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Burials in the Ballina shell mounds

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There has been limited re-appraisal of the Ballina oyster mounds since Geoff Bailey's pioneering investigations. The scale of these shell mounds deserves attention. They were once commanding features in the landscape, extending for hundreds of metres along the North Creek river bank, ranging in height from three to seven metres. Here I highlight evidence overlooked in most archaeological interpretations of the shell mounds, namely that they contained human burials. Supported by Bailey's evidence of the minor role the molluscs played in the local economy, it is clear that the mounds held more than just an economic significance for the Aboriginal people of the past. The monumental size of the mounds, evidence of re-visitation, as well as occurrence of burials, fits the description of the mounds as 'persistent places' and indicates that the mounds had a marked importance in the social fabric of the local Aboriginal society.

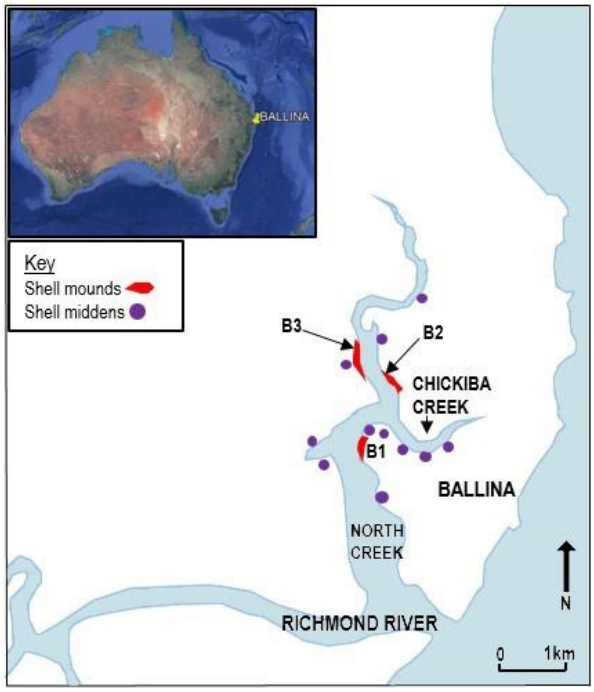

Figure 1 Location of Ballina, and the approximate location of shell mound remains along North Creek. (Source: author, based onGoogle Earth).

Introduction

Shell mounds, like other shell-matrix sites, are composed of biological remains — primarily mollusc shell — deposited by cultural activities (Waselkov 1987; Roksandic et al. 2014: xvi). Such sites are largely characterised by their monumental size, forming the dominant cultural feature in coastal landscapes. Mound size distinguishes them from other sub-categories of shell deposits, such as shell scatters or shell middens. In Australia, such shell mounds occur only along the northern and eastern coasts.

Shell accumulations have been studied extensively in Australia, and they vary in size, contents and position in the landscape. The intensity of the research on these sites indicates the information shell mounds or middens can reveal about the society who created them. On the northern coast of Australia, shell mounds some 100m long and 10m high, mainly composed of the bivalve *Anadara granosa* dominate the landscape (Hiscock 2008: 175). The economic and social system that underpinned the building

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of the mounds has been debated since the 1970s (see Hiscock 2008:175-179), These debates have varied from whether the mounds were inhabited through camping (Cribb 1996), to cultural rules that made people re-camp at the sites (Bailey 1999), to symbolic significance of the mounds (Morrison 2003).

The remains of three large shell mounds are located in Ballina around North Creek as well as in clusters of smaller middens (Figure 1). Bailey (1972, 1975a, 1975b, 1993) labelled the mounded shell deposits as B1, B2 and B3. Statham (1892b) recorded the mounds as over 10,400 m^3 in size at the time mining of the mounds began for road ballast and for lime-burning (Figure 2). Despite this history of destruction, the mounds were still large in the 1920s (Figure 3). Today, all the mounds are mostly destroyed, with only disturbed remnants located along the North Creek tributaries (Figure 4). Before being destroyed, the volume of the shell mounds is estimated to have been roughly 35,000m^3 (Bailey 1975a, V:17, based on Statham 1892a, 1892b and Taylor 1924). The clustering of shell middens could reflect nascent or incipient shell mounds from the recent past, but no radiocarbon dating has been undertaken on these smaller deposits to verify this suggestion.

