanuatu. It was practiced most frequently in the engraved rock-art on Maewo where it is characterised largely by fine-lined (incised) forms, and increasingly frequently in painted rock-art on Malakula and Lelepa.

9. Cupule configurations (other than the large CP1 motif on Maewo) occur after Red1 and Red2 rock-art and both before and after Black1 hand stencils. It is likely that cupules (like black hand stencils) were produced over a relatively protracted time period after Red1 and Red2 rock-art forms dropped out of the sequence.

10. On current evidence, black hand stencils began to be produced after Red1 and Red2 rock-art had ceased to be produced and engraved curvilinear rock-art (including cupules) had already commenced. Black hand stencils, which range in age from 2308 [2177] 2131 BP to the present, invariably superimpose Red1 and Red2 forms. It is likely that Red1 and Red2 rock-art was produced prior to this time and was then directly replaced by a similarly limited range of black-pigment forms (i.e. black hand stencils).

11. Always overlying black hand stencils are a range of rectilinear forms belonging mostly to the Black4 painting category (and less frequently to the incised engraving category). The most common motifs represented are rectilinear, including central-lines, straight-lines, triangles, and diamonds. Each of these motifs is common to the Vanuatu-wide painting class described at the conclusion of Chapter 6. Even the curvilinear motif categories which overlie black hand stencils have rectilinear components, such as v042 (an oval with internal bars and stripes), Ci43 (a circle with central spokes), and C128 (a circle with complex rectilinear infill and appendages). Other than a single motif from Malakula which has yielded a radiocarbon age of 2308 [2043] 1885 BP, most Black4 rock-art in Vanuatu appears to have been produced within the last 1000 years.

12. There is some evidence that Black3 motifs were introduced after Black4 and Black2 forms and at a time when figurative paintings and engravings became a more common feature of rock-art assemblages throughout Vanuatu. Figurative motifs, particularly
incised and painted anthropomorphs, commonly superimpose non-figurative rock-art on each of the islands.

7.5 Conclusion

In this chapter both ‘direct’ and ‘indirect’ dating methods have been used to facilitate the development of a model of rock-art change for Vanuatu. In almost all cases, the results deriving from the two methods have been shown to correspond with each other. The only curious findings include:

1. The relatively recent ages of the black hand stencils at Hopnarop [MK4] (Malakula). In sequences of superimposition for each region of rock-art, black hand stencils almost invariably underlie Black4 rock-art (with one exception from MK9 – Elnisi). Given that most of the Black4 dates to within the last 1000 years, most black hand stencils might be expected to predate this period. However, in light of the radiocarbon dates on certain black hand stencils from Yalo (e.g. 515 [505] 471 BP and 472 [356] 314 BP), Hopnarop, and Velemendi [ER2] (288-0 BP), there appears to have been a re-emergence of hand stenciling within the last 1000 years. The pattern emerging for Vanuatu is one in which a tradition of hand stencils occurred at around 2000 years ago or earlier (e.g. at Yalo [MK3] and Valnatamat [LP2]) and then re-emerged within the last 1000 years (at Yalo, Hopnarop and Velemendi). It is the intervening period for which direct dates are missing (particularly in Northwest Malakula), although this may well be a sampling problem. The more recent phase of direct dating in Vanuatu (e.g. Figure 7.3) has deliberately targeted black hand stencils which underlie paintings of other styles, which may explain why the dates cluster at either end of a 2000 year spectrum.

2. While both the direct and indirect forms of dating evidence presented in this chapter suggest that Black4 is among the most recent rock-art in the region (produced largely within the last 1000 years), one Black4 motif from Pitah Funtah (Figure 7.3) has yielded a date of 2308 [2043] 1885 BP. There are several possible explanations for this apparent ‘anomaly’. Firstly, given that we now have an adequate number of direct dates on Black4 (and Black3) rock-art to suggest that the Pitah Funtah motif is unusually old, the pigment sample may well have been contaminated with old organic carbon. Rather than simply accepting this date as the upper age limit for black linear rock-art, it may be worthwhile re-sampling this motif for another date. The second possible explanation, which I believe to be more plausible, is that a certain amount of black linear rock-art was being produced around 2000 years ago but has since been lost through taphonomic processes occurring on rock-surfaces. Most of the black linear rock-art at Pitah Funtah
(and other sites in Vanuatu) is located on relatively fresh surfaces. The c. 2000 year old motif from this site, however, is located on an older remnant surface which has not yet succumbed to processes of exfoliation (unlike most of the surfaces in the cave). For this second explanation to be plausible, however, the presence of black hand stencils which have been dated to the same period needs to be accounted for. In response I would suggest that either (a) hand stencils were produced more prolifically during this early period and/or (b) hand stencils, which are constituted by a larger pigment mass than black linear rock-art, are more easily recognisable (even if they are old) because they preserve more readily than black linear rock-art.

Each of these explanations is re-examined in Chapter 8 where the spatial and temporal patterns of Vanuatu’s rock-art are situated within an historical context, exploring in particular possible links between cultural transformations observed archaeologically and those identified in the rock-art. In this way, some of the more perplexing and currently atemporal features of Vanuatu’s rock-art (e.g. engraved rock-art which has so far not been directly dated and for which there is little evidence of superimposition) are examined in relation to other cultural data (e.g. changes in settlement patterns over time) for clues as to their possible age and the cultural context in which they were produced.
Towards a model of rock-art transformation for Vanuatu

8.1 Introduction

The geographical units employed thus far in my analyses of the rock-art of Vanuatu – Vanuatu-wide, regional and island-specific – are intended to serve as heuristic devices only. Clearly, however, rock-art did not transform in ways which reflect these arbitrary divisions. As with other forms of material culture, similarities and differences in the rock-art of Vanuatu overlap in a non-uniform way. In this chapter the results of the previous two chapters are revisited in order to generate a model of rock-art transformation for Vanuatu. In doing so I also take account of some of the more subtle geographical and temporal variations not brought out in the analyses presented thus far which speak of the complexity of inter­-societal influences throughout the archipelago and beyond. The rock-art evidence is synthesised with current archaeological, ethnographic and linguistic data to determine the extent of the similarities and differences between the findings from the different disciplines.

Towards the end of this chapter a series of statistical analyses is conducted in order to situate the rock-art of Vanuatu within a western Pacific context. The implications of these analyses are evaluated in Chapter 9, where a model of rock-art transformation for the wider western Pacific region is proposed.

8.2 Engravings and paintings

As the results presented in Chapters 6 and 7 suggest an overwhelming degree of complexity in terms of the nature of contact amongst different societies within Vanuatu, it would be impossible to comment on each and every pattern of interest. The aim of this discussion, therefore, is to elicit those patterns which are most informative of broad-scale socio-historical changes within Vanuatu, which can eventually be used to throw light on the patterns of rock-art observed at an western Pacific scale. Broad spatial and temporal distinctions are evident in the rock-art of Vanuatu on the basis of technique (i.e. painting versus engraving) but with some significant overlaps. Based on the results of the previous two chapters, it now may be appropriate to conceive of certain repertoires of rock-art in Vanuatu as 'traditions'. As defined in Chapter 1, rock-art traditions are constituted by repertoires of rock-art which are related in time and space. As I seek to demonstrate here, though there are degrees of temporal and spatial overlap between some of Vanuatu's rock-art
traditions, each is sufficiently cohesive to be treated independently. The following discussion highlights the distinctive components of four ‘traditions’ of rock-art:

1. a Vanuatu-wide engraving tradition which coincides with the Lapita period;
2. a Vanuatu-wide Red1/Red2 painting tradition, probably also of Lapita age;
3. a Black1 stenciling tradition which is roughly coterminous with the Mangaasi period;
4. a Rectilinear painted and engraved tradition of the last 1000 years.

8.3 A (Lapita period) engraving tradition (Vanuatu-wide)

This tradition does not encompass all of the engraved rock-art of Vanuatu. Those motif categories which are included tend to be curvilinear in structure, or to contain motifs which include elements such as cupules (Figures 6.27 and 6.28) (Plate 11). The tradition is represented by both figurative and non-figurative motifs, the face being the most prominent figurative category. Faces with circular, ovular and teardrop shaped heads feature strongly, with Face9 (Figure 6.27), characterised by two cupules joined by a single arched line (an ‘eye-and-nose’ combination), proving remarkably similar to faces recorded on Early and Middle Lapita ceramics throughout Island Melanesia (see for example the ‘Type2’ Lapita face described by Spriggs 1990b; also known as the ‘single-face’; e.g. Kirch 2000) (Plate 12).

While some of the more diagnostic decorative features of Early to Middle Lapita decorated ceramics, such as the presence of faces (eye-and-nose combinations) and curvilinear non-figurative motifs, correspond to key features of this Vanuatu-wide engraving tradition, some of the more obvious parallels between Lapita decorated pottery and Vanuatu’s engraving tradition are those which relate to deeper structural features. Both the ceramics and the engravings exhibit (a) a restricted range of motifs; (b) a definable set of rules associated with production (see section 8.4 for a brief summary of the structural rules associated with early rock-art in Vanuatu); and (c) distribution over a wide geographic area. Based on these parallels I tentatively propose that the emergence of this engraving tradition in Vanuatu coincided with the earliest movements of colonists into Vanuatu during the Lapita period. In support of this proposition I refer to a theoretical position advanced by Kirch (1997: 130; and see Chapter 1) for differentiating between motif repertoires which emerge as a result of ‘borrowing or diffusion’ as opposed to ‘ancestral connections’. Kirch argued that Lapita dentate-stamped ceramics express the features of a coherent ‘culturally-encoded artistic system’. From this he inferred that the Lapita graphic system does not offer evidence for the borrowing or diffusion of production techniques or motifs. For these processes to have occurred, he argued, we should be able to detect individual design elements from the Lapita
repertoire being ‘recombined in new patterns or structural codes’. Instead, he observed that
the entire Lapita design system, together with its structural codes, ‘is replicated from site to
site’ and is thus indicative of shared origins (Kirch 1997).

A similar argument could feasibly be extended to explain the Vanuatu-wide engraving
tradition illustrated in Figures 6.27 and 6.28. Colonising groups may not have benefited
during the early settlement period from immediately differentiating themselves from their
island neighbours, electing instead to reproduce in a wholesale fashion the graphic
vocabularies which linked them to their forebears.

The distribution of motifs belonging to this engraving tradition at only a small number of
rock-art sites from the north to the south of the archipelago attests to the short life-span of
the Lapita Cultural Complex in Vanuatu (in the order of 200-300 years; Bedford 2000: 240).
Sites from the tradition tend to be found at locations of the type which were traditionally
targeted by Lapita people as ideal for settlement, being close either to protected bays or
harbours and fresh water (e.g. Yalo [MK3] and Apialo A [MK15] on Malakula; see Bedford
2000 for a discussion of the identification of the Lapita sites in Vanuatu). The site of
Malangauliuli (MW5) also manifests motifs which belong to this engraving tradition. While
there has not been any systematic archaeological research on Maewo targeting potential
Lapita sites, Malangauliuli is set in what is generally considered to be a prime settlement
location for Lapita colonists, adjacent to a protected bay and a freshwater estuary (Figure
6.2).

Most of the motifs belonging to this engraving tradition are located in the north of Vanuatu,
on Maewo and Malakula, with a relatively small number occurring at Potnarvin on
Errromango. The two northern islands in my sample (Maewo and Malakula) are those
situated closest to Malo, the island which may have served as the ‘focal point’ or
‘metropolis’ for the initial Lapita colonists of Vanuatu (Bedford et al. 1998: 21; Bedford
2000: 244). The high frequency and density of motifs belonging to the engraving tradition
on Maewo and Malakula support both archaeological and linguistic evidence that Lapita
colonisation was initially focused in the north of the archipelago. The decreasing frequency
of motifs associated with this tradition from north to south is consonant with a model
requiring that initial colonists arrived in the north and dispersed southwards.

There is some suggestion of regionalism within this essentially homogeneous Vanuatu-wide
engraving tradition. The engraving assemblages of Maewo and Malakula, for instance, are
dominated by the tradition’s figurative component. That is, there are greater numbers and a
wider variety of engraved faces on these two islands than there are in the southern islands of the sample. Motif Face8/vEGf4 (Figures 6.33 and 6.34), for instance, which displays all of the features denoting the Vanuatu-wide engraving tradition, is found exclusively on Maewo and Malakula, and in large numbers.

So far no direct dates for this engraving tradition have been forthcoming, and thus chronological evidence can only be gleaned from the few examples of superimposition involving engraved motifs, and from comparable features derived from datable archaeological material (such as Lapita pottery). The evidence for superimposition presented in Chapter 7, however, suggests that engravings belonging to this tradition precede all other engravings throughout Vanuatu. As noted previously, CPI engravings from Maewo, which are large circular abraded depressions, underlie two European ships and a fish motif (Fish16). The fish motif has a leaf-shaped structure and rectilinear (chevron) infill characteristic of much of the Black4 rock-art which occurs relatively late in Vanuatu’s rock-art production sequence (see below), and the images of the European ships were obviously produced within the last 400 years.

