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Stylistic Analysis of Stone Arrangements Supports Regional Cultural Interactions along the Northern Great Barrier Reef, Queensland

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Abstract

Stone arrangements are frequently encountered on the Australian mainland and islands. They have high significance values to Indigenous Australians and are usually associated with the material expression and emplacement of socio-religious beliefs and associated ceremonial/ritual activities. Despite their ubiquity, stone arrangements are an understudied site type with their distribution and morphological variability remaining poorly documented and their functional variability poorly understood. Although in most parts of Australia the authorship of stone arrangements is unambiguously Aboriginal, for far north Queensland this singularity is less clear for places where Aboriginal people and Torres Strait Islanders, and more recently South Sea Islanders, all with documented traditions of stone arrangement construction and use, are known to have operated. A comparative stylistic analysis of stone arrangements constructed by Aboriginal people, Torres Strait Islanders, and Island Melanesians of the southwest Pacific reveals that although Lizard Island Group stone arrangements are predominately of Aboriginal authorship, some arrangements exhibit cultural influences from neighbouring areas. In this respect, Lizard Island Group stone arrangements appear to be a further material expression of the Torres Strait Cultural Complex and Coral Sea Cultural Interaction Sphere.

Keywords

Coastal and island archaeology; stone arrangements; Lizard Island; Great Barrier Reef

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Introduction

This study applies comparative stylistic analyses to define variability in the form of stone arrangements in the Lizard Island Group (LIG) of northeast Queensland. Ethnohistorical, ethnographic, and archaeological evidence demonstrates that Aboriginal people regularly used and continue to use the LIG. However, there are strong suggestions in the archival and archaeological record that Torres Strait Islanders and Island Melanesians of the southwest Pacific may have visited. This study considers the attributes of stone arrangements over a broad study region to examine who might have created and influenced the form and function of LIG stone arrangements.

Background

The LIG, comprising the four islands of Lizard, Palfrey, South, and Bird, is located 33km from the mainland northeast of Cape Flattery, in the northern section of the Great Barrier Reef, Queensland, Australia (Figure 1). The main island within the group is Lizard Island (c.10 km²). It is known as *Jiigurru*, meaning 'stingray', by the Dingaal traditional owners. As the islands are formed from Finlayson Granite of Permian (Lucas 1965) or possibly Triassic age (Tochilin et al. 2012) it is not unexpected that all recorded stone arrangements are constructed of granite. Nearly all stone arrangements in the LIG also sit upon an exposed granite base.

Brierly (cited in Moore 1979), Mills (1992, 1995a, 1995b), Specht (1978), and Ulm (2013) have documented stone arrangements on Lizard Island. The existence and density of stone arrangement sites in the LIG, together with contemporary Dingaal accounts, indicate that Lizard Island is a significant ceremonial site for initiations, inter-group gatherings, judicial deliberations, and for the passing on of knowledge from the 'clever men' to young boys (Lentfer et al. 2013:143; Mills 1995a:9). Dingaal elder, Gordon Charlie, told Mills (1995a:9) that for initiation young boys were taken through the stone arrangement to the edge of the rock platform for instruction. Initiation ceremonies corresponded with moon phases and 'knowledge was given at the new moon when the sky was dark and the initiation ceremony itself was at full moon, a time of celebration and dancing' (Mills 1995a:9-10). Brierly, the official artist aboard H.M.S. Rattlesnake, was arguably the first European explorer to record stone arrangements on Lizard Island. On 1 August 1848, after climbing to the top of Cooks Look, the highest point of Lizard Island (370m), Brierly recorded an open space at the summit with linear arrangements and a 'pile of stone', that he and his men disassembled to see if it contained a 'memento' (Brierly, unpublished MS in Mitchell Library, cited in Specht 1978:4-5). Early explorers (Cook, Banks, Brierly, King, and Stanley) also recorded the presence of huts on hilltops, in addition to observations of canoes, food items, and food preparation areas on Lizard and surrounding islands (Mills 1992:35-36). Archaeological sites in the form of stone arrangements, middens, and rock art support arguments for widespread occupation of Lizard Island (Lentfer et al. 2013; Mills 1992; Specht 1978). Recent excavations on Lizard Island reveal occupation back to at least 4,000 cal BP (Aird 2014; Lentfer et al. 2013; Mills 1992).

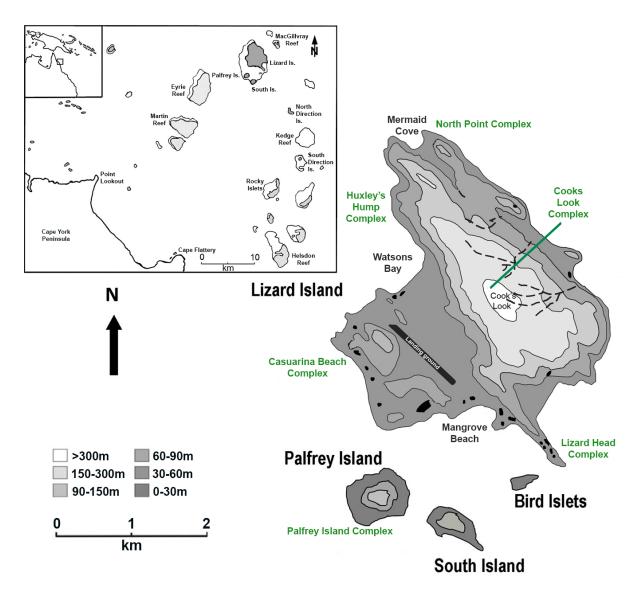


Figure 1. Lizard Island Group (after Lentfer et al. 2013:142).