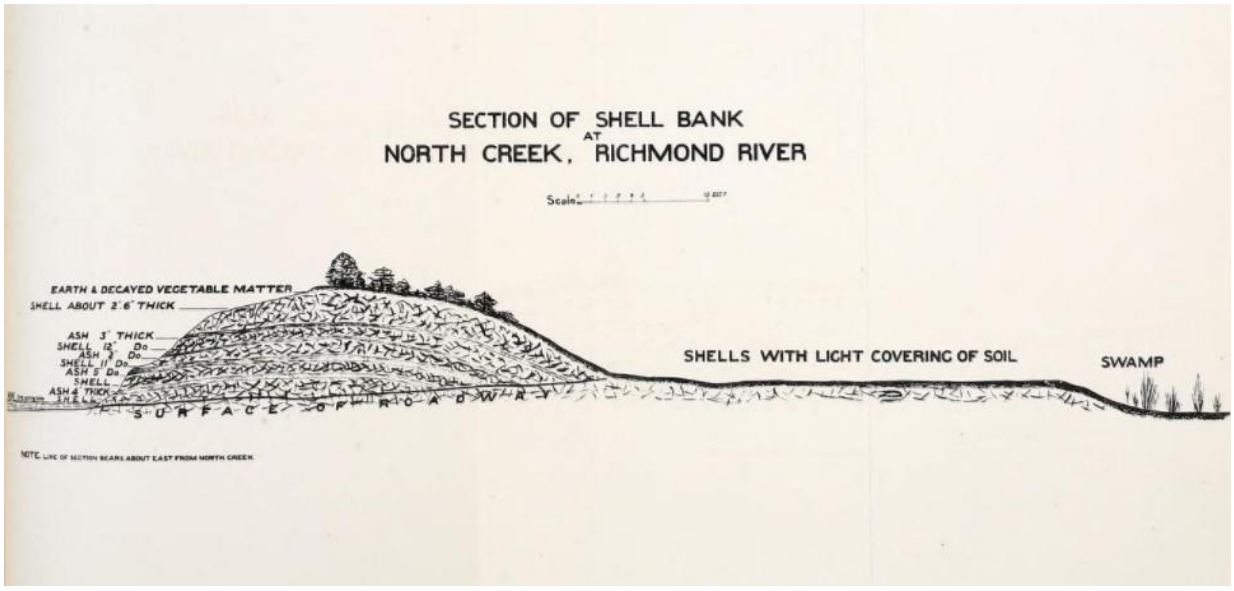

Figure 2 Illustration of one of the shell mounds (probably B2) at North Creek in 1892 (Statham 1892a, courtesy of Smithsonian Libraries).

Figure 3 Oyster shell mound at North Creek, 1925. (Source: T.G. Hewitt Collection, Richmond River Historical Society).

Through a series of detailed studies, Geoff Bailey (1972; 1975a; 1975b; 1993), has provided the most systematic study of the role of molluscs in the diet of the Aboriginal people of Ballina. By studying the least disturbed of the shell mounds (B1), Bailey (1975a) demonstrated that oyster would only be a small component of the diet, despite their high representation in the archaeological remains in the region. He also radiocarbon dated the mounds to estimate that accumulation of the Ballina shell mounds commenced around AD 230, and continued right up until the last recorded use of that mound in AD 1847 (discussed in more detail below).

Figure 4 Remains of B2 shell mound along the eastern side of North Creek near the old bridge ramp, 2016 (photograph by author).

Burials also occur in the mounds as noted by Statham (1892b) and documented by newspaper reports. Occasional reports continued to appear in newspapers until the 1930s. The reporting of burials occurred in conjunction with mining of the shell mounds, which uncovered human remains. At least five burials containing eight skeletons can be identified from these reports. There is potential for further burials, as indications of additional, unreported human remains are suggested in historic reports (as discussed later), and the research undertaken here was based on records available in the public domain, rather than private collections. Between the 1930s and the early 1970s, there is a lack of published information about these burials or any others. Similarly, there is also little or no published information during this same period on shell mounds in general, until they became a source of archaeological investigation from the early 1970s.

Apart from Bailey's (1972; 1975a; 1975b; 1993) research, no systematic excavation or detailed interpretation has been undertaken of the shell mounds of Ballina, although Bailey's research has been incorporated into the countless heritage assessments of the region. In the archaeological literature, historic evidence of burials within the shell mounds has been overlooked.

Drawing from my Honours thesis research (Tooby 2016), this discussion describes the historic evidence of burials and considers ways of interpreting the shell mounds of North Creek as sites of social rather than purely economic significance.

