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AN ISLANDER WORLD: MANAGING THE ARCHAEOLOGICAL HERITAGE OF TORRES STRAIT

IAN J. MCNIVEN, JUDITH FITZPATRICK AND JOHN CORDELL

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While major efforts have been made to protect culture heritage sites of Aboriginal people over the past 30 years, the same cannot be said for cultural heritage sites of Australia's other major indigenous people — Torres Strait Islanders. In light of this neglect, the Island Coordinating Council, with support from the Queensland Environmental Protection Agency (EPA) (formerly Department of Environment and Heritage), established the 'Culture Site Documentation Project' to assemble available literature on cultural heritage sites and site management issues for the region. The Project documented 621 known and potential archaeological sites on 42 islands in the Strait. Of the 21 site types identified, most are horticulture/grove/tree sites and stone-walled tidal fishtraps, followed by arrangements of shell, bone and/or stone, old village sites, burial/skull locations, shell middens and rock-art sites. Only 17% of known sites are recorded with EPA and those records are heavily biased towards shell middens. The major limitation of existing culture site data is lack of information on site location and site conservation needs. The four largest conservation issues for Torres Strait culture sites are: (1) threats from infrastructure developments; (2) threats to rock-art sites from weathering; (3) lack of recordings of storyplaces (especially those in the sea); and (4) lack of formal culture site management programs within the region. Effective management of cultural heritage sites across Torres Strait will require a major increase in resourcing to support community-based cultural heritage management programs for individual islands. Initiatives by the Mabuiag community to protect culture sites represent an important development in this regard. ❒ *Cultural heritage management, archaeological sites, Torres Strait Islanders, community-based organisations*.

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This paper presents the first detailed overview of cultural heritage sites in Torres Strait. While major advances have been made over the last 30 years in the documentation and management of Aboriginal sites across Australia, very little effort has been put into documenting and protecting culture sites of Australia's other major Indigenous group — Torres Strait Islanders. We redress this issue in part by bringing together a wide range of published and unpublished material on one particular dimension of culture sites — archaeological sites. The range of known and potential archaeological sites in Torres Strait is discussed and significant conservation issues that affect these sites and their future are highlighted.

Three issues have contributed to the marginalisation of Torres Strait Islander culture sites by research institutions, management agencies and government when compared to Aboriginal culture sites. First, Torres Strait is located in a remote part of Australia and well away from major government decision-making processes. Second, because of logistical complexities associated with reaching these remote islands, fieldwork is extremely expensive. Third, the first and only general archaeological field survey of the region in 1972 (Vanderwal, 1973) was undertaken at a time when the national archaeological agenda focused on the Pleistocene following the extraordinary discoveries of 30-40,000 year old Aboriginal materials (artifacts and burials) at Lake Mungo in western New South Wales (Bowler et al., 1970; Flood, 1995; Mulvaney & Kamminga, 1999). As Vanderwal only found evidence of recent Islander use of the Strait (e.g., shell middens), archaeological interest in the Strait was minor.

With the rise of Indigenous cultural heritage site management in the late 1970s and early 1980s (Sullivan, 1985), and a parallel re-orientation of Australian archaeology towards developments in