The LIG sits at the southern end of Barham's (2000) Torres Strait Cultural Complex and McNiven et al.'s (2004b) Coral Sea Cultural Interaction Sphere. This vast seascape linked island and mainland communities between the Gulf of Papua and northern Queensland. The interrelations that linked island and mainland communities of this region were defined by shared trade and exchange of resources, cosmological beliefs, and craft specialisation (Barham 2000; Beaton 1978; Haddon 1935; McCarthy 1939; McNiven and Feldman 2003). Archaeological (Barker and Lamb 2011; Lentfer et al. 2013; McNiven 2015; McNiven et al. 2004b; Tochilin et al. 2012) and anthropological/ethnohistoric (Laade 1969:39, 1973:159; McNiven 2015; Moore 1978, 1979; Moore 2000; Rowland 1987, 1995; Shnukal 2004:325) evidence signify that northern (Melanesian) influences may have extended over a vast area including southward and down the east coast of Cape York Peninsula (CYP). Indeed, anthropologist Wolfgang Laade (1969:39) was informed by Torres Strait Islanders that people of Warraber and Poruma islands obtained 'clubstone' from places as far as Lizard Island to trade with people of Mer (Murray Island) in eastern Torres Strait (see McNiven 1998).

Recent archaeological and ethnohistoric evidence also suggests that the LIG may be situated within a potential extension of the Lapita Cultural Complex. Following recent pottery finds in Torres Strait dating back to c.2,500 years ago (McNiven et al. 2006) and Lapita pottery at Caution Bay dating c.2,600-2,900 years ago (David et al. 2011; McNiven et al. 2011) on the south coast of mainland Papua New Guinea, McNiven et al. (2011:5) stated that 'The presence of pottery-bearing Melanesian peoples on Australia's doorstep allows hypotheses for Melanesian cultural influences down the Australian east coast over the past 3000 years'. This hypothesised southward extension may have empirical verification following the discovery of ceramic sherds of possible Melanesian origin in the intertidal zone at Lizard Island (Tochilin et al. 2012). In this connection, it also needs to be kept in mind that the LIG has hosted multi-cultural fishing crews, mainly Melanesian peoples from the southwest Pacific, during the colonial period of the nineteenth century (Waterson et al. 2013).

Aboriginal Australian stone arrangements (excluding fishtraps) are mostly defined by broad stylistic type, for example, monoliths and cairns, as well as anthropomorphic, linear, geometric or circle arrays that may consist of single or multiple stones (e.g. Black 1950; Macknight and Gray 1970; McCarthy 1940; Rowlands and Rowlands 1966; Towle 1939). Definitions such as these are arguably more than a description of a stone arrangement 'type' or 'style'. When stone arrangements are placed in the context of a comparative analysis, they inadvertently define an 'authorship', signifying a creator of their construction and/or an origin of their meaning. Given that the LIG is enmeshed within overlapping cultural complexes, this study provides a comparative framework using stylistic analysis of selected stone arrangements located within the northeast coast of mainland Queensland and the cultural complexes of the Torres Strait and Lapita distribution regions of island Melanesia to explore authorship of the LIG stone arrangements.

Although ubiquitous in the Australian archaeological landscape, the functions of stone arrangements often remain hypothetical. Archaeological research, informed by ethnographic information, has argued that the function of stone arrangements across Australia tended to be associated with ritual, including use for totemic increase, and/or ceremonial/mythological purposes (e.g. Barker et al. 2016; Hook and Di Lello 2010; Law et al. 2017; McIntyre-Tamwoy and Harrison 2004; McNiven 2004; Rowlands and Rowlands 1966). Recent studies on the Gummingurru stone arrangement site complex located on the Darling Downs north of Toowoomba in southeast Queensland comprehensively highlight the ceremonial and ritual roles associated with the site complex and outline how it continues to provide a 'memoryscape' to the traditional owners today (Ross 2008; Ross et al. 2013).

Methods and Materials

Stone arrangements are constructed by purposefully rearranging rocks (largely portable) on the landscape. They often incorporate elements of the natural landscape such as boulders, stone platforms, and elements of topography. Stone arrangements rarely occur in isolation; rather they usually occur in groupings, defined here as 'site complexes'. Site complexes are generally made up of individual stone arrangement features, defined here as 'attributes', that are stylistically, compositionally, and/or quantitatively different from one

another. Stone arrangement features most commonly found in the study region can be classified into three categories based on constituent/construction materials: (Category 1) 'stone only'; (Category 2) 'nearly all stone' (with some bone, shell and/or artefacts); or (Category 3) 'mostly not stone' (bone, shell and/or artefacts with some stone). All stone arrangements reported in the LIG are comprised of only stone, so to enable a comparative analysis this study limited its focus to Category 1 'stone only' and Category 2 'nearly all stone' types (Figure 2).

