'Small, individually nondescript and easily overlooked': Contact beads from northwest Arnhem Land in an Indigenous–Macassan–European hybrid economy

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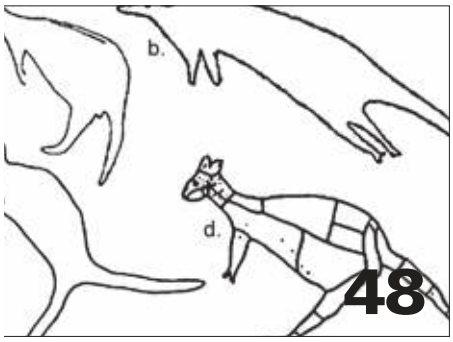

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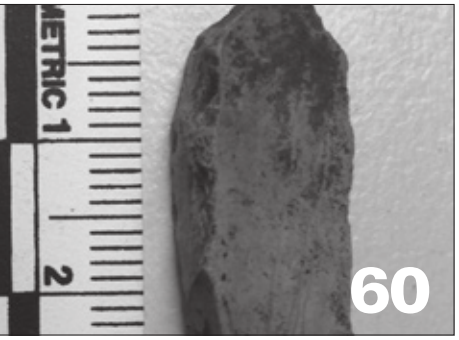

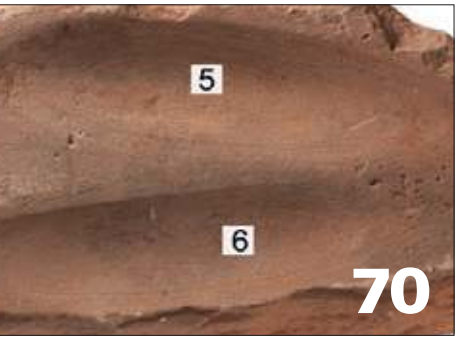

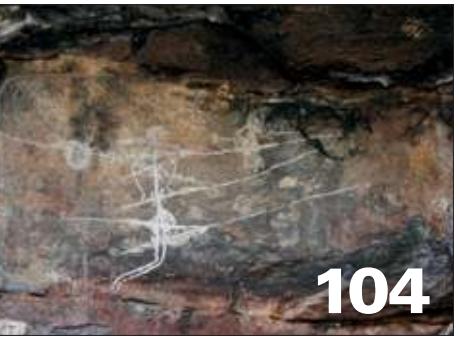

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‘Small, individually nondescript and easily overlooked’[1]:

Contact beads from northwest Arnhem Land in an Indigenous-Macassan-European hybrid economy

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Abstract

This paper examines the interactions between Indigenous traditional owners, Macassan trepangers and European settlers in northwest Arnhem Land, Northern Territory. The recovery of an assemblage of beads from six archaeological sites within the Manganowal estate (Djulirri, Malarrak 1, Malarrak 4, Bald Rock 1, Bald Rock 2 and Bald Rock 3) in the Wellington Range, supports the case for the introduction of these items to Arnhem Land in the pre-Mission era context. We present descriptions of one stone and 28 glass beads/bead fragments and examine the significance of the exchange of these items and how they became incorporated into existing Indigenous cultural systems. This archaeological evidence is assessed in concert with the historical, ethnographic, linguistic and anthropological records. We interpret this within the framework of a hybrid economy between Indigenous people, Europeans and Macassans (Altman 2001, 2006, 2007).

[1] Title courtesy of Peter Francis Jr (1990:19).

Introduction

There is a convenient colonial discourse in archaeology that implies that Indigenous people were passive participants who lacked the ability to negotiate and enforce rules about the nature of their engagements with others. This has sometimes been the case with studies into Macassan trepang fishing in northern Australian waters (Bednarik 2013:42–44). However, many historical examples exist to demonstrate that interaction was conducted on Indigenous people’s own terms and within their own normative traditions (cf. Keen 2010) and research demonstrates that they were far from passive economic participants, developing complex methods of interaction that allowed the maintenance of customary systems. In recent decades Australian archaeology has refocused the assessment of culture contact to avoid ethnocentricity, unidirectional models and colonial bias (cf. McNiven and Russell 2002; Paterson 2010, 2011; Silliman 2001). Currently, the contact period in the NT is considered to occur after AD 1720, with more recent studies suggesting a longer timeframe extending into the 17th century (Clarke 1994; Macknight 1969; Mitchell 1994; Taçon et al. 2010; Theden-Ringl et al. 2011). Previous explorations into the extent and nature of this contact have included studies of economic resources (Clarke 1994; Mitchell 1994), skeletal material (Macknight and Thorne 1968; Theden-Ringl et al. 2011), ceramics (Grave and McNiven 2013) and rock art (May et al. 2010; Taçon et al. 2010; Wesley et al. 2012).

Watson-Andaya (2006:675) noted that an effective means of tracking cultural interactions in history is through a consideration of trade and material culture, though Macknight (2013:27) expressed scepticism that archaeology can answer questions concerning the interaction between Macassan trepangers and Aboriginal people. To investigate this issue, research was carried out by one of the authors (DW) at Anuru Bay (a major trepang processing site) and nearby rockshelter sites in the Wellington Range (Figure 1). Contra to Macknight’s (2013:26–28) position, the recovery of ‘contact beads’ (defined here as those introduced to Indigenous people by settlers or traders) from the Wellington Range sites provides supporting evidence of Macassan-Indigenous-European interactions. Beads are suggested to have comprised just one material culture item in a wider inventory of Macassan-Indigenous-European exchanges (Barrkmann 2010; Blair and Hall 2013:210; Clark and May 2013; MacKnight 1976; Mitchell 1994:98–100; Paterson 2010:168; Powell 1982:35–36); however, to date they have received little attention. In fact, Russell stated that ‘In the absence of unambiguous trade goods (such as glass beads) we are greatly hampered in studying the impact of contact on Australian Aboriginal culture’ (2005:45). Therefore, this study presents a preliminary analysis of the Wellington Range beads, drawing on Altman’s (2001, 2003, 2005, 2006, 2007, 2009) Indigenous hybrid economy model to explore their implications for our understandings of culture-contact in northern Australia.

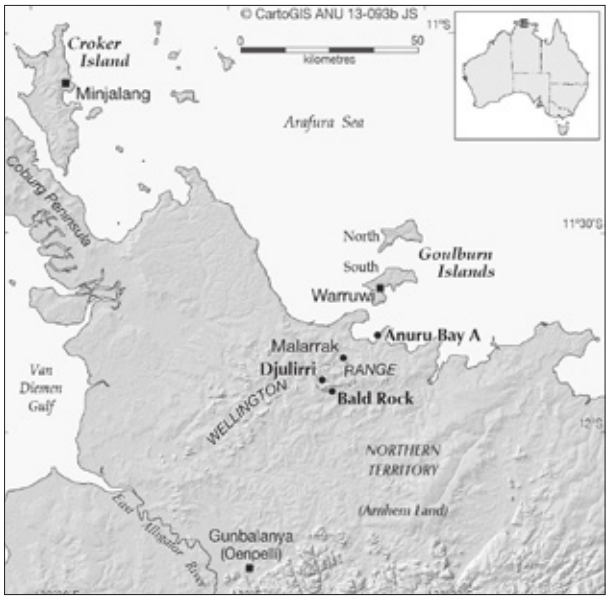

Figure 1 Anuru Bay and other archaeological sites in the Wellington Range, Arnhem Land.

Understanding Exchange: A Hybrid Economy Model for Western Arnhem Land

Various models for examining activity in archaeological contexts have been drawn from anthropological models (see Butzer 1982; Jochim 1976, 1979; Steward 1938, 2006; Thomas 1973, 1989). Altman's hybrid economy model is an 'analytical construct for the assessment of the particularities of any one situation and the linkages between the market, the state and the customary components of the economy' (2006:36). This model has been used to provide a robust explanatory framework for Indigenous culture contact behaviour represented in the historical record (cf. Keen 2010) and emphasises Indigenous customary economic activity and how this contributes to market economic activity. It further highlights the significant contribution made by Indigenous people, which often remains unquantified and unrecognised in assessments of mainstream economies in northern Australia (Curchin 2013:16–18).

Altman's (2001, 2006, 2007) framework is based on a three sector approach consisting of customary, market and state sectors which emphasise the individuality of Indigenous responses. Altman (2006:36) explicitly stated that the linkages and interdependencies that arise between groups are complicated and influenced by market, political and social forces. Therefore, the social, behavioural and economic outcomes for Arnhem Land communities were greatly influenced by their own customary practices in interactions. Although the model is based on contemporary observations, we argue it is equally applicable to the pre- and post-colonial periods (cf. Keen 2010), when customary Indigenous communities interacted with various market (Macassan and European) and state (European) sectors.

Customary Indigenous society is governed by a complex set of beliefs that determine land tenure, kinship and spiritual affiliation. Macassan interests in northern Australia were related to the seasonal exploitation of offshore natural resources, with the need for access to localised onshore areas for processing and limited re-provisioning—it is even possible they considered Australia to be a part of their sphere of influence and therefore that they were entitled to exploit local resources (Macknight 1969; McIntosh 2008). European influences comprised a mixture of state and economic factors, with the imposition of colonial governance and the introduction of settler economies. In addition to each sector being governed by different economic modes, they also displayed very different social, religious, property ownership and governance conventions. These beliefs, rules and desires obviously had a direct impact on how contact proceeded and developed, resulting in a complicated set of circumstances influenced by market, political and social forces that did not result in simple one-way interaction (Altman 2006:36). These interactions correspond to a set of complex phases of contact history, being characterised by several discrete but overlapping periods, each with distinctive material culture and potential economic influences.

The social, behavioural and economic outcomes for Arnhem Land communities during the contact period should result in archaeologically visible economic and behavioural changes. Indeed, this has previously been demonstrated to be the case on the Cobourg Peninsula (Mitchell 1994, 1996) and Groote Eylandt (Clarke 1994) (see also Berndt and Berndt 1954; McIntosh 1996a, 1996b, 2006, 2008; Thomson 1949; Warner 1932, 1937), although the issue of sustained Macassan contact with the same people on an annual basis has not been effectively demonstrated, researched or explained (Peterson 2003). The Wellington Range is a significant research area in which to explore these questions, owing to close proximity to the known trepang processing site at Anuru Bay. Additionally, the Manganowal traditional owners can demonstrate a meaningful connection to Macassan and later European groups in the area, as in the late 19th century, Lamilami's (1974) uncle went to Sulawesi. Lamilami (1974) listed Macassan words used in the Mawng language and several other accounts regarding reciprocity, celebration and interaction between Macassans and Manganowal people. Lamilami's sister, Mondalmi, told of how their father had worked for the Macassans collecting trepang (Berndt 1986).

Macassan Trepangers in Marege: Interaction between Sulawesi and Australia

The nature of the trepang industry in Sulawesi and the exploitation of northern Australian (Marege) stocks of the resource have been discussed elsewhere in detail, and Figure 2 illustrates the region associated with this activity (Berndt and Berndt 1954; Bowdler 2002; Bulbeck and Rowley 2001; Clarke 1994, 2000; Ganter 2003, 2006; Macknight 1969, 1972, 1973, 1976, 1986, 2008; Máñez and Ferse 2010; Mitchell 1994, 1996; Rowley 1997; Russell 2004; Sutherland 2000; Trudgen 2000; Warner 1932, 1937). However, the *timing* of the first Macassan visits to Australia remains debated (see Macknight 1976, 2013; May et al. 2010; Taçon et al. 2010; Theden-Ringl et al. 2011), although it is clear that these visits occurred more frequently from the late 1700s onwards to satisfy the increasing demands from Chinese markets (Macknight 2013). Alongside the extraction of trepang, other opportunistic exchanges involved the transfer of Indonesian products, such as cloth, tamarind fruit, dugout canoes, iron, glass, beads, ceramics, rice and drugs (including alcohol, betel nut, opium and tobacco) and Australian products, including ironwood, cypress pine, sandalwood, pearls, pearl shell, buffalo horns and hawksbill turtle shell (Barrkmann 2010; Blair and Hall 2013:210; Clark and May 2013; Dreyfuss and Dhulumburrk 1980:14–15; MacKnight 1976; Mitchell 1994:98–100; Paterson 2010:168; Powell 1982:35–36).