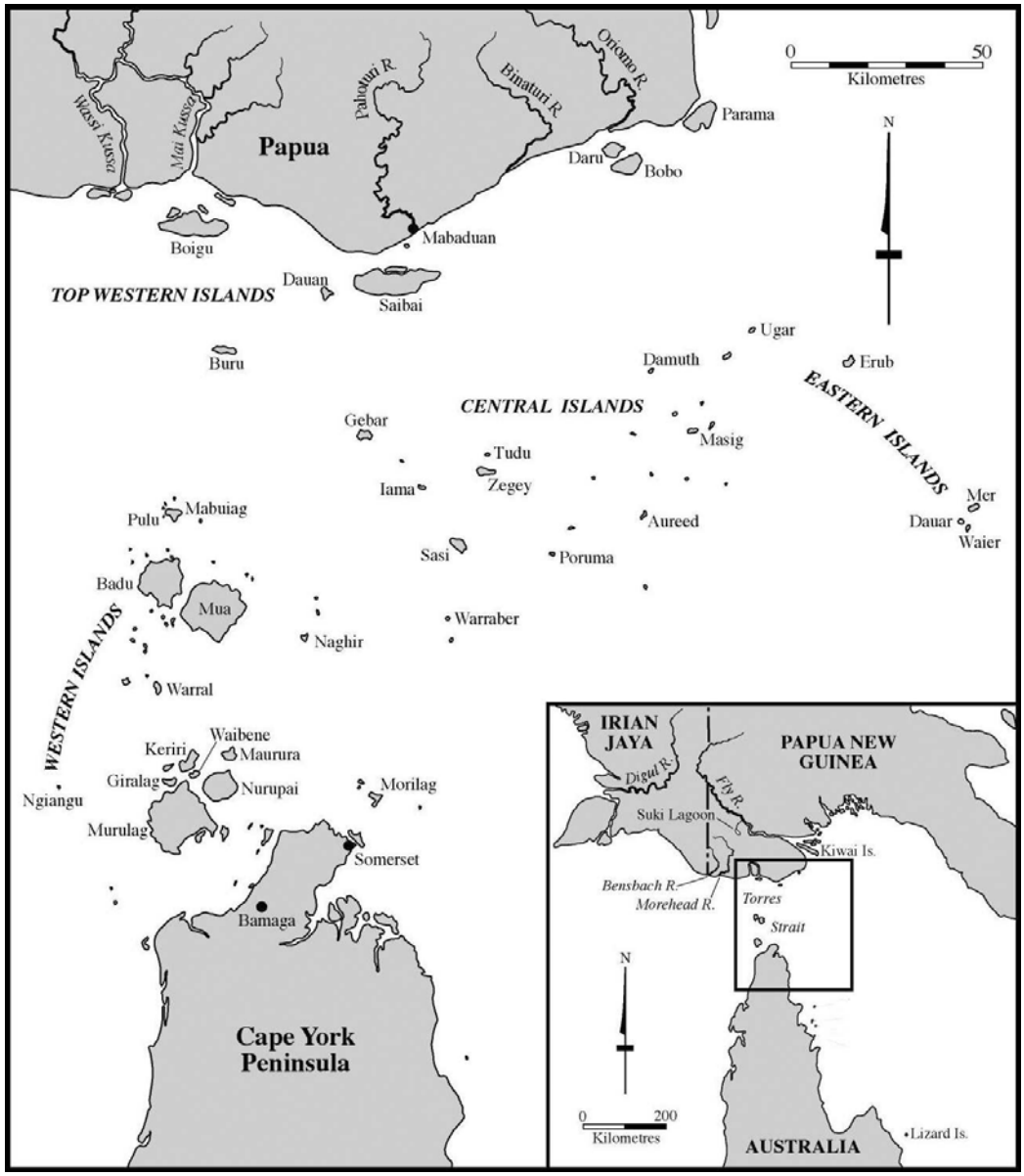

FIG. 1. The study area.

the last 5000 years (Lourandos, 1997; Lourandos & Ross, 1994), the archaeological values of Torres Strait were re-assessed. This re-assessment resulted in a major archaeological and palaeoenvironmental research initiative in Torres Strait during the 1980s by David Harris and Tony Barham (Barham, 2000). However, it was only in the 1990s that issues of culture site protection — including protection of archaeological sites — became a major issue for Torres Strait Islanders. While Islanders have always been interested in the protection of culture sites and cultural knowledge, these concerns intensified during the 1970s and 1980s with accelerated destruction of culture sites. This acceleration was a direct result of a major increase in government spending which saw

construction of numerous dams, roads, houses and airstrips on many Torres Strait islands. While these infrastructure developments gave a tremendous boost to essential services for Islanders, they came at a cost. By the early 1990s, the issue of culture site protection came to a head, particularly with an invigorated expression of Islander cultural identity and heritage following the landmark Mabo native title court decision. Our study is a direct manifestation of these new concerns.

At the outset, we emphasise that archaeological sites are but one facet of the diverse range of culturally significant sites and places existing in Torres Strait (as they are for Aboriginal Australians and for all cultural groups). As such, the findings presented in this paper represent the first stage in developing a holistic and integrated cultural heritage management strategy that includes all forms of culture sites and cultural resources across the diverse landscapes and seascapes of the region. We will argue that the key to successful culture site management in Torres Strait is for individual islands to establish community-based cultural heritage programs. To work effectively, these programs will need to establish mechanisms that allow articulation with the centralised regional government administration bodies on Thursday Island (e.g., Island Coordinating Council and Torres Strait Regional Authority) and mainland State and Federal government heritage agencies (e.g., Queensland Environmental Protection Agency and Environment Australia). The key to successful articulation is the establishment of a centralised cultural heritage unit on Thursday Island.

TORRES STRAIT

The study area takes in the islands of Torres Strait (Fig. 1). No attempt has been made to document culture sites located along the adjacent coastlines of Papua New Guinea (PNG) and mainland Australia. Torres Strait is 160km wide (N-S) and 200km wide from Badu Island to Mer (Murray) Island. In this 40,000 km^2 watery realm are 150 islands, coral reefs and sandy cays of which 18 are inhabited. Of the 8600 inhabitants, nearly 6000 people identify as Torres Strait Islanders. Some 200 Aboriginal people (mostly Kaurareg) inhabit their traditional lands in the SW corner of Torres Strait. The Top Western Islands of Torres Strait have close contacts with their PNG neighbours. A further 23,000 Torres Strait Islanders and 9,500 people identifying as mixed Torres Strait Islander/Aboriginal heritage live on the Australian mainland, the majority in coastal Queensland. Torres Strait Islanders make up 11% of Australia's indigenous population. The 17 Island Councils work with the Island Coordinating Council (ICC), the Torres Strait Regional Authority (TSRA) and The Torres Shire Council (TSC) (Arthur & Taylor, 1995; House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs, 1997).

