STONE CONSTRUCTIONS
on Rankin Island, Kimberley, Western Australia

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Abstract
Here we report on a variety of stone constructions that have been recently recorded and mapped on Rankin Island in the Kimberley region of Western Australia. The function of one of these features, a long stone wall, is discussed in the context of similar built stone features in other areas of northern Australia and Torres Strait. The possibility that the wall functioned as a fish trap is examined but dismissed on the basis of the survey levelling data which indicate that even with a higher relative sea stand of +1–2m the wall would only have been breached by king tides on a few days of the year. It is probable that the wall had associative ‘ritual’ or ‘magic’ functions, although it is acknowledged that the distinction between ‘ritual’ and ‘subsistence’ is a moot one where increase ceremonies and hunting magic are regarded as essential for success in procuring resources.

Introduction
Despite the paucity of systematic archaeological survey, the Kimberley coast has a large number of built stone constructions recorded in the Western Australian Register of Aboriginal Sites. These appear to be mainly located on the small offshore islands that dot the coastline, although examples from the coastal mainland are also known. The structures take a variety of forms and include circular structures with substantial walls made of multiple layers of stones with small entrances, meandering and straight single stone lines or walls, parallel stone lines or walls which appear to form ‘pathways’, cairns and a variety of geometric shapes including circles, concentric circles, ovals, crescents, dumbbells and stars. Some of these features are within the current tidal range and could possibly have functioned as fish traps, however, most are on headlands and on high ground behind embayments. Many of these features are found on the small offshore islands of the Buccaneer and Bonaparte archipelagos. Those on one of the High Clifffy islands in the Buccaneer Archipelago are comparatively well-documented, having been described by Blundell (1975:156) and O’Connor (1987, 1999). Others have been sighted and photographed during low-level flights including those made by Coastwatch and have subsequently been reported to the Western Australia Department of Indigenous Affairs, but have never been systematically photographed or surveyed on the ground. Here we report on a variety of stone constructions that have been recently recorded and mapped on Rankin Island and on attempts to provide radiometric dating for the construction of one of these features, a long stone wall, located unusually on a beach.

Rankin Island
Rankin Island is a small, low island (to 66m), almost square in shape, located less than 500m from the mainland at 16°18’S,

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Figure 1 Rankin Island and the Buccaneer Archipelago.

Figure 2 Aerial view of Rankin Island showing topographic features (Photograph: Len Zell).

Figure 3 Aerial view of built stone wall and cobble beach on Rankin Island (Photograph: Len Zell).
Figure 4 (a) Datum envelope of main wall based on heights for top and base of main wall. (b) Plan showing GPS track of main stone wall and selected other stone features, bifaces and blade flaking areas. (c) Position of main wall T1-T5 on Rankin Island.

Figure 5 (a) Levelling data for archaeological features such as main wall and pit projected onto levelled beach transect (A1-A2). (b) Position of transect A1-A2.
124°20'E (Figure 1), on the shore of Collier Bay, east of the Yampi Peninsula in the Kimberley. The island has small open embayments on all sides and a prominent sandstone cliff on the southeast side. The coastline comprises rock shelf platforms and low cliffs, with intervening cobble beaches and mangrove fringes to low tide mudflats. On the west and southwest shorelines steep cobble beaches link a low outlying rock outcrop to the main island, enclosing a low swamp depression behind the cobble beaches and headland (Figure 2).

Today Rankin Island is covered with a tangled scrub of stunted Eucalyptus and Acacia with patchy groundcover of grasses and spinifex. Stinking passionfruit vine (Passiflora foetida) is seasonally pervasive, making ground surface visibility poor over much of the stony areas behind the embayments. The low-lying swamp area on the southwest side of the island is inundated during the wet season by a combination of freshwater run-off and tidal seepage and supports a healthy stand of Melaleuca, reeds and other aquatic-associated plants. A mudflat offshore from the southwest beach supports a small sparse mangrove community (Figure 3).