There is evidence to suggest that the motifs associated with the Vanuatu engraving tradition persisted for several millennia after they were introduced, if not in rock-art then on other decorated media. One only has to look, for example, at recent depictions of the human face. In the northern islands of Vanuatu in particular, the human face has played a decisive role in performances geared towards social ascent, particularly in relation to the propitiation of the ancestors. There are numerous social contexts in which images of the face have been strategically deployed, such as the overmodelled skulls of the deceased in Malakula which were displayed in *nakamals* as a symbol of the potency of ancestral power (Deacon 1934: 708; Layard 1942: 10). I would argue that the highly controlled (re)production of the face as a theme in contemporary ritual life, associated with social ascent and the veneration of the ancestors, can be traced back to the earliest engraved rock-art in Vanuatu. The reproduction of the face in ancient rock-art and contemporary ritual may well attest to a strong link between past and present systems of social life, particularly in the northern islands.

In Chapter 9, I examine the components of this Vanuatu-wide engraving tradition within a broader western Pacific context. The engraving tradition of Vanuatu manifests many of the components of the AES defined earlier, most notably the ‘cupule-based’ rock-art prevalent at several sites in West New Britain. However, one element missing from the Vanuatu motif corpus, particularly south of Maewo, is the ‘spiral-based’ rock-art common amongst the engravings of East New Britain, New Ireland and Milne Bay. Some spiral-based motifs can
be found among the engraved assemblages of Maewo but whether the multivariate analyses employed later in this chapter (comparing the rock-art of Vanuatu with that of the broader western Pacific region) are sensitive enough to detect this subtle connection remains to be seen.

8.4 A (Lapita period) Red1/Red2 painting tradition (Vanuatu-wide).

Red1 and Red2 motifs have been identified as the earliest painted rock-art in Vanuatu, although their chronological relationship to the Vanuatu-wide engraving tradition (section 8.3) remains difficult to assess due to a lack of superimposition between them. Direct dates for Black1 hands – which supersede Red1 and Red2 motifs throughout Vanuatu – suggest a minimum age of around 2200 BP for the red painting tradition. The following discussion presents a range of evidence in support of the proposition that the Red1/Red2 painting tradition prevailed for a few hundred years after initial colonisation, before being completely replaced by other technical classes.

The Red1/Red2 painting tradition is mainly focused in southern Vanuatu and predominantly on the island of Erromango. Erromango is divided into two distinct rock-art production regions. In the east, around Potnarvin, are remnants of the engraving tradition just described (section 8.3), as well as a variety of other engraved motifs which have a more localised distribution. In the west and south are numerous cave sites which possess Red1 and Red2 motifs; mainly hand stencils but also solid red marks with an indefinable shape. These are often found superimposed by Black1 hand stencils and a variety of Black4 motifs.

The frequency of Red1 and Red2 painted motifs decreases in a northerly direction. The highest numbers occur on Erromango, followed by Lelepa and then Malakula. Red rock-art has not been recorded on Maewo. While further recording may yield more evidence of red rock-art in the northern islands, at this stage the distribution patterns suggest that the Vanuatu-wide Red1/Red2 tradition has a southern focal point, and that the Vanuatu-wide engraving tradition has a northern focal point.41

The Red1/Red2 painting tradition is comparable to the engraving tradition in three principal ways. First, it is found at only a few sites and constitutes only a small proportion of a site's rock-art corpus; second, it is a homogeneous Vanuatu-wide tradition; and third, it is characterised by a relatively small range of motifs. In combination, these features imply the wholesale transmission of a complex of rock-art from site to site by people of common

41It should be noted that evidence for the presence in the north of the Red1/Red2 painting tradition has been found in a cave site on Hiu [TR10] in the Torres Islands (Shutler 1967).
ancestry. The Red1/Red2 tradition is therefore plausibly an expression of the colonisation and settlement of certain regions throughout Vanuatu, particularly Erromango. Whether the diffusion of the Red1/Red2 tradition coincided with the spread of Lapita (i.e. within the first few hundred years after Vanuatu was initially colonised) is difficult to determine at this stage. Based on current chronological information it is possible only to locate the tradition within the first 1000 years of settlement.

The Red1/Red2 tradition tends to be associated with the larger cave sites in Vanuatu. In the same way that the earliest colonists targeted ideal settlement locales, near protected bays and fresh water, they were most likely attracted to the largest natural caves for habitation and other social activities, such as Yalo (MK3), Feles (LP1), Velemendi (ER2), Velyambo (ER8) and Raoviu (ER18), all of which contain Red1 and Red2 rock-art (Plate 13). Some of these sites are also close to sites from which pottery of Lapita age has been recovered. Yalo, for example, is close to the Malua Bay School site (Mk-3-55) on Malakula, Feles is close to Arapus/Mangaasi on Efate, and Raoviu is close to Ifo (ER-0-2) on Erromango (see Bedford 2000).

The superimposition evidence presented in Chapter 8 suggests that there was no overlap between the Red1 and Red2 rock-art and subsequent traditions (with one exception, described in Chapter 7). This pattern is consistent both with Bedford’s (2000) non-competitive colonisation scenario, and the ‘pioneering’ pattern of initial settlement proposed by Spriggs (1997: 85). Combining the views of both of these authors, it seems feasible to suggest that the initial colonisation of Vanuatu’s prime habitation regions may have been associated with the inscription of large ‘cathedral’-like caves with Red1 and Red2 rock-art (e.g. Yalo [MK3], Apialo A [MK15], Velemendi [ER2], Raoviu [ER18]). Then, once local resources became depleted, perhaps as a result of serious erosion in the landscape or inter-societal competition, these initial habitation areas were abandoned. Some time later, as the population of Vanuatu increased, people moved back into the areas where Red1 and Red2 rock-art was formerly produced and inscribed a different set of symbols on cave walls, completely replacing the earlier red rock-art and creating the patterns of superimposition observed today. According to Spriggs’s model, the later re-use of these prime settlement environments reflect the activities of more ‘conservation-oriented’ communities.

Figure 8.1 shows the distribution of red rock-art across Vanuatu. All Hands are Red1 motifs, and most ‘SA’, ‘Cd21’ and ‘CP7’ motifs are classed as Red2 (each shaded in Figure 8.1). Each of these (Red1 and Red2) motif forms has a Vanuatu-wide distribution. Most of the other motifs listed in Figure 8.1 are Red4 linear motifs and are generally restricted to the
central-south region (Lelepa and Erromango). The sequences of superimposition for the rock-art of Erromango suggest that Red4 rock-art persisted after the demise of Red1 and Red2 motifs and that it was probably produced alongside later rock-art traditions defined by similar forms. For example, the superimposition of a red oval motif (Ou29) on a black leaf-shaped motif (Lg3) at ER6 suggests a temporal overlap of Red4 and Black4 rock-art in Vanuatu (see Figure 7.14). As noted in Chapter 6 (section 6.4.3), a recently recorded trade in red ochre in the southern islands might account for the occurrence of red linear forms in this region up until the recent past (Robertson 1902).

Emerging linguistic evidence suggests that the islands of southern Vanuatu were colonised a considerable time after the initial settlement of Efate (Lynch 1999: 439; and see section 5.4, Chapter 5). Given that the Red1/Red2 tradition is more prolific on Erromango than on any other island in Vanuatu, this class of painted rock-art may constitute the material signature of the later phases of colonisation in Vanuatu. This notion is not currently supported by other archaeological evidence and the dates for the Red1/Red2 tradition are insufficiently constrained to render it more feasible. Future research, however, might benefit from focusing on this issue.

In Chapter 9 the Red1/Red2 painting tradition of Vanuatu is discussed within a broader Pacific context, and in particular is reviewed in relation to the broader ‘Austronesian painting tradition’ (APT). As a final point, both the Vanuatu-wide engraving tradition and the Red1/Red2 painting tradition are defined by an unyielding structure not seen in other types of rock-art within Vanuatu. This structure is perceptible not just in terms of the reproduction of a limited range of motifs, but in relation to specific spatial information. The Red1/Red2 tradition demonstrates the spatial characteristic of ‘inaccessibility’, as well as a range of more subtle distribution features described in the site-by-site accounts (Appendix 6.1). For instance, painted Red1/Red2 motifs (and occasionally other red painted technical classes, e.g. Velemendi [ER2]) are often found at the entrances to apses or chambers containing human skeletal material, the effect being that the red rock-art marks a threshold in the cave, located at the interface between the ossuary and the rest of the site. Likewise, at Yalo [MK3] and Apialo A [MK15], for example, all of the motifs associated with the Vanuatu-wide engraving tradition are confined to the walls of sunlit chambers, and at a considerable distance from the cave entrances. While I do not specifically explore the social conditions which may have underpinned these spatial preferences, the fact that certain classes of motifs are not laid out capriciously but, rather, conform to general spatial rules that orchestrate human experience within sites, suggests, at the very least, shared conceptions of space over wide areas.
8.5 A ('Mangaasi period') Black1 tradition

The sequence of superimposition presented in Figure 7.14 suggests that, at some point after Red1/Red2 rock-art ceased being produced and perhaps from as early as 2200 BP, a tradition of black stenciling commenced (Plate 14). The most common black stencil throughout Vanuatu is the hand stencil. Large numbers of black hand stencils, found high up on cave surfaces, appear to continue the convention of inaccessibility which characterises the Red1/Red2 tradition. One of the aims of the current ARC dating project (Chapter 7) is to obtain AMS radiocarbon C\textsuperscript{14} dates for hand stencils located in inaccessible locations, the results of which will enable an assessment of whether black stencils represent a continuous transition from the Red1/Red2 tradition. Clarifying this issue will also have major implications for the current debate concerning the transition from 'Lapita' to the 'post-Lapita' period in Vanuatu (outlined in further detail below).

The earliest date for a black hand stencil in Vanuatu derives from Yalo (MK3) in Northwest Malakula (c. 2200 BP), produced around 1000 years after the initial settlement of this region. Dates are also available on two other stencil motifs (a fish and a walking stick), also derived from Yalo (MK3). Both of these motifs were produced around 1350 BP; around 850 years after the production of Yalo's oldest known black hand stencil and several hundred years prior to the efflorescence of the Rectilinear painting and engraving tradition (see below).

The dates from these black stencils fall within a period thought to represent a phase of abandonment or less intensive occupation in Northwest Malakula – from 2500 BP (the end of the Malua Phase) until 600 BP (the beginning of the Chachara Phase) (Bedford 2000: 85). While it is too early to specify the intensity of occupation in Northwest Malakula on the basis of these stencil dates, they do suggest that total abandonment of the region was unlikely. Forthcoming AMS radiocarbon C\textsuperscript{14} dates on rock-art from Northwest Malakula, however, may allow for a more precise understanding of this issue.

Surface-collected sherds in Malakula have been tentatively linked to Late Mangaasi-style ceramics of Efate and the Shepherds (Bedford 2000: 142), dated from between c.1800 BP and 1200 BP (see Chapter 5). After the Late Mangaasi period, which marks the final phase of ceramic production in central Vanuatu, Malakula began manufacturing a distinctive form of pottery (Chachara Ware) found exclusively in the northern islands. This connection proposed between Malakula and Lelepa during the Late Mangaasi period is currently being tested via the radiocarbon dating of painted motifs shared between the two islands. At this stage we have only two dates on rock-art motifs found on both islands. One derives from a
black hand stencil, and the other from a Black4 vD26 motif (Figure 7.3). The black hand stencil from Valnatamat (LP2) on Lelepa dates to 1921 [1875] 1825 BP and is therefore broadly comparable to the c. 2200 BP age for the earliest black hand stencil from Yalo (MK3), Malakula. Both stencils were produced within the Mangaasi period (c. 2300 BP to 1200 BP). The Black4 vD26 motif at Valnatamat (LP2), which yielded a radiocarbon date of 526 [511] 502 BP, was produced after the Mangaasi period.

Dates on black stencils are yet to be obtained from Erromango but will aid in determining whether this island was also engaged in a tradition of black stenciling at the same time. If stencilling was being practised on Erromango, along with Malakula and Lelepa, from around 2000 years ago then this would lend some weight to Spriggs’s (1984a, 1997) argument for synchronous evolutionary change across Vanuatu from the Lapita into the post-Lapita period, perhaps up to 1500 BP. However, if Erromango was practising another form of rock-art during this period, then the notion that post-Lapita similarities between islands are indicative of independent developments from shared origins (rather than continuous inter-island interaction) would hold more weight (Bedford 2000: 245-247; Bedford and Clark 2001). At this stage the rock-art evidence is inconclusive.