A formal stylistic analysis of stone arrangement attributes was undertaken by adapting Brady's classificatory system for Cape York and Torres Strait rock art (Brady 2010; Brady et. al 2013; Brady and Bradley 2014). Brady analysed individual rock art 'motifs' for a classificatory 'style', which we co-opt here to establish a methodology to analyse individual stone arrangement 'attributes' for a classificatory 'type'. After Brady (2010), the notion of a stone arrangement attribute 'type' was demarcated in this study by analysing the technical style and system of construction of the attribute. To date, formal stylistic analyses have not been applied to the study of stone arrangements in Australia. Attributes are therefore defined here as individual stone arrangement feature types (i.e. cairn, standing stone, stone circle etc).

Data on stone arrangement attributes was derived from the Australian stone arrangement literature, as detailed below, and compiled into a spreadsheet using the classificatory system of attribute style. Two broad categories were adopted as part of the stone arrangement classificatory system before individual attribute types could be demarcated (Figure 2). Firstly, we determined whether a stone arrangement attribute could be defined according to a classificatory style (i.e. Determinate/Indeterminate). Only two stone arrangement attributes could not be defined (Indeterminate). The remaining Determinate stone arrangements were analysed using a third category to establish whether the attributes were Figurative (resemblance to a motif, e.g. an animal) or Non-Figurative (e.g. abstract variants) (Figure 2). Site codes referenced are those of the original recorders.

A total of 304 stone arrangement attributes were identified in the literature/materials reviewed across all three regions (far north Queensland, Torres Strait, and Island Melanesia). After analysing and defining stone arrangements using the broad classificatory system outlined above, the individual stone arrangement attributes were then considered for 'type' (Figure 3). This classification was achieved by analysing each of the 304 attributes and categorising these against a best determined stylistic 'type' demarcated in this study by analysing the technical style and system of construction of the attribute; for example, cairns, circles, 'c' or 'v' shaped stone pile variants, walls etc (Figure 3). Where attribute types were stylistically similar (e.g. cairns) they were further demarcated by measurement. Stone cairns are mostly recorded by height in the literature, so that became the dominant attribute measurement. In contrast, stone circles are predominantly recorded by diameter and not by height or width so diameter became the primary discriminating variable for circles (Figure 3, Table 2.). Of the 304 stone arrangement attributes, 35 types were determined, divided into Non-Figurative (n=30), Figurative (n=4), and unknown or Indeterminate (n=1) (Figure 3)

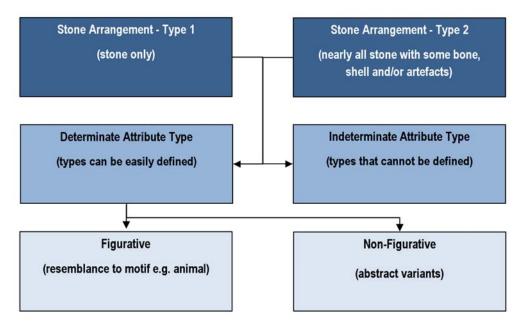


Figure 2. Summary of stone arrangement classificatory system outlining the three broad category levels used to categorise stone arrangement attribute type

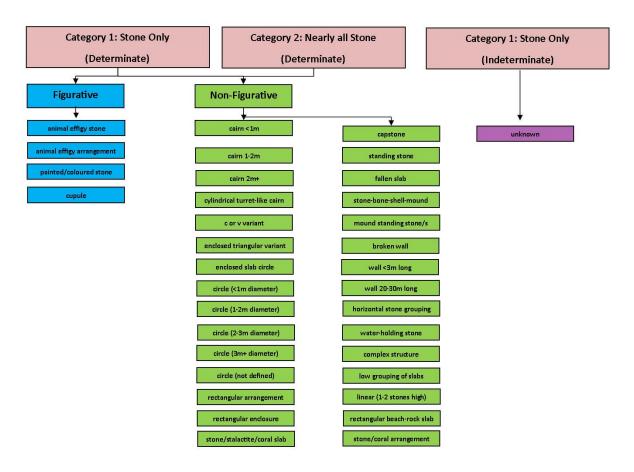


Figure 3. Summary of stone arrangement classificatory system showing attribute (type) categories. A total of 4 'Figurative' attributes and 30 'Non-Figurative' attributes were Determinate. 1 attribute (unknown) was Indeterminate (n=35 in total).

Lizard Island Group Stone Arrangements

A comprehensive database was assembled on the six stone arrangement site complexes reported in the LIG. Data were drawn from an exhaustive review of reports (Mills 1995a, 1995b; Specht 1978), publications (Lentfer et al. 2013; Robertson 1981; Waterson et al. 2013), and unpublished theses and fieldwork diaries (Mills 1992; Ulm 2013). Ethnographic and ethnohistoric records (Brierly 1849 cited in Moore 1979; Macgillivray 1852) were also examined and provided background information on socio-cultural aspects of the stone arrangements.

Jim Specht (1978) from the Australian Museum conducted a five day archaeological survey of Lizard Island in 1978 and recorded four stone arrangement complexes. Robynne Mills (1992, 1995a, 1995b) conducted archaeological fieldwork over two seasons in 1992, and later consultancy work, across the LIG and produced a thesis and two reports. Mills recorded four major stone arrangement sites, three of which matched up with those identified by Specht. In 2013, Sean Ulm (2013) recorded more extensive stone arrangements at the North Point site complex and a new site complex on Palfrey Island.