Geologically Rankin Island consists of well-bedded quartz and feldspathic sandstones, siltstones and quartz-pebble conglomerates of the Yampi Formation of the Kimberley Group (Tyler et al. 1992). The strata, laid down 1840–1800 million years ago, exhibit strong north-south faulting and generally dip west into Collier Bay (Gellatly and Sofoulis 1973; Sofoulis et al. 1971). Sandstone outcrops from the headland areas near the cobble beach have been eroded as flat tabular slabs of rock 30–75cm in length and about 2.5–5cm thick. On the northwest and southwest sides of the island are beaches formed from water-rolled cobbles and boulders of this material. These are now eroding locally on the northwest beach, revealing cemented clast-supported gravel stratigraphy dipping at angles different from the present shoreline. There are also small sand beaches on the eastern side of the island.

The Rankin Island Stone Constructions

The Rankin Island stone constructions were first recorded by one of the authors in 1986 during the course of a general site survey of the Buccaneer Archipelago (O’Connor 1999). At this time the constructions were photographed but systematic survey and mapping were not carried out. Several different types of stone construction were noted. The most prominent is a long stone wall which runs southeast-northwest on top of the cobble beach on the southwest side of the island (Figures 3–4). The Rankin Island sites were again visited in 2003 after Zell examined aerial obliques taken in early 2002 showing large pools of freshwater impounded in the low-lying areas behind the beaches and headlands. The pools were dry in June 2003 and June 2004, when the site was next visited. During these excursions the built wall and some of the other stone features such as depressions or pits in the upper area of the cobble beach were mapped with GPS (Figure 4b).

A permit was obtained from the Mowanjum Community by Dr Moya Smith of the Western Australian Museum for the removal of some material suitable for dating from the built wall and in 2004 another visit was made which allowed further mapping, photography and collection of several coral skeletons from within the wall. Some of the stone bifaces and blade knapping areas noted above were photographed and located with GPS (Figure 4b).

In August 2006 the site was visited again with Donny Woolagoodja, Adrian Woolagoodja-Lane and Alfie Umbagi, members of the Worora Community. Further surveying and recording was completed, including surveying the main wall, a subsidiary wall and a sample of excavated hollows which contain in situ lithic knapping material. Maximum and minimum height datums were established for constructed archaeological features, and tied into one long profile running the length of the main wall on the beach crest (Figure 4, T1-T5) and a second transect orthogonal to the beach ridge axis (Figure 5, A1-A2), running down the maximum slope of the beach face at the southeast end of the beach. The levelling data included observations on tide height. This allows comparison of the height distributions of the archaeological features with predicted tidal datums, available for a gauge station 7.5km to the southeast on Shale Island.

The Stone Wall

The main wall is over 160m in length and stands 50–105cm high along most of its length (Figures 3–4, 6). The axial line of the main wall runs on a bearing of 300–310° tracking the present crest of the cobble beach for the first 100m of its length (Figure 4a, T1-T3), after which the wall veers to the north, behind and below the beach crest (Figure 4b, T3-T4). At its northwest end, close to the back beach swamp, the wall curves back on itself towards the southeast (Figure 4b, T4-T5). Near its southeast end, the wall splits into two semi-parallel walls, 1.5–3m apart, for a distance of 16m. Northeast of the wall, lying lower than the beach crest on the swamp side, are a complex of minor walls, other stone structures and hollows, unconnected to the main wall (see, for example, the structures in Figures 7 and 8). These subsidiary constructions have not been fully surveyed.

The wall is built on top of the cobble beach and is constructed from the same large water-worn rounded cobbles as comprise the upper beach. It consists of multiple layers of stacked cobbles, with the upper wall layer composed of single or paired stones. In most places along its length the wall is about 1m wide at the base. Most cobbles are stacked with the long axis vertical, or steeply
dipping, giving the wall an imbricated appearance. The angles of the cobbles suggest construction involved stacking stones at steep angles. There is no evidence for subhorizontal layering, or ‘dry stone’ methods of overlapping construction. Occasional large rounded cobbles are erected as single stones vertically in the top of the wall (e.g. at point T3, see Figure 4a).