North Creek: present and past environment

The low-lying North Creek floodplain, where the shell mounds are located, is dominated by mangroves. The floodplain is located between coastal hills and uplands, which were once covered in subtropical, sclerophyll and littoral rainforest. Before extensive artificial drainage systems were introduced North Creek and the surrounding floodplain was subjected to frequent inundation during the summer rains. The shell mounds are located above the high tide mark above the mangroves. The surrounding saline and brackish wetlands are characterised by saltmarsh at the high tide mark, mangroves in the intertidal zone and sea grass in shallow water below the low tide mark.

The estuarine environment at Ballina is unusual in comparison with other estuaries along eastern Australian coast, providing a relatively constant mangrove environment throughout the late Holocene. Research by Hashimoto et al. (2006) indicates that mangrove communities developed in the Richmond region between 7000–6000 BP, and that organic-rich sediments allowed the mangroves to keep up with sea level rises in the late Holocene, surviving into the present. Mangrove species are dominated by grey mangrove (*Avicennia marina*) and river mangrove (*Aegiceras corniculatum*) (Ballina Shire 2003). According to Bailey (1975), the Ballina shell mounds started accumulating in 1720 BP, around 4000 years after the sea levels

of the region stabilised (Rich 1994). During this time, North Creek has been an ideal habitat for Sydney rock oyster (*Saccostrea glomerata*), which attach to the mangroves and other hard surfaces in marine or brackish water with rich organic matter and shelter from storm waves.

Bailey's research

Shellfish exploitation at Ballina

Sydney rock oyster is the dominant species of the shell deposits, representing over 95% of molluscan species in the mounds by weight (Bailey 1972; 1975a). The statistical prevalence of rock oyster in comparison with other molluscan species, as well as the minimal amount of raw materials, fish bone and stone, demonstrate that the shell mounds were specialised sites, predominantly for consuming *S. glomerata* oyster.[1] This was probably due to the fact that oysters were abundantly available and other species were less available. Alternatively, other species could have had a lower priority due to the abundance of the oyster. As oysters are known to commonly settle on the same surfaces as previous generations of oysters, they are a relatively stable resource. Nevertheless, there remains a biological limit to their exploitation. As Bailey (1975b: 59) states:

> The level of oyster output achieved in pre-contact times is all the more interesting in that it refers to a resource which can have formed little more than a minor supplement to the annual diet. As such it could easily have been wiped out by over-exploitation, or completely neglected without any serious effect on the survival of the human population. Yet its exploitation appears to have been as carefully controlled as if it had formed a major staple of the economy.

Bailey (1975a) argued that rock oysters were not a major part of the diet of the local Aboriginal people, based on midden analysis and site catchment analysis. One of the major reasons for this would have been the lack of calories in the shellfish, especially in comparison to the other, calorific-rich game in the region. Nevertheless, shellfish were intensely and continuously used, which Bailey concluded was due in part to its proximity to fish sources at the nearby ocean.

The radiocarbon dates obtained by Bailey (1975a, 1975b) and the ethnohistorical record (Ainsworth [1847] 1987) indicate that the shell mounds were continuously used up to contact with colonial settlers. It could be suggested that the unusually stable estuarine environment at Ballina resulted in the oysters being a reliable resource, allowing their continuous usage, with cultural protocol ensuring the resource was not over-exploited

Dating the mounds

Bailey (1975a) took four radiocarbon samples from two separate mounds: three from the most intact mound (B1) and one sample from the base of another mound (B2). On the basis of this evidence, Bailey argued that shell mounds started to accumulate around 1720 BP, were broadly contemporary in age, and growing at a rate of around 19 cm per 100 years (Bailey 1975a V:20). Tooby (2016) recalibrated the dates to check the dates against more recent recalibrations (Table 1). Using the 'Calib' radiocarbon calibration program (Stuiver and Reimer 1993) and the SHCal13 Southern Hemisphere calibration curve (Hogg et al. 2013), it was found that Bailey's dates are still very accurate, with the date of shell mound accumulation starting slightly later at about 1587 cal BP. This means that the mounds also grew in size at a slightly higher rate (on average 23-24 cm per 100 years, as opposed to 19 cm per 100 years).

[1] The shell floodplain environment could also have been occupied for activities beyond shell fishing, as mangroves and other fauna and flora species could be utilised by people for food, technology and medicinal purposes (see Duke 2006).