Thus far none of the rock-art motifs dated to the Mangaasi period (2300 BP-1200 BP) resemble those found on Mangaasi-style pottery (see Bedford 2000; Figures 5.19-5.34). Even the Pitah Funtah motif from Malakula which has been dated to 2308 (2043) 1885 BP (Figure 7.3) has no analogues among decorated ceramics. However, as discussed below, many of the features of Mangaasi pottery designs (both in terms of structure and motif) occur among rock-art motifs which are dated to the last 1000 years, two centuries or more after the end of the Mangaasi period. Some possible reasons for this are offered in section 8.6.

8.6 A Rectilinear tradition of painting and engraving

At around 1000 BP a major transformation in the rock-art of Vanuatu can be detected. The majority of Vanuatu’s rock-art, which consists mainly of rectilinear Black4 paintings but also numerous (mainly incised) engravings, was produced over the last millennium (Plate 15). What happened during this period that had such an impact on local graphic systems? Green (1997, 1999) has speculated that the last 1000 years saw either sustained contact with non-Austronesians or an influx of non-Austronesians into Vanuatu – particularly Malakula. On first impression this would seem to be an appealing theory given that much of Vanuatu’s rock-art of this period shares similarities with rock-art assemblages to the west, including that of the non-Austronesian-speaking regions of the Highlands of PNG. These links are best portrayed in the diagram of regional rock-art connections shown in Figure 4.32.
Perhaps, however, the situation was a little less clear-cut than this. Closer consideration of the motifs and structural characteristics which define the Rectilinear rock-art tradition in Vanuatu reveals strong parallels with pottery styles that have been attributed to the broad ‘Incised and Applied Relief’ (or Mangaasi) tradition beginning around 2300 BP (Chapter 5). Golson’s (1972a: 565) description of the incised component of the ceramics excavated by Garanger at Mangaasi could easily serve as an adequate summary of the Rectilinear rock-art tradition of Vanuatu:

A particular feature of the incised decoration of Garanger’s early levels as illustrated is the outlined representation of geometric spaces – rectangles, squares, and triangles – and the common infilling of these with longitudinal or transverse lines or by impressed dots ... Particularly interesting are examples where the representation of the geometric space becomes schematic and the close relationship between frame and infilling is lost ...

One of the major decorative differences between Lapita ceramics and later pottery styles attributed to the ‘Incised and Applied Relief’ tradition is that the former is defined by a repeated set of motifs configured in highly structured ways, whereas the latter is more likely to be characterised by unique motifs and a decorative structure which resists easy definition. Unlike the earlier rock-art traditions of Vanuatu which are bound by many of the deeper structures inherent among Lapita ceramics, the motifs characterising the Rectilinear tradition are far more fluid (less rule-bound) and prone to modification. Moreover, unlike the proposed Lapita-age rock-art which is often found in very specific locational contexts (e.g. in inaccessible positions), rock-art belonging to the Rectilinear tradition is found in a range of locales within a site, too broad to define with ease.

How then might the similarities between the Rectilinear rock-art tradition and ‘Incised and Applied Relief’ ceramics be accounted for given that, on current evidence, there is no temporal overlap between them. One possibility is that there is Rectilinear rock-art dated to the Mangaasi period but that it has not yet been found. A second possibility is that the design scheme defining Mangaasi was not absorbed into rock-art until much later. Presumably, given the current temporal gap between the end of the Mangaasi period and the start of the Rectilinear rock-art tradition, this transfer must have occurred via other media.

As already summarised in Chapter 2 (section 2.8), various theories have been proposed to account for the emergence of ‘Incised and Applied Relief’ ceramics. One of these – secondary migration – may also be applicable to the rock-art evidence presented here, specifically because it accounts for links with non-Austronesian speakers (and, by extension, with non-Austronesian graphic systems). Perhaps the emergence of the Rectilinear tradition...
(along with the ‘Incised and Applied Relief’ ceramic tradition) can be explained by a secondary spread of Western Oceanic languages of the Meso-Melanesian cluster from New Britain (Ross 1988, 1989); a spread which may have been linked to the ‘replacement of recognizably Lapita pottery by the incised and applied relief styles which are found from the Bismarcks to Fiji’ (Spriggs 1997: 159). In relation to this model Spriggs (1997: 159) suggests that,

[although the associated incised and applied relief pottery styles have their origins in Lapita, they are presumably also influenced in their decorative systems by the Non-Austronesian cultural traditions of neighbouring groups. In this sense we can see the intrusive Austronesian Lapita tradition becoming progressively ‘Melanesianized’ by contact-induced change and innovation to produce the range of local styles found in Island Melanesia in the recent past.

However, it may be necessary to search further back in time than the Mangaasi period to find possible antecedents for the Rectilinear rock-art tradition. A number of motif forms attributed to the Rectilinear rock-art tradition are found on ceramics as old as c. 2750 BP. For instance, an Early Erueti style vessel recovered from Arapus bears motifs which I have described here as belonging to the Rectilinear rock-art tradition (Plate 16).

In view of this evidence, Vanuatu’s rock-art may not necessarily have transformed in a unilinear sequence of serial replacement which saw one tradition commence as another terminated. While the rock-art evidence suggests that the Rectilinear rock-art tradition proliferated in Vanuatu within the last 1000 years, it is possible that some of its antecedents were in circulation up to 1750 years previously, immediately after the decline of Lapita dentate-stamped pottery. The presence of motifs belonging to the Rectilinear rock-art tradition on pottery dating to 2750 BP suggests, among other possibilities (a) that motifs continued to be produced over an extensive time period after their initial inception and, (b) that they were transferred between ceramic and rock-art contexts, and probably also many other types of design media (see below).

One model that might account for the current evidence is that some of the design elements which constitute the Rectilinear rock-art tradition were present in Vanuatu soon after initial settlement (from at least 2750 BP). Then, as Vanuatu continued to be exposed to the movement of ideas and people within the broader Island Melanesian region, motif repertoires evolved and diversified, culminating in the Rectilinear tradition which became most pronounced in the last 1000 years. From this time onwards, as Bedford and Clark (2001) suggest, there were considerably higher rates of inter-archipelagic contact throughout Island Melanesia. Evidence of this contact includes the presence of Banks Island basaltic glass in
Tikopia and Fiji, the widespread occurrence of *Terebra* shell and lenticular stone adzes across Vanuatu (and much of the southwest Pacific), New Caledonian serpentine on Tanna and Polynesian-style ornaments and burial practices in the central and southern islands of Vanuatu.’ (Bedford and Clark 2001: 71).

The efflorescence of the Rectilinear tradition in the last 1000 years is consistent with other major changes in the material record and settlement patterns of Vanuatu (Spriggs 1997: 187). From around 750 BP settlements became more numerous and some of the previously ‘under-utilised’ areas of islands witnessed more sustained occupation (Spriggs 1997: 189). In itself this would account for the apparently exponential increase in rock-art activity throughout Vanuatu during this period, and explain why so many of the direct dates obtained thus far for this tradition are constrained within this time-bracket. The Rectilinear rock-art tradition is the most widespread of all the traditions observed in Vanuatu, and one of the principal traditions found at sites known to have been occupied within the last 1000 years (e.g. Velemendi [ER2], Raowali [ER18], Woplamplam [MK2], Navaprah [MK10], Navapule B [MK13] and Navapule C [MK14]).

The Rectilinear tradition also represents a period of increasing regionalisation in Vanuatu rock-art. That is, while this tradition manifests itself throughout the islands, regional preferences are evident (e.g. Figure 6.42). As noted in Chapter 5, it is within the last 1500-1000 years that Spriggs (1997) sees evidence for increasing regionalisation throughout the islands in terms of ceramics and other archaeological materials; a trend which is matched by the rock-art evidence. The Rectilinear rock-art tradition, which conveys a picture of broad regional homogeneity and local differences, implies that a combination of processes were in motion. On the one hand there appear to have been high rates of inter-archipelagic contact over the last 1000 years which resulted in widespread transmission of similar artefact types and design styles (including the basic motif repertoire of the Rectilinear tradition), while on the other there appears to have been an increase in the regionalisation of artistic behaviour, leading to the emergence of local innovations and expressions of identity. A range of figurative motifs belonging to the Rectilinear tradition have island-specific distributions, and were therefore probably (re)produced as a result of local influences.

Oddly, while interaction between islands within Vanuatu and between Vanuatu and other archipelagoes appears to have increased in the last 1000 years (Bedford and Clark 2001), rock-art in Vanuatu appears to have become more regionalised. However, according to Wobst’s model of information exchange (Chapter 1), an increase in population, such as that which appears to have occurred in Vanuatu over the last 1000 years, can lead to a change in
the nature of social interaction between groups. A similar explanation has been used by Claire Smith (1992: 38) to explain the ‘increasingly regionally distinctive and visually more complex art traditions’ in Australia. Smith argues that people ‘emphasise the differences between them as part of a territorial bounding process’. I suggest that a similar process of territorial marking has also occurred in Vanuatu over the last 1000 years as a result of population increase, despite the continued transmission and exchange of material items across broad regions (as discussed by Bedford and Clark 2001).

The earliest dates available for the Rectilinear rock-art tradition derive from two non-figurative motifs sampled on Malakula. These are CLd14, a central-line motif found as paintings on both Malakula and Erromango, which has returned an age of 931 \[916\] 791 BP (Figure 7.3); and Xd1, a simple cross motif found in both painted and engraved media on Maewo, Malakula, Aneityum and Erromango, also dating to 932 \[916\] 790 BP (Figure 7.3). Given that both of these non-figurative motifs have a Vanuatu-wide distribution, it is possible that the beginnings of this tradition specifically indicate the transmission of non-figurative forms across the archipelago. Slightly later in the sequence, from around 700 BP, figurative motifs become more common. For instance, a fish motif from Valnatamat (LP2) on Lelepa has been dated to 624 \[534\] 507 BP (OZE818), and an anthropomorphic motif from Apialo (MK15) on Malakula has been dated to 690 \[581\] 520 BP (OZE991).

One of the most significant features of the more recent (and regionalised) bodies of rock-art in Australia is the increase in the figurative component of motif assemblages. Smith (1992: 36) argues that ‘because geometric art contains a more restricted range of motifs than figurative art it is better suited to those strata within social groups which are choosing to emphasise the similarities rather than the differences between them.’ It is possible that a similar process occurred in Vanuatu, with rock-art transforming in accordance with an increasing contraction or closure of social networks. Figurative motifs, which are often structurally more complex than many non-figurative motifs, provide greater scope for the expression of local identities. At this stage, however, the temporal division between an early non-figurative and later figurative component for the Rectilinear rock-art tradition of Vanuatu can only tentatively be proposed. Further direct dates on motifs belonging to this and other traditions will help to identify finer-scale variations such as these, and to allow for an exploration of the social factors which might account for such variation.

A study conducted as a companion to this thesis which involved comparing the rock-art of Erromango to other items of material culture, including objects which were known from ethnographic records to have been produced by either women or men (see Appendix 6.2 for
a full review of this work) throws further light on the Rectilinear tradition. One of the outcomes of this analysis was that the rock-art of the Rectilinear tradition, and particularly the black linear art (i.e. Black4) was not an isolated phenomenon relating specifically to caves, but was part of a graphic vocabulary which spanned a range of material contexts (see Appendix 6.2; p.94; Figure 2). Barkcloth, an item which is known to have been produced and used on Erromango exclusively by women, was shown to share the largest number of identical forms with black linear rock-art. Whether or not the ‘multi-media’ motifs identified in this study were in use on Erromango for three thousand years prior to their incorporation into rock-art and other media, the fact that they occur on ethnographic items (which are almost exclusively less than 200 years of age) is further support for the recent age of the Rectilinear rock-art tradition.

Likewise, many of the motifs on bullet-shaped Naamboi pottery from Malakula are also present in the rock-art of Northwest Malakula. These shared motifs are generally rectilinear in structure, with a focus on composite triangle, diamond and leaf-shaped forms (Plate 17). This pottery, which is known to have been produced within the last several hundred years on Malakula, further attests to the recent antiquity of rock-art motifs assigned to the Rectilinear tradition.

As a final point, even though several paintings have been dated to the European contact period, there is no compelling evidence that a new set of motifs were developed in response to this encounter, other than obvious new subjects such as depictions of European ships.

### 8.7 Situating Vanuatu within a western Pacific context: non-motif variables

In the remainder of this chapter I conduct a statistical comparison of the rock-art of Vanuatu with that of other parts of the western Pacific with the goal of further refining and accounting for the differences between regional repertoires of painted and engraved rock-art. To this end, two dimensions of the rock-art are examined: non-motif and motif variables.