Heights for the base and top of the main wall were levelled to produce a datum envelope (see Figure 4a). There is a general decrease in the height of the base of the wall from point T1 (at the junction with the adjacent hillslope) to T3, caused by a westerly dipping slope on the beach crest and berm. Wall construction may have compensated for this. Wall height increases westwards with the beach surface dip, keeping the top of the surviving wall ±0.2m of horizontal for over 120m and with highest surviving areas of wall located in depressions (e.g. at T3). Arguably, this lends support to the idea that construction attempted to produce a level surface for the top of the wall, and therefore use as a fish trap. However, beyond T3 the main wall no longer follows the highest beach crest, and instead tracks over the spillover area down the backslope of the beach to the swamp. The wall is generally less than 0.4m in height on the backslope and in the curve back to the southeast from T4–T5. To have maintained the level of the main wall into this area (e.g. as a functional fish trap) the wall construction would have to have been over 2m high. Neither the remaining wall base width, nor the absence of collapsed wall stone structure suggest that this was ever the case.

The Cobble Beach, Tide Levels and Elevations of Archaeological Features

The highest surfaces of the beach abut the base of the hillslope to the east, and comprise wave-rolled and subrounded clasts of large cobble and small boulder size (Gale and Hoare 1991:58-59). Clast shape strongly reflects the geology of the sandstone (Sneed and Folk 1958) with high cleavage producing generally large disc-shaped cobbles and small boulders. Many larger clasts show natural chipping and chink facets (Gale and Hoare 1991:110-111; Wentworth 1919, 1925) typical of brittle rock material on beaches. At the junction of the hillslope base and the beach there are 0.5–1.5m high erosion scars, indicating slope trimming and erosion (at the junction with the adjacent hillslope) to T3, caused by brittle rock material on beaches. Wentworth 1919, 1925) typical of brittle rock material on beaches.

Highest Astronomical Tides (HAT) and just above the uppermost datums to which rafted wood, trees and debris accumulate during wet season 'king tides'. The highest datums of rafted wood equate to +14.3m on the Tidal Prediction Datum for Shale Island – a level equivalent to the lowest occurrences of archaeological features on the beach, and 1.35m above HAT and 2.5m above MHWS. Unlike sandy beaches on nearby islands, wet season 'king tide' rafted trees and wood are entirely absent across the upper cobbles beach surface and berm. There is therefore coincidence of evidence for in situ subaerial weathering of coral clasts, survival of archaeological features and absence of wave inundation – even by extreme tides and storms – above 14.3m on the beach.

Most of the main wall, and excavated hollows containing knapped debris, lie between +15–16m relative to the Shale Island Tidal Prediction Datum. It is therefore clear that the wall could not function as a fish trap relative to the present tidal regime. The parsimonious conclusion, which fits well with the archaeological evidence for no reworking of artefact scatters by waves, is that the upper beach berm is geomorphologically inactive relative to present Mean Sea Level (MSL) and associated regimes of wet season tidal range and storms coincident with high tides. Archaeological features are preserved because they lie above the limit of active extreme swash. The stone wall would need to be positioned over 4m lower, well below the uppermost wet season wrack marks, to function as a fish trap on the relatively small number of days high tides lie between ±1m of MHWS. In such a situation, on a steep cobble beach, a built wall would require regular maintenance and only survive wave action briefly after abandonment.

The wall and associated archaeological features occur on a geomorphologically stable relic part of the present beach where wave action is absent, but one on which storm wave action was formerly sufficient to form a cobble-boulder beach and erode regolith from slopes. The relative position of the upper datum of rafted wood (i.e. extreme storm wave effect) would have to be 1.2–1.5m higher than present (i.e. 15.5m to 15.8m relative to Shale Island Tidal Prediction Datum) to allow for wave surge and cobbles rolling across the berm.