Jim Specht supplied the original 1978 Australian Museum archive folder of slides and prints for this study, comprising 151 Kodachrome slides, 68 black and white prints (210 mm x 160 mm), four proof sheets (containing 135 thumbnails), and one catalogue of photographs. High resolution scans of the slides, prints, and proof sheets were undertaken and the collection catalogued with reference to Specht's original descriptions and the Queensland Government Site Index Forms. Photographs from the 2013 field season were also supplied by Sean Ulm, Simon Coxe, and Ian McNiven (Monash University).

Stone arrangements within the LIG are located across six site complexes (Figure 1), with a total of 60 stone arrangement attributes identified in the analysis (Table 1, Figure 4). All are located on exposed headlands or high points and overlook the sea (Mills 1992:48). With the exception of a single standing stone on Palfrey Island, all documented stone arrangements in the LIG are located on Lizard Island. The lowest number of attributes recorded at any one site was one and the highest number was 25 at North Point. North Point also had the highest number of attribute types (n=6). A lower quantity of stone arrangement attributes was recorded at Cooks Look (n=9) and Lizard Head (n=7) on Lizard Island. Cairns less than 1m high (n=25) dominate the stone arrangement attribute type.

Table 1. Overview of Lizard Island Group stone arrangements by location showing number of sites complexes, number of attributes and number of attribute types.

Site Name	Location	No. of Sites	No. Attributes	No. Attribute Types
Casuarina Beach	LIG	1	17	3
Cooks Look	LIG	1	9	5
Huxleys Hump	LIG	1	1	1
Lizard Head	LIG	1	7	4
North Point	LIG	1	25	6
Palfrey Island	LIG	1	1	1
Total:		6	60	

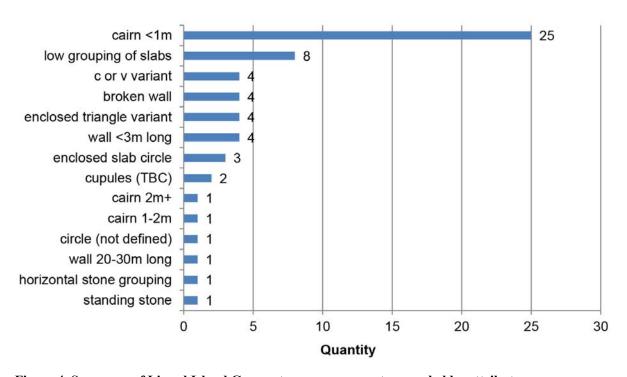


Figure 4. Summary of Lizard Island Group stone arrangements recorded by attribute.

Table 2. Overview of results by region showing attributes and number of attribute types.

Attributes	LIG	CYP	TSI	SWP
			10	
animal effigy arrangement			10	
animal effigy stone			7	
broken wall	4			
c or v variant	4			17
cairn <1m	25	25		
cairn 1-2m	1	2		
cairn 2m+	1			
capstone				34
circle (not defined)	1	2	1	1
circle <1mø			9	
circle 1-2mø			8	
circle 2-3mø		7		
circle (3m+ø)		3	2	
complex structure			2	3
cupules	2			
cylindrical/turret-like cairn			5	
enclosed slab circle	3			
enclosed triangle variant	4			
fallen slab				2
horizontal stone grouping	1			
linear			8	
low grouping of slabs	8			
mound standing stones			1	
painted/coloured stone			2	
rectangular arrangement				10
rectangular beach rock slab				2
rectangular enclosure				1
standing stone	1			45
stone/coral arrangement			3	
stone/stalactite/coral slab				3
stone-bone-shell mound			25	
unknown				2
wall <3m long	4			
wall 20-30m long	1			
water holding stone				2
(Ødenotes diameter)				_
Footnote	(1)	(2)	(3)	(4)
(1) Brierly 1849 cited in Moore 1979: Lentfer			\ /	

⁽¹⁾ Brierly 1849 cited in Moore 1979; Lentfer et al. 2013; Mills 1992, 1995a, 1995b; Macgillivray 1852; Robertson 1981; Specht 1978; Ulm 2013; Waterson et al. 2013.

⁽²⁾ Ashmore 1844, cited in Brady et al 2013; Brierly 1849 cited in Moore 1979; Jukes 1847; Macgillivray 1852; McIntyre-Tamwoy and Harrison 2004; McIntyre-Tamwoy 2011; McIntyre-Tamwoy et al. 2015; Thomson 1933, 1934.

⁽³⁾ Ash et al. 2010; Coleman 1985, 1990 cited in Brady et al. 2013; Brady et al. 2013; Carter 2006; David et al. 2004; David and Mura Badulgal 2006; David et al. 2009; Haddon 1904, 1908; Harris and Ghaleb Kirby 2015; Lawrie 1970; Stokes 1846 cited in Brady et.al 2013; Wright 2011; Wright et al. 2013)

⁽⁴⁾ Austen 1939; Bickler and Ivuyo 2002; Damon 1979; Leavesley and Mandui 2004; Ollier and Pain 1978; Riesenfeld 1950; Sheppard et al. 2004; Terrell 1986; Thomas et al. 2001.

Cooks Look Complex - Lizard Island

Nine attributes were recorded at the stone arrangement complex at Cooks Look, located near the highest point (370m) of Lizard Island (Figure 5). Stone arrangements are differentiated from 'way indicator cairns' constructed to mark walking tracks by the National Parks and Wildlife Service by being less rounded (i.e. quarried), with in situ patina and erosion extending across the stone surfaces (Mills 1992:56). Specht (1978:4-5) suggests that the tallest cairn (2m) that has a visitor's book attached to a stake (Figure 6) would be the original, or possibly made up from the, 'pile of stones' that Brierly and his men disassembled in 1848. The 20-30m long wall (5–10m wide) recorded at Cooks Look (Figure 7) is on a roughly northeast-southwest alignment and consists of boulders of several various sizes piled together (Specht 1978:12).