Figure 2 Island South East Asia and Australia (after Blair and Hall 2013:212; Morwood and Hobbs 1997:198; Russell 2004:8; Sutherland 2000).

Beads made from a variety of materials and from many sources were available in Sulawesi during this period; however, of particular relevance to this research are European glass beads. During the 17th and 18th centuries such beads slowly filtered into the islands (Francis 2002:171). The influx of European beads accelerated in the 20th century, with a total of 69% of beads traded from Singapore in 1922 being of European origin. The influx of Czech products contributed to this proliferation, and there was also an increase in the supply of Japanese beads (Francis 1996:4, 2002:171). Though not considered prestige items in Sulawesi (David Bulbeck pers. comm. October 2013), glass beads were incorporated into local material culture, particularly head-dresses consisting largely of drawn glass beads worn ceremonially by women (Departmen Pendidikan dan Kebudayan 1997:124, 165, 221). Other beaded materials of relevance that were present throughout South East Asia included necklaces and belts (Departmen Pendidikan Nasional, Bagian Proyek Pembinaan Permuseuman Irian Jaya 2000:12; Departmen Pendidikan dan Kebudayaan 1997:16).

While beads are often included in the lists of commodities that Macassans brought to Arnhem Land (e.g. Altman 1979; Berndt 1951; Berndt and Berndt 1954; Breen 2008; Clark and May 2013; Dewar 1995; Macknight 1972; McCarthy and Setzler 1960; McQueen 2010; Mitchell 1994, 1996), the original sources for these claims appear to be Indigenous oral traditions cited by a handful of early ethnographers, most notably Thomson (1949), Warner (1932), and Berndt and Berndt (1954). The first explicit linking of beads with Macassans in the ethnographic literature was by Thomson, who visited Arnhem Land in 1932 and indicated that beads, belts and string were initially introduced by Macassans (Thomson 1949:86). Mitchell (1994:115) conducted a review of the 19th century literature and could not find any direct European observation of a trade in beads or the use of beads by Macassans to gain access to marine territories and for labour exchange in northern Australia. Indeed, the lack of historical evidence for any such labour exchange was clearly demonstrated in the Croker Island Native Title claim (Peterson 2003).

Examining the linguistic evidence provides clues to the nature of the Macassan trade in beads. The presence of the Makassarese words for bead, '*manik-manik*' and jewellery, '*manimani*', as loan words in Arnhem Land Aboriginal languages in the form of '*mani mani*' (bead) and '*ammanimani*' (necklace), suggests a potential Macassan introduction or exchange (Evans 1992:76). This linguistic evidence is probably the strongest indicator that glass beads or beaded necklaces and chokers were brought to Australia from Sulawesi.

Indigenous Use of Beads in Australia: Continuing Traditions and Material Transitions

It is important to emphasise that the introduction of beads in the contact period did not occur in a material culture vacuum in Australia, as the use of such items for personal adornment has a Pleistocene antiquity (Balme and Morse 2006; Feary 1996; Habgood and Franklin 2008, 2011; Hiscock 2008; McAdam 2009; Morse 1993; Pretty 1977). The earliest known evidence for such comes from the Mandu Mandu Creek rockshelter in the Cape Range Peninsula, Western Australia (WA), where *Conus* sp. beads were found in layers dated to >32,000 bp (Morse 1993). Ten tusk shell beads (of the families Dentaliidae, Fustiariidae and Laevidentaliidae) were also found at Riwi in the Kimberley, WA, where they were associated with deposits dated to approximately 30,000 bp (Balme and Morse 2006). These beads were distributed hundreds of kilometres inland, strengthening the argument that they were significant (Balme and Morse 2006). Late Pleistocene bead evidence has also been established from Devils Lair, with three macropod bone beads recovered from layers dated from between 12,000–19,000 bp (Dortch 1979:39; 1980). Bead use continued during the Holocene (Habgood and Franklin 2008; Pate 2006). McAdam (2009:97–102) also discussed the likelihood of beaded objects being depicted in Australian rock art, citing several examples from the Kimberley through to Arnhem Land, though none were dated. Similarly, Chaloupka (1993:233) documented stencils of objects in Arnhem Land rock art that he posited were likely to be necklaces or choker type objects.

The ethnographic record also reveals information concerning more recent usage of organic beads. Based on examination of objects from museum collections McAdam (2009:227, 353) reported that organic beads were made from shell, bone, grass, reeds and teeth in the 19th and 20th centuries. She (2009:382) also concluded that beaded items were multifunctional, dependent on kinship, gender and age, and were part of a complex customary value and status system. Contemporary Indigenous production of beads continues to utilise the same resources as documented by McAdam (Simak 2007). Simak (2007:5) provided a long list of contemporary materials, including a high diversity of different species of shells, grasses, reeds, plant seeds, nuts, dried fruit and vertebrae. Simak (2007) revealed that necklaces made from these beads were afforded a very high level of traditional significance across many Indigenous groups. Thus, beaded items have had profound traditional significance in Aboriginal culture from the Pleistocene to the present.

Early European interactions were noted to involve the exchange of beaded items, which likely became incorporated into the aforementioned material culture framework. One such prominent example included James Cook, who left

beads, ribbons and cloth in exchange for taking 40–50 spears from an abandoned hut (Pearson 2005:61). Birmingham (1976:314–315) reported finding a number of glass beads at Wybalenna mission, as did Brockwell et al. (1989) at the Ooldea Soak and mission site (South Australia). A cache of blue glass beads was reported to be eroding from the chest area of a burial from Snaggy Bend on the central Murray River (Clark and Hope 1985:71). Megaw (1993:9) reported the find of a single blue glass bead from the uppermost levels of the main Curracurrang rockshelter in New South Wales (NSW) and speculated that this may have been given to local Aboriginal people by the explorers Bass and Flinders in 1796 (Anon 1963:6). Otherwise, according to Hardy (1998:40–41), there were no continuous 'cultural markers', or traceable artefact types, such as beads, for the majority of Aboriginal people in the Sydney region. Birmingham (1976:314–315) thus far is the only source that has linked introduced glass beads to a pre-existing customary context, relating their use to the traditional threading of shell beads. With the exception of the larger finds at Wybalenna, Snaggy Bend and Ooldea Soak, there has been little reporting of glass beads from post-contact Indigenous archaeological contexts, which could in part be due to their being recorded broadly as 'small finds', or their not being captured in sieve residues as a consequence of their size.

Contact Beads in the NT and Arnhem Land: History, Ethnography and Archaeology

The earliest historical reference to contact beads in the NT that we have been able to locate dates from 1705, when the Dutch vessels *Vossenbosch*, *Nova Hollandia* and *Wajer* explored the Tiwi Islands, reporting that the locals 'appeared to be very greedy after linen, knives, beads and such knick-knacks' (Forrest 1995:16). However, the majority of evidence for beads in western Arnhem Land derives from late 19th and early 20th century ethnographic sources and collections. Baldwin Spencer's forays into Arnhem Land in 1912 resulted in many relevant photographs, including one of an Iwaidja man (from the Coburg Peninsula) wearing a beaded necklace with diamond designs, while others illustrate men wearing multistrand bead necklaces (Welch 2008). Similarly, during the 1880s many of Paul Foelsche's (Sub-Inspector of Police) photographs of Indigenous people from Darwin, the Tiwi Islands and western Arnhem Land show them wearing beaded items (Wells 2003:16). However, Spencer considered that the use of European materials in Indigenous production 'spoil[ed] … originally simple but beautiful native work' (Welch 2008:186). Consequently, as noted by Simak (2007), such items may have been deliberately ignored, or at the least been considered un-noteworthy, by early anthropologists and ethnographers.

There are scant references to the local use of glass beads as a trade item by Europeans. While in 1878 a local newspaper reported that local merchants Mander and Barlow could import and supply beads in Palmerston (later Darwin; Anon. 1878), we could find no further newspaper references to the sale or supply of beads. Yet there are many records demonstrating that Aboriginal people were being paid for their labour in flour, tea, sugar, cloth, tobacco, knives, tomahawks, fishing lines and blankets (Dewar 1995:13; McKenzie 1976:10; Webb 1938:61).

Hamby (2011:513) documented museum collection items that used introduced materials, such as coloured wool, buttons, beads and cloth. She found that these were sometimes incorporated into traditional 'biting bags', such as the western Arnhem Land biting bag with beads collected in 1918 from Gunbalanya (Oenpelli) (Hamby 2011:513). Further evidence of the use of beads in early 20th century material culture from the Tiwi Islands and western Arnhem Land includes beaded objects (necklaces, headbands and chokers) in the British Museum, donated by Jessie Litchfield between 1925 and 1930 (Figure 3).

Figure 3 Part of the glass beaded headband and necklace collection from the NT sourced between 1925 and 1930 by Mrs Jessie Litchfield and now held at the British Museum (AN1163861001).

Allen (1969, 2008) suggested, from his archaeological investigations at Port Essington, that the typical contact items in Arnhem Land Indigenous sites should include metal, tobacco and matchbox tins, metal fragments, lead shot, bullets and casings, clay pipes, buttons, glass and some ceramics. But, despite numerous excavations, there has been little reporting or discussion of contact period artefact assemblages from stratified deposits (Table 1 and Figure 4).

Schrire (1982) excavated five sites in the western Arnhem Land plateau region and recovered glass, iron fragments, beads, cloth and some miscellaneous contact items from three, with beads only found in the sites in the southern gorges rather than in sites more exposed to European contact (i.e. Oenpelli mission and near buffalo shooting areas of the northern floodplains). She recovered three glass beads from the top 5 cm of Jimeri I (from a 13 m^2 excavated area) and 30 glass beads from the top 10 cm of Jimeri II (from a 22 m^2 excavated area) (Schrire 1982:152, 196–197); however, analysing contact artefact assemblages was outside the scope of her interpretations. Mitchell (1994:176, 213) reported a variety of contact items from middens on the Coburg Peninsula and surrounding islands, and noted 'clay' beads amongst the artefacts recorded at the Irgul Point shell midden. On Groote Eylandt and Bickerton Island, Clarke (1994:134) found low densities of earthenware pottery sherds, blue pattern glazed ware, white ceramics, glass fragments, iron fragments, two pieces of bronze and three glass beads. On Groote Eylandt, single beads were recovered from both Makbumanja (an open shell midden) and Marngkala Cave (rockshelter) (Clarke 1994:134, 296). A single bead was also recovered from Aburrkbumanja (a midden complex) on Bickerton Island (Clarke 2000:156). All three were of red glass, and were oblong in shape, reflecting a low diversity and abundance of beads represented in this