In Chapter 6 the distributions of non-motif variables associated with the rock-art of Vanuatu were examined, with the aim of assessing whether they were similar to those variables defining rock-art sites elsewhere in Island Melanesia. For a small number of attributes, such as ‘inaccessibility’, there are similarities between rock-art sites in Vanuatu and elsewhere in Melanesia. For many others, however, there are substantive differences. One of the main differences concerns the relative proportions of sites containing both paintings and engravings. Among Specht’s (1979) sample of 383 sites for the western Pacific, only 17
(4.4%) contain both paintings and engravings, and most of these can be provenanced to a single region (the Sogeri District). In Vanuatu, a total of 16 sites (18%) contain both paintings and engravings. Throughout the remainder of this section the similarities and differences between the distributions of non-motif variables in Vanuatu and the broader western Pacific region are examined.

8.7.1 Technique
A major difference between Vanuatu and other western Pacific regions occurs in relation to the total number and distribution of painted and engraved sites. When Specht (1979) mapped the distribution of the two different techniques across the western Pacific he concluded that,

[The majority of the painted sites are in the western section of the region but rarely in Island Melanesia. The engraving technique is found but rarely in the west; it is becoming more common as we move eastward, until from New Britain and New Ireland eastward it is the main technique (Specht 1979: 63).]

However, as more sites are documented in Island Melanesia this former distribution pattern is being transformed. Figure 4.6 indicates that there are greater numbers of painted sites in Island Melanesia than originally supposed. In Manus, for instance, Specht recorded one painted site, but recent surveys in this region have increased the total to 12. For New Britain Specht recorded a total of five painted sites, now increased to 11. For New Ireland, Specht’s total of four painted sites has increased to six. Until recently, the Island Melanesian regions of New Caledonia, Bougainville, and the Solomon Islands were thought not to contain much painted rock-art. Recent archaeological investigations in these regions, however, suggest that painted rock-art assemblages are not as scarce as originally perceived (Christophe Sand, pers. comm 2000; Matthew Spriggs pers. comm 2000; David Roe, pers. comm 2001). This transformed distribution pattern for painted sites is also supported by the Vanuatu data. Specht (1979: 63, Table 3-1) originally reported a total of just five painted sites for Vanuatu. This figure has since increased to 41, including 25 sites containing paintings only, and 16 sites containing both paintings and engravings. It no longer seems viable therefore to conceive of the rock-art of the Pacific as divided into two geographically distinct technical spheres. While it is conceded that engraved rock-art is predominantly an Island Melanesian phenomenon, painted rock-art now appears to span the entire western Pacific region.

8.7.2 Colour
Another difference between Vanuatu and other Pacific regions occurs in relation to the ratio of a variety of colouring agents employed at different painting sites. According to Specht's
(1979) data, red pigment occurs at over 50% of sites in the western Pacific; black pigment at around 33%, while other colours make up a very small percentage of the corpus of painted rock-art. In contrast, in Vanuatu black is overwhelmingly the most common pigment colour, occurring at 97.5% of painted sites; red rock-art occurs at 42.5% of sites, while other colours comprise a very small proportion of the total. These figures for Vanuatu are consistent with data presented in Chapter 4 which indicate that the relative frequency of black rock-art is higher in Island Melanesia than it is in regions further to the west. Notably, while only one site in Vanuatu contains red paintings only, 32% of sites elsewhere in the western Pacific contain red paintings only. Either red painted rock-art in Vanuatu is only rarely the sole pigment employed or Vanuatu sites which initially only contained red paintings (e.g. cases of Red1/Red2) were re-visited and re-inscribed over long periods of time.

8.7.3 Geology

Further differences between Vanuatu and the broader western Pacific occur in terms of the association between technique and geology. Specht’s original data indicated a strong relationship between limestone settings and paintings, and between volcanic contexts and engravings. On the basis of this dichotomy he proposed that a ‘conscious selection of rock-type for a certain technique’ was occurring (1979: 65). However, recent results from Vanuatu indicate that, while the majority of engraving sites are indeed associated with an igneous geology (61%), a reasonable percentage are also associated with limestone (22%). Most engraving assemblages in Vanuatu associated with a limestone geology are found at the same sites as paintings (81.25%). Of the few sites containing both paintings and engravings elsewhere in the western Pacific, less than 6% are associated with limestone.

An interesting pattern is emerging in relation to the association between technique and geology throughout the western Pacific. In Chapter 4 it was demonstrated that engraved rock-art from Northwest Guadalcanal is most like the majority of painted rock-art of the western Pacific. In Vanuatu, engraved rock-art is often found in geological locations which are elsewhere reserved for painted rock-art (e.g. limestone). Thus, in the eastern parts of Island Melanesia the ‘conscious selection’ of either particular motifs or geological surfaces for the production of painted and engraved rock-art appear to be less evident than in regions further west.

8.7.4 Topography

Further differences occur in relation to topographic contexts. For the western Pacific Specht (1979: 68, Table 3-8) calculated that paintings are more commonly found in ‘closed’ contexts, such as caves and shelters, but that a reasonable number are also found on cliff-
faces. This is not the case in Vanuatu. There are no painting sites, but at least two engraving sites, on cliffs.\textsuperscript{42} This evidence for Vanuatu is consistent with Specht's (1979: 68; Table 3-9) original data which indicated that a relationship between engravings and cliff-faces is much more prevalent in Island Melanesia than it is in regions to the west. In eastern Indonesia, the MacCluer Gulf, throughout the Highlands and coastal regions of mainland PNG, and in Manus, paintings are far more likely to be found on cliff-faces.

Throughout the western Pacific (including Vanuatu) engravings tend to be located in relatively exposed contexts, such as on boulders. In Vanuatu, however, a large proportion of engravings are also concealed in caves and shelters. Overall, Island Melanesia has more rock-art in caves and shelters than the New Guinea mainland and regions further west (Specht 1979: 68; Table 3-9). In Vanuatu, a total of five sites containing engravings only, and 16 sites containing both engravings and paintings, are caves and shelters.

\subsection{8.7.5 Non-motif variables: conclusions}

Specht (1979: 74) concluded from his analyses that there is a widespread engraving 'style' (referred to here as the AES) in the western Pacific defined by predominantly curvilinear geometric forms (e.g. spirals, concentric circles, facelike forms), all of which occur on boulders or open rock faces by water courses or the sea, in Austronesian-speaking areas. He added that certain painting sites may also fall within this widespread 'style' due to motif similarities, but that the majority of painted sites and a few engraving sites constitute 'smaller-scale local styles'.

Ballard (1992a) elaborated on Specht's distinction by proposing that a widespread painting tradition (APT) consisting of a set of cohesive painted motif forms (usually red in colour) occurring on cliff-faces, in inaccessible locations, and commonly in current Austronesian-speaking regions, can also be defined for the western Pacific.

As new data come to light, however, the definitions of both the AES and APT need to be revised. Based on the distributions of non-motif attributes, there now appears to be more overlap between painted and engraved rock-art sites than originally conceived, particularly in Island Melanesia:

\textsuperscript{42}Three sites in the column headed 'location' in Figure 6.7 are described as occurring on a 'cliff/outcrop'. This information was derived from David Roe's (1996) table of site data in which he did not distinguish between a cliff and an outcrop (Figure 6.8).
1. There is a much greater number of painted sites in Island Melanesia than formerly thought, challenging Specht’s (1979) geographical distinction between a predominantly western painting tradition and an eastern engraving tradition.

2. There is a relatively large number of sites in Island Melanesia containing both paintings and engravings, contradicting the notion that each technique is associated with particular locational contexts.

3. There is a relatively large number of engravings in Island Melanesia which are found in shelters and caves in limestone contexts, contradicting Specht’s (1979) association between engravings and (igneous) boulders located adjacent to water courses or the sea.

In summary, the non-motif criteria which define the APT are most clearly identified in Manus, Morobe, mainland New Guinea, East Timor and parts of Eastern Indonesia. The non-motif criteria defining the AES are most clearly identified in the Bismarck Archipelago. South of this region (and in the Sogeri Area), there is evidence for a convergence of the non-motif criteria defining each rock-art technique.

8.8 Situating Vanuatu within a western Pacific context: motifs

In Chapter 4, it was shown that the patterns defined on the basis of non-motif criteria for the western Pacific were broadly supported by the statistical comparisons of motifs, with the engravings of the Bismarck Archipelago and Milne Bay clustering apart from the paintings of Morobe and Manus. South and east of these regions it became harder to distinguish between discrete bodies of ‘painted’ and ‘engraved’ rock-art.

In Chapter 6, the frequency analyses for both motif and non-motif variables in Vanuatu also supported a distinction between engraved and painted rock-art, but with a certain degree of overlap. Three motif sets were identified: one associated exclusively with engravings, another associated exclusively with paintings, and a third characterised by the use of both techniques.

The aim of this section is to determine whether the rock-art motifs of Vanuatu are statistically similar to rock-art motifs found elsewhere in the western Pacific. The degree of similarity between the rock-art of Vanuatu and other western Pacific regions is important in considering the extent to which Vanuatu can be used to assist in the development of a model of rock-art transformation for the western Pacific.
**Analysis 1**

An impressionistic comparison of the results from Vanuatu and elsewhere in the western Pacific suggest that Vanuatu’s rock-art lies within a broad regional network of rock-art production. The Vanuatu-wide tradition of engraved rock-art is similar to the AES-attributed rock-art of the Bismarck Archipelago, in particular those curvilinear motifs which are characterised by central cupules and faces. The Vanuatu Red1/Red2 tradition and aspects of Vanuatu’s Rectilinear tradition are broadly similar to the APT-attributed rectilinear painted rock-art of Morobe, Manus, mainland New Guinea and parts of eastern Indonesia. To test these impressionistic links, a correspondence analysis combining the rock-art of the western Pacific and Vanuatu was conducted. The analysis was run on 103 western Pacific sites and 53 Vanuatu sites (comprising a total of 16 regions). Of the total sample of 834 motifs, 275 derive exclusively from Vanuatu. Only non-figurative (Group 1) motifs were included in the analysis, but given that non-figurative motifs exceed the number of figurative motifs in the western Pacific by a ratio of 10:1, any major regional differences should be distinguishable on the basis of an analysis of non-figurative motifs alone.

The results of this analysis are broadly similar to the CA distributions obtained for western Pacific motif data only (Figure 8.2). The rock-art sites of New Ireland and East New Britain shows a high degree of statistical relatedness, with broad connections to Milne Bay. Vanuatu has clustered together with Sogeri, Morobe, Manus, West New Britain, Bougainville, Northwest Guadalcanal, Fiji, and Micronesia in the centre of the graph. New Caledonia, Tonga and Central Province form a somewhat disconnected group in the lower half of the graph. Two principal conclusions can be drawn from this result:

1. The fact that Vanuatu has clustered most closely with the focal regions for western Pacific painted rock-art (i.e. Manus and Sialum) is not altogether unexpected given that most of the rock-art in Vanuatu is painted and belongs to the Rectilinear tradition. Rectilinearity is a dominant structural feature of the majority of painted rock-art in the western Pacific.

2. The presence of West New Britain within the central cluster suggests that the rock-art of Vanuatu shares a number of motifs in common with this region. In most of the multivariate results presented in Chapter 4, West New Britain tended to cluster more

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43 The time spent generating these results placed excessive demands on my statistical advisor, John Maindonald, and it was therefore not feasible to request that the data-matrices for both figurative and non-figurative data be merged for the purposes of this analysis. The omission of figurative motifs is likely to impact on the overall result, although I assume, based on the experience of previous analyses, that their inclusion would only further support the patterns obtained for non-figurative motifs. However, future analyses would be required to test this assumption.
closely with other Bismarck regions (i.e. East New Britain and New Ireland). When Vanuatu was entered into the equation, however, the statistical correlation between West New Britain and the East New Britain/New Ireland site cluster was substantially reduced.

The implication of the second conclusion is that a proportion of the rock-art of Vanuatu was strongly influenced by the rock-art of West New Britain, or vice-versa. This notion is explored in more detail in Chapter 9.

**Analysis 2**

A second CA analysis was conducted to determine whether splitting Vanuatu into its five main rock-art regions (MW, MK, LP, ER, and AN) yielded a similar result. The overarching aim was to assess whether the rock-art of certain regions within Vanuatu shares greater affinities with specific assemblages outside the archipelago. The result, displayed in Figure 8.3, indicates that the rock-art of each of Vanuatu’s five regions remains more similar to the rock-art of Sialum, Morobe, West New Britain and Northwest Guadalcanal than it does to the rock-art of East New Britain, New Ireland and Milne Bay. The rock-art of New Caledonia, Tonga and Central Province once again forms a loose group in the lower half of the graph. Each of these three latter regions displays greater affinity with the predominantly painted rock-art of the western Pacific (Manus and Sialum) than with the engraved assemblages of New Ireland, East New Britain and Milne Bay.