Holocene Sea Levels, Storms and Tsunami Effects and the Relative Age of the Constructed Stone Wall

These data would fit with several scenarios for past wave regimes coupled with extreme storm events, and wave surge. The southwest facing coast of Rankin Island is situated in a relatively exposed position within Collier Bay. The island occupies a position on the southern leeward edge of a broad subtidal shelf lying at about -15–20m below MSL. This is unusually shallow offshore bathymetry in Collier Bay, and might be important in relation to cobbled debris supply and wave train run-up especially during the Holocene transgression (e.g. from 9ka to 7.5ka BP). For storm events coinciding with low tides these depths may also limit wave energy reaching the shoreline. The area also lies within the broader geographic context of the western Australian coast and shelf – which is prone to major storms associated with tropical cyclones, and also tsunamis. Nott and Bryant (2003) cite the western Australian coast as Australia’s most tsunami-prone region – locally experiencing 4–6m high tsunami run-up inundations twice in the last 30 years. However, there is no...
evidence that these tsunami events influenced the archaeology at Rankin Island.

Nott and Bryant (2003:698) suggest that the largest historically documented tropical cyclones only produce peak inundation levels (maximum run-up heights) 5–6m higher than high tide in northern Australia. They suggest larger events of up to 10m run-up height may have occurred before European settlement, and that cyclonic tidal surges may be further amplified or funnelled locally. This would suggest that the beach crest and berm at Rankin Island lies within a datum zone which is potentially modified by both extreme storm and/or tsunami events but only when the timing of extreme events coincides with high spring tides. Features or terrain lying above HAT on coastlines with very large tidal ranges are, paradoxically, well-protected from extreme inundations during most states of the tide.

Another possibility is that the relic morphology of the upper beach reflects a relative fall in MSL (and associated high tidal process datums) during the Holocene. This does appear to fit the evidence well as the cobble-boulder clasts have clearly been well rounded; a condition unlikely to be achieved during occasional brief catastrophic inundation. Also the cobble beaches represent very large volumes of cobble and boulder material, are thick well-stratified units (not veneers) and in places are weakly cemented by downward percolating carbonates. Where seen in eroded section their bedded internal structures are not conformable with the present equilibrium cobble shoreface. Samples of molluscs and coral from cemented beds have been collected for radiocarbon dating from these exposures.

The balance of geomorphic and stratigraphic evidence suggests that the cobble beaches originally formed in the mid-Holocene or earlier (a last interglacial age cannot be excluded) and that the upper part of the berm is stable, relic and well above normal storm high tide inundations. This ‘stranded’ morphology may reflect gradual isolation from extreme storm inundation over time (by a relative fall in MSL) and/or the fact that catastrophic inundations that coincide with high tides occur on very low return periods (e.g. 500–several thousand years).

We conclude the stone walls are not functional fish traps and occur on a geomorphic surface which may not have been wave-inundated for many hundreds or possibly thousands of years. The age of the beach and its upper surface morphology is not known, but represents a maximum probable age of c.7000 BP. Defining the age of the beach will only provide a general maximum age estimate for the wall architecture construction. More usefully, defining the maximum age of the archaeological features, contexts and in situ knapping assemblages would provide a fairly accurate minimum date for last wave inundation of the upper beach. This is of more than just archaeological relevance. Nott and Bryant (2003:705) suggest that the Western Australian coastline may be subject to tsunami inundations with run-up heights of 10–30m or greater on recurrence frequencies of 400–500 years.

An Attempt to Radiometrically Date the Time of Construction of the Stone Wall

An attempt was made to radiometrically date the time of wall construction by dating a sample of coral which was embedded within it (away from the seaward edge). The radiocarbon age determination was 4569±42 BP (Wk-15537). While it is possible that the coral was incorporated into the wall as fresh material at the time the wall was built, which would place construction at about 4500 years ago, it is much more likely that the coral clast was one of the many lying resident on the beach surface, and simply incorporated along with other cobbles. The wall could have been built at any time after 4500 BP, and fragments of ‘old’ coral from the beach included in its construction. The date merely provides a maximum age for construction or repair of the wall.