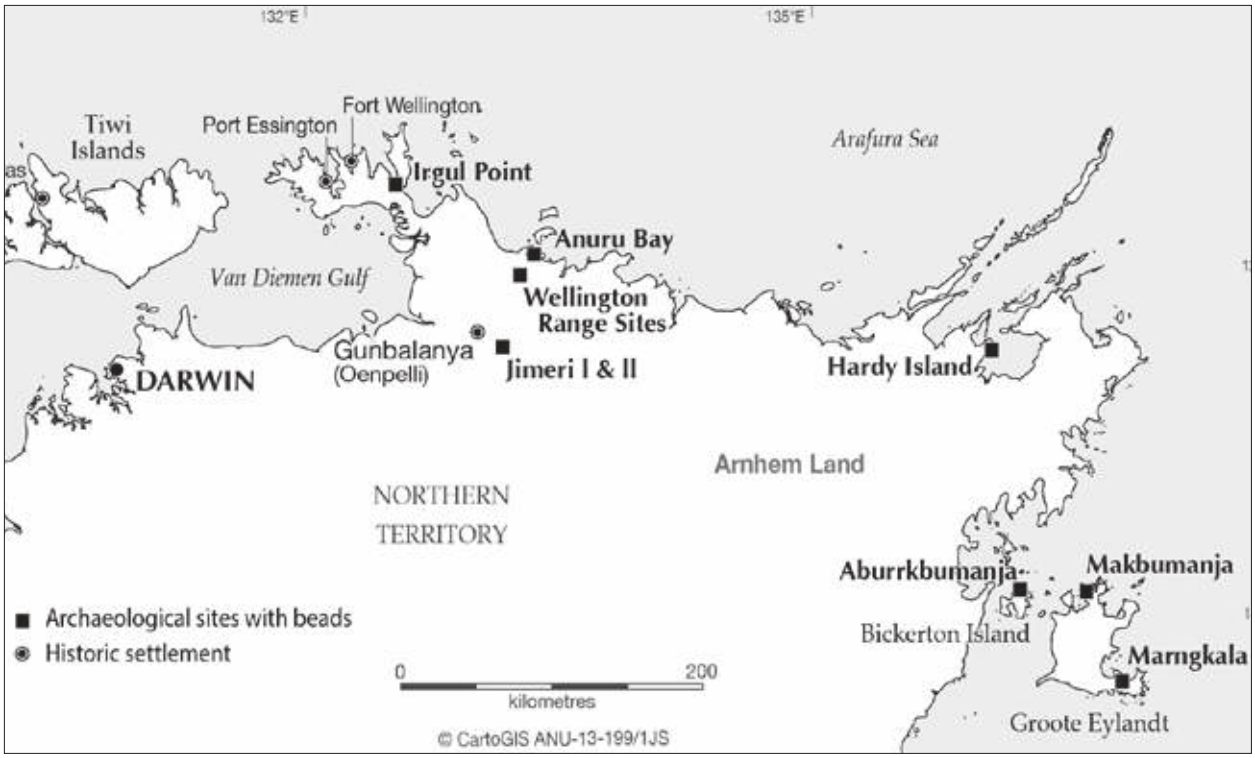

Figure 4 Historical places referred to in the text, and archaeological sites with glass beads (after Clarke 1994; Macknight 1969; Mitchell 1994; Schrire 1984).

Site	Number of Beads	Depth Below Surface (cm)	Laboratory Code	Uncalibrated Date BP	Sample Depth Below Surface (cm)	Source
Jimeri I	3	0–5	GAK-630	230	0–5	Schrire (1982:152)
Jimeri II	30	0–10	N/A	N/A		Schrire (1982:196)
Irgul Point Site 25	Unknown number of clay beads	Surface	N/A	N/A		Mitchell (1994:213)
Makbumanja	1 x red glass	0–2	ANU-8321	710±60 *Atactodea striata*	13	Clarke (1994:174–175)
Marngkala Cave	1 x red glass	0–12	ANU-8316	350±60 charcoal	12	Clarke (1994:293–295)
Aburrkbumanja	1 x red glass	4–8	ANU-8328	420±60 *Tapes hiantina*	17	Clarke (1994:404–405)

Table 1 Bead data from archaeological sites in Arnhem Land.

area. Clarke (2000:156–157) interpreted all three sites as being occupied in the Macassan period (>1700 to 1907 AD), with use of Marngkala Cave and Aburrkbumanja continuing into the mission period (post-1920 AD). Macknight (1969:315) recovered three green, one yellow and one blue glass bead from the Anuru Bay site and another white bead from a trepang processing site on Hardy Island, though he did not speculate on any of the beads' ages or functions.

While excavations at the Anbangbang rockshelter produced some glass and metal fragments from the surface levels, no beads were reported to have been recovered from this site, nor from Djuwarr 1, Nauwalabila 1 or open sites along the South Alligator River (Jones 1985). Allen and Barton (1989) reported no beads or recent contact artefacts from excavations at Narradjg Warde Djobkeng. Other post-contact sites investigated by Mitchell (1994) in association with the establishment of Fort Wellington and Victoria settlement at Port Essington, ca 1820–1840, included the Minto Head shell midden. Both Allen (1969) and Mitchell (1994) assessed this site as being occupied in two phases: initially at the time of Port Essington (1840s) and then later in the 1890s. None of the artefacts recovered included beads (Mitchell 1994:204). Collectively, this evidence suggests, albeit via an absence of evidence, that beads were not part of the European and Indigenous trade economy in the early 19th century.

Beads from the Wellington Range: Methodology, Results and Interpretation

Archaeology of the Wellington Range Bead Assemblage

The study area is located in northwestern coastal Arnhem Land, where an outlier of the Mamadawerre Formation forms the Wellington Ranges, incorporating the offshore Goulburn Islands, with King River constituting the area's major drainage system to the east (Figure 1). Owing to its proximity to the major trepang processing site at Anuru Bay (see Macknight 1969, 1976) and the abundant rockshelter sites found in the nearby sandstone range (Chaloupka 1993),

current research has focused on the central Wellington Range within the Manganowal traditional owners' estate.

Malarrak 1, Malarrak 4, Djulirri (also known as *Djurrirri*), Bald Rock 1, Bald Rock 2 and Bald Rock 3 (also known as *Maliwawa*) are located at varying distances (12–20 km) from the major Anuru Bay site and are approximately 140 km from the Port Essington outpost. Malarrak 1, Malarrak 4 and Djulirri are sandstone overhangs on upper rocky scree slopes with substantial cultural deposits; they also contain a large corpus of rock art with Macassan imagery. Bald Rock 1, Bald Rock 2 and Bald Rock 3 are shelters at the base of outlier sandstone outcrops on the sandy plains, with deep cultural sediments. The Malarrak sites are the northernmost rockshelters along the Wellington Range, Djulirri is located in its central western portion and the Bald Rock sites are found on its southern margin.

Excavation utilised standard techniques and was undertaken to establish a general occupation sequence for the region, with specific reference to establishing the post-contact material culture sequence. Excavation was conducted in 1 m^2 units using 2 cm spit depths. Documentation of each excavated square involved sediment descriptions, Munsell chart colour identification of sediments, pH testing, end unit sketches and photographs, followed by stratigraphic drawing of sections. During the excavation any exposed in situ artefacts and charcoal samples for radiometric dating were individually recorded with X, Y, Z measurements (cm) and bagged separately. Sediments were screened through nested 6 and 3 mm sieves for laboratory sorting.

A total of 30 beads/bead fragments were recovered from the surface and excavated contexts. Of these, 12 were from a 6 m^2 surface collection at Djulirri, four were from a 10 m^2 surface collection at Malarrak 4, and the remaining 14 were recovered from 1 m^2 test excavations at Malarrak 4 and Bald Rock 1, 2 and 3 (Table 2). Another bead was also recovered in Stratigraphic Unit 1 (SU 1) from Malarrak 1 (Sq25 XU6); however, it was misplaced during transportation and thus is not included in this analysis beyond Table 3, where it has been included to assist in establishing the assemblage chronology. Excavated beads were found either on the surface or in the uppermost 15 cm (i.e. SU 1) of every site, and were all associated with other contact materials. No beads were found in deeper units lacking other contact artefacts. In all sites, SU 1 was uniformly dark greyish brown, organic and charcoal rich, and comprised very fine-grained, well sorted silt and sand grains. Figure 5 is the south wall section drawing of SqG25 from Malarrak 1, which illustrates the context of SU 1 that was replicated in every excavated deposit.

Charcoal samples from SU 1 were submitted for dating from Malarrak 1, Malarrak 4 and Bald Rock 1 (Table 3). Beads were recovered from excavation units above, within and below some of the dated units (Table 3). Dates were calibrated using OxCal 4.2.2. As shown, an outlier date from the Malarrak 1 Sq25 XU6/3 sample (NZA32470) returned a calibrated date of 1436–1490 cal AD, whereas generally the other dates were within the 18th and 19th centuries, with the most recent age determination being 1921 AD (Table 3). Figure 6 shows the calibrated distributions, illustrating the difficulties that occur in dating post-1700 AD samples. A range of taphonomic and post-depositional factors, such as animal and insect (termite) burrowing, vertical and horizontal impacts from climate, and anthropogenic influences are reported to have an impact on NT archaeological sites (cf. Bourke 2000; Brockwell 2009; Gregory 1998; Guse 2006; Mowat 1994, 1995). Any of these mechanisms may account for the transport of small particles of sediment and charcoal, and even possibly artefacts, up or down through deposits. Therefore, larger pieces of in situ charcoal were selected for submission for AMS dating. Despite this precaution, there

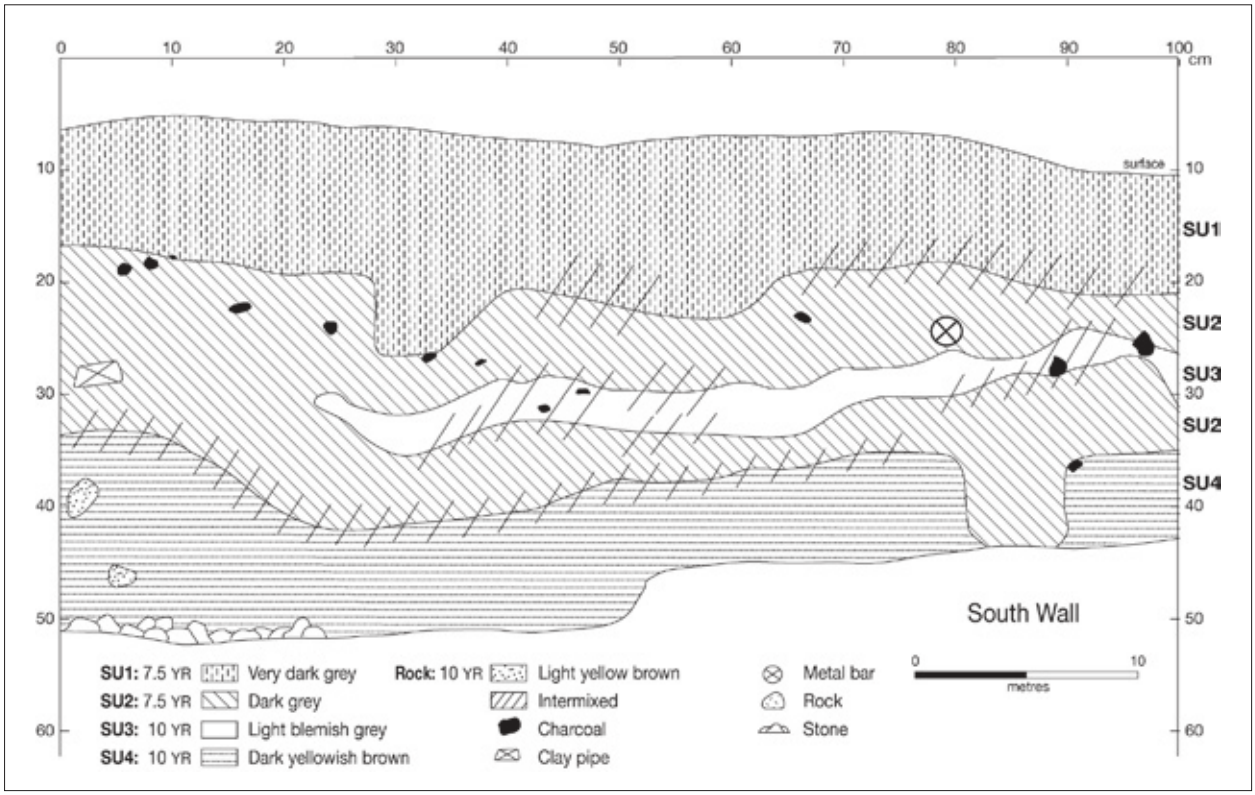

Figure 5 South wall section drawing of Square G25 at Malarrak 1.

may have been vertical movement that has influenced the return of the older date obtained from sample NZA32470.