In discussing the dominant c or v variants (Figures 8-10) at Cooks Look, Specht (1978:11-13) records they are irregular in plan with a flared entrance that opens towards a cleared area marked as a 'dancing ground' on the Department of Aboriginal and Islander Affairs (DAIA) map. Specht likens the cleared area to a natural amphitheatre that slopes towards the north before dropping sharply to dramatic views of the ocean (Specht 1978:12–13). The orientation of the opening of the c and v variants are north (Mills 1992:116).

Specht (1978:12) speculates that the c or v variants are unlikely to be shelters 'since there is no evidence that the walls were built up higher than they are now, in which state they do nothing to reduce the wind'. Indeed, Joseph Banks' 1770 observations indicate that Aboriginal people were living in huts situated in elevated positions on Lizard Island. He recorded on his visit on the 12 August 1770 that:

we saw 7 or 8 frames of their huts and vast piles of shells the fish of which had I suppose been their food. All the houses were built upon the tops of Eminences exposd intirely to the SE [winds], contrary to those of the main[land] which are commonly placd under the shelter of some bushes or hill side to break off the wind (Banks 1962[1770]:103).

Archaeological investigation of similar-sized stone enclosures such as those found on High Cliffy Island, in the Kimberley region, indicates that dwellings were constructed on the peak of the island and low walls were used to hold down a natural fibrous roof (O'Connor 1987). Clarke (1994) illustrated the difficulties associated with archaeological claims of 'house structures' in her survey of circular attributes, and clusters of circles, in the Lake Condah region of southwest Victoria. She found that ethnohistoric accounts describe the construction of huts consisting of a low stone wall that was roofed with bark and wood. On the impenetrable lava flow around Lake Condah, stones were used to 'chock' sapling ends and were more like foundations one or two stones courses (50–75 cm) high. The wall-foundation hypothesis is supported by recent excavation of stone houses in the region (Lane 2008; McNiven et al. 2017). C and v variants of similar size are also found on Hardy Island in Eastern Arnhem Land (MacKnight and Gray 1970:28–32).

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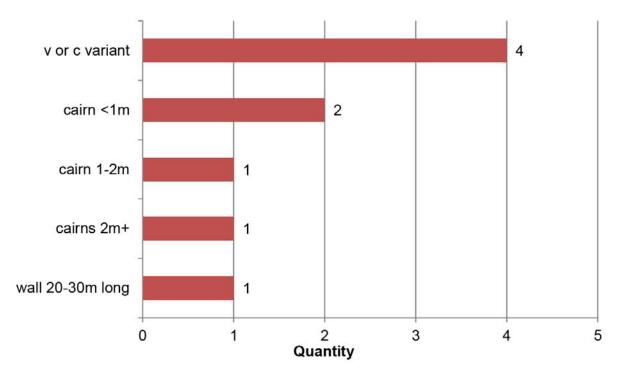


Figure 5. Summary of stone arrangements recorded at Cooks Look Complex.



Figure 6. Tall cairn (2m) recorded at Cooks Look. The cairn has a visitor's book attached to a stake (Photograph: Jim Specht, 1978. Catalogue number: roll_02_004. Frame 4: site 8, main cairn on Cook's Look, with stake, cf. Monochrome Roll 2, frame 4-5).

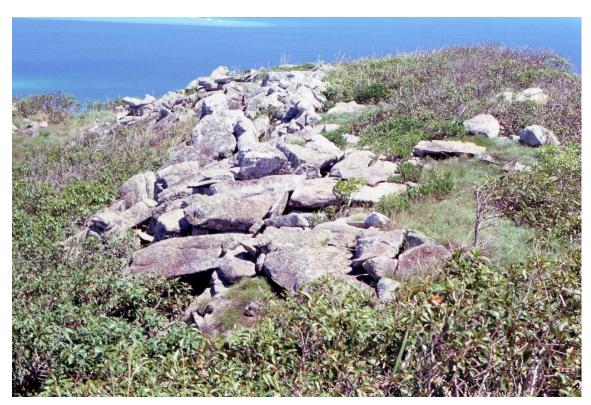


Figure 7. Large wall (20-30m long, 5-10m wide) recorded at Cooks Look (Photograph: Jim Specht, 1978. Catalogue number: roll_02_010. Frame 10: site 8, view along 'wall ' on top of Cooks Look to south, cf. Monochrome Roll 2, frame 10).



Figure 8. Stone arrangement c or v variants located at Cooks Look (Photograph: Jim Specht, 1978. Catalogue number: roll_02_019. Frames 19-29: site 8, stone arrangements on Cooks Look, cf. Monochrome Roll 2, frames 19-29).



Figure 9. Stone arrangement c or v variants located at Cooks Look (Photograph: Jim Specht, 1978. Catalogue number: roll_02_029. Frames 19-29: site 8, stone arrangements on Cooks Look, cf. Monochrome Roll 2, frames 19-29).