Mound / sample ID	Height above base of mound (m)	Radiocarbon determinations (BP)	Recalibrated age ranges (cal BP) [probability]		
			One-sigma	Two-sigma	Median
B1 / SUA 122	1.6	920±80	724–822 [0.66] 828–843 [0.07] 860– 905 [0.63]	672– 928 [1.0]	796
B1 / SUA 123	0.85	1460±90	1189–1210 [0.08] 1266–1415 [0. 92]	1109–1139 [0.02] 1173–1532 [0.98]	1327
B1 / SUA 124	0.06	1720±80	1511–1704 [1.0]	1378–1394 [0.01] 1397–1748 [0.98] 1772–1785 [0.01] 1796–1801 [<0.01]	1587
B2 / SUA 125	0-60	1460±105	1185–1219 [0.11] 1232–1249 [0.05] 1259–1425 [0.84]	1080–1080 [<0.01] 1088–1535 [0.99]	1327

Table 1 Comparison of Bailey's (1975a) radiocarbon dates with updated recalibrations (Stuiver and Reimer, 1993)

Historical evidence

Ainsworth ([1847] 1987) provided a detailed description of the subsistence strategies of the Ballina Aboriginal group (also known as the Nyangbul-Bundjalung people) [2] in the 1840s. According to Ainsworth ([1847] 1987: 45), there was an 'oyster season' when various Ballina groups congregated on Chickiba Creek, though the exact season is undefined.

> The tribe usually camped in divisions at different places excepting during the oyster season, when they assembled unitedly at Chickiba, on North Creek, where the large oyster banks on the foreshores to this day mark the old feeding ground.

Other than Ainsworth's, there are few first-hand accounts of the Ballina people using the mounds after the 1840s, although it is likely that they were used for oyster feasts until the mining of the mounds from the late nineteenth century. It is worth noting that the Nyangbul-Bundjalung population during the 1840s was recorded as numbering between 100 (Fry 1843) and 500 (Ainsworth [1842] 1987). Bailey (1975b: 53) argued that these figures were consistent with the higher estimate probably referring to larger gatherings, and the smaller estimate related to periods of dispersal. The size of earlier Aboriginal regional populations is not known, although as Bailey (1975a) demonstrated, oyster would only be a small component of the diet, even if 25 or 500 people were feasting at the mounds.

The oyster appears to have been a defining characteristic of the region, as indicated by the origin of the name 'Ballina'. Ainsworth ([1847] 1987: 6) claimed that the name 'Bullenah' related to fish and oysters, their abundance in the neighborhood and the ease with which they could be obtained. Another tradition for Ballina's place-name is based on the oyster feasts.[3] An article in

[2] The Ballina group is believed to be a sub-group — or dialect group — known as Nyangbul of a broader Bundjalung nation group (Keats 1990). Therefore, the creators of the shell mounds are defined in this article as ancestors of the Nyangbul-Bundjalung culture. However, this is an arbitrary term, used in this article to separate the Ballina coastal group from other Bundjalung groups in northern NSW; it is not determined whether there were changes to group usage of the region, and therefore the mounds, through time.

[3] Ballina has also been ascribed to be drawn from 'Bullen Bullen' a name for large-scale ritual combats held between Bundjalung groups all through the Clarence, Richmond and Tweed Valleys (Hoff 2006).

the *Sydney Mail* (2 November 1921, p. 12) reinforces this account:

> In olden days, the aborigines [sic] gathered year after year at certain spots for oyster feasts. Bags of the bivalves were carried a considerable distance to the banqueting ground; where piles of shells a, dozen feet in height accumulated in the course of time. Thus the place called Ballina was known to them as Boolina, which means 'the place of oysters'.

Oyster feasts appear to be just one of the reasons for the large gatherings of Aboriginal people in the Ballina region during the nineteenth century; corroborees ('R.W.D' 1935), Bora initiation ceremonies and tribal conferences (Hoff 2006) also took place in conjunction with the feasts. The richness of the local resources is accentuated by the size of these gatherings, as often hundreds of people could gather at a place provided there was access to ample food (Sullivan 1978: 105). Ainsworth's ([1847] 1987) account also suggests that North Creek and Chickiba Creek could have been an ideal gathering place, with abundant oysters as well as other game in the surrounding rainforest and on the open beaches during fish-run seasons.

The archaeological and ethnohistorical evidence suggests that:

- Subsistence analysis alone is insufficient to interpret the Ballina shell mounds.
- There is ethnographic evidence that points to the idea that gatherings and social feasting was occurring in association with the mounds.
- There were burials in the mounds which have not been considered in the archaeological publications.