Malarrak 1 proved to have the most severe post-depositional issues regarding site integrity. It became apparent by XU12 that there were at least five post-hole features in the northwest quadrant of SqG25. These were indistinguishable in the very dark grey to dark grey charcoal rich sediments of SUs 1 and 2 until the excavation reached the light brownish yellow sediments of SU 4 (Figure 5). There is strong ethnographic evidence that the post-holes were the result of the construction of burial platforms during the final phase of site use in the post-contact period, as recorded by Poignant (National Library of Australia 5396-298, 5396-299 and 5396-300) in 1952. This particular post-depositional disturbance context is unique to Malarrak 1. All beads were recovered later during laboratory sorting of the 3 mm sieve residues. As the bead from Malarrak 1 was not recovered in situ, we cannot determine whether it was located within areas of the excavation associated with the post-hole disturbance. Therefore, we cannot exclude the likelihood of vertical movement of this artefact. Likewise, the sample that returned a date of 1436–1490 AD was taken from the northwest corner of SqG25 in the concentrated area of post-holes where there was the highest likelihood of vertical movement (Table 3). Owing to the invisibility of these post-hole features in SU 1, we must treat any association of radiocarbon dates with cultural materials cautiously. These post-holes highlight the issue that Indigenous use of rockshelter sites can cause disturbance to the cultural deposits, which in turn can create significant interpretation issues. In spite of this, the bead is still located well within the vertical distribution that also contained contact artefacts and was not an outlier in the overall contact assemblage.

Site	Bead ID	Square	Excavation Unit	Depth Below Surface (cm)
Djurrlirri	1–12	1, 2, 3, 4	Surface	Surface
Malarrak 4	13	11	2	1–2
	14	11	3	2–4
	15	11	4	4–6
	16	11	4	4–6
	17	11	6	11–15
Bald Rock 1	18	A1	3	3–4
	19	A1	3	3–4
	20	A1	6	6–7
Bald Rock 3	21	1	2	0–4
	22	1	3	4–7
	23	1	4	7–9
	24	1	4	9–11
Malarrak 4	25–28	5, 10, 11, 12	Surface	Surface
Bald Rock 2	29	1	2	12.5
Malarrak 1	30	G25	6	11.5–15

Table 2 Summary of stratigraphic information for beads from the Wellington Range archaeological sites.

Bead Classification Methodology

Owing to the lack of published contact beads from archaeological contexts, our methodology draws on the general body of Australian historical archaeological research and international bead classification standards (cf. Allen 1996; Birmingham and Wilson 1987; Casey 2004; Casey and Lowe 2010; Crook 1999; Iacono 1996; Thorp 1990; Varman 2003; Wood 2011). In Australia, historical archaeologists have generally inferred that beads at contact period sites were used for personal use, could be assigned to gender, used in clothing (embroidery), jewellery or in religious practices (i.e. rosary beads) (cf. Allen 1996; Birmingham and Wilson 1987; Casey 2004; Casey and Lowe 2010; Crook 1999; Thorp 1990; Varman 2003). Crook (1999:56–57) and Iacono (1996:20–23) noted that beads could be made from glass, coral, chalcedony, agate, jet, rose quartz, ceramic, metal, shell, wood, bone, faience, ivory and casein. Beads from these studies have generally been classified by shape, material, colour and size (Casey and Lowe 2010; Crook 1999; Higginbotham 1991; Iacono 1996).

For this project, individual beads were counted and photographed, and attributes of manufacture method, raw material, structure, shape, size, end treatment, colour, diaphaneity, lustre and patination were assessed following Wood (2011:68). Some of these results are presented in the following section. In keeping with the intention of standardising and simplifying bead cataloguing, we adopt Wood's systematic method of classification (which built upon those by Beck 1928; Karklins 1985; Kidd and Kidd 1970; Ross 2003). This is essential for maintaining a baseline standard for investigating beads, and is imperative if data are to be used to contextualise results more widely. We aim to further refine the preliminary classifications through the use of chemical characterisation in the future; this will also aid in assigning production sources and dates to the beads.

Sample	S-ANU#	$d^{13}C$	Percent Modern Carbon (pMC)	^{14}C Age	Depth Below Surface (cm)	Cal. AD 95.40%	Highest probability within 95.4% Range	Mean Age Cal. AD	XU Location of Beads
Bald Rock 1, Sq1, XU5	S-ANU 21427	-32.19±1	98.305±0.438	135±40	6–7	1668–1780	41.6%	1807	3/6
Malarrak 1, Sq25, XU6	S-ANU 21412	-35±1	99.188±0.358	65±30	11–15	1810–1921	71.1%	1830	6
Malarrak 1, Sq25, XU6/3	NZA32470	-27±1	94.26±0.210	417±20	11–15	1436–1490	94.0%	1462	6
Malarrak 4, Sq11, XU5	S-ANU 21405	-29±1	97.704±0.458	185±40	0	1720–1819	48.0%	1787	2/3/4

Table 3 Radiocarbon results from Malarrak 1, Malarrak 4 and Bald Rock 1. All samples were charcoal (OxCal 4.2.2).

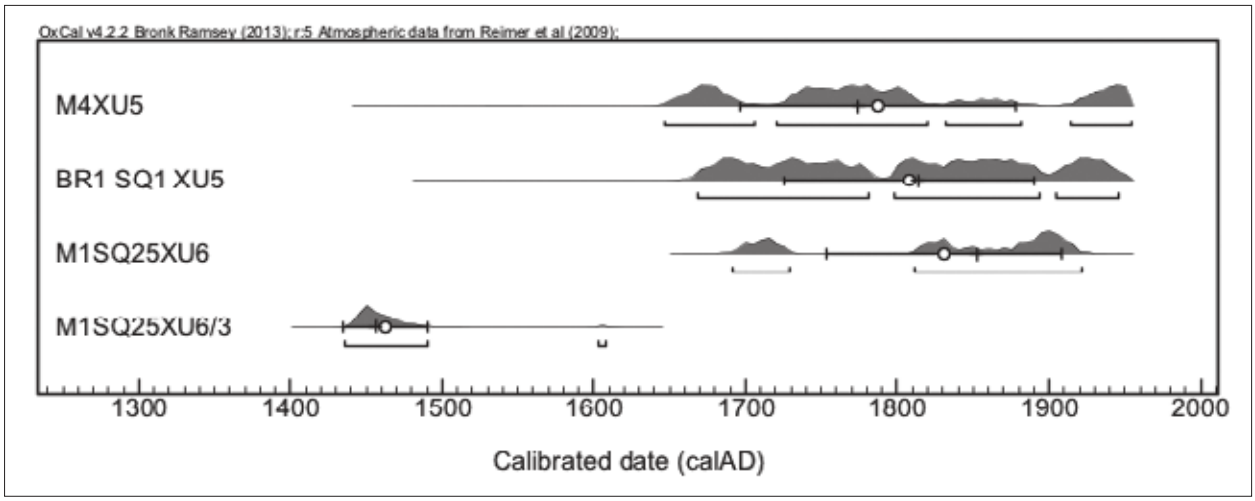

Figure 6 Calibration curve distributions for Malarrak 1, Malarrak 4 and Bald Rock 1 dates; circles indicate mean ages.

Descriptions

Twenty-eight specimens were manufactured from glass, with one made of stone (Table 4). Colour groups were derived from Munsell colours and include blue, green, purple, purple-blue, red, red-purple and yellow, while seven beads are colourless. Diaphaneity recordings show that the largest proportion of beads are opaque, with the remainder being transparent, translucent-transparent or translucent-opaque. Only six beads had patination. This is important to note, as patination is the result of exposure to moisture in the soil, which causes the outer layer to develop a sheen and eventually flake off, and can alter colour and diaphaneity recordings (Lawrence 2006:371). Where beads showed heavy patination, they were moistened to facilitate accurate colour and diaphaneity recordings. Shape-wise, the assemblage included oblate, tubular and spherical morphologies, with one shape—a drip (sometimes called a 'splatter' and a waste product of the bead making process [Francis 1990:15])—being irregular. Beads were divided into very large, large, medium, small and not assessable owing to breakage size classes, determined from bead diameter following Wood (2011:70). The dominant manufacturing technique was drawn, followed by molded, wound and lamp wound, with one example each of blown and carved beads; manufacturing method was not able to be assessed for the drip/splatter. All beads had a simple structure. Lustre was dull on eight beads and shiny on 21.

Using stylistic and comparative analyses, the beads were assigned to preliminary types (Table 4). Large lamp wound/wound beads (Figure 7), seed beads (Figure 8), bugle beads (Figure 9), blown beads (Figure 10), a faceted spheroidal mould pressed bead, a carved stone bead (Figure 11) and a drip/splatter (Figure 12). We have assigned broad categories to likely western European (i.e. Venetian, French and Dutch) and eastern European (i.e. Czech) bead production centres, which we aim to refine further in future through the use of chemical characterisation.

Bead Assemblage Interpretation

Taking taphonomic and post-depositional factors into account, the radiocarbon dates tend to group the bead assemblage strongly within the Macassan and European contact periods. They imply that the beads recovered from Malarrak 1, Malarrak 4 and Bald Rock 1 were very likely deposited at some time after the early 18th century, possibly up to the early 20th century. The two Malarrak 1 dates span a possible period of 485 years. We are not proposing here that the bead from Malarrak 1 is linked to the 1436–1490 cal AD date, but rather that this association is likely the result of post-depositional movement. Bald Rock 1 also demonstrates that a bead with a likely production date of post-1900 can move downwards in a deposit, highlighting the difficulty of dating beads by association, an issue raised elsewhere (e.g. Robertshaw et al. 2014:602). Nevertheless, we argue that the majority of the Wellington Range beads are strongly linked to the post-1800 AD period. This conclusion is supported by their association with other contact materials.

These beads would have become incorporated into the archaeological record via several different mechanisms, i.e. deposited as singular objects, as constituents of a larger material culture item that was traded or gifted to people prior to arrival at the site, and eventually discarded or 'lost', or, alternatively, during the process of bead work at the site. The blue glass drip from Bald Rock 1 (Figure 12) may be an indication of what Francis (1990:15) desribed: i.e. that beads were commonly strung in preparation for export to indicate to the buyer that the product was fit for purpose, thereby increasing their value. However, they could also be sold loose in bulk, allowing for the purposeful or accidental inclusions of drips, splatters or 'knots' in the lot. Their presence at Bald Rock 1 does suggest strongly that bead stringing was occurring there, as such refuse arrives in packages of beads, rather than as strung items (Francis 1990:15). There is no other evidence for contact bead-stringing/work occurring in the Wellington Range, and the only other known bead waste products have been found at Red Lily Lagoon, where the assemblage contained both knots and drips (Wesley and Litster unpub. data). Whilst these refuse materials have not been found in dated contexts, future chemical characterisation of these artefacts aims to refine the chronology for potential contact bead stringing in the area.