**Analysis 3**

A version of multi-dimensional scaling (MDS) was run on the entire data set to examine the relationship between individual sites as opposed to regions. The result is broadly compatible with those generated via the correspondence analyses above. The main cluster on the graph (Figure 8.4) includes sites from Vanuatu and other western Pacific regions. The outliers in this distribution include sites from New Ireland, East New Britain, Milne Bay and Fiji. One site in Vanuatu has plotted between two sites from Milne Bay – a connection most likely influenced by the presence at both locations of a spiral and a particular type of circular motif with hooked appendages.

**8.9 Conclusion**

In the first half of this chapter I presented a model of rock-art transformation for Vanuatu, arguing for the presence of four more-or-less temporally discrete rock-art traditions. While future surveys and an increase in data may alter some of these conclusions, the overall trends for this representative data set are unlikely to change substantially.
In the second half of this chapter the presence and distribution of both non-motif and motif variables found in Vanuatu were compared with other western Pacific regions. It was demonstrated that the non-motif variables of Vanuatu and adjacent regions (e.g. Guadalcanal, New Caledonia) represent a convergence of the non-motif criteria which define the APT and AES further west. Despite this convergence, however, the continuities in the presence of the same non-motif variables across the region (e.g. the use of red pigment; the attribute of inaccessibility) are indicative of inter-regional influences.

The multivariate analyses indicate that the rock-art motifs of Vanuatu are statistically indistinguishable from those found elsewhere in the broader western Pacific region. Given this, it seems reasonable to draw on Vanuatu's four rock-art traditions to assist in situating the rock-art of other western Pacific within a spatio-temporal framework. The aim is to establish how these traditions fit into the broader frame of Pacific prehistory. Were they imported into Vanuatu as fully-fledged graphic systems from elsewhere, did they develop independent of outside influences, or were they born of a combination of exotic and indigenous processes? Each of these questions is addressed in the following chapter in which a preliminary model of rock-art transformation for the western Pacific is proposed.
Conclusion: the rock-art of Vanuatu in a western Pacific context

9.1 Introduction: developing a model of rock-art transformation for the western Pacific

In the first half of this thesis two models which had been developed for the rock-art of the western Pacific region were described: (1) a region-wide engraving style (AES) which is geographically commensurate with the distribution of Austronesian-speaking areas and (2) a region-wide painting tradition (APT), also identified as commensurate with the distribution of Austronesian-speaking areas. Prior to this thesis, the relationships between these two analytical entities through time and space were unknown. The AES was described as comprising a repertoire of primarily curvilinear engraved motifs (with some painted counterparts), usually found on boulders near or in water courses. It was also identified as being largely concentrated to the east of the Vitiaz Strait, where evidence for the Lapita Cultural Complex have been found. The APT was essentially defined on the basis of locational characteristics. It was identified as a coastal painting tradition, associated with red pigment, and found in inaccessible locations on cliff-faces. The APT, it is claimed, has a broader distribution than the AES, extending from East Timor to Island Melanesia.

The statistical analyses presented in Chapter 4 confirmed this region-wide distinction between painted and engraved rock-art. Four cross-regional (but not mutually exclusive) rock-art groups were recognised and defined on the basis of consistent and repeated combinations of motif and non-motif variables:

1. Manus, Morobe (Sialum), Bougainville. These regions are defined primarily by rectilinear painted rock-art and associated with many of the non-motif variables characterising the APT. The motifs which distinguish these painted assemblages are confined mostly to Island Melanesia and mainland Papua New Guinea. The associated non-motif variables (e.g. inaccessibility) have a much wider distribution, extending as far west as East Timor and the Moluccas.

2. Milne Bay, East New Britain and New Ireland. These regions are primarily defined by the curvilinear engraved rock-art which characterises the AES of Island Melanesia. Some of the associated motifs have a relatively broad distribution, such as the scroll and spiral forms common to the (painted) Manga style of the MacCluer Gulf sites. Others,
such as the enveloped cross, have a more restricted distribution, being found exclusively among painted assemblages in the Highlands of PNG, and in engraved assemblages on the east Papuan coast (e.g. Milne Bay) and in Island Melanesia.

3. **West New Britain (with some links to Central Province, especially the Sogeri area).** Many of the motifs characterising West New Britain (WNB) assemblages are also found in Milne Bay, East New Britain and New Ireland (and vice-versa). West New Britain has been distinguished from these other regions, however, due to the presence of numerous ‘cupule-based’ motifs at most of the sites of the former region. The distribution of cupule-based motifs, and the contexts in which they occur, is limited to the mainland of Papua New Guinea and Island Melanesia.

4. **Northwest Guadalcanal, New Caledonia, Fiji, Tonga and Micronesia.** While displaying considerable local innovation, the rock-art of each of these regions shares elements in common with most other regions in the western Pacific. The rock-art present in these regions is similar to both the curvilinear engravings of the Bismarck Archipelago and Milne Bay, and the rectilinear paintings of Manus, Sialum and Bougainville. This inter-regional group is defined on the basis of a convergence of both motifs and non-motif attributes associated with engraved and painted assemblages in regions further west.

Importantly, the distinctions between painted and engraved rock-art were only apparent within the sample area employed in the statistical analyses. That is, within the western areas of Island Melanesia (but including samples from mainland Papua New Guinea, such as Central Province, Milne Bay, and Morobe), a distinction between assemblages of paintings and engravings was clearly evident. Painting assemblages from Manus, Sialum (Morobe) and the Bismarck Archipelago clearly manifested the characteristics which distinguished western Pacific ‘paintings’ from western Pacific ‘engravings’. The most salient of these characteristics included the structural motif feature of ‘rectilinearity’, as well as many of the locational features typical of the APT (coastal, inaccessible, cliffed locations). Likewise, the engraved assemblages of Milne Bay and the Bismarck Archipelago were found to manifest the principal components of the engraved rock-art of the western Pacific. Among the most salient features were motif ‘curvilinearity’, and many of the locational features typifying the AES (boulders on or adjacent to water courses). East and west of these regions the distinctions between engraved and painted rock-art appear less definitive. For instance, in the Highlands of Papua New Guinea painted versions of the engraved motifs common to the AES are found, as are *inland* examples of motifs and locational characteristics said to typify the essentially *coastal* APT. To the east, in Northwest Guadalcanal, New Caledonia, and Fiji, and to the north in Micronesia, further cross-fertilisation of the elements defining
the APT and the AES have been discovered. For example, ‘faces’, usually associated with engraving assemblages, have been noted at the Vatulele cliff-painting site in Fiji, and a number of the motifs and locational characteristics (e.g. inaccessibility) characterising the painting assemblages of Manus and Sialum are found among the engraving assemblages of Northwest Guadalcanal. While the rock-art of all regions within the sample contains the major elements of the APT and AES, implying cultural connections either through colonisation or post-settlement interaction, there is evidence of a breakdown or reconfiguration in the ‘rules’ associated with each of the two major techniques in eastern Island Melanesia.

The chapters that followed this regional analysis then presented an intensive analysis of the rock-art of Vanuatu, with the aim of teasing out the variation between paintings and engravings to determine how motif and non-motif elements associated with each media are related in time and space. The non-motif and (multivariate) motif analyses presented at the end of Chapter 8 have demonstrated that the rock-art of Vanuatu is embedded within a broad and homogeneous regional network of rock-art which spans the entire western Pacific region. Being located towards the eastern end of the sample area, the rock-art of Vanuatu displays a certain degree of divergence from both APT and AES criteria, yet manifests evidence of the engraving/painting dichotomy (but with certain overlaps, see Chapter 6) which is pervasive throughout the western Pacific.

Notably, as discussed in Chapter 4, the multivariate analyses presented throughout this thesis have been unable to determine the nature of relationships among different western Pacific rock-art traditions or styles over time. Thus, for example, the regional homogeneity observed on the multivariate graphs may be the result of a short period of rock-art production during which communities across the western Pacific were in contact with one another (e.g. during the Lapita period). In other words, the motifs associated with the earliest and most widespread rock-art traditions may be responsible for the appearance of overall homogeneity observed on the graphs. Alternatively, such clustering may be the result of sustained subsequent contact across the western Pacific over the last 3000 or years or more.

At present, the only conceivable way of resolving the problem of atemporality in the data is through reference to the relatively robust chronological sequence emerging from Vanuatu. Given that the rock-art of Vanuatu is statistically indistinguishable from the majority of rock-art elsewhere in the western Pacific, it seems reasonable to draw on the synchronic and diachronic patterns obtained for the rock-art of Vanuatu in anchoring the rock-art of the western Pacific within a spatio-temporal framework. The following model of rock-art
transformation for the western Pacific redefines the AES and APT, and attempts to situate various spatially and temporally definable subsets of rock-art within a socio-historical context.

9.2 The AES: a redefinition

The multivariate analyses presented in this thesis have demonstrated that the basic components of the AES originally identified by Specht (1979) are responsible for an undercurrent of homogeneity amongst engravings in the western Pacific. However, as illustrated in Figure 9.1, a further refinement of this engraving style into (at least) three subsets is now required. The first and second subsets, labelled ‘cupule-based’ and ‘spiral-based’ respectively, conform most closely to Specht’s (1979) original conception of the AES, being denoted by primarily curvilinear forms. The third ‘rectilinear’ subset has emerged as a result of the analyses undertaken over the course of this thesis, and refers to engraved rock-art which is more convergent with the painted rock-art of the western Pacific. Reading Figure 9.1 from left to right, a gradation from a subset of engraved motifs which consists ‘purely’ of engravings to other subsets which have counterparts among painting assemblages can be seen. Of these subsets, each has a definable geographic distribution and, as I endeavour to demonstrate here, each is temporally discrete. For this reason each subset is referred to as a separate ‘tradition’ (see Chapter 1 for a definition of a ‘tradition’). The emergence of each tradition appears to have coincided with particular cultural transformations that have occurred in the western Pacific, the details of which are presented below. As a final note, the use of the acronyms ‘AES’ and ‘APT’ continue to be useful for describing some of the overarching differences between engravings and paintings in the western Pacific. In Figures 9.1 and 9.2, the AES and APT should be perceived as useful starting categories (and perhaps even ‘super-traditions’) which have since been refined and elaborated upon, with the once ill-defined spatial and temporal relationships and overlaps between them starting to come into focus. I now describe and define each of the AES traditions in turn.

9.2.1 Cupule-based tradition: from c. 3300 BP

The cupule-based tradition is strictly engraved and is presumed to be one of the earliest rock-art traditions in the western Pacific (from c. 3300 BP). ‘Cupules’, circular and usually abraded depressions, are among one of the most pervasive features of the tradition, with motifs commonly constructed around these forms. The tradition has an extensive distribution in the western Pacific, but is particularly pervasive in West New Britain and Vanuatu. It is the rock-art nexus between these two regions which forms the basis of the historical interpretations presented in this section.
Motifs and structure

The cupule-based tradition identified throughout the western Pacific, including Vanuatu, is best illustrated in Figures 6.27 and 6.28. The tradition is defined by a relatively small range of generally curvilinear motif categories, such as circles, ovals, bean-shapes, heart-shapes and Type2 faces, each of which is commonly embellished with central or off-centred cupules. Concentricity is a pervasive structural characteristic, as is contiguity (mainly of circles).

Non-motif attributes

The tradition is found on either boulders or in limestone caves, and is particularly prevalent in West New Britain (e.g. the sites of Garua, Akono Sogo, Cao-go and Malapapua). Sites in East New Britain and New Ireland also bear elements of this tradition, but in these regions engravings which are rarely found in Vanuatu (except in Maewo) occur in large numbers, particularly those characterised by a spiral-based structure (see below).

Distribution

The cupule-based engraving tradition maps fairly neatly onto the distribution of Lapita sites, and incorporates several of the motifs (e.g. dentate marks resembling cupule formations, Type2 faces) and deeper structural qualities which denote Lapita dentate-stamped ceramics (e.g. a limited range of motifs, a widespread distribution, and a strict set of design rules). The tradition as a whole cannot confidently be argued to exist west of the Bismarck Archipelago, with the exception, perhaps, of the Sogeri Area and Mt Hagen (as discussed in Chapter 4). Throughout eastern mainland New Guinea there are examples of motifs defined by central and off-centred cupules that are often locally described as ‘vulvae’. It is possible that these motifs were produced within the same cultural sphere that generated the cupule-based tradition described further east, but most of the sites in which they are found contain only individual elements rather than the full spectrum of attributes by which the tradition is characterised.