Zell (2004) had previously hypothesised that the wall may have been built during a mid-to-late Holocene high sea stand between 5000 and 4000 cal BP (Baker et al. 2004), to function as a fish trap. This is not an interpretation which easily fits with the new tidal level data, as it would only function very briefly at very high ‘king tidal’ states even if past higher sea-level stands of +1–2m are invoked.

Stone Constructions and Seascapes: Secular and Sacred

Other researchers working along the north coast of Western Australia have nominated similar stone constructions as fish traps.
At Cape Range Peninsula, Przywolnik (2002:315-323) recorded a low stone wall that today is over 1500m inland of the high tide zone. The limestone boulders comprising the wall were encrusted with deposits of marine bivalves which had a very weathered appearance (Przywolnik 2002:317) and on this basis Przywolnik suggested that the wall had been built as a fish trap during a mid-Holocene higher sea stand. In the case of the Cape Range stone wall, dating multiple samples of the marine shellfish adhering to the wall would help resolve the time of construction. If the dates were tightly clustered around 5000–4500 BP, the proposed phase of a higher stand in MSL, this would be compelling evidence that the wall had been built using limestone retrieved from the subtidal zone, possibly over a considerable period.

Unfortunately the cobbles forming the Rankin Island wall are clean of any marine growths which could potentially be dated. While a mid-Holocene age for construction of the Rankin wall remains a possibility, the condition of the wall suggests that it is unlikely to have great antiquity. The wall itself is largely intact with little collapse evident.

Other possible functions for the wall need to be considered. Rock arrangements are widespread on coastal islands around tropical northern Australia. In Torres Strait stone arrangements variously include effigy forms known to depict animal totems (e.g., crocodile, turtle) (Harris and Ghaleb 1987: Plates 5a-5b; Neal 1989:Photographs 4-5), land or territory boundaries (Barham et al. 2004:22-29; Laade 1973); Cairns acting as lookout for dugong or turtle (Ghaleb 1990; McIntyre-Tamwoy and Harrison 2004; Moore 1979); and stone lines and trackways associated with gardening activities and settlement areas (e.g., Harris and Ghaleb 1987; Laade 1973; Neal 1989) on both low-lying coastal margins and high ground situations. In Torres Strait some stone arrangements comprise extensive spatial complexes, some on ridge-tops remote from settlements (e.g, at Argan on Badu) (David et al. 2004), while others co-locate within complex historically abandoned landscapes of shell midden mounds, wells, garden mounds and dugong bone mounds, as at Gumu on Mabuiag (see Harris and Ghaleb 1987:Figure 4). Dating of shallow stratigraphy banked against wall structures at Argan (David et al. 2004) and shell-rich mounds co-associated with stone arrangements at Gumu (Harris and Ghaleb 1987) suggest construction within the last 600–1000 years. Many stone arrangements relate to ‘magic’ and ritual, but in Torres Strait, and northern Australian insular seascapes more generally, distinctions between ‘subsistence’ and ‘ritual’ sites blur rapidly given the known significance of totemism, ‘increase’ ritual and magic both in hunting turtle and dugong, and in plant gathering and use (Barham et al. 2004:23; McNiven 2003; McNiven and Feldman 2003).

To the back of the built wall and in other areas of the cobble beach are structures which cannot be explained as having secular functions. These include several small cairns supporting large standing stones (Figure 7) and a circular rosette-like structure (Figure 8). Large numbers of these non-secular or ritual stone constructions are found on High Cliffsy Island and in other parts of the Buccaneer Archipelago and there is restricted ethnographic information pertaining to the ritual function of some of these structures. This might also be seen as lending support to the view that the Rankin wall may have had a ritual function. Although many of the stone constructions associated with ceremonial/ritual activities are double walls or ‘pathways’, variations on single stone lines have been recorded. Most of these are of sizes and shapes and in locations that would mitigate against their interpretation as ‘functional’ fish traps, although there is always the possibility they may be ‘ritual’ fish traps.