The Wellington Range bead types are diverse and could have served a variety of decorative functions. Seed, bugle and blown beads are known to have been used in the production of various objects during the contact period, from simple string necklaces, chokers and embroidery, to complex decorative beaded designs on items such as bags. Owing to the variable uses of these particular bead types and the low sample size present, it is difficult to posit any definitive

Artefact ID #	Interpretation	Method of Manufacture	Size Range	Diaphaneity	Shape	Colour Group	Site and Context	Potential Place of Production	Relationship to Calibrated Radiocarbon Dates Cal AD
1	Wound/lamp wound bead (conjoin #25)	Wound/Lamp Wound	Very large	Opaque	Sphere	Blue	Djulirri, Surface	Western Europe	None
2	Seed bead	Drawn	Large	Opaque	Oblate	Red-Purple	Djulirri, Surface	Western Europe	None
3	Seed bead	Drawn	Large	Opaque	Oblate	Red-Purple	Djulirri, Surface	Western Europe	None
4	Seed bead	Drawn	Small	Translucent-Transparent	Oblate	Green	Djulirri, Surface	Western Europe	None
5	Seed bead	Drawn	Small	Opaque	Oblate	Red-Purple	Djulirri, Surface	Western Europe	None
6	Bugle bead (hexagonal section)	Drawn	Large	Translucent	Tube	Clear	Djulirri, Surface	Western Europe	None
7	Bugle bead (hexagonal section)	Drawn	Large	Translucent	Tube	Clear	Djulirri, Surface	Western Europe	None
8	Seed bead	Drawn	Small	Opaque	Oblate	Yellow	Djulirri, Surface	Western Europe	None
9	Seed bead	Drawn	Small	Translucent-Transparent	Oblate	Purple-Blue	Djulirri, Surface	Western Europe	None
10	Seed bead	Molded	Small	Translucent-Transparent	Oblate	Green	Djulirri, Surface	Eastern Europe	None
11	Seed bead	Molded	Small	Translucent-Transparent	Oblate	Green	Djulirri, Surface	Eastern Europe	None
12	Seed bead	Drawn	Large	Opaque	Oblate	Purple	Djulirri, Surface	Western Europe	None
13	Seed bead	Drawn	Medium	Opaque	Oblate	Red-Purple	Malarrak 4, Sq11, XU2	Western Europe	Above 1720–1819 AD
14	Seed bead	Drawn	NA	Opaque	Oblate	Yellow	Malarrak 4, Sq11, XU3	Unknown	Above 1720–1819 AD
15	Seed bead	Wound	Medium	Translucent-Opaque	Oblate	Purple-Blue	Malarrak 4, Sq11, XU4	Western Europe	Above 1720–1819 AD
16	Stone bead	Carved	Medium	Opaque	Oblate	Yellow	Malarrak 4, Sq11, XU4	Unknown	Above 1720–1819 AD
17	Seed bead	Drawn	Medium	Translucent-Opaque	Oblate	Purple-Blue	Malarrak 4, Sq11, XU6	Unknown	Above 1720–1819 AD
18	Glass 'drip' or 'splatter'	NA	NA	Translucent	NA	Purple-Blue	Bald Rock 1, SqA1, XU3	Unknown	Above 1668–1780 AD
19	Seed bead	Drawn	NA	Opaque	Oblate	Red-Purple	Bald Rock 1, SqA1, XU3	Western Europe	Above 1668–1780 AD
20	Seed bead	Molded	Small	Translucent	Oblate	Red	Bald Rock 1, SqA1, XU6	Eastern Europe	Below 1668–1780 AD
21	Bugle bead (hexagonal section)	Drawn	NA	Translucent	Tube	Clear	Bald Rock 3, Sq1, XU2	Western Europe	None
22	Bugle bead (hexagonal section)	Drawn	NA	Translucent	Tube	Clear	Bald Rock 3, Sq1, XU3	Western Europe	None

Table 4 Wellington Range bead assemblage by interpretation, selected descriptive attributes, potential place of manufacture and relationship to radiocarbon dates.

Artefact ID #	Interpretation	Method of Manufacture	Size Range	Diaphaneity	Shape	Colour Group	Site and Context	Potential Place of Production	Relationship to Calibrated Radiocarbon Dates Cal AD
23	Clear, blown bead	Blown	NA	Translucent-Opaque	N/A	Clear	Bald Rock 3, Sq1, XU4	Western Europe	None
24	Clear, blown bead with end collars	Blown	Medium	Translucent-Transparent	Sphere	Clear	Bald Rock 3, Sq1, XU4	Western Europe	None
25	Wound/lamp wound bead (conjoin #1)	Wound/Lamp wound	Very large	Opaque	Sphere	Blue	Malarrak 4, Sq10	Western Europe	None
26	Seed bead	Drawn	Medium	Translucent-Opaque	Oblate	Purple-Blue	Malarrak 4, Sq5	Western Europe	None
27	Seed bead	Drawn	Small	Translucent-Transparent	Oblate	Purple-Blue	Malarrak 4, Sq11	Western Europe	None
28	Seed bead	Wound	Small	Opaque	Oblate	Yellow	Malarrak 4, Sq12	Western Europe	None
29	Bohemian faceted spheroidal mould pressed glass bead	Molded	Very large	Translucent	Sphere	Clear	Bald Rock 2, Sq1, XU2	Eastern Europe	None

Table 4 continued.

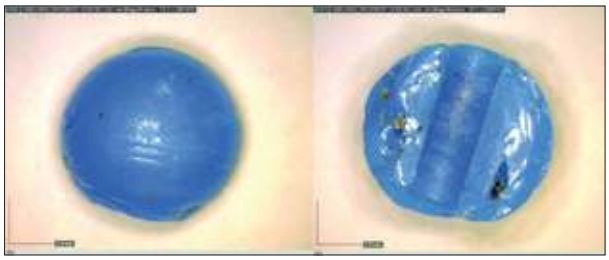

Figure 7 Bead ID1 from Djulirri. This is a lamp wound/wound bead.

arguments concerning what material culture these beads originally belonged to.

Potential inter-site use is also suggested by the bead data. The two blue broken segments of a lamp wound/wound bead from Malarrak 4 and Djulirri (Figure 7) appear to conjoin (ID1 and ID25). The circumstances of how two halves of a single bead came to be deposited at sites separated by 5 km is unknown, but if this is the case it would suggest that both sites were being utilised by the same people. Long-distance exchange of valuable material for personal adornment has been established in Australia (Balme and Morse 2006; McAdam 2009); however, it is also important to consider that the bead manufacturing process could result in stress flaw irregularities, resulting in multiple beads fracturing in the same manner. Therefore, at this stage we are counting these two halves as separate artefacts until the broken faces can be 3D-scanned to determine if they are indeed from the same bead.

The vector for bead exchange is difficult to assign, as with all traded items it is difficult to attribute an agent to one particular exchange. The bulk of the beads present at the sites were oblate, monochrome drawn beads (Figure 8). This type was produced in Europe (France, central Europe

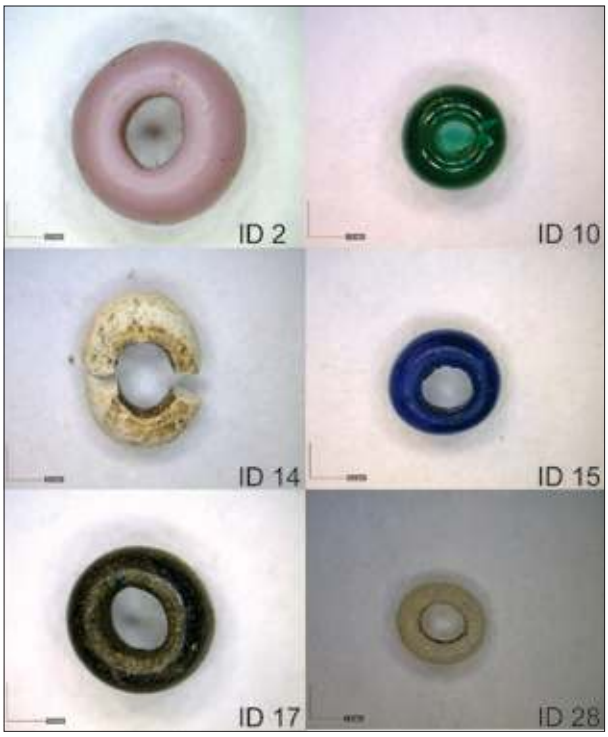

Figure 8 Examples of beads from the Wellington Range: ID2 Djurlirri, ID10 Djulirri, ID14 Malarrak 4, ID15 Malarrak 4, ID 17 Malarrak 4 and ID28 Malarrak 4.

and Venice) in the 19th century in large quantities, and thereafter widely distributed throughout Europe and into South East Asia (Adhyatman and Arifin 1993:89). Small oblate beads and seed beads are the type most commonly seen in the choker necklaces depicted ethnographically from Arnhem Land, but are also commonly found at

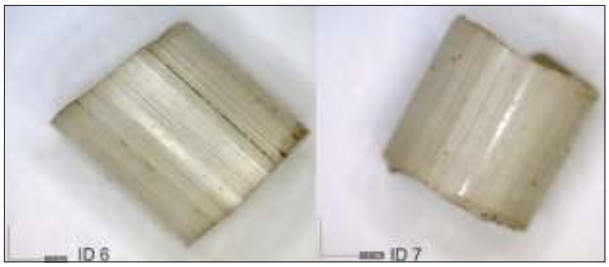

Figure 9 Hexagonal bugle beads (left = ID6; right = ID7) from Djulirri.

Figure 10 Bead ID24 from Bald Rock 3. This is a clear blown beed with end collars.

Figure 11 Stone carved bead (ID16) from Malarrak 4.

Figure 12 Translucent blue 'drip' or 'splatter' (ID18) from Bald Rock 1.

Australian post-contact sites (cf. Allen 1996; Birmingham 1976; Birmingham and Wilson 1987; Crook 1999; Iacono 1996; Thorp 1990; Varman 2003). Therefore, attributing an agent to the exchange of particular European beads becomes a problematic exercise. Additionally, one carved stone bead found at Malarrak 4 (see Figure 11) is not of the local geology (we have tested this bead with HCl and confirmed that it is not limestone). However, the origin of this particular bead and who distributed it is unknown. We can, however, eliminate certain bead types as being introduced via Macassan trepangers. This likely includes molded seed beads, which became incorporated into the South East Asian area post-1900 (Francis 1996:3, 2002:180). Macassan activities along the north Australian coast ceased after Commonwealth legislation forbidding their entry was enacted in 1906–1907; it is therefore unlikely that any molded seed beads found at the sites were introduced via Macassan trepangers. The remaining bead types present at the Wellington Range sites are, however, likely to have been distributed via either Europeans or Macassans.

Discussion

There has been very little previous elaboration on beads from archaeological contexts in northern Australia, where they are mostly discussed as a component of a general corpus of Macassan trade goods used to assign the sites from which they are recovered to broad temporal categories (Clarke 1994, 2000; Mitchell 1994, 1996). In addition to the contribution they can make to chronology building, Mitchell (1996) suggested that introduced trade goods were accorded a high status by Indigenous people and, as such, were immediately traded to other groups. Thus, beads might potentially also reveal significant information about trade and exchange networks.