North Point Complex – Lizard Island

Twenty-five stone arrangement attributes are found at North Point (Figure 10). Mills (1992:116) likens the complex at North Point to the Cooks Look site based on the similar scope and combination of stone arrangement attributes. The North Point triangle variant (Figure 11) opening faces north on to a rock platform that falls away to the sea which is comparable to similar variants on Cooks Look (Mills 1992:116). Ulm (2013) undertook surveys in May 2013 at North Point and his recordings concur with those of Specht in 1978 at Site 10a-1 (Specht 1978:13–15) (Figure 12). However, Ulm recorded another cluster of stone arrangements (Site Da-f) a few hundred metres further east along the ridge from Site 10a-1 (Ulm 2013:99–100) and recorded another seven features (Sites E–K) slightly southeast of the ridge (Ulm 2013:102–103).

Site E consisting of a series of boulders is of particular interest (Figures 13). Ulm records that on the northwest face of one boulder two distinct circular cupules have been 'pecked' within the red rock patina surface 'to reveal striking white eye like features' (Ulm 2013:102–103).

cairn <1m
low grouping of slabs
enclosed slab circle
cupules
v or c variant

0
2
4
Quantity

9

8

10

Figure 10. Summary of stone arrangements recorded at North Point Complex.



Figure 11. Stone arrangement, Ulm Site C, North Point (Photograph: Sean Ulm, 2013).

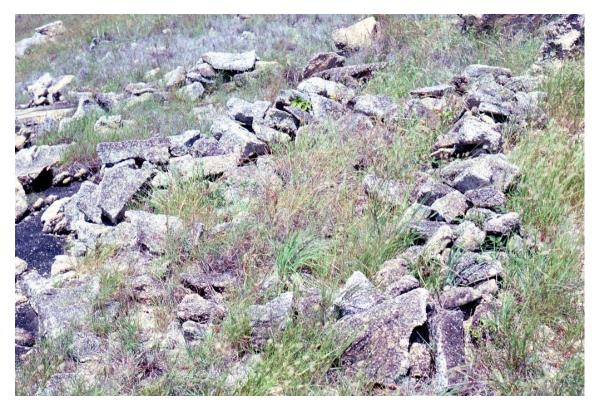


Figure 12. Stone arrangement, Specht Site 10, North Point (Photograph: Jim Specht, 1978. Catalogue number roll_03_015 Frames 4-20: view of stone arrangements at site 10 above Mermaid Cove (cf. Monochrome Roll 3, frames 4-17).



Figure 13. Boulder, Ulm Site E, North Point. Northwest weathered face has two circular cupules pecked into the surface (Photograph: Sean Ulm, 2013).

Lizard Head Complex - Lizard Island

Mills (1992:114) is the only researcher who has recorded the seven attributes at Lizard Head stone arrangement complex (Figures 14-15). Lizard Head complex is located on the southernmost point of Lizard Island. The series of stone arrangement structures that are mostly in a state of collapse stretch for 228.6 m along the headland with the widest point being 5.6 m (Mills 1992:114). All stone arrangements at Lizard Head face the sea with no feature being any more than 50 m from the edge of the headland (Mills 1992:114). The triangle variants (n=3) recorded are enclosed. 'Enclosed' is defined in this study as cases where the shape of the attribute outline is filled with stone. The circle has an interesting 'wall' cutting through it but has been demarcated by Mills as a circle, and categorised in this study as 'a circle (not defined)'.

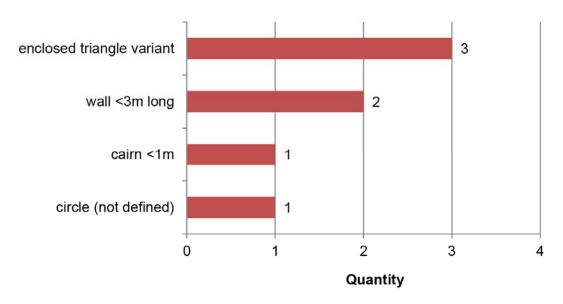


Figure 14. Summary of stone arrangements recorded at Lizard Head Complex.

Stone arrangements Lizard Head

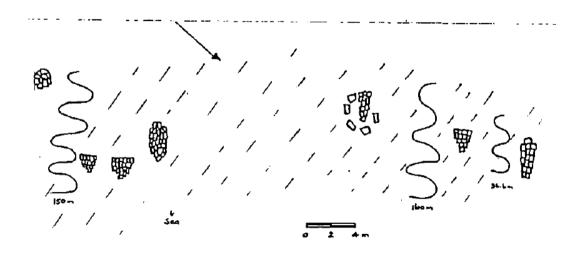


Figure 15. Mill's (1992:Figure 11) diagram of stone arrangements recorded at Lizard Head, .

Casuarina Beach Complex - Lizard Island

Seventeen stone arrangement attributes were recorded at the Casuarina Beach complex (Figure 16). They are located (50m asl) on the surrounding headland and a central rock platform at the northern end of the beach overlooking Palfrey, Lagoon, and South Island and the mainland (Mills 1995b:7–10). The dominant wall structures, interspersed with cairn structures, are aligned in a north-south direction parallel to the sea (Mills 1995b:7-10). Dingaal elder, Gordon Charlie, confirmed that 'this stone arrangement site was associated with the adjacent ceremonial ground', a large granite platform measuring 37.5 m x 35.5 m (Mills 1995b:8). Charlie identified the horizontal grouping of five collapsed pieces of stone (Figure 17) located on the northeastern edge of exposed rock as being 'an *altar* which had significance for initiation and judicial ceremonies' (Mills 1995b:8, original emphasis).