Linguistic correlations

Strikingly, with the exception of the individual examples of cupule-based motifs found at sites in eastern mainland New Guinea, the geographic distribution of the cupule-based tradition closely matches the regional extent of the Oceanic subgroup of Austronesian languages in the western Pacific. The Oceanic subgroup correlates in turn with the distribution of the Lapita Cultural Complex (Pawley 1999). It is to this relationship between
the cupule-based tradition and Lapita that I now turn in an attempt to situate cupule-based rock-art within a socio-historical context.

Cultural and chronological implications

One of the possible reasons for West New Britain (WNB) clustering so closely with Vanuatu in Figure 8.2 may be because WNB is the source region of the Vanuatu-wide engraving tradition. Cupule-based motifs, as well as their inherent structural features (e.g. curvilinearity, contiguity), are ubiquitous among the rock-art sites of WNB. In Chapter 8 it was proposed that the beginning of the earliest Vanuatu engraving tradition coincided with the initial Lapita colonisation of the region. Here this argument is extended to suggest that cupule-based rock-art developed from an early Lapita-age graphic system which originated in WNB and was transmitted to Vanuatu with the earliest settlers. Various strands of evidence suggest this as a likely scenario. Some of the most diagnostic features of the cupule-based tradition, such as Type2 faces, emerge within the graphic repertoire which defines Lapita. This would situate the beginnings of the tradition at around 3300 BP. Further evidence for the age of the cupule-based tradition are supplied by the dating evidence from Vatuluma Posovi in Northwest Guadalcanal (see Chapter 3). The engraved rock-art from this site includes a number of 'cupule-based' motifs, one of which was discovered in a sub-surface context older than 3259 [3062] 2892 BP (Roe 1992a; Figure 5, p.118). The problem is that this date on a single example of cupule-based rock-art suggests that the rock-art of Vatuluma Posovi may be of Lapita and/or pre-Lapita age. It is therefore necessary to consider additional forms of evidence (such as the connection between the cupule-based rock-art of West New Britain and Vanuatu) to resolve these chronology questions. Given that the colonisation of Vanuatu is dated to no earlier than c. 3000 BP, it is unlikely that the cupule-based tradition significantly pre-dates this time.

The cupule-based engraving tradition occurs in much higher concentration and frequency in WNB than it does in Vanuatu. If Lapita and the cupule-based rock-art tradition were being produced simultaneously, then this variation between WNB and Vanuatu could probably be accounted for in terms of the relative time available for each tradition to develop within each region. Consistent with the relatively long time span within which Lapita (and hence cupule-based rock-art) may have had to develop in WNB (c. 600 years), the region has a rich concentration of Lapita sites and Lapita decorative styles. Correspondingly, consistent with the short lifespan of the early Lapita phase (and hence cupule-based rock-art) in Remote Oceania (i.e. 200-300 years), Vanuatu has a relatively thin distribution of Lapita sites and relatively low quantities of Lapita pottery (see Bedford 2000).
It is tentatively proposed that the distribution of this early engraving tradition matches a colonisation scenario, as many of the motifs which constitute this tradition are possibly among the earliest forms in the engraving assemblages of Polynesia (Millerstrom 1990: 79), and may have arrived with the founding colonists. In the Marquesas and Hawaii in particular, circular motifs with central cupules, contiguous circles, and Type 2 faces are especially common, suggesting that they represent the tail-end of a Lapita-derived colonisation process. The extensive presence of this tradition in Polynesia parallels a settlement history of relative isolation and subsequent conservatism in rock-art development. In Vanuatu, in contrast, the tradition persisted for a relatively short time, explicable in terms of the archipelago's historical placement within a relatively extensive inter-island network and therefore its continuing exposure to external influences and design styles.

In this attempt to situate the western Pacific cupule-based rock-art tradition within a socio-historical framework, it must be acknowledged that, like Lapita ceramics, the cupule-based tradition has no convincing antecedents to the west, in mainland New Guinea or in Southeast Asia, suggesting that it may have developed in situ, and without particularly strong exogenous influences. This evidence is placed into a broader context in the conclusion to this chapter where the cupule-based tradition is assessed in relation to Green's (1991b) notion of local innovation, discussed in Chapter 2.

Finally, the notion that cupule-based rock-art is linked to an episode of Lapita colonisation is rendered more convincing by the fact that rock-art is not a transactable commodity. The close similarity between the cupule-based rock-art of different areas, which is fixed in the landscape rather than circulated between islands, strongly suggests that the initial phase of expansion out into Remote Oceania was engineered by genetically, linguistically and culturally related communities.

9.2.2 Spiral-based tradition: from c. 3300 BP, but flourishing after c. 2000 BP

The spiral-based tradition, which may date from c. 3300 BP but flourishes after c. 2000 BP, is defined by motifs structured principally around spiral and scroll forms. It is represented by both paintings and engravings, though each technique has a discrete geographic

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44 See for example motifs 7310 (cupule with tail), 7401 (cup and ring), 7402 (cup with more than one ring) and other 'cupule-based' motifs in the Lee and Stasack's (1999) Hawaiian motif inventory (pages 175-179); Lee's (1992: 87; Figure 4.70) illustration of an 'eye/nose' (Type 2) faces found on Easter Island; and Millerstrom's (1992: 21; Figure 2) examples of Mata Komoe (Type 2) faces from Marquesas Islands. Many of the 'eye-mask' faces from Easter Island also resemble the cupule-based contiguous circles which are prevalent in the assemblages of West New Britain (see for example Lee 1992; Figure 4.22, p. 58). These can be compared with motifs Cc8-Cc16 (Appendix 4.2) and Face 3.
distribution. In broad terms, paintings are found in the Highlands of PNG and areas to the west, and engravings are concentrated on the east coast of PNG and in Island Melanesia to the east.

Motifs and structure
In Chapter 4 I sought to demonstrate that a subset of the AES, defined largely on the basis of spiral-based motifs, is common among the engraving assemblages of East New Britain (ENB), New Ireland (NI) and Milne Bay (MB). Apart from a single spiral (and possibly some ‘hooked’ circles) on Aneityum, and a range of forms found at Subeng (MW4), Malangauliuli (MW5) and Malangatavarsoso (MW6), spiral-based forms are rarely found in Vanuatu. They occur relatively extensively in West New Britain (WNB), an area which was undoubtedly exposed to the same cultural influences which promoted the production of this subset in ENB, NI and MB. However, in WNB spiral-based motifs constitute a less predominant component of the rock-art corpus. Often associated with this tradition are elaborate scroll-like motifs, including Type1 faces (Spriggs 1990b) discussed previously in this thesis, and enveloped crosses.

Non-motif attributes
Apart from its occurrence at a cave and a shelter site on Maewo (MW5 and MW6), the spiral-based tradition is found exclusively on boulders. Apart from one possible exception from north Efate (Appendix 6.1), enveloped crosses always occur on boulders.

Distribution
Apart from one example of a painted spiral at Paruai on New Ireland, the spiral-based tradition in Island Melanesia is strictly engraved. To the west, however, spiral-based motifs are prevalent in the painted assemblages of mainland Papua New Guinea, West Papua (particularly the Manga style of the MacCluer Gulf), East Timor, and other parts of Eastern Indonesia. Thus, unlike the cupule-based tradition which has an essentially Island Melanesian distribution, the spiral-based tradition (and its motif component in particular) spans a much wider geographic area.

Linguistic correlations
While the engraved aspect of this tradition is geographically confined to the area dominated by the Oceanic branch of Austronesian languages, spiral-based motifs (painted and engraved) are found across a range of linguistic boundaries, including the Central Malayao-

(213)
Polynesian (CMP), the South Halmahera-West New Guinea (SHWNG) and Oceanic language areas, as well as several Papuan-speaking areas in eastern mainland New Guinea (Figure 9.2). Notably, however, the engraved versions of the spiral-based tradition are generally situated within the boundary delineating each of the Western Oceanic language clusters. Western Oceanic developed out of a Proto-Oceanic language thought to have emerged in the Vitiaz Strait-West New Britain region (Ross 1988). This region then saw the emergence of the languages which subsequently dispersed southward to the Massim and the Papuan south coast (Papuan Tip Cluster), and to northern New Guinea between the Huon Peninsula and West Papuan border (North New Guinea Cluster). In each of these coastal regions, rock-art and other visual media are dominated by motifs characterising the spiral-based tradition.

Cultural and chronological implications

While small numbers of motifs denoting the spiral-based tradition appear to have penetrated areas to the south-east of the Bismarck Archipelago, the tradition has a more restricted distribution than the cupule-based engraving tradition. Given that the engraved rock-art motifs and structural qualities denoting the spiral-based tradition, including a single enveloped cross from the Nenumbo Lapita site in the Reef Islands (Chick and Chick 1978), can be found on Lapita pottery, the spiral-based tradition could have emerged as a regional variant of a Lapita-aged art. As noted by Lilley (1999: 27),

> the Austronesian languages of the Sepik coast developed from language(s) which descended from language(s) conceded by many ... to be spoken by most, if not all, makers and users of Lapita pottery, and did so in a distant locality.

Perhaps, then, the spiral-based tradition represented a regional development of the Lapita era (separate from the cupule-based tradition) which was then transmitted to the east Papuan coast via later west-east dispersions of Austronesian languages at around 2000 BP to the Massim and south Papuan coast, and again perhaps around 1500 BP along the north New Guinea coast (Lilley 2000: 186). In Chapter 2 (section 2.4.2) evidence of later restricted exchange networks within the Lapita period were noted. The spiral-based tradition may well represent evidence of a contraction of interaction expressed in terms of more regionalised rock-art.

Aspects of this engraving tradition can also be seen in the painted assemblages of the New Guinea Highlands, such as enveloped crosses and 'scissor forms', implying that the spiral-based tradition was produced within a sphere of contact with non-Austronesian-speaking communities.
The argument for a post-Lapita efflorescence of the spiral-tradition at around 2000 BP accords well with other archaeological evidence. Although the enveloped cross – a component of the spiral-based tradition – has been noted on Lapita pottery, this particular form is more prevalent on post-Lapita ceramics which emerge around 2000 BP (e.g. the Plum pottery of New Caledonia (C. Sand, pers. comm. 2001). The enveloped cross is also one of the most common motifs at the Micronesian engraved site of Pohnpaed (Pohnpei, Caroline Islands). On current evidence, the island of Pohnpei was colonised not much earlier than 2000 BP, thus providing a maximum age for the rock-art at this Micronesian site (Rainbird 1994). I would argue, therefore, that while the spiral-based tradition may have its origins in the Bismarck Archipelago during the Lapita period, it essentially flourished only after 2000 BP.

From about 2000 BP, at the time when Austronesian speakers are thought to have colonised the Massim and Papuan south coast, there was a concomittant spread of metal from Southeast Asia into western Melanesia, reaching as far east as the Admiralty Islands (Ambrose 1988; Spriggs 1989: 607; 1998). Dong-son bronzes, which extend as far east as Sentani in West Papua, bear a number of design similarities common to the spiral-based tradition identified in the engraved rock-art of Island Melanesia (though enveloped crosses are notably absent). The Dong-son tradition which appeared in the Vietnam/southern China source area around 2000 BP can be mentioned here as a possible alternative source for spiral-based rock-art.

9.2.3 Rectilinear (engraving) tradition: from c. 1000 BP

The third subset of engravings identified over the course of this thesis belongs to a tradition collectively known as the 'rectilinear tradition'. As the name implies, there is a vast body of engraved rock-art which is essentially defined by a rectilinear structure (and motif range) that is more typical of the painted rock-art of the western Pacific. In Vanuatu, engraved rectilinear rock-art has been identified as an adjunct of a predominantly painted tradition which flourishes after c. 1000 BP. Various cases of superimposition in Vanuatu have identified that many of these rectilinear engravings were produced using a technique of incision which overlies an earlier range of circular abraded forms (probably belonging to one of the two traditions described in sections 9.2.1 and 9.2.2). I propose that rectilinear engravings form part of a much broader rectilinear tradition that is dominated by painted rock-art. As attested by the multivariate analyses conducted in Chapter 4, and the frequency analyses on the rock-art of Vanuatu in Chapter 6, the engraved component of this tradition is more commonly found in the eastern regions of Island Melanesia. Much of the rock-art of
Northwest Guadalcanal, for example, was shown to cluster with the rectilinear painted rock-art of Manus and Sialum (Morobe). Rather than attempt to situate the engraving component of the rectilinear tradition within a broader cultural context in this section, however, interpretations are reserved for a later stage in this discussion when the rectilinear tradition as a whole is summarised as a subset of the APT (of which engraved rectilinear rock-art forms an integral part).