**Depressions, Quarrying Pits and Patterns of Cobble Reduction**

Cursory surveys of the cobble beach on the landward side of the wall revealed the presence of many depressions in the cobble surface. The depressions vary in size but are roughly circular and approximately 1–1.5m in diameter, with a raised rim resulting from where the stones dug from the depression have been placed or discarded to the side. The depressions are often up to 1m deep (see Figure 4a, C1-C4; Figure 5a, C4). Knapping debris was found in the bottom of many of the depressions as well as concentrated on the cobble beach around them, however, this is not always the case. Some depressions have little or no knapping debris associated with them. The sandstone from which the cobbles are formed is extremely hard, resembling quartzite, and eminently suitable for knapping. Small quantities of edible mollusca are also found in some depressions. The upper beach is otherwise devoid of shell material.

McBryde’s (1984) description of the shallow circular or oval pits resulting from mining greenstone at Mt William perhaps gives some insight into the process of formation of the pits recorded on Rankin. McBryde describes how wooden sticks were used to extract the rock from seams and how extracted blocks were then selected and knapped. The continuous removal of rock from the same area resulted in depressions in the ground and flaking debris.
Many of the circular mining pits are several metres in diameter and even now over a metre deep. Most have associated flaking floors, and often in the centre an undisturbed slab of outcrop, left to serve as an anvil stone for rough shaping of the mined material (McBryde 1984:273).

Whilst the operations at Rankin were obviously on a smaller scale than those at the Mt William quarry, the similarities would indicate that the Rankin pits likewise resulted from the quest for suitable raw material, as cobbles were dug from the beach, some selected for knapping, and others moved to the side.

The resulting knapping debris indicates that two different processes or pathways of reduction were taking place using the quarried cobbles. Some cobbles have been bifacially reduced over the entire surface (Figure 9). Other cobbles have been knapped by removing a flake to produce a flat striking platform and subsequently large blades have been removed from this platform. The two sequences of core reduction are independent as the blades could not have been derived from the bifacial cores at any stage of reduction. The flakes removed from the bifacial cores are as wide or wider than they are long. The blades struck from the single platform core are by definition at least twice as long as they are wide. Interestingly, no blade cores were recorded amongst the abundant manufacturing debris on Rankin Island but this may be due to limited time spent recording.

Similar bifacial cores to those found on Rankin Island were recorded by one of the authors on McCleay Island during reconnaissance of islands in the Buccaneer Archipelago in 1985 (O’Connor 1999). These were also made on cobbles and found on a cobbles beach. However, such artefacts have never been recovered from stratified contexts in the Kimberley. In all instances where diagnostic features remain on the bifacially worked implements from stratified contexts, it is clear that the bifaces have been produced on large flakes or blades. On only a few archaeological specimens was retouch so completely obscuring that it was not possible to discern whether the implement was made on a core or a flakeblade, but the length, width and thickness of these examples would suggest the latter (O’Connor 1999). In an ethnographic context Mitchell (1949:75) reports small bifacial hafted axes from the Kimberley region and states that these hafted bifaces do not have ground edges. Unfortunately he provides no detail on the location or context of these artefacts, their hafting or use.

Elsewhere in northern Australia, bifaces made on cores are reported from the Barkly Tableland, Northern Territory, and the Edith River area, near Mt Todd (Anon. 1979). The Barkly Tableland series is quite variable in length; from 63mm to 175mm with most (75%) falling between 73mm and 130mm. The Rankin Island bifaces would fit comfortably within this distribution. Tindale (1977:260-261) also records the manufacture and use of hand-held bifacially flaked cores which he calls ‘the tjijlanguan bifacial fist-axe’ by Kaidilt men on Bentinck Island. As the name implies, these were hand-held and used for a variety of tasks including trimming driftwood poles for making rafts, cutting of shorter lengths of hardwood in the making of weapons such as throwing clubs and old ones were used for hammering oysters off rocks.