The research presented here provides an argument that beads formed part of both the Macassan and European culture contact periods. Beads have been found in Macassan trepang processing site contexts and now are clearly shown to be located in nearby rockshelter sites in the Wellington Range. Although there is currently no archaeological evidence of beads from NT mission settlements, we know from previous research from Wybalenna and Ooldea Soak that beads were part of Christian mission material culture assemblages (Birmingham 1976; Brockwell et al. 1989). Missions did not gain a foothold in western Arnhem Land until the establishment of the Goulburn Island mission in ca 1916 and Gunbalunya in 1925. However, ethnographic, historical and archaeological data provide evidence for beads in Indigenous society in both the pre- and early mission era. Accordingly, the mechanisms through which beads have entered Indigenous society are far more complex than a simple interpretation of their having been distributed by missionaries.

We choose to examine these transactions through Altman's hybrid economic model, in which goods entered Indigenous society through a complex means of engagement between differing economies. The fact that Tiwi Islanders were demanding 'beads' from Dutch sailors in 1705 illustrates that these items were already highly sought after in the early 18th century, suggesting knowledge gained from likely non-European sources, i.e. Macassans or other mariners (Forrest 1995:15–16). We suggest that beads, or beaded items, formed part of a repertoire of exchange

items that Indigenous people explicitly sought through their interactions with either Macassan and/or European economies. Altman (2006) contended that this demand was based on the traditional significance that beads held within the Indigenous customary economy. The importance of beaded objects to Indigenous society through to the 20th century is testament to the incorporation of the introduced glass beads into customary practice. Furthermore, it is important to examine the importance of the translocation of beads as illustrated through the potential conjoin of ID1 and ID25 recovered from two different sites. This evidence suggests that, if even half a bead is of customary value, beads could occupy a different 'place' for the traditional owners than they do in Macassan and European economies.

At another level, quantifying bead assemblages in Arnhem Land sites may provide an opportunity to assess the level of non-monetised Indigenous customary practices which contributed to the Macassan and European market economies. It is important to note that material goods were being offered in exchange for labour during the period of state sector interactions with Indigenous people. Labour exchange signifies participation in colonial and maritime economies, rather than simply being gifting behaviour. The presence of beads is not only likely to represent labour exchange, but may reflect the end result of negotiation for access to land and sea. This is decided by traditional owners through customary decision making processes that need to take into account a variety of issues, including land rights and sacred sites.

Another aspect of examining archaeological beads relates to the flexibility of, and changes to, Indigenous technology during the culture-contact period (Hiscock 2008:275–283). Hiscock and Clarkson (2000:103) discussed issues surrounding the impact of introduced materials on stone artefact technologies. They observed the potential for the modification of manufacturing activities in response to the introduction of European and Asian materials and the potential of this for altering pre-existing technological systems (Hiscock and Clarkson 2000:103). This is very relevant to sites in the Wellington Range, where evidence for bottle glass flaking occurs at Malarrak 4, Djulirri and Bald Rock 1. Evidence for unstrung beads at Bald Rock 1 would suggest that they were arriving at the site for the purpose of beadwork, potentially becoming incorporated within, or altering, existing material culture systems.

Additionally, the presence of beaded objects may have led to visual transformations in local rock art complexes, where depictions of beads and beaded objects may have become incorporated into existing artistic traditions (McDonald and Veth 2012). McAdam (2009) and Chaloupka (1993) observed beaded objects depicted in rock art. It is possible that further archaeological evidence for beaded objects are found in the rock art at another Wellington Range site: Marligur. Marligur contains two painted female anthropomorphic figures depicted with 'lines' across the neck area—potentially indicating a beaded necklace or choker (Figure 13). Chaloupka (1993, 1996) further posited that the decorative infill painted on the clothing of these figures was influenced by the diamond designs present in Indonesian textiles and beaded chokers and belts.

It has also been well documented that Indigenous people travelled to and from Sulawesi with Macassans, which would have significantly increased their exposure to island South

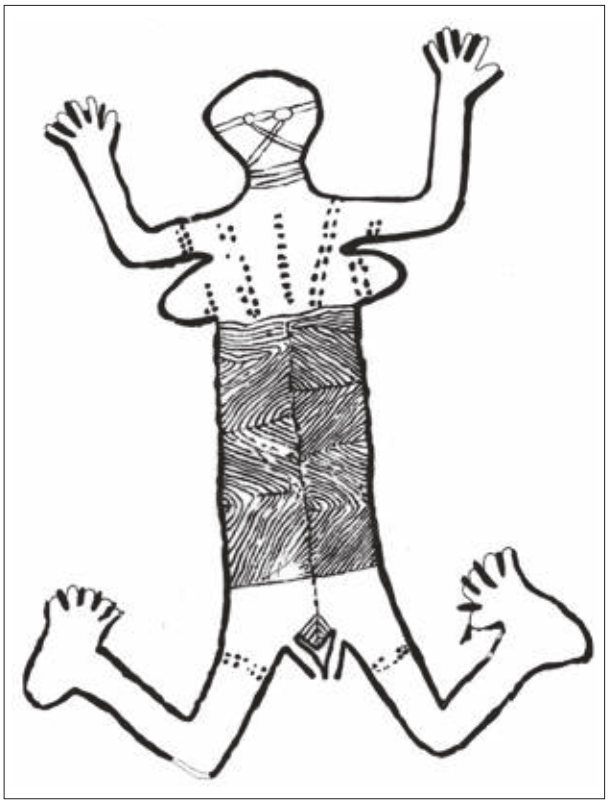

Figure 13 Painted female anthropomorphic figure at Marligur, illustrating possible 'beaded' necklace or choker.

East Asian material culture, including textiles and beaded objects (Lamilami 1974). The argument for beads and beaded items arriving in Arnhem Land from a Macassan origin is furthered by a resemblance between the style, motif design, choker choice and beads available in eastern Indonesia (Departmen Pendidikan dan Kebudayan 1997) and the historical beaded objects collected in western Arnhem Land donated to the British Museum. The latter and those shown in Spencer's photographs are arguably very similar in design, construction and pattern to those found in Sulawesi and surrounds, though we acknowledge the ubiquity of such a diamond motif and the similarity in choker designs in varied cultural contexts.

Finally, the inclusion of the Makassarese words for beads—*manik-manik* and *manimani*—into local languages is another indicator of the Macassan exchange of these objects (Evans 1992). In an examination of the distribution of maritime loan words around the Indian Ocean, Fuller et al. (2011) argued that many languages often prefer a descriptive local word above a foreign loan word, even if the item is introduced. However, in Arnhem Land, Makassarese, Bugis and Malay words were readily incorporated into local coastal Aboriginal languages for items of introduced material culture (Evans 1992). This highlights an important context for the pre-European introduction of beads into Indigenous society and further serves to illustrate a case for beads and beaded objects being part of a hybrid economy developed between Macassans and Indigenous groups during the trepang industry.

Conclusion

The Wellington Range bead assemblage includes those exchanged through South East Asian maritime networks

and by European settlers in Australia during the 18th to early 20th centuries. Although chemical characterisation might further refine where they were produced, the importance here is that their description and presence provide insights into Indigenous-Macassan-European culture contact and associated mechanisms of exchange.

We propose that the introduction of beads and/or beaded items to northern Australia began with Macassans in the 18th century. There is a chronological overlap of Macassan economies with the expansion of the British into northern Australia in the 19th century. The incorporation of beads as a component of the Macassan-Indigenous trade repertoire thereby provided continuity for Indigenous people to obtain specific desirable trade items from their later interactions with European economies. Accordingly, by applying Altman's hybrid economy model, if beads are not simply an exchange for labour, or a gift, they very likely represent the individual expression of customary rights in negotiating with Macassan and European economies. As Altman (2006) indicated, the peculiarities of the situations that arose between Macassans, Europeans and Indigenous people, likely made beads a specific demand item for Indigenous co-operation and involvement in these non-customary enterprises. While these foreign economies, i.e. trepang fishing, buffalo shooting, pearling, lumber getting and pastoralism, were forced upon Indigenous people, the model provides us with a mechanism through which to understand aspects of Indigenous control of, and justification for, these interactions. Rather than the extremes of passive acceptance or violent resistance, Altman's (2001, 2006, 2007) model illuminates the conscious decisions made by traditional owners within a customary rights framework. This concerns the extent to which they interacted with others and what their desired outcomes were for such exchanges, such as allowing others to be on their country and to utilise their resources. Without such negotiations, the anticipated customary response would have been continual conflict in response to transgressions on country. Although violence is documented between Indigenous groups, Macassans and Europeans, this view is balanced by the evidence for cooperation and facilitation as illustrated by the presence of traded items, including the beads recovered from the Wellington Range archaeological sites.

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References

Adhyatman, S. and R. Arifin 1993 *Manik-Manik di Indonesia: Beads in Indonesia*. Jakarta: Penerbit Djambatan.

Allen, F.J. 1969 Archaeology and the History of Port Essington. Unpublished PhD thesis, Department of Archaeology, The Faculties, The Australian National University, Canberra.

Allen, F.J. 2008 *Port Essington: The Historical Archaeology of a North Australian Nineteenth-Century Military Outpost*. Sydney: Sydney University Press.

Allen, H. and G. Barton 1989 *Ngarradj Warde Djobkeng: White Cockatoo Dreaming and the Prehistory of Kakadu, Northern Territory, Australia*. Oceania Monographs. Sydney: Oceania Publications.

Allen, K. 1996 A Picture is Worth a Thousand Artefacts. Investigating the Archaeology of Workers' Camps in New South Wales 1872–1962 using Historic Photographs (Volume 3). Unpublished BA(Hons) thesis, Department of Prehistory and Historical Archaeology, University of Sydney, Sydney.

Altman, J.C. 1979 The question of affluence: Yolngu economy in northeast Arnhem Land. *Canberra Anthropology* 2(1):1–29.

Altman, J.C. 2001 *Sustainable Development Options on Aboriginal Land: The Hybrid Economy in the Twenty-First Century*. Canberra: Centre for Aboriginal Economic Policy Research, The Australian National University.

Altman, J.C. 2003 People on Country, healthy landscapes and sustainable Indigenous economic futures: The Arnhem Land case. *An Australian Review of Public Affairs* 4(2):65–82.

Altman, J.C. 2005 Development options on Aboriginal land: Sustainable Indigenous hybrid economies in the twenty-first century. In L. Taylor, G.K. Ward, G. Henderson, R. Davis and L.A. Wallis (eds), *The Power of Knowledge, The Resonance of Tradition*, pp.34–48. Canberra: Aboriginal Studies Press.

Altman, J.C. 2006 *In Search of an Outstations Policy for Indigenous Australia*. CAEPR Working Paper 34. Canberra: Centre for Aboriginal Economic Policy Research, The Australian National University.

Altman, J.C. 2007 Aboriginal economic development. In B. Galligan and W. Roberts (eds), *The Oxford Companion to Australian Politics*, pp.3–5. Melbourne: Oxford University Press.

Altman, J. 2009 The hybrid economy and anthropological engagements with policy discourse: A brief reflection. *The Australian Journal of Anthropology* 20(3):318–329.

Anon. 1878 Classified advertising. *Northern Territory Times and Gazette* 28 December, p.1. Retrieved 24 August 2013 from <http://nla.gov.au/nla.news-article3147780Advertisement>.

Anon. 1963 Call for protection: World interest in Aboriginal relics. *Dawn, A Magazine for the Aboriginal People of NSW* September 12(9):5–6.

Balme, J. and K.H. Morse 2006 Shell beads and social behaviour in Pleistocene Australia. *Antiquity* 80(310):799–811.

Barrkman, J. 2010 The enduring legacy of Buginese and Makassarese encounters with Indigenous peoples of north Australia. In S. Kuhnt-Saptodewo, D. Pospíšilová and P. Hesser (eds), *Sulawesi and Beyond: The František Czurda Collection*, pp.110–115. Neue Burg: Museum für Völkerkunde.