9.3 The APT: a redefinition

Throughout this thesis I have indicated that the APT, as originally formulated by Ballard (1992a), requires some redefinition. While I would argue that the APT has stood the test of time, being manifest in most western Pacific regions in a variety of guises, I propose that the APT is divisible into at least four subsets (Figure 9.3). The first three subsets presented in Figure 9.3, which are predominantly found in the western half of the western Pacific, adhere most closely to Ballard’s original conception of the APT. The fourth subset is mainly found in Vanuatu and represents a significant departure from the APT. The third subset, ‘rectilinear red’ is perhaps best described as intermediate, existing in regions which are dominated by rock-art sites represented by both ‘curvilinear red’ and ‘rectilinear black’ motif repertoires. Although no single subset is mutually exclusive, there is a perceptible west-east clinal distribution associated with the APT, particularly with regards to the last three subsets. Curvilinear red motifs reduce in frequency toward the east, grading into rectilinear red, and finally rectilinear black motifs. The non-motif features of inaccessibility, coastal ‘cliffed’ locations and ‘spatially connected funerary remains’ also reduce in frequency in an easterly direction. In the remainder of this section each of these subsets (here termed ‘traditions’) are considered in turn. I also explore the relatively controlled sequence of chronological change established for the painted rock-art of Vanuatu for clues as to the cultural factors which may have led to the development of these APT subsets at a broader western Pacific level.

9.3.1 Red1/Red2 tradition: from c. 3000 BP

The Red1/Red2 tradition is proposed to be the earliest painting tradition in the western Pacific (from c. 3000 BP). It is defined by a small range of motifs, and manifests most of the criteria defining the APT. Elements of this tradition appear to be sporadically distributed throughout the western Pacific, its clearest signature being in Vanuatu.

Motifs and their distribution

This tradition was first identified in Vanuatu, where it is defined by three features: red pigment, motif inaccessibility, and a combination of stencil (mainly hand stencil) and solid pigment forms. The first two features – red pigment and inaccessibility – are common
throughout the western Pacific, as far west as East Timor. Sites possessing the third feature (red stencils and red solid forms) have a more sporadic distribution, occurring in East Timor, the MacCluer Gulf (West Papua), the Sepik, a select number of Papua New Guinea Highland sites, Sialum (Morobe) and Fiji.

**Linguistic correlations**

As originally identified by Ballard (1992a: 97), the distribution of sites possessing features of the APT conforms broadly to the current distribution of Austronesian-speaking (AN) communities. There is a particularly strong correspondence between the distributions of APT sites and Austronesian-speaking (SHWNG subgroup) enclaves along the coastline of West Papua, which takes in the MacCluer Gulf sites. However, as noted in Chapter 3, there is a range of sites located in non-Austronesian-speaking (NAN) areas, particularly in the New Guinea Highlands, which also possess several (but usually not all) of the features of the APT. Some of these, such as the Sialum sites in Morobe and the Sogeri area sites in Central Province, might possibly be accounted for in terms of their turbulent history of language replacement involving both AN- and NAN-speaking communities. Others, however, such as those in the Eastern Highlands, require an alternative explanation. In Chapter 3 Ballard’s (pers. comm. 2001) suggestion that certain graphic elements belonging to the APT may have spread from coastal Austronesian-speaking areas into the New Guinea Highlands via the movement of tapa technology was noted. If this was indeed the case, then a study of painted motifs found on a range of media needs to be undertaken if the social interaction between coastal and highland communities is to be understood.

**Cultural and chronological implications**

The superimposition evidence from Vanuatu suggests that Red1/Red2 rock-art precedes all other technical classes, including black stencils. While there are no direct dates available for the tradition, a minimum age is provided by the oldest black hand stencil so far known in Vanuatu which is dated to c. 2200 BP. In the MacCluer Gulf, red hand stencils form a ubiquitous component of the early Tabulinetin style. The Tabulinetin, however, consists of a more extensive motif range than the Red1/Red2 tradition in Vanuatu, comprising red infilled silhouette forms (including images resembling artefacts), fish (identifiable to species level), hand and foot stencils, a few linear anthropomorphs (which increase in frequency in the Manga and other later styles), and the occasional ‘human-lizard’ form. Stencils of axes, thought to be Dong-son bronze axes, provide a maximum age for the Tabulinetin, and indeed the entire MacCluer Gulf sequence, of no earlier than 2300-2100 BP (Spriggs 1989). Given the differences, however, between the motif ranges defining the Vanuatu and MacCluer Gulf assemblages, it is difficult to link the two regional bodies of rock-art specifically. Instead, I
would argue that the earliest signs of the APT (in the form of the Red1/Red1 subset) appear in the Western Pacific prior to 2200 BP and, based on the Vanuatu sequence, possibly as early as 3000 BP. This is slightly earlier than originally proposed by Ballard (1992a) who suggested that the tradition emerged in conjunction with later movements of Austronesian speakers into southern Papua around 2000 BP.

Unlike the cupule-based engraving tradition which has a restricted distribution generally within Island Melanesia, the APT (which commences with the Red1/Red2 subset) transcends various linguistic boundaries and is most strongly linked to the Austronesian-speaking areas far to the west of Island Melanesia. In seeking potential elements which may be intrusive into the Island Melanesian region around the time of Lapita, or slightly later, the basic components of the APT (red pigment and inaccessibility) may have their possible antecedents in the CMP and SHWNG linguistic areas to the west. However, given that the earliest relative dates for Red1/Red2 in Vanuatu potentially predate the earliest occurrence of the APT in the MacCluer Gulf, further testing of this proposition is required. I would tentatively suggest however, given the overwhelming predominance of red pigment rock-art in areas to the west of Vanuatu (especially in the MacCluer Gulf and other parts of Eastern Indonesia) that the basic elements of the red painting traditions of the western Pacific were introduced into Island Melanesia from the west. This notion is examined further in section 9.4.1 in relation to Green’s (1991b) Triple-I Lapita model.

9.3.2 Curvilinear red tradition: from c. 2000 BP

The curvilinear red-tradition is defined by spiral and scroll motifs and probably emerged at the same time as the engraved spiral-based tradition which appears to have flourished after c. 2000 BP. Its distribution is focused in regions to the west of the east coast of PNG.

Motifs and their distribution

The curvilinear red tradition is dominant in areas to the west of the rock-art regions for which the statistical analyses for this thesis were undertaken. A range of curvilinear motifs, displaying strong formal parallels with elements constituting the engraved spiral-based tradition, are found extensively among the painted rock-art assemblages of East Timor, the Moluccas, West Papua, and other parts of Eastern Indonesia, and are particularly evident in painted rock-art of the Manga style in the MacCluer Gulf. A few curvilinear motifs (including numerous scissor and scroll-like forms) are also found at rock-painting sites in the New Guinea Highlands, suggesting that the Curvilinear red tradition was produced within a sphere of interaction which extended to Highland communities.
Cultural and chronological implications

I propose that the curvilinear red tradition is the western counterpart of the eastern spiral-based engraving tradition, and that it emerged around 2000 BP alongside the initial appearance of metal in the region. Spriggs (2000: 68) has suggested that

[at the time Dongson drums were spreading, perhaps the period around 2000 BP, eastern Indonesian products such as cloves were reaching both China and Rome going the other way, and other products were also coming out of this new frontier of the growing 'world trading system' such as birds of paradise (Swadling 1996), sandalwood and other forest products from the region on northern Australia’s doorstep.

For a brief moment, perhaps, the periphery of this ‘world system’ even included Manus, with its single piece of bronze (Ambrose 1988).

It seems highly likely, given the dynamic and seemingly uninhibited movement of material items during this early period of the Southeast Asian Metal Age, that rock-art would have been influenced by the dominant graphic systems operating at the time (particularly between Eastern Indonesia and New Guinea).

I further propose that the curvilinear red tradition evolved out of an already strong APT tradition (already present in the Tabulinentin style in the MacCluer Gulf) but that it readily absorbed incoming design ideas pervasive during the Metal Age. Likewise, I suggest that the engraved spiral-based tradition observed in areas such as Milne Bay evolved out of an already strong tradition of engraving in Island Melanesia. In sum, I suggest that basic foundations of the APT and the AES (i.e. the tradition of painting involving red pigment and inaccessibility; and the tradition of engraving involving curvilinearity and the use of boulders as canvasses), remained unchanged, but that motifs across the entire region underwent significant transformations in response to the growing participation of the western Pacific in a ‘world trading system’.

As a final note, at the same time that rock-art production in the western parts of the western Pacific was experiencing transformations during the Metal Age, the rock-art of Vanuatu appears to have been taken a somewhat different trajectory. The Vanuatu black stencilling tradition, which I have argued commenced around 2200 BP, is characterised by rock-art which is vastly different to that being produced after 2000 BP in regions to the west. The crucial implications of this finding are elaborated upon later in this chapter.
9.3.3 Rectilinear red tradition: from c. 1400 BP

As the name implies, the rectilinear red tradition is characterised by red pigment motifs of rectilinear structure. Based on a maximum age for this tradition from a site in New Britain, it is known to have been active some time within the last 1400 years. Its distribution extends as far west as Eastern Indonesia (e.g. Kei Kecil, MacCluer Gulf) but it appears to have flourished on mainland PNG and in western Island Melanesia.

Motifs and distribution

The rectilinear red tradition has a more easterly distribution than the curvilinear red tradition. It represents the dominant painted corpus of mainland PNG and western Island Melanesia, and it also forms a substantial component of site assemblages in East Timor, the Moluccas and West Papua. Engraved equivalents of the motifs which constitute this tradition have been recorded from sites in Northwest Guadalcanal and Vanuatu.

Motifs common to this tradition are defined by a rectilinear structure. Thus, even if the motif category is essentially curvilinear (e.g. a circle), the appendage and infill lines which accompany this main shape are generally straight or angular (e.g. the straight line 'rays' surrounding 'sun symbols'). Common among the rectilinear red range are non-figurative motif categories such as triangles, diamonds, and forms which are constructed around a central axis line. Stick-figure anthropomorphs, often depicted with flexed arms and legs, are also frequently found. The rectilinear red tradition is almost always located on exposed cliffs or shelters, close to the coast, and at inaccessible heights. Close proximity to human skeletal remains in cliff-shelters is also a defining feature (e.g. Lake Kutubu in the PNG Southern Highlands; the Buang Valley and Sialum sites in Morobe Province).

Linguistic correlations

The rectilinear red tradition is most closely linked to the Western Oceanic language area, and is particularly focused on Manus and the Bismarck Archipelago. Close links with Sialum, on the adjacent Huon Peninsula, are also evident, as are more distant links to sites scattered among the New Guinea Highlands. The tradition is also present, although less common, on the eastern side of the border separating Near and Remote Oceania (e.g. Vanuatu). For Vanuatu, I have suggested on the basis of motif correlates that rectilinear red rock-art is synchronous with much of the region’s Black4 rock-art (which has been dated to within the last 1000 years).
Cultural and chronological implications

The dating of the rectilinear red tradition, which is clearly a component of the APT, relies entirely on the dating of a volcanic event at Rabaul, in East New Britain. As noted in chapter 3, the Beehive Rocks consists of a painted assemblage on the rock face of a volcanic plug which emerges out of the water in Simpson Harbour. The paintings have been executed in red pigment on a tuff rock surface at about 3m above the water level, and the motifs include crosses, a circle with an internal cross, an indistinct human figure, a 'phallic' motif, and a possible hand (Specht 1966). Both the motif and non-motif features of this site satisfy the criteria of the APT, and conform to the red rectilinear subset identified here for the western Pacific. According to evidence presented by Nairn et al. (1995), the volcanic feature on which the rock-art is located can be no older than around 1400 BP. A catastrophic volcanic eruption at this time is said to have devastated the region for a distance of at least 50 km from the source in the centre of the Rabaul Caldera. The paintings were therefore produced after this time.

While the maximum age of 1400 BP for the rock-art at the Beehives cannot be taken as a starting date for the rectilinear red rock-art tradition as a whole, it does correspond well with the timeframe for the development of the stylistically comparable rectilinear tradition of Vanuatu. I suggest that the motifs which constitute the rectilinear red rock-art in Near Oceania form part of a broader tradition of rectilinear art which flourished in Vanuatu at a slightly later date (see below). This statement, however, requires some qualification. As indicated in Chapter 8, some of the rectilinear motifs found in the painted rock-art of Vanuatu in the last 1000 years are present on ceramics derived from the Arapus site which have been dated to 2750 BP. By stating that the tradition defined by red rectilinear paintings seen at Rabaul and other Near Oceanic sites was probably antecedent to the black linear rock-art of Vanuatu it is not implied that all black linear (and other rectilinear) rock-art in Vanuatu was transmitted to Vanuatu from the west. Instead, I propose the following broad transformations for the Vanuatu region:

a. the earliest rock-art in Vanuatu was dominated by curvilinear or Red1/Red2 motifs but accompanied by a range of rectilinear motifs.
b. the later rock-art of Vanuatu was dominated by rectilinear motifs, some of which represent a graphic extension from earlier ceramic repertoires extending back to at least 2300 BP, but possibly as early as 2750 BP. Others may have been generated through contact with the symbolic traditions which gave rise to red rectilinear rock-art further west.
9.3.4 Rectilinear tradition: from c. 1000 BP

The Rectilinear tradition is most likely a direct off-shoot of the Rectilinear red tradition which occurs throughout Island Melanesia. It is most obvious in Vanuatu where it is represented by both paintings and engravings. The motifs which characterise this tradition are defined by rectilinearity, and the motif range is based around angular shapes such as triangles, diamonds and central line axes. Absolute dates for this tradition suggest that it reached its peak within the last 1000 years.