Ethnographically, hafted axes in the Kimberley were partially or fully edge-ground and may more properly be described as edge-ground hatchets. They are invariably made on volcanic rocks such as basalt or dolerite. Perhaps the biface manufactured on the small islands of the Buccaneer Archipelago where sources of volcanic rock were not available were a multipurpose tool like those reported by Tindale for Bentinck; perhaps they were even hafted. Further in situ investigation of the technology of these bifaces is planned for the future.

A Raised Circular Stone Construction

A low circular walled structure was recorded on the north side of Rankin Island on a low headland overlooking the coast. The walls were constructed from naturally fractured tabular blocks of sandstone which form a ready-made building material. Although the walls have collapsed, the location, shape and size of the Rankin structure is similar to the circular walled structures reported from one of the High Cliffty islands (O’Connor 1999:113-117). The High Cliffty circular structures were also made from naturally exfoliated tabular slabs of sandstone consecutively placed to form layered dry stone walls. The walls were substantial; up to 1m in height and the structures had small entrances up to 0.75m across and had marine shell and extensive flaked stone artefact scatters. One of the structures on High Cliffty (HC-2) had accumulated sediment within its walls and was excavated. The excavation revealed fish and turtle bone, marine shell and hundreds of flaked chert artefacts within the enclosure (O’Connor 1999:115). A broken baler shell embedded in the topsoil within the structure was dated to 370±50 BP (Wk-1095). On the basis of the artefacts and food remains associated with them, and information provided by Aboriginal traditional owners and custodians, the High Cliffty circular walled structures were interpreted as the bases of small huts or windbreaks (Blundell 1975:156; O’Connor 1987, 1999:113-115). Anthropological information had been obtained for examples of circular constructions found in the Kimberley coastal mainland on the Mitchell Plateau which also indicated their use as house bases (O’Connor 1987). The Rankin circular structure is less complete than most of those on High Cliffty, but may have had a similar function.

The single radiocarbon date on shell from the HC-2 structure does not inform on the antiquity of construction of such structures, but does indicate that they probably remained in use into the European contact period in this region. The fact that glass and European materials are not found in association with the structures suggests that their use may have been discontinued by ‘mission times’ when European raw materials became more readily accessible. The High Cliffty open site (HC-3) was used as a camp site during school holidays when the Port George IV/Kunmunya Missions were in operation. It contains glass Kimberley points, fragments of clay pipes and other items indicating European contact such as shell and bone buttons (O’Connor 1999:112-113).

Rankin Cave

At the southeast end of the cobble beach on which the wall is built is a small cave (Figure 4b, 6). The floor of the cave is approximately 7m wide and 6m from entrance to back wall at its maximum dimensions and is covered with a fine silty sediment and large ‘slab-like’ rocks which have exfoliated from the roof and walls, as well as some water-worn cobbles. Pockets of midden shell are found in low points in the cave floor and between rocks. The aspect of the cave is westerly. On the visit undertaken by
Zell (2004) the cave floor deposits were probed and found to have a maximum depth of 26cm. At present neither the deposit sequence nor the height datum of the cave floor deposit is known. Future work is planned which will aim to establish whether the cave deposits provide a chronology which might assist in refining age estimates for construction of wall features on the beach, and associated lithic knapping events and shellfish discard within hollows on the cobble beach berm.

Conclusions
The coastline of the Buccaneer and Bonaparte Archipelagos preserves a wealth of archaeological sites, including many different forms of stone construction. In the past archaeologists have been deterred from investigating these sites due to the low probability of being able to date them, assign function to them or integrate them with the broader archaeological record. Recordings of these structures based on ground survey and mapping are rare. The above discussion indicates that it may be possible to acquire spatial and topographic information about these constructions that can assist with the interpretation of their age and function, even when dating materials are absent. By surveying the Rankin stone wall we were able to determine that the wall could not have functioned effectively as a fish trap even in the event of a relative sea-level stand of +1–2m higher than the present.

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