Beck, H.C. 1928 Classification and nomenclature of beads and pendants. *Archaeologia* 77:10–76.

Bednarik, R.G. 2013 *Creating the Human Past: An Epistemology of Pleistocene Archaeology*. Oxford: Archaeopress.

Berndt, C. 1986 Mondalmi (1910–1969). In Anon. (ed.), *Australian Dictionary of Biography, National Centre of Biography*. Canberra: The Australian National University. Retrieved 15 October 2011 from <http://adb.anu.edu.au/biography/mondalmi-7622/text13321>.

Berndt, R.M. 1951 Ceremonial exchange in western Arnhem Land. *Southwestern Journal of Anthropology* 7(2):156–176.

Berndt, R.M. and C.H. Berndt 1954 *Arnhem Land: Its History and its People*. Melbourne: F.W. Cheshire.

Birmingham, J. 1976 The archaeological contribution to nineteenth-century history: Some Australian case studies. *World Archaeology* 7(3):306–317.

Birmingham, J. and A. Wilson 1987 Regentville Joint Field Project, Artefact Analysis, Interim Report. Unpublished report prepared for the National Estate Grants Programme, NSW Heritage and Conservation Branch, Sydney.

Blair, S. and N. Hall 2013 Travelling the 'Malay Road': Recognising the heritage significance of the Macassan maritime trade route. In M. Clark and S. May (eds), *Macassan History and Heritage: Journeys, Encounters and Influences,* pp.205–226. Terra Australis 29. Canberra: ANU E Press.

Bourke, P. 2000 Late Holocene Indigenous Economies of the Tropical Australian Coast: An Archaeological Study of the Darwin Region. Unpublished PhD thesis, Department of Anthropology, Northern Territory University, Darwin.

Bowdler, S. 2002 Hunters and traders in northern Australia. In K.D. Morrison and L. Junker (eds), *Forager-Traders in South and Southeast Asia: Long-Term Histories*, pp.167–184. Cambridge: Cambridge University Press.

Breen, H. 2008 Visitors to northern Australia: Debating the history of Indigenous gambling. *International Gambling Studies* 8(2):137–150.

Brockwell, S. 2009 *Archaeological Settlement Patterns and Mobility Strategies on the Lower Adelaide River, Northern Australia*. BAR International Series. Oxford: Archaeopress.

Brockwell, S., T. Gara, S. Colley and S. Cane 1989 The history and archaeology of Ooldea Soak and mission. *Australian Archaeology* 28:55–77.

Bulbeck, F.D. and B. Rowley 2001 Macassans and their pots in northern Australia. In C. Fredericksen and I. Walters (eds), *Altered States: Material Culture Transformations in the Arafura Region*, pp.55–74. Darwin: Charles Darwin University Press.

Butzer, K.W. 1982 *Archaeology as Human Ecology: Method and Theory for a Contextual Approach*. Cambridge: Cambridge University Press.

Casey and Lowe 2010 Archaeological Investigation, 50–72 Union Street, Pyrmont, Volume 1: Main Report. Unpublished report prepared for Charter Hall Holdings.

Casey, M. 2004 Falling through the cracks: Method and practice at the CSR site, Pyrmont. *Australasian Historical Archaeology* 22:27–43.

Chaloupka, G. 1993 *Journey in Time: The 50,000-Year Story of the Australian Aboriginal Rock Art of Arnhem Land*. Chatswood: Reed.

Chaloupka, G. 1996 Praus in Marege: Makassan subjects in Aboriginal rock art of Arnhem Land, Northern Territory, Australia. *Anthropologie* 34(1–2):131–142.

Clark, M. and S.K. May 2013 Understanding the Macassans: A regional approach. In M. Clark and S. May (eds), *Macassan History and Heritage: Journeys, Encounters and Influences*, pp.1–18. Terra Australis 29. Canberra: ANU E Press.

Clark, P. and J. Hope 1985 Aboriginal burials and shell middens at Snaggy Bend and other sites on the central Murray River. *Australian Archaeology* 20:68–89.

Clarke, A. 1994 Winds of Change: An Archaeology of Contact in the Groote Eylandt Archipelago, Northern Australia. Unpublished PhD thesis, School of Anthropology and Archaeology, The Faculties, The Australian National University, Canberra.

Clarke, A. 2000 Time, tradition and transformations: The negotiation of cross-cultural engagements on Groote Eylandt, northern Australia. In R. Torrence and A. Clarke (eds), *The Archaeology of Difference: Negotiating Cross-Cultural Engagements in Oceania*, pp.142–182. London: Routledge.

Crook, P. 1999 The Meaningless Public Smile? Housing, Mass Consumption and Material Ambiguity in the Rocks, Sydney (c1833–c1931). Unpublished BA(Hons) thesis, Department of Prehistory and Historical Archaeology, University of Sydney, Sydney.

Curchin, K. 2013 Interrogating the hybrid economy approach to Indigenous development. *Australian Journal of Social Issues* 48(1):15–34.

Departmen Pendidikan dan Kebudayan 1997 *Untian Manik-Manik Nusantara.* Direktorat Jenderal Kebudayaan, Direktorat Permuseuman. Jakarta: Proyek Pembinaan Permuseuman.

Departmen Pendidikan Nasional 2000 *Manik-Manik Nan Indah Koleksi Museum Negeri Provinsi Irian Jaya*. Departmen Pendidikan Nasional, Bagian Proyek Pembinaan. Permuseuman, Jayapura.

Dewar, M. 1995 *The Black War in Arnhem Land: Missionaries and the Yolngu 1908–1940*. Darwin: North Australia Research Unit, The Australian National University.

Direktorat Jenderal Kebudayaan 1997 *Pesona Manik-Manik Khatulistiwa*. Departemen Pendidikan Dan Kebudayaan, Direktorat Jenderal Kebudayaan, Bagian Proyek Pembinaan Permuseuman. Tahun Anggaran, Pontianak.

Dortch, C. 1979 Australia's oldest known ornaments. *Antiquity* 53:39–43.

Dortch, C. 1980 A possible pendant of marl from Devil's Lair, Western Australia. *Records of the Western Australian Museum* 8:401–403.

Dreyfus, M. and M. Dhulumburrk 1980 Submission to Aboriginal Land Commissioner Regarding Control of Entry onto Seas Adjoining Aboriginal Land in the Milingimbi, Crocodile Islands and Glyde River Area on Behalf of the Traditional Owners of the Seas in the Area and People Living at Milingimbi, Raminginning, Nangalala and Associated Outstations. Unpublished report prepared for the Northern Land Council.

Evans, N. 1992 Macassan loanwords in Top End languages. *Australian Journal of Linguistics* 12(1):45–91.

Feary, S. 1996 An Aboriginal burial with grave goods near Cooma, New South Wales. *Australian Archaeology* 43:40–42.

Forrest, P. 1995 The Tiwi Meet the Dutch: The First European Contacts. An Outline of the History of Tiwi Contact with European Navigators, with Special Reference to the Tiwi Encounter with Dutch Seafarers in 1705. Unpublished report prepared for the Tiwi Land Council.

Francis, P. 1990 Glass beads in Asia, Part Two: Indo-Pacific beads. *Asian Perspectives* 29(1):1–23.

Francis, P. 1996 The Czech glass bead industry today. *The Margaretologist* 9(2):3–7.

Francis, P. 2002 *Asia's Maritime Bead Trade: 300 BC to the Present*. Honolulu: University of Hawaii Press.

Fuller, D.Q., N. Boivin, T. Hoogervorst and R. Allaby 2011 Across the Indian Ocean: The prehistoric movement of plants and animals. *Antiquity* 85(328):544–558.

Ganter, R. 2003 China and the beginning of Australian history. *The Great Circle* 25(1):3–19.

Ganter, R. 2006 Turning the map upside down. *History Compass* 4(1):26–35.

Grave, P. and I.J. McNiven 2013 Geochemical provenience of 16th–19th century CE Asian ceramics from Torres Strait, northeast Australia. *Journal of Archaeological Science* 40(12):4538–4551.

Gregory, R.L. 1998 Aboriginal Settlement Patterns in the Ord-Victoria River Region. Unpublished PhD thesis, Department of Anthropology, Northern Territory University, Darwin.

Guse, D.L. 2006 Our Home our Country: A Case Study of Law, Land, and Indigenous Cultural Heritage in the Northern Territory, Australia. Unpublished Masters of Aboriginal and Torres Strait Islander Studies, Faculty for Aboriginal and Torres Strait Islander Studies, Charles Darwin University, Darwin.

Habgood, P.J. and N.R. Franklin 2008 The revolution that didn't arrive: A review of Pleistocene Sahul. *Journal of Human Evolution* 55(2):187–222.

Habgood, P.J. and N.R. Franklin 2011 Explanations for patterning in the 'package of traits' of modern human behaviour within Sahul. *Journal of Indo-Pacific Archaeology* 30:14–27.

Hamby, L. 2011 Held by the teeth: Biting bags from Milingimbi. *Journal of Australian Studies* 35(4):511–527.

Hardy, V. 1998 Aboriginal-European Interaction Re-Considered: Exploring Potential Directions for an Archaeology of Culture Contact in the Sydney Region. Unpublished PhD thesis, School of Archaeology, The University of Sydney, Sydney.

Higginbotham, E. 1991 Report on the Interpretation of the Artefact Assemblages from the Australian Hotel, Bunker's Hill, Samson's Cottage and Unwin's Stores, The Rocks, Sydney. Unpublished report prepared for the Sydney Cove Authority.

Hiscock, P. 2008 *Archaeology of Ancient Australia*. London: Routledge.

Hiscock, P. and C. Clarkson 2000 Analysing Australian stone artefacts: An agenda for the twenty-first century. *Australian Archaeology* 50:98–108.

Iacono, N. 1996 Cumberland/Gloucester Streets Site. Archaeological Investigation 1994. Volume 4, Part 4. Specialist Reports, Artefact Report-Miscellaneous. Unpublished report prepared for the Sydney Cove Authority.

Jochim, M.A. 1976 *Hunter-Gatherer Subsistence and Settlement: A Predictive Model.* New York: Academic Press.

Jochim, M.A. 1979 Breaking down the system: Recent ecological approaches in archaeology. *Advances in Archaeological Method and Theory Volume* 2:77–117.

Jones, R. (ed.) 1985 *Archaeological Research in Kakadu National Park*. Special Publication 13. Canberra: Australian National Parks and Wildlife Service.

Karklins, K. 1985 *Glass Beads: The 19th Century Levin Catalogue and Venetian Bead Book and Guide to Description of Glass Beads.* Ottawa: Parks Canada.

Keen, I. (ed.) 2010 *Indigenous Participation in Australian Economies: Historical and Anthropological Perspectives*. Canberra: ANU E Press.

Kidd, K.E. and M.A. Kidd 1970 A classification system for glass beads for the use of field archaeologists. *Canadian Historic Sites Occasional Papers in Archaeology and History* 1:45–89.

Lamilami, L. 1974 *Lamilami Speaks: The Cry Went Up. A Story of the People of Goulburn Islands, North Australia*. Sydney: Ure Smith.

Lawrence, S. 2006 Artefacts of the modern world. In J. Balme and A. Paterson (eds), *Archaeology in Practice: A Student Guide to Archaeological Analysis*, pp.362–388. Malden: Blackwell Publishing.

Macknight, C.C. 1969 The Macassans: A Study of the Early Trepang Industry along the Northern Territory Coast. Unpublished PhD thesis, Department of Archaeology, The Australian National University, Canberra.

Macknight, C.C. 1972 Macassans and Aborigines. *Oceania* 42(4):283–321.