Motifs and distribution

The rectilinear painted and engraved tradition has been identified on the basis of this study in Vanuatu. The painting component of this tradition demonstrates a major departure from the APT, with the exception of its motifs which are found extensively among sites defined by the rectilinear red painting tradition prevalent in Near Oceania. However, the non-motif features of the APT seem to disappear in Vanuatu once black linear rock-art becomes the dominant rock-art type. Black linear rock-art, which forms the major technical class among the rectilinear tradition, is found in caves or shelters rather than on cliff-faces, is usually quite accessible (i.e. less than two metres above the ground surface), and can be found at significant distances inland from the coast. The motif range is broader than for any other tradition observed in the western Pacific, and there appear to be very few cultural rules dictating its production (e.g. it is not defined by specific locational characteristics such as inaccessibility).

The engraved component of this tradition is found not just in Vanuatu (where it occurs predominantly on Maewo and Aneityum), but also in other parts of Island Melanesia, such as Northwest Guadalcanal, New Caledonia, Fiji, and at the Pohnpaid site in Micronesia. In each of these regions one finds rectilinear engraved rock-art, which is structurally and formally akin to both rectilinear red and rectilinear black rock-art.

Cultural and chronological implications

One of the more recent debates in western Pacific archaeology has focused on whether perceived similarities in the post-Lapita period (i.e. after c. 2500 BP), and particularly those observed between 'Incised and Applied Relief' ceramics recovered from Mussau, Manus, New Ireland, Watom, Nissan-Buka, Vanuatu and New Caledonia, are a result of sustained inter-island and inter-societal contacts (Spriggs, in press), or represent a parallel evolution from a common Lapita design system (Bedford 2000, Bedford and Clark 2001). The results derived from the rock-art analyses conducted in this thesis tend to offer more support for the latter model, especially between c. 2300 BP and c. 1000 BP.
It was demonstrated in Chapter 8 that certain rectilinear motifs present on Erueti-style pottery from Arapus, dating to 2750 BP, form an integral component of the ubiquitous black linear paintings in Vanuatu which date mostly to within the last 1000 years. This evidence supports the idea that at least some motifs present among ceramics prior to 2750 BP have persisted as an element of Vanuatu’s graphic repertoires since Lapita times. Moreover, the lack of evidence for black stencils in other parts of the western Pacific from c. 2300 BP until c. 1000 BP suggests that rock-art production within Vanuatu was, for the most part, following its own regional trajectory rather than participating in a broader Pacific-wide network. For instance, the lack of evidence for a spiral or curvilinear red tradition in Vanuatu after 2000 BP suggests that many of the Metal Age transformations occurring in graphic systems further west failed to register any impact on the rock-art of Vanuatu.

Together, this evidence suggests that Vanuatu rock-art production was not overly influenced by external conditions between the end of the cupule-based and Red1/Red2 tradition (after 2200 BP) and c. 1400 BP-1000 BP. Within the last 1000 years, in particular, rock-art production in Vanuatu flourished. During this period there was an increase in the production of rectilinear motif forms which are structurally similar to motifs known to have been produced after 1400 BP elsewhere in the western Pacific (e.g. the Beehive Rocks). Such motifs are not only present in rock-art contexts but also on regional ceramics, as testified, for example, by the strong connections between Rectilinear rock-art in Vanuatu and designs found on Oundjo pottery in New Caledonia – which also dates to the last 1000 years; Sand 2001b: 77) (Plate 18). Many of the rectilinear motif forms observed in the non-Austronesian-speaking regions of the New Guinea Highlands are also similar to the rectilinear rock-art being produced in Vanuatu at this time, implying that the opening of communication networks between Vanuatu and other island groups within the last 1000 years exposed the region to the ‘Melanesianized’ graphic systems which had come to dominate the western Pacific.

As a final note, it is within the last 1000 years that Polynesian influences were felt throughout Island Melanesia, as attested by a range of linguistic and social transformations (Spriggs 1997). While I have not conducted a systematic comparison between rock-art repertoires from these two broad regional areas, the impression is that there are no obvious examples of rock-art which might be attributed to the influence of this Polynesian ‘backwash’. There are certainly influences which I would tentatively suggest were transferred from Island Melanesia in an easterly direction with the initial Polynesian colonists. The cupule-based rock-art of Island Melanesia, for instance, appears to constitute
a considerable proportion of the rock-art repertoires of Polynesia. If there were any subsequent influences from east to west they would have registered in the rectilinear engraved and painted tradition of the last thousand or so years in Island Melanesia. In the absence of a more probing analysis, two possible influences can be canvassed:

1. Apart from Easter Island and the North Island of New Zealand, most of the rock-art of Polynesia is rectilinear. Polynesian communities which traveled to Island Melanesia might thus have contributed to the prevalence of rectilinear rock-art, particularly in Vanuatu.

2. In contrast to the rock-art of Island Melanesia, much of the rock-art of Polynesia consists of figurative motif forms. While no direct connection can be seen between, for example, the stick- or triangular-bodied anthropomorphs from Hawai‘i and the Marquesas (Stasack and Lee 1999; Millerstrom 1990), or the ‘birdman’ engravings from Easter Island (Lee 1992), the influence of Polynesian migrants may have contributed to the increase in figurative motifs which we see among the most recent rock-art traditions, particularly the black linear rock-art of Vanuatu.

9.4 Conclusion and future recommendations

9.4.1 The AES and APT: analytical fictions?

The fundamental aim of this thesis has been to formulate a preliminary model of rock-art transformation for the rock-art of the western Pacific region. Carrying out this task initially required determining the nature of the relationship between two existing models of rock-art: the ‘AES’ and the ‘APT’. There is clearly some degree of reality to these two analytical concepts, to the extent that the analyses conducted in Part 2 of this thesis demonstrate that the rock-art of the Pacific does broadly separate out into two groups on the basis of technical differences. However, following the alternative model presented above, the AES/APT distinction appears to be relevant only at the earlier stages in the sequence of rock-art production in the western Pacific. Of the rock-art traditions identified in the western Pacific, only two clearly correspond to the technical distinction between the AES and the APT: the cupule-based engraving tradition and the Red1/Red2 painting tradition. These two traditions are technically distinct, with discrete but overlapping geographic distributions that both lie broadly within the distribution of Austronesian-speaking communities. In Vanuatu, for instance, the Red1/Red2 tradition is focused in the south of the archipelago, and the cupule-based tradition in the north. Elsewhere in the western Pacific, components of the Red1/Red2
tradition extend from East Timor to Fiji, while the cupule-based tradition is focused in Island Melanesia.

With the termination of the Redl/Red2 and cupule-based traditions there is a breakdown in the rules associated with the AES and the APT. For instance, from around 2000 BP various scroll, spiral and enveloped-cross motifs are represented in both media, but are generally painted in the west and engraved in the east. From 1000 BP, red rectilinear motifs which were formerly depicted in inaccessible locations (e.g. New Britain and New Ireland) are found in Vanuatu to be randomly distributed at varying heights above the ground, and often portrayed in black rather than red pigment. To the west, motif elements associated with the rectilinear traditions occur extensively in the non-Austronesian-speaking areas of mainland PNG. This is in contrast to the earliest painting tradition (Redl/Red2) which is concentrated in Austronesian-speaking regions.

It has only been possible to define the points of convergence and divergence between the AES and the APT via a systematic examination of motifs and non-motifs through space and time. As a result, both the AES and APT have been shown to be too simplistic to capture the degree of complexity and dynamism that characterises the rock-art of the region. The model which I propose in place of the AES and the APT is represented in Figures 9.1 and 9.3, and in summary form in Figure 9.4.

Although attention has been drawn to the limitations of the AES and the APT, the fact remains that these two analytical entities offer a reasonably accurate impression of the distinction between the two earliest traditions in the western Pacific: the Redl/Red2 and cupule-based traditions. How might the extreme differences between these two traditions be explained, given that they are most likely synchronous? I have already suggested that the cupule-based tradition is spatially and temporally commensurate with the Lapita ceramic tradition of Island Melanesia. Certain salient motifs (such as the face), as well as a range of deeper structural qualities, are shared by both the Lapita ceramic and cupule-based rock-art tradition. To the west of Island Melanesia, we see no convincing analogues for either cupule-based engraved rock-art or Lapita ceramics. Given that both the cupule-based rock-art tradition and Lapita pottery appear to be found only in Island Melanesia, it is highly likely that they both represent local innovations, influenced to some degree through contact with pottery-producing communities to the west.
However, red painted rock-art, which is strongly linked to the distributions of Austronesian communities both in eastern Indonesia and Island Melanesia, is a convincing example of an ‘intrusive’ cultural element which was perhaps introduced through the movement of red-slipped pottery-producing communities from the west. In Eastern Indonesia and adjacent regions, red-slipped pottery and a cultural assemblage consisting of specific shell ornaments, polished stone adzes and the bones of domesticated pig and dog have been found, dating from around 3300 BP. Being contemporary with Lapita, this pottery is often presumed to be associated with a dispersal of Austronesian-speaking communities into the Bismarck Archipelago (Spriggs 1997, Bellwood 1998: 961).

Drawing on Roger Green’s (1991b; 2000) model which distinguishes between the influences of Integration, Intrusion and Innovation, it is proposed that the cupule-based rock-art tradition represents an example of local innovation within Island Melanesia or, in Green’s (2000: 373) terms, ‘something arising which has no direct antecedents’. The red painted rock-art of Island Melanesia presents the most convincing case for intrusion, displaying strong links to rock-art regions in Eastern Indonesia. As yet there is no evidence of integration with previous art traditions from the western Pacific region. One form of pre-Lapita art which may eventually be useful for comparison is the assemblage of decorated mortars and pestles, which are currently being examined by Pamela Swadling of the Australian National University. The earliest examples of mortars and pestles derive from Kuk, in Papua New Guinea, in contexts dated to around 7000-7500 BP (Golson 2000: 239). At this stage, however, visual links between the motifs associated with mortars and pestles and those found in rock-art are not obvious.

9.4.2 The future of rock-art research in the western Pacific

The study of motif and non-motif elements in the rock-art of the western Pacific has been a necessary but only preliminary component of much broader research programs which can now be undertaken in this field. Throughout this thesis I have hinted at the potential of two broad fields of enquiry: the social and cultural contexts of rock-art, and the scope for transfer between rock-art and other media.

a) Research which focuses on the social contexts in which rock-art were produced offers an exciting direction for western Pacific rock-art studies, especially those which involve asking questions concerning why people produced rock-art, and how rock-art reflects culturally embedded experience. A handful of studies has already attempted to situate rock-art within social frameworks of meaning (e.g. Gorecki and Jones 1987a and 1987b; Ballard 1988b; Spriggs and Mumford 1992; Roe 1992a). However, now that such studies can be couched
within spatial and temporal frameworks, our ability to track the origins and developments of social contexts for particular rock-art traditions is vastly improved.

b) Almost every writer on Pacific rock-art has observed the need for cross-media studies but, without the firm typological and chronological basis for comparison that this thesis provides, such studies have been restricted to passing references and incidental illustrations of similarities between different media. For example, Newton (1988: 15) argues that allomorphs of both Lapita and Roti bronze axe designs are found across a range of media, extending into Southeast Asia. Plate 19 shows visual parallels between Newton’s ‘Lapita 2’ (equivalent to Spriggs’s [1990b] ‘Type1’) motif, barkcloth from Lake Sentani, a New Britain mask, and a conus shell engraving from Collingwood Bay (Milne Bay Province). The same design is also found in the rock-art of West New Britain. Based on this and a multitude of other examples of cross-media correlations, it appears plausible that most rock-art did not develop in isolation. It is therefore likely that, in the near future, each of the rock-art traditions I have identified in this thesis will be extended and refined to take account of interactions with a range of art media.

This thesis has provided the basis for the incorporation of rock-art into broader archaeological studies in the western Pacific. It is my hope that it might also encourage Pacific archaeologists to reconsider rock-art as a line of evidence in their reconstructions of the past.
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