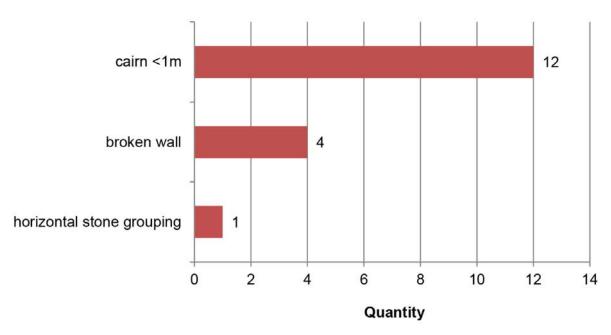


Figure 16. Summary of stone arrangements recorded at Casuarina Beach Complex.

17



Figure 17. Stone arrangement 'altar' on the 'ceremonial' ground, looking southeast, at the Casuarina Beach stone arrangement complex (Photograph: Mills 1995a recorded as Fig 3, 1995a:20).

Huxleys Hump Complex - Lizard Island

Specht (1978:11) recorded a stone cairn located on the north side of Watsons Bay at Huxley's Hump. He comments that the DAIA map had indicated four cairns but must be incorrect as he only observed a small heap of stones of irregular shape.

Palfrey Island

Ulm (2013:94–97) recorded a single granite standing stone 75cm high (Site A) located on exposed granite bedrock approximately 30m above the south facing beach on top of Palfrey Island (Figure 18). Geological advice (Craig Sloss, Queensland University of Technology, pers. comm., 2014) confirmed that a rock of this size and position is a cultural feature that appears to have undergone *in situ* weathering, including oxidation of iron and hydrolysis of feldspars.

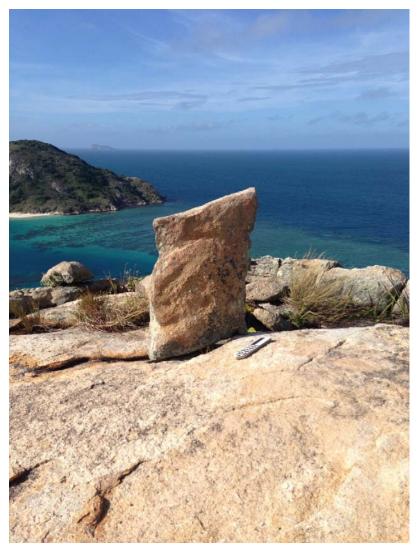


Figure 18. Standing stone, Ulm Site A, Palfrey Island (Photograph: Sean Ulm, 2013).

Regional Comparisons with Cape York Peninsula, Torres Strait, and the southwest Pacific

Comparative stylistic information on stone arrangements was obtained from readily available published literature on Cape York Peninsula (CYP), Torres Strait Islands (TSI), and the southwest Pacific (SWP) (Table 2). Comparative data from CYP was restricted to four coastal site complexes with one being on the mainland and three on offshore islands respectively Evans Bay/Ida Point, Cape York Island, Tree Islet, and two sites at Albany Island. Although 'tourist cairns' were discussed in the data, only Indigenous cairn attributes were recorded. Over 100 arrangements of stone/bone/shell are reported throughout the TSI archipelago (McNiven et al. 2004a:Table 1). However, given that data were restricted to stone and mostly stone arrangements only sixteen TSI site complexes were selected in six TSI site locations that include Mua, Ngiangu (Booby Island), Koey Ngurtai, Boigu, Badu, and Mabuyag. Ethnographic information reveals that stone arrangement sites found in the TSI are associated mostly with 'increase', 'hunting magic', and sorcery rituals and totemic markers (David et al. 2004; McNiven 2004, 2016). Some smaller TSI arrangements include imported stones, mainly from within the TSI archipelago, but in one case the stone is not local and may have come from the CYP (McNiven 2016). Although the SWP region is relatively extensive in

comparison to the other regions, comparative data for the SWP were restricted to a selection of four site complexes. These comprised three from PNG (Milne Bay, Bougainville, and the Trobriand Islands) and a site complex at Roviana in the Solomon Islands and were chosen based on meeting definition criteria and the availability of published descriptions. It should be noted that in the Siwai province of Bougainville (PNG) only one stone attribute type is recorded being capstones (n=34) over various sites (n=11). The capstone type sets Bougainville apart from the rest of the study samples and demonstrates the dominant stylistic attribute of that region.

Three dominant attribute types found in the LIG are 'circles', 'cairns' and 'c or v variant and triangular variant'. Circles are common in the TSI (n=20) and CYP (n=12). The largest diameter circles (3 m+ diameter) are found in the TSI (n=2) and CYP (n=3) although circles (2–3 m diameter) are more numerous in CYP (n=7). Circles with a diameter of less than 2 m are again found in the TSI (n=17) with none in CYP. Slab circles (n=3) were only found in the Lizard Island Group. Cairns are predominantly located in CYP (n=27) and the LIG (n=27) of which the majority are <1 m high. One large cairn (2 m+) is found at the summit of Cooks Look on Lizard Island. However this cairn is thought to be the large cairn recorded by Brierly (Specht 1978:4-5) and may have since been modified by recent tourist visitation so the height could be attributed to visitor use. The cylindrical turret like cairn (n=5) and the stone-bone-shell mound (n=25) have been analysed as cairns and are all located in the TSI. The c or v variant and triangular variant attributes are only found in the SWP (n=17) and on Lizard Island (n=8). Of the eight recorded at Lizard Island they differ as c or v variants (n=4) and enclosed triangle variants (n=4).