Macknight, C.C. 1973 The nature of early maritime trade: Some points of analogy from the eastern part of the Indonesian Archipelago. *World Archaeology* 5(2):198–208.

Macknight, C.C. 1976 *The Voyage to Marege-Macassan Trepangers in Northern Australia*. Melbourne: Melbourne University Press.

Macknight, C.C. 1986 Macassans and the Aboriginal past. *Archaeology in Oceania* (21):69–75.

Macknight, C.C. 2008 Harvesting the memory: Open beaches in Makassar and Arnhem Land. In P. Veth, P. Sutton and M. Neale (eds), *Strangers on the Shore: Early Coastal Contacts in Australia*, pp.133–148. Canberra: National Museum of Australia.

Macknight, C.C. 2013 Studying trepangers. In M. Clark and S. May (eds), *Macassan History and Heritage: Journeys, Encounters and Influences,* pp.19–40. Terra Australis 29. Canberra: ANU E Press.

Macknight, C.C. and A.G. Thorne 1968 Two Macassan burials in Arnhem Land. *Archaeology and Physical Anthropology in Oceania* 3(3):216–222.

Máñez, K.S. and S.C. Ferse 2010 The history of Makassan trepang fishing and trade. *PloS One* 5(6):e11346. Retrieved 15 October 2011 from <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0011346>.

May, S.K., P.S.C. Taçon, D. Wesley and M. Travers 2010 Painting history: Indigenous observations and depictions of the 'Other' in northwestern Arnhem Land, Australia. *Australian Archaeology* 71:57–65.

McAdam, L.E. 2009 Beads across Australia: An Ethnographic and Archaeological View of the Patterning of Aboriginal Ornaments. Unpublished PhD thesis, Department of Archaeology and Palaeoanthropology, School of Humanities, University of New England, Armidale.

McCarthy, F.D. and F.M. Setzler 1960 *The Archaeology of Arnhem Land*. Sydney: Australian Museum.

McDonald, J. and P. Veth 2012 Research issues and new directions: One decade into the new millennium. In J. McDonald and P. Veth (eds), *A Companion to Rock Art*, pp.3–14. Oxford: Blackwell Publishing.

McIntosh, I.S. 1996a Islam and Australia's Aborigines? A perspective from northeast Arnhem Land. *Journal of Religious History* 20(1):53–77.

McIntosh, I.S. 1996b Can We Be Equal in Your Eyes? A Perspective on Reconciliation from Northeast Arnhem Land. Unpublished PhD thesis, Department of Anthropology, Northern Territory University, Darwin.

McIntosh, I.S. 2006 A treaty with the Macassans? Burrumarra and the Dholtji ideal. *The Asia Pacific Journal of Anthropology* 7(2):153–172.

McIntosh, I.S. 2008 Pre-Macassans at Dholtji? Exploring one of northeast Arnhem Land's great conundrums. In P. Veth, P. Sutton and M. Neale (eds), *Strangers on the Shore: Early Coastal Contacts in Australia*, pp.161–185. Canberra: National Museum of Australia.

McKenzie, M. 1976 *Mission to Arnhem Land*. Adelaide: Rigby.

McNiven, I.J. and L. Russell 2002 Ritual response: Place marking and the colonial frontier in Australia. In B. David and M. Wilson (eds), *Inscribed Landscapes: Marking and Making Place*, pp.27–41. Honolulu: University of Hawai'i Press.

McQueen, R. 2010 Homesickness for a foreign country: Nostalgia and colonisation. *International Journal of Law in Context* 6(3):257–275.

Megaw, J.V.S. 1993 Aboriginal archaeology of the Sutherland Shire. In D.F. Branagan (ed.), *Geography And Geology-Aboriginal Archaeology*, pp.9–12. Cronulla: Sutherland Shire Council.

Mitchell, S. 1994 Culture Contact and Indigenous Economies on the Coburg Peninsula, Northwestern Arnhem Land. Unpublished PhD thesis, Department of Anthropology, Northern Territory University, Darwin.

Mitchell, S. 1996 Dugongs and dugouts, sharptacks and shellbacks: Macassan contact and Aboriginal marine hunting on the Coburg Peninsula, northwestern Arnhem Land. *Bulletin of the Indo-Pacific Prehistory Association, Chiang-Mai Papers* 2(15):181–191.

Morse, K. 1993 Shell beads from Mandu Mandu Creek rockshelter, Cape Range Peninsula, Western Australia, dated before 30,000 bp. *Antiquity* 67(257):877–883.

Mowat, F. 1994 Size really does matter: Factors affecting shell size fragmentation. In M. Sullivan, S. Brockwell and A. Webb (eds), *Archaeology in the North: Proceedings of the 1993 Australian Archaeological Association Conference*, pp.201–212. Darwin: North Australia Research Unit, The Australian National University.

Mowat, F. 1995 Variability in Western Arnhem Land Shell Midden Deposits. Unpublished MA thesis, Department of Anthropology, Northern Territory University, Darwin.

National Library of Australia Axel Poignant Transparency and Photo Collection, Arnhem Land, Northern Territory, 1952 (4389476); Photographs 5396-298; 5396-299 and 5396-300.

Pate, F.D. 2006 Hunter-gatherer social complexity at Roonka Flat, South Australia. In B. David, B. Barker and I.J. McNiven (eds), *The Social Archaeology of Australian Indigenous Societies,* pp.226–241. Canberra: Aboriginal Studies Press.

Paterson, A. 2010 The archaeology of historical Indigenous Australia. In J. Lydon and U.Z. Rizvi (eds), *The Handbook of Postcolonial Archaeology*, pp.165–184. Walnut Creek: Left Coast Press.

Paterson, A. 2011 *A Millennium of Culture Contact*. Walnut Creek: Left Coast Press.

Pearson, M. 2005 *Great Southern Land: The Maritime Exploration of Terra Australis*. Canberra: Department of the Environment and Heritage.

Peterson, N. 2003 On the visibility of Indigenous Australian systems of marine tenure. Retrieved on 14 August 2013 from <http://hdl.handle.net/1885/41649>.

Powell, A. 1982 *A Far Country: A Short History of the Northern Territory*. Melbourne: Melbourne University Press.

Pretty, G.L. 1977 The cultural chronology of the Roonka Flat: A preliminary consideration. In R.V.S. Wright (ed.), *Stone Tools as Cultural Markers: Change, Evolution and Complexity*, pp.288–331. Prehistory and Material Culture Series 12. Canberra: Australian Institute of Aboriginal Studies.

Robertshaw, P., M. Wood, A. Haour, K. Karklins and H. Neff 2014 Chemical analysis, chronology and context of a European glass bead assemblage from Garumele, Niger. *Journal of Archaeological Science* 41:591–604.

Ross, L.A. 2003 Bohemian faceted-spheroidal mould-pressed glass bead attributes: Hypothesised terminus post-quem dates for the 19th century. *Beads* 15:41–52.

Rowley, B. 1997 The Makassar Connection: A Descriptive Analysis and Comparison of Macassan and Makassar Earthenwares. Unpublished BA(Hons) thesis, Department of Archaeology, The University of Western Australia, Crawley.

Russell, D. 2004 Aboriginal-Makassan in the eighteenth and nineteenth centuries in northern Australia and contemporary sea rights claims. *Australian Aboriginal Studies* 2004(1):3–17.

Russell, L. 2005 'Either, or, neither nor': Resisting the production of gender, race and class dichotomies in the pre-colonial period. In E.C. Casella and C. Fowler (eds), *The Archaeology of Plural and Changing Identities: Beyond Identification*, pp.33–54. New York: Kluwer Academic/Plenum.

Schrire, C. 1982 *The Alligator Rivers: Prehistory and Ecology in Western Arnhem Land*. Terra Australis 7. Canberra: Research School of Pacific Studies, The Australian National University.

Silliman, S. 2001 Agency, practical politics and the archaeology of culture contact. *Journal of Social Archaeology* 1(2):190–209.

Simak, E. 2007 Australian Aboriginal necklaces. *Newsletter of the Bead Society of Great Britain* 89:4–7.

Steward, J.H. 1938 *Basin-Plateau Aboriginal Socio-Political Groups*. Smithsonian Institution, Bureau of American Ethnology Bulletin 120. Washington: United States Government Printing Office.

Steward, J.H. 2006 The concept and method of cultural ecology. In N. Haenn and R.R. Wilk (eds), *The Environment in Anthropology: A Reader in Ecology, Culture and Sustainable Living*, pp.5–9. New York: New York University Press.

Sutherland, H. 2000 Trepang and wangkang: The China trade of eighteenth century Makassar ca 1720s–1840s. In R. Tol, K. van Dijk and G. Acciaioli (eds), *Bijdragen tot de Taal-, Land- en Volkenkunde (Authority and Enterprise among the Peoples of South Sulawesi)*, pp.451–472. Leiden: KITLV Press.

Taçon, P.S.C., S.K. May, S.J. Fallon, M. Travers, D. Wesley and R. Lamilami 2010 A minimum age for early depictions of Southeast Asian praus in the rock art of Arnhem Land, Northern Territory. *Australian Archaeology* 71:1–10.

Theden-Ringl, F., J.N. Fenner, D. Wesley and R. Lamilami 2011 Buried on foreign shores: Isotope analysis of the origin of human remains recovered from a Macassan site in Arnhem Land. *Australian Archaeology* 73:41–48.

Thomas, D.H. 1973 An empirical test for Steward's model of Great Basin settlement patterns. *American Antiquity* 38(2):155–176.

Thomas, D.H. 1989 Diversity in hunter-gatherer cultural geography. In R.D. Leonard and G.T. Jones (eds), *Quantifying Diversity In Archaeology*, pp.85–91. Cambridge: Cambridge University Press.

Thomson, D. 1949 *Economic Structure and the Ceremonial Exchange Cycle in Arnhem Land*. Melbourne: Macmillan.

Thorp, W. 1990 Excavations in the House and Yard: Throsby Park Historic Site. Unpublished report prepared for the New South Wales National Parks and Wildlife Service.

Trudgen, R. 2000 *Why Warriors Lie Down and Die*. Darwin: Aboriginal Resource and Development Services.

Varman, R.V.J. 2003 Bond 4 East (Area 32) Excavation Catalogue, Part 2: Glass, Metals, Small Finds, Bones, Shell, Stone, Minerals, Mortar and Soil Samples. Unpublished report prepared for Walsh Bay Finance.

Warner, W. 1932 Malay influence on Aboriginal cultures of northeastern Arnhem Land. *Oceania* II:476–495.

Warner, W.L. 1937 *A Black Civilization: A Social Study of an Australian Tribe*. New York: Harper and Brothers.

Watson-Andaya, B. 2006 Oceans unbounded: Traversing Asia across 'area studies'. *The Journal of Asian Studies* 65(4):669–690.

Webb, T.T. 1938 *Spears to Spades*. Sydney: Spectator Publishers.

Welch, D.M. (ed.) 2008 *Kakadu People by Sir Baldwin Spencer*. Australian Aboriginal Culture Series 3. Virginia: David Welch.

Wells, S. 2003 Negotiating Place in Colonial Darwin Interactions between Aborigines and Whites, 1869–1911. Unpublished PhD thesis, Faculty of Humanities and Social Sciences, University of Technology, Sydney.

Wesley, D., J. McKinnon and J. Raupp 2012 Sails set in stone: A technological analysis of non-Indigenous watercraft rock art paintings in northwestern Arnhem Land. *Journal of Maritime Archaeology* 7(2):245–269.

Wood, M. 2011 A glass bead sequence for southern Africa from the 8th to the 16th century AD. *Journal of African Archaeology* 9(1):67–79.