The burials

Statham's (1892b) report of a burial in a shell mound was occasionally followed by others during mining of the mounds from the 1890s to the 1930s. A search of newspapers using National Library of Australia's archival database (Trove) identified several further reports of burials. Although the articles were usually extremely brief, it is possible to discern several discrete burials, summarised below, all of which were found during mining operations on the mounds.

Statham (1892b: 311) described a human skeleton identified in 1892, which was associated with pademelon bones and a stone axe. Due to its association with European remains such as a clay pipe, Stratham believed that the skeleton dated to the post-contact period (roughly between 1828–1890).

In 1928, another single skeleton was reported in several newspapers[4], buried under a tree growing on top of a shell mounds. The skeleton was damaged when the tree fell. The articles describe that 15 'solid teeth', were preserved and stood out because they appeared worn away on one side as though filed down. Associated with the burial were several piles of stone, which were interpreted as 'fireplaces', as well as great quantities of shell.

In 1934, a worker (Mr. Stanley C.) was using a pick to remove oyster from the shell mounds, when his pick struck a skeleton. Most of the bones collapsed when touched, but the shinbones, jawbones and skull remained intact and were sent to Sydney University. The skull bore two deep indentures, resulting in the hypothesis that a blow to the head killed the individual. The position of the skeleton showed the body was lying down with its head facing east. A few months later, the skeleton was found by the Professor of Anatomy at Sydney University (Mr. A.N. Buckett) who argued that the skeleton was that of an aged Indigenous Australian woman. The skeleton was last recorded as having been added to the University collection.[5]

[4] 'Early history recalled: skeleton found at Ballina' *Northern Star*, Monday 6 August 1928, p. 4; 'Skeleton Found', *The Richmond River Express and Casino Kyogle Advertiser*, Wednesday 8 August 1928; 'Early history recalled: skeleton found at Ballina', *Daily Examiner*, Thursday 9 August 1928, p. 3.

[5] 'Skeleton unearthed at Ballina' *Northern Star*, Wednesday 10 October 1934, p. 11; 'Skeleton unearthed at Ballina' *The Sydney Morning Herald*, Thursday 11 October 1934, p. 12; 'Skeleton unearthed' *Barrier Miner*, Friday 12 October 1934, p. 2; 'Skeleton unearthed' *The Scone Advocate*, Friday 12 October 1934, p. 2; 'Skeleton unearthed at Ballina' *The Singleton Argus*, Friday 12

The last report of burials in the shell mounds of North Creek was in 1936, and described five skulls and skeletons which had been unearthed. They were believed to be part of an 'ancient burial ground'. None of the burials were intact, and there were indications that the remains showed traces of having been burnt. It was reported that the remains were used combined with shell for materials of road.[6]

Although relatively few documented examples of burials were identified, this may not be due to a low frequency of burial incidents, but rather a rapid rate of shell mound destruction. Moreover, burials were clearly not considered particularly significant or important; reporting them in the newspaper was clearly a matter of chance. At least eight individuals from five burials could be identified from the reports noted above. It is likely that many more burials were found but not reported, as suggested by Australian Town and Country Journal (Saturday 14 December 1895):

> From time to time parts of human skeletons have been discovered in [North Creek shell mound] and neighboring heaps, but in such a state of decay as to prevent intact removal. Interruptions in the layers of charcoal and other disturbances show that graves were dug for the reception of dead bodies in the already accumulated material.

There were difficulties in analysing the newspaper accounts, mostly due to the lack of details about the burials that prevents high-resolution analysis. Another issue is the lack of dating of the human remains, making it extremely difficult to accurately interpret potential changes to burial practices over time. The record is therefore biased, fragmented and vague. However, only published reports from digitised newspapers were searched. An investigation of other published or unpublished historical sources might well provide new information. Despite these challenges, it is clear that the regular presence of burials adds a new level of significance to the shell mounds that needs to be discussed.

Analysis and discussion

The historical and archaeological evidence provides opportunities to reframe interpretations of the shell mounds using various theoretical frameworks. Linking the evidence of burials to the theoretical framework of 'persistent places' and outcome theory assists with re-presenting the shell mounds as multifunctional and multigenerational sites of importance.

Schlanger (1992: 97) introduced the concept of 'persistent place' to describe a place used repeatedly during the long-term occupation of a region, but not necessarily for long-term residential habitation. Schlanger (1992: 97) argued that there are three conditions that encourage persistent place behaviours: a place that has natural resources and setting suitable for a particular activity; a place that has cultural materials (such as previously discarded stone tools); and a place that contains a cultural feature that serves as a marker. A persistent place is different from other landscapes encountered by humans, as it contains archaeological evidence for one or more of the following behaviours: site specialisation, site re-occupation, and site re-visitation.