Of the individual 60 stone arrangement attributes recorded in the LIG over one-third are cairns (n=27). Cairns of an approximate size and number are also found in the CYP. The appropriation of former 'Indigenous' cairns to be transformed into 'tourist' cairns is evident at both the CYP and at Lizard Island. Ethnographic and archaeological evidence confirms that the large cairn (2 m+) located at the peak of Cooks Look on Lizard Island (Specht 1978:4–5) and those identified at the CYP (McIntyre-Tamwoy and Harrison 2004) have been deconstructed and reconstructed by European explorers in the past and more recently by tourists.

Based on the results of this study we conclude that the stone arrangement attributes and complexes in the LIG may have had multiple cultural influences. The evidence in the ethnographic record and the discovery of exotic pottery from the intertidal zone of Mangrove Beach on Lizard Island has suggested that some/occasional visitors to the LIG may have navigated from further afield (Tochlin et al. 2012). Results of this study demonstrate considerable regional variation in stone arrangement attributes that can be used to support this conclusion. LIG sites fit more with what we know of CYP stone arrangements compared to stone arrangements from the TSI and SWP. There are many similar authorship comparisons between the stone arrangement attributes and complexes of these two regions. In particular it is evident that all coastal stone arrangements in the LIG and CYP are located on exposed headlands or high points that are visible from/towards the sea. They are also constructed from similar materials. Cairns are only found in the LIG and

CYP and cairns that are less than 1 m high dominate the stone arrangement attribute types of both regions. In contrast with the LIG however, no large wall (20-30 m), c or v variants or triangular variants have been recorded in the CYP.

The ethnography of stone arrangements also differs. The journal accounts of explorers describe in detail the material culture and functions of the large circular mounds called agu (turtle hunting look-outs and ritual sites) in the TSI and adjacent mainland of Cape York. In comparison, the ethnographic and ethnohistoric accounts of LIG stone arrangements are limited to details of initiation ceremonies and the account of 'frames of huts' existing in exposed prominent places on Lizard Island. As already highlighted, it is also worth noting that stone arrangements in high contemporary tourist traffic areas have been dismantled and reconstructed.

This study has shown that Figurative stone arrangement attributes (e.g. 'saltwater' animal effigies) recorded only in the TSI, and the archaeological and ethnographic parallels found in the existence of neighbouring turtle hunting lookouts in Cape York, endorses the theory of McNiven and Feldman (2003). They posit that within the Torres Strait Cultural Complex, Indigenous people of northern Australia construct ritualised seascapes to reaffirm a 'saltwater identity', one that engages with marine cosmologies (see also McNiven 2004). In contrast, stone arrangement attribute signatures and ethnographic accounts do not necessarily support a continuity of a saltwater identity model extending to the LIG. Neither is a 'saltwater identity' associated with the SWP stone arrangements which are dominated by capstones (associated mostly with the ritualisation of pigs); standing stones, shrines and megalithic monuments (associated mostly with malevolent ancestors).

This study reveals shared stone arrangement attributes between the LIG and the SWP. The v or c variants, and triangular variants, recorded on Lizard Island (n=8) only occur in one other region included in this study - Kitava (n=17) in the Trobriand Islands of the SWP. Of the eight triangular variants located in the LIG, four are enclosed. Enclosed circle slabs (n=3) also only occur in the LIG. With the exception of only one other enclosed shape (rectangle), found in Roviana in the Solomon Islands (n=1) in the SWP, all enclosed shape variants only occur in the LIG so there could be some significance to this co-occurrence. The stone arrangement referred to as the 'altar', by Dingaal elder Gordon Charlie, located at Casuarina Beach, also shares similarities with the form of a (collapsed) capstone from the Siwai region of Bougainville in Papua New Guinea or of the slabs of the main shrine at Bao, Roviana in the Solomon Islands in the SWP.

Conclusion

This study has demonstrated that an attribute analysis of stone arrangements has the potential to shed light on the authorship of stone arrangements that span a large area entangling different and overlapping cultural complexes. The comparative analysis of stone arrangement attributes has provided a demarcation of regional signatures that has allowed a determination that the stone arrangement attributes and complexes in the LIG express multiple cultural influences. As anticipated, the LIG stone arrangements share attributes of those constructed by Indigenous peoples from the CYP and the TSI. However, the existence of dominant c or v

variant attributes and triangular variant attributes in the LIG, found only in the southwest Pacific, reveal influences from further afield. Recent pottery finds for Lizard Island confirm the plausibility of cultural links between Lizard Island and the southwest Pacific. These findings are consistent with tenets of Barham's (2000) Torres Strait Cultural Complex and McNiven et al.'s (2004a) Coral Sea Cultural Interaction Sphere. Although a wider and more detailed study is required to verify the findings and trends proposed, available ethnographic analyses and archaeological evidence supports the view that visitors from Torres Strait and the southwest Pacific visited the Lizard Island Group. To what extent and on what terms these visitors interacted with local Dingaal people and their ancestors remains to be determined.

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