CULTURE SITE DOCUMENTATION PROJECT (1996-1998)

At the conference 'Our culture: maintenance and preservation of Torres Strait Islander culture' held on Thursday Island in 1992, concerns were expressed by various Torres Strait leaders and senior community members that significant domains of traditional knowledge and cultural heritage sites and places were being lost or jeopardised by uncontrolled development and other pressures associated with social change. In light of these concerns, the Island Coordinating Council was awarded a Commonwealth National Estate Grant in 1996 to document culturally significant sites across Torres Strait. The 'Culture Site Documentation Project' (CSDP) turned out to be the stimulus to establish an enduring culture site management program with a detailed database and methodology Islanders could use for conservation and development planning throughout the region (Fitzpatrick et al., 1998).

DEFINING CULTURE SITES. Culture sites are those places that have cultural meaning in terms of the human history and heritage of a particular area. Two broad kinds of culturally significant places were identified for Torres Strait: 1) culture sites with archaeological evidence (i.e., objective evidence of human modification), and 2) culture sites without archaeological evidence. The most significant examples of non-archaeological sites are storyplaces. Although storyplaces can exhibit archaeological materials, and many storyplaces have been recorded in the literature (Haddon, 1904a, 1908a, 1912a, 1935; Laade, 1971; Lawrie, 1970), for the most part these sites can only be identified by (knowledgeable) Islanders.

While no explicit temporal restrictions were placed on defining archaeological sites, 'historical' sites dominated by materials dating to after European colonial settlement of the islands in the late 1860s (e.g., pearling stations, churches, WWII sites, cemeteries, monuments, shipwrecks) fell outside the scope of the study (Grimwade,

this volume; Illidge et al., this volume; McPhee, this volume). As many 'traditional' sites can reveal items of European origin dating from the early contact period of the late 18th and early 19th Centuries (e.g., old village sites with pieces of steel and bottle glass - Ghaleb, 1990; McNiven, 2001; Vanderwal, 1973), the distinction between 'traditional' and 'historical' sites is sometimes arbitrary and blurred (see L'Oste-Brown et al., 1998 for a detailed discussion of this issue for Aboriginal sites in central Queensland). However, while most sites included in the study began their 'cultural life' before European settlement, it is important to appreciate that their cultural meaning and heritage significance continues to this day. The focus on these archaeological sites would also be of benefit to the EPA as the strengths and weaknesses of the State Government's archaeological site database could be assessed.

A final definitional issue involved known versus potential archaeological sites. A site was defined as a 'known archaeological site' if explicit information was available documenting physical modification (including the presence of cultural materials). 'Potential archaeological sites' relate to general references to sites without explicit reference to physical modification but which we predicted to exhibit such modification, especially in the form of the presence of cultural materials. For example, in the 19th Century many European mariners made references to village sites on various islands in Torres Strait. All of these sites were designated potential archaeological sites as it is expected that they have a material culture expression (e.g., presence of midden deposit, stone tools, etc).

SOURCES OF DATA. The project database was generated through a detailed literature survey. The primary sources of site information were anthropological and archaeological literature (Barham & Harris, 1983, 1985, 1987; Beckett, 1963; Coleman, 1991; Haddon, 1904a, 1908a, 1912a, 1935; Harris et al., 1985; Laade, 1971; Moore, 1979; Neal, 1989; Rowland, 1985; Vanderwal, 1973) and a print-out summary of the EPA site database for the region. This information was supplemented by examining historical texts such as published ships' logs (e.g., Jukes, 1847; MacGillivray, 1852), missionary accounts (e.g., Gill, 1876; McFarlane, 1888), popular travel stories (e.g., Barrett, 1954; Simpson, 1955) and popular local history/culture texts (e.g., Boigu Island Community Council, 1991; Lawrie, 1970; Singe, 1979; Teske, 1986a). No field surveys were undertaken to find new sites. Except where stated overwise, site data is relevant for the period up to 1998.

SURVEY RESULTS: THE SITES

NUMBER OF SITES. 621 archaeological sites were recorded for 42 islands. These sites were divided into 520 (84%) known sites and 101 (16%) potential sites. Most potential sites were either village sites (n=55) or wells (n=20). The number of sites on islands ranges from 84 (Boigu) to 1 for 6 islands. Three major frequency groupings were identified for islands. First, the 2 Top Western Islands of Boigu and Saibai have by far the highest number of sites at 84 and 81, respectively. The second group is represented by the Eastern Islands of Mer (63 sites), Erub (56 sites) and Ugar (41 sites) and the Western Islands of Mabuiag (39 sites) and Mua (47 sites). The third group is represented by 35 islands with 26 or fewer sites and includes all the Central Islands and the islands of the Prince of Wales Group in the SW Strait.

SITE TYPES. 21 different site types were identified (Appendix). Defining site types was difficult given the highly varied quality and detail of sources (cf., L'Oste-Brown et al., 1998). Sites can be classified along archaeological lines based on the type of materials they possess (e.g., rock-art site, shell midden). Alternatively, sites may be classed according to their known or perceived function by Islanders (e.g., ceremonial/ritual places such *kod* sites and *zogo* sites). For example, a site may exhibit an arrangement of *bu* shells (Trumpet shell, *Syrinx aruanus*) and be classified as a 'shell arrangement' (an archaeological classification) while other information may indicate the shells were once part of a *kod* site (an Islander classification). Both site classification schemes need to be used as not all known sites such as *kod* sites reveal physical remains (at least not on the surface) and not all *bu* shell arrangements are known to be part of *kod* sites. Although most (87%) sites exhibited only 1 site type, up to 6 site types (or multiple values) were recorded at a site (e.g., Gumu village-ritual site complex on Mabuiag).

The diversity of site types for each island group across the Strait is similar, with the Central Group (18 site types), Eastern Group (17 site types), Top Western Group (16 site types) and the Western Group (14 site types) (Table 1). For individual islands, the highest diversity of sites is found on

TABLE 1. Frequency of site types for Torres Strait. Based on records to 1998. TW = Top Western Island Group, W = Western Island Group; C = Central Island Group; E = Eastern Island Group. (N.B. for the purposes of this paper, Naghir Island site data is included in the Central Islands and not within the Western Islands as in Fitzpatrick et al. (1998).

Site Type	Total	Number of Sites			
		TW	W	C	E
1. Horticulture/grove/tree sites	174	142	17	6	9
2. Fishtraps	115	0	27	4	84
3. Stone/bone/shell arrangements	103	7	41	29	26
4. Old village sites	71	7	27	10	27
5. Burial/skull sites	62	5	28	21	8
6. Shell middens	51	11	34	3	3
7. Rock-art sites	34	3	19	3	9
8. Wells	31	12	4	10	5
9. *Zogo* sites	15	1	0	4	10
10. *Kod* sites	13	3	4	6	0
11. Stone artefact sites	12	8	2	2	0
12. Stone carvings	11	4	0	3	4
13. Ovens	10	0	6	3	1
14. Stone tool quarries/sources	10	3	2	3	2
15. Ochre quarries	7	1	2	3	1
16. Rockshelter occupation sites	6	1	2	1	2
17. Canals	3	3	0	0	0
18. Grinding grooves	3	2	0	1	0
19. Clam shell water holders	2	0	0	1	1
20. Other stone structures	1	0	0	0	1
21. Carved/scarred trees	1	0	0	0	1

Mer (17 types) followed by Saibai, Mabuiag and Murulag (each 13 types).

The most common archaeological site types are horticulture/grove/tree sites (174 sites) and stone-walled tidal fishtraps (115 sites) (Table 1). They are followed by arrangements of shell, bone and/or stone (103 sites), old village sites (71 sites), burial/skull locations (62 sites) and shell middens (51 sites). The most widespread site type is arrangements of shell, bone and/or stone that are found on 25 islands. They are followed by burial/skull sites (22 islands) and old village sites (20 islands). Some 34 rock-art sites are known for 14 islands (NB. subsequent reanalysis has modified the known number of rock-art sites to 35 – McNiven & David, this volume). The rarest site type is carved trees with a single vague reference for Mer (Simpson, 1955: 19). No scarred trees (associated with removal of bark as a raw material) have been reported for Torres Strait.

PREDICTED NUMBER OF SITES. It is likely that the number of identified archaeological sites is conservative given that most site information was collected in an ad hoc fashion and no comprehensive survey has been conducted on any Torres Strait island. The most reliable information has come from systematic surveys undertaken by archaeologists in the 1970s and 1980s. The most intensive of these surveys focused on parts of Saibai, Mabuiag and Mua.

The value of intensive surveys is revealed by Yam Island. When Ron Vanderwal undertook a preliminary survey of the island in 1972, he recorded:

> Some occupational debris was noted along the foreshore of a narrow stretch of beach on the northern point. No flaked stone was seen. The only item of archaeological value was a series of grooved rocks [as recorded by Haddon, 1935:76] (Vanderwal, 1973: 181).

When Neal carried out a more comprehensive survey of Yam Island in 1989, he observed extensive stone arrangements estimated to cover '50-80% of the island' (Neal, 1989: 29). He (1989: 28) concluded that 'Vanderwal's account of scant archaeological remains on Yam Island is inconsistent with the findings of the present

project'. Numerous other sites such as rock-art (Singe, 1993: 6), fishtraps (Lawrie, 1970: 250), skull sites and shell arrangements (Teske, 1987a) are also known for the island.

Predictions on the total number of culture sites across Torres Strait are difficult to determine, again because of lack of systematic recordings and the dynamic nature of the archaeological record (cf., McNiven, 1997). However, it is clear that the number of story-places and other sites of symbolic significance number well into the 100s for the region. The number of such sites cited in Lawrie (1970) and Laade (1971) alone would easily account for this estimate. As Laade (1971: xix) observed:

> The majority of the stories are local legends and clan tales or both in one. Many of them tell the origin of certain rocks of particular shape which are said to have been human beings formerly, *adi* people, of course. Stories with such contents are widely found in Torres Strait, they almost outnumber all other themes. This seems only too natural in an area full of oddly shaped rock formations.

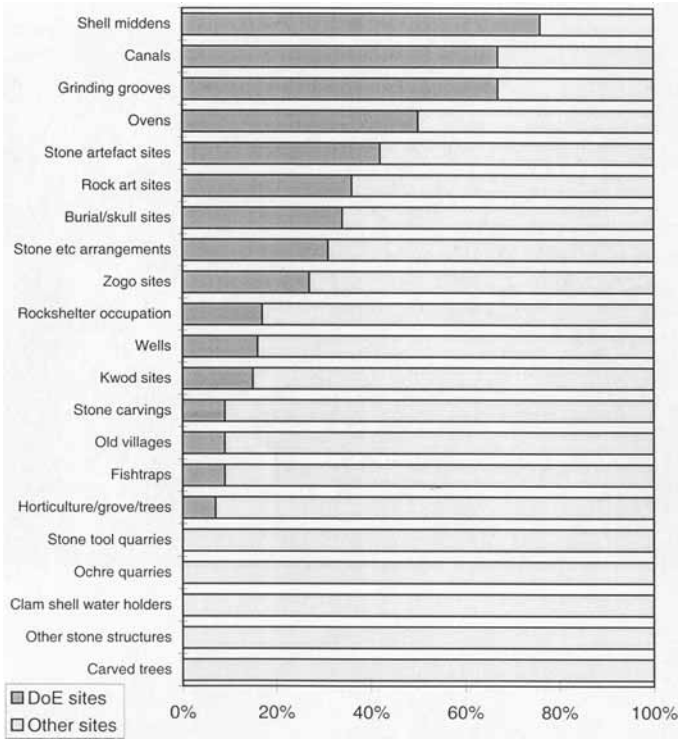

FIG. 2. Proportion of archaeological site types registered with EPA. (NB. many sites exhibit more than one site type).

Except for stone monolith (story) sites in the inter-tidal zone of many islands, few written records document culture sites across the waters and vast coral reef systems of the Strait. The fact that many of these reefs and waterways were used in the past (as many are today) and have names and stories associated with them indicates the existence of an elaborate and textured seascape, little known and little appreciated by outsiders.

Thus, we predict that well over 1,000 archaeological sites exist across Torres Strait and that the total number of culture sites is at least 1,500.

COMPARISONS WITH GOVERNMENT RECORDS. Only 105 Torres Strait archaeological sites are included on the Heritage Branch site register (Townsville EPA Office). These sites represent only 20% of the known sites and 17% of the known and potential sites documented by the CSDP. All EPA registered sites were classed as known sites by the CSDP. Only half (n=21) of the 42 islands with archaeological sites have site registrations with EPA. Saibai and Mua reveal the highest number of EPA registered sites, as both islands have been important foci of past archaeological research (e.g., Barham & Harris, 1983, 1985, 1987; Ghaleb, 1990; Harris et al., 1985).

Major differences occur in the relative proportion of site types recorded by the CSDP and those registered with EPA (Fig. 2). Three-quarters (76%) of EPA sites are shell middens. In contrast, no stone tool quarries/sources, ochre quarries, clam shell water holders, and 'other' stone structures have been registered. Similarly, only 10 of the 115 fishtraps and 12 of the known 174 horticulture/grove/tree sites have been registered. A wide range of reasons exist to account for these discrepancies in registration such as different perceptions of site recorders as to what are significant archaeological sites worthy of recording and different abilities of recorders to identify sites. However, the key reason is that most site registrations have been made by archaeological researchers who had specific research interests and who avoided sites of special significance in deference to local community wishes (Tony Barham, pers. comm., 2001).

LOCATION DETAILS. The quality of location data for sites varies considerably from precise information with detailed grid references and map plots to 'vague' references to sites being located somewhere on a particular island. Only 363 (59%) of the 621 sites had 'specific' site location information that included maps with specific plots. In contrast, 123 (20%) sites had only 'vague' location information. Most (83%) EPA registered sites had specific location data. Of the sites with specific location data, only half (n=40) had detailed grid references for scale maps of 1:100,000 or less. This represents only 6% of all recorded sites. Sites with grid references for maps with scales of 1:250,000 were not considered 'detailed' given that a 2mm-wide dot on a map of this scale represents 500m which is neither precise nor useful for Torres Strait, where many islands measure only a few kilometres across.

LIMITATIONS OF SITE RECORDS

LACK OF SURVEY RECORDS. Despite the quality of much previous archaeological research in Torres Strait, very few researchers ever marked on a map exactly where they surveyed for sites. As such, it is difficult to know if the patchy distribution of sites on many islands is real or simply an artefact of a patchy survey strategy. In short, it remains unknown if further sites are located between presently known sites. Unfortunately, light can only be shed on this problem through comprehensive (re)surveying of islands.

LACK OF SURVEYS. Despite the large number of known and potential archaeological sites identified, it is clear that most of the islands of Torres Strait remain poorly documented in terms of recorded culture sites. This study identified 42 islands with sites yet only 30 of those islands have ever been surveyed for archaeological sites. All of the so-called surveyed islands have only been partly surveyed. No Torres Strait island has ever been systematically surveyed in its entirety for culture sites. Furthermore, some major islands known to have been used extensively in the past such as Tudu, Aureed and Damuth have never been surveyed. Some islands, such as Mua, Badu and Murulag, are in excess of 100km^2 in area, so very considerable resources would be required to achieve even partial coverage. Smaller islands and cays could be surveyed in much greater detail and completely, with smaller resources.

LACK OF SITE LOCATION DETAILS. The fact that only 6% of sites have detailed grid references is of considerable concern for site management. If the actual location of sites is not known then it is extremely difficult to predict if certain activities will impact negatively on those sites. Precise site location information is essential in culture site documentation and conservation planning, as it is difficult to care for sites if you don't know where they are! Clearly, a need exists to increase the quality of site location information for existing sites by obtaining detailed GPS grid references for those 94% of sites with poor location data. While poor provenance is an issue with official site recordings, our experience indicates that Elders know the location of many of these sites.

LACK OF CONSERVATION DATA. Despite numerous comments made by researchers regarding the integrity of culture sites and processes that are slowly destroying sites, no detailed conservation plans have ever been developed for culture sites in Torres Strait (cf., McNiven et al., 2001). While it is clear that many Islanders have taken action to preserve numerous important culture sites (e.g., keeping visitors away from special sites, moving special stones away from development impacts, etc.), many sites are located away from settled areas, making monitoring of site impacts logistically difficult. Furthermore, preserving many sites will require highly specialised skills as in the case of rock-art conservation. The first step in acquiring conservation planning data is to visit sites and see what sort of impacts threaten their integrity and heritage values. Once the issues and problems are identified, relevant conservation plans can be drawn up and implemented.

The *kod* site on Pulu Islet located off the W coast of Mabuiag provides an excellent example of a complex and varied site requiring the development of conservation plans. Alfred Haddon and other members of the Cambridge Anthropological Expedition recorded this site just over 100 years ago in 1898. Haddon (1935: 60) recorded numerous rock paintings on granite boulders around the edge of the *kod* site and mentioned that they were 'nearly effaced' or weathered away. In 1972, Ron Vanderwal (1973: 180) visited the site and noted that 'subsequent weathering has made them nearly indistinguishable'. Ghaleb (1990: 149-150) observed that the paintings were 'partially obscured by mineral and organic staining' in 1985. Teske (1986a: 40,

46-47) also noted 'faded paintings' at the site. When we visited the art sites in 1996, we too noted that many of the paintings were weathering away due to rainwater runoff, exfoliation, lichen growth and sand blasting. Clearly, if these paintings are to be available for viewing by future generations of Torres Strait Islanders, detailed recording of the rock-art and professional assessment of its conservation needs are required so destructive impacts can be stopped, minimised or mitigated (McNiven et al., 2002).

BIASES AND MISREPRESENTATIONS IN THE LITERATURE. It would be naive to believe that references to culture sites in the literature are all accurate and comprehensive. One of the biggest problems is the use of historical records written by Europeans who knew very little about Torres Strait Islander culture and who had very little interest in cultural activities unless they seemed exotic. Furthermore, early writers were simply not interested in describing culture sites, particularly as many sites, such as middens, stone tool quarries and grinding grooves, only became interesting and useful to archaeologists during the 20th Century. Therefore, until detailed surveys are undertaken on many islands of Torres Strait, the full range and scale of archaeological sites will not be known.

Available information on the source of stone-headed clubs (*gabagaba*) used by Torres Strait Islanders provides a good example of how historical records can be wrong and misleading. Nearly all published information on Torres Strait *gabagaba*, including Reports of the Cambridge Anthropological Expedition, suggests that these weapons were imported from PNG. However, as part of the CSDP, Friedrich von Gnielinski (Geological Survey of Queensland, Brisbane) examined *gabagaba* held by the Queensland Museum and University of Queensland Anthropology Museum to determine raw materials and potential source/quarry sites. Significantly, all *gabagaba* were manufactured from stone known to outcrop *within* Torres Strait. Three important conclusions are drawn from this new data. First, early historical and anthropological records are wrong to suggest Torres Strait *gabagaba* were primarily Papuan imports. Second, Torres Strait Islanders were the manufacturers of Torres Strait *gabagaba*, perhaps even manufacturing their own special types of *gabagaba* that differed in some instances to PNG stone-headed clubs. Third, and of most relevance to the CSDP, local *gabagaba* manufacture indicates the likelihood that there are a range of stone quarry sites across Torres Strait not mentioned in the literature (McNiven, 1998; Hitchcock, this volume; McNiven & von Gnielinski, this volume; McNiven, von Gnielinski & Quinnell, this volume).

MAJOR SITE IMPACT THREATS

A wide range of natural and human processes is impacting sites across Torres Strait. The most significant of these are discussed below.

WEATHERING/VANDALISM OF ROCK-ART. Most researchers who have either recorded or discussed Torres Strait rock-art have commented on processes of weathering. As noted above, Haddon (1904b: 4) and Vanderwal (1973: 180) observed that the red painted images at the Pulu *kod* site had been affected by weathering. The hand stencils on *Menguzi Kula* at Pulu that Haddon photographed in 1898 are no longer visible (McNiven, et al., 2002). On Mua, Beckett (1963: 52) recorded a series of images and observed that 'a number have been effaced by a sort of moss'. Singe (n.d.: 6) noted that Torres Strait paintings are 'deteriorating rapidly' and that in 'many cases ... they are represented by a red discolouration in the rock which eludes all but the most diligent inspection'. He observed that the canoe painting at the Badane site on Keriri had deteriorated since Haddon's time while a 'number of paintings were lost' through roof-fall (Singe, n.d.: 11). Images at the Buttertin site on Murulag were also described as 'deteriorated' (Singe, n.d.: 17). In this connection, Cole & David (1992: 16) suggested that the low range of colours, especially the absence of yellows and oranges, for Torres Strait rock paintings may relate to pigment availability or 'the failure of these pigments to survive' (Cook et al., 1990). Such is the extent of rock-art weathering recorded by Singe (n.d.: 24) that he declared that the 'location and recording of other painting sites on the islands must be undertaken immediately as it is apparent that the paintings are deteriorating rapidly'.

Many of the paintings located in the caves on Booby Island have had names painted over them by people from passing boats/ships. In some cases, this graffiti is quite old and has accumulated an historical significance in its own right. However, the removal of more recent graffiti may destroy the underlying paintings (Coleman, 1991). Uncontrolled visitation to art sites has also resulted in the destruction of an extremely rare, shell ochre container on the floor of Badane Art

Site on Kiriri (John Singe to Ian McNiven, pers. comm., 1996).

INFRASTRUCTURE DEVELOPMENTS. Our research suggests that infrastructure developments in the form of construction of buildings, dams, airstrips, roads and rubbish dumps are a major destructive force effecting culture site integrity in Torres Strait. In terms of buildings, Laade (1969: 39, 158) noted that special old meeting places were destroyed by the building of a teacher's house and medical Aid Post on Mer while other building construction destroyed a *zogo* site (a holy or sacred site) on the island. On Saibai, Harris et al. (1985: 34) noted the impacts of 'construction activity' on site preservation. In terms of dams, Lawrie (1970: 24) recorded that a stone person ('effigy') was found while blasting a dam on Mua and the dam was moved. Most references to development impacts to sites refer to the construction of airstrips. While these facilities represent something of a lifeline for island communities, their installation has come at a cost to the cultural heritage of Torres Strait. On Boigu, the airstrip was built over Koey May (well site) and former gardens (Boigu Island Community Council 1991: 26). On Saibai, the Thurickangegath canal was 'closed by earth works during the construction of the airstrip' (Singe, pers. comm. 1996). On Yam, a large garden area (Neal, 1989: 29) and *kod* site were severely damaged by clearing for the airstrip. In the case of the *kod* site, some remains (*bu* shells) were salvaged and moved to the side of the strip (Teske, 1987a: 36). On Mua, a site with a *bu* shell on some rocks was moved to make way for the airstrip (Teske, 1986b: 26). On Thursday Island (Waibene), 'tribal elders of the Kaurareg tribe' were 'outraged' after 'sacred stones' had been removed from the proposed site for the Thursday Island Childcare Centre (*Torres News* 14-20 October 1994, pp.1, 3).

EROSION OF MIDDENS. Most archaeologists visiting Torres Strait comment on the effects of erosion on the preservation of occupation remains. Vanderwal (1973: 170) suggested that only items made from bone, stone and shell would be likely to survive. Barham & Harris (1983: 536, 542) noted that Torres Strait is characterised by 'the general absence of good preservational environments for archaeological remains', particularly for 'inland' areas. Rowland (1985: 130) suggested that lack of organic remains in the lower and older occupation layers of a site on Mua may reflect decay 'due to high rainfall and temperatures'.

FIG. 3. Mark David from Yam Island inspecting severe erosion at the Tudu Bone Mound in 1999. (Photo: Ian McNiven).

Most archaeological researchers in Torres Strait also mention the impact of coastal erosion on shell middens. Vanderwal (1973: 176) suggested that the 'lack of sites with definite signs of ... occupation' on Badu may be due to the exposure of the coast to 'two very powerful erosive agents':

> the wind that blows unceasingly through the southeast season and the enormous force of water occasionally driven onto exposed beaches by the periodic cyclonic winds of the northwest monsoon season. (Vanderwal, 1973: 176)

Vanderwal (1973: 176, 181) added that sites may also have been 'destroyed or covered by ... inward beach migration' and that the <1m occupation deposit on the NW side of Gebar Island had been sectioned by 'tidal wash'. Harris et al. (1985: 7) recorded how a creek had sectioned a midden immediately S of St Pauls Village on the E coast of Mua. South of this site, Rowland (1985: 124) observed similar erosion of middens and suggested that pumice deposits seen in association with midden deposits may indicate 'catastrophic [environmental] events' that 'may have reduced the ... possibility of archaeological material surviving' (1985: 128). The problem of erosion is particularly severe for the sandy atolls of the Central Island Group (Fig. 3). As Vanderwal (1973: 187) noted:

> It is unfortunate that the coral sand islands are not more amenable to archaeological exploration, but it would seem potential sites are quickly removed by a combination of shifting sands and tropical storms.

The question of site preservation is an important one for Torres Strait as it has much bearing on the question of why few archaeological sites older

than 1,000 years have been found despite the fact that people most likely used the region when it was a land-bridge between Australia and New Guinea. A number of hypotheses may account for the lack of older sites such as the location of 'old' sites in areas now either under the sea or inland from the coastal fringe, lack of use of the islands (then inland mountain peaks) in times past, lack of preservation of older remains, and/or the possibility that the islands were colonised by the ancestors of modern Torres Strait Islanders only in the last 3000 years (Barham, 2000; Barham et al., this volume; Carter et al., this volume; David & McNiven, this volume).

FIRE. Barham & Harris (1987: 93) mentioned the destructive effects of fires on trees and plants that mark old garden sites. They intimated that fires also have an impact on bone and shell that occur on the surface of sites. Around 1990, a fire destroyed the arrangement of turtle shells at the *Waru kuki lag* (turtle increase site) on Poruma (Gibson Pearson to Ian McNiven, pers. comm., 1996). Singe (1979: 154) mentioned that grass fires on Gelam Hill (Mer) sometimes threatened sacred objects in the 2 sacred caves of Gelam.

MISSIONARIES. Many missionaries who set up churches in Torres Strait at the end of the 19th Century destroyed culture sites and 'heathen' items that they believed jeopardised the transformation of Islanders to Christians. Haddon (1904b: 5, pl. 21.1; 1904c: 368) was informed that missionaries filled in the *Augudalkula* skull site on Pulu after removal of skulls. He also recorded that missionaries blocked up a cave on Erub that contained skulls and other 'ceremonial objects' (Haddon, 1935: 199). Lawrie (1970: 267) noted that skulls associated with the *kod* on Warraber were buried (presumably following missionary pressure) and also that the *kod* on Masig was 'destroyed by the early missionaries' (Lawrie, 1970: 244). On Ugar, numerous *zogo* sites with shells, coral and stones were piled together at Wasidog by early missionaries (Teske, 1987b: 22-23).

REMOVAL OF SKULLS AND SPECIAL ITEMS. Barrett (1954: 37) suggested that the islands of Torres Strait have 'been well combed for ethnological specimens' and 'wondered why' the Naga statue on Naghir had not been taken by 'an anthropologist or some money-grubbing vandal'. In terms of skulls, it is clear that Barrett was not exaggerating. The British Museum has a 'large collection of crania' from Mabuiag which according to Alfred Haddon were taken mostly by Rev. S. McFarlane from the *Augadalkula* on Pulu Islet and possibly the 'skull-house in Mabuiag' (Haddon, 1904d: 305, 1935: 64; see also Thomas, 1885; Vanderwal, 1973: 180; a detailed listing of these skulls is found in McNiven et al., 2002: appendix D). Beckett (1963: 52) reported that 'a number of skulls had been removed' from the *Augadalkula* site on Mua 'some years before' his visit in 