Schlanger (1992) used the concept of persistent places to describe abandoned residential settlements that were then continuously revisited and reused for a variety of reasons. The term persistent place has also been applied to a variety of different hunter-gatherer, horticultural, and early agricultural past societies around the world (e.g. Littleton and Allen 2007, Littleton 2007; Shiner 2009; Fish et al. 2013). Fish et al. (2013) directly apply this theory to the monumental *sambaqui* shell mounds of Brazil, arguing that these visually dominating mounds were persistent places. The archaeologists argued that the shell mounds exerted 'inanimate agency' through

October 1934, p. 7; 'Skeleton unearthed' *Daily Examiner*, Friday 19 October 1934, p. 11; 'Skeleton unearthed' *Maryborough Chronicle, Wide Bay and Burnett Advertiser*, Friday 26 October 1934.

[6] 'Skeletons found: Ancient burial ground?' *Northern Star*, Thursday 17 December 1936, p. 10; 'Ancient Burial Ground?' *Daily Examiner*, Tuesday 22 December 1936, p. 4.

facilitating funerary events and feasting over 2000 years (Fish et al. 2013). The theory is applicable to the shell mounds of North Creek, as they demonstrate a pattern of long-term site use and re-visitation.

The 'agency' of a continuously re-visited or occupied shell mound is supported by another theoretical framework: 'outcome theory'. Outcome theory is not a formal term but rather a shorthand way of describing ideas proposed by Fletcher (2004), who argues that material culture can be an independent facilitator of social action, and that the interaction between material agents and sociality generates outcomes which were not originally intended. The people who started mollusc harvesting at North Creek around 1720 BP most likely did not imagine that their discard areas for oyster shells would grow to monumental sizes as generations of people visited the same oyster grounds.

The shell mounds of Ballina were repeatedly re-visited over hundreds of years, the outcome of which was the creation of a persistent place. The stable, productive estuarine environment of Ballina supported the shell mounds as a place for a particular activity, in this case shell fishing. The stable mangrove environment allowed a sustainable population of *S. glomerata* oyster, which could be annually harvested. Although it is likely that re-visitation at first occurred to habitually exploit estuarine natural resources, it is not difficult to conceive that the growing piles of discarded shellfish remains created a cultural marker that focused re-visitation in persistent places, as Schlanger (1992) suggests. Earlier settler reports and images (see Navin and McConchie 1991; Figure 3) indicate that these mounds dominated the landscape, and probably drew people to the same spot when shell fishing, or at least marked the place where shell fishing was undertaken in the past and present. In being a cultural marker, the mounds asserted agency by attracting reoccupation and structuring activities associated with these monumental structures.

The mounds were what Fletcher (2004) would describe as an 'operator in its own right', with its agency reinforced due to the continuous meaningful interaction between the mounds and the people (Robb 2010). Similar conclusions have been drawn by McNiven (2013), describing the rituals surrounding midden accumulation in the Torres Strait generating social outcomes that far exceed those expected for mere collections of refuse. I would argue that at Ballina, the continuous and most likely increasing accumulation of shell debris over time, and the addition of burial activities, illustrates that the mounds were producing social outcomes far beyond collections of food refuse.

The North Creek shell mounds were not just being used to satisfy hunger; there was no shortage of rich, nutritional food in the region (Sullivan 1978). The mounds were persistent places of human activity, including burial rites, which spanned generations. The ethnohistorical evidence confirms that activities at the mounds included large congregations of people from different parts of the region. Whatever the exact nature of social behaviour, evidence of re-visitation, site specialisation, and burials all combine to demonstrate that the mounds were cultural monuments embedded within the societies of people who lived in the region.

Conclusions

Bailey (1975a) argues that the scale of the Ballina mounds is out of proportion to the actual importance of shellfish to past Aboriginal people in terms of diet and economy. I argue that the visibility and durability of shell mounds is a catalyst for social gathering, and the mounds were of unique importance to past Aboriginal people in terms of social organization. The shell mounds represent a material reminder of generations of ancestor activity. The outcome of the shellfish processing and discard around North Creek in Ballina was the creation of a social monument. This marker, and its particular environmental conditions, established a persistent

place at which burial activities took place, with the mounds themselves probably increasingly attracting re-visitation and shellfish consumption. The shell mounds of Ballina are best characterised as monumental persistent places containing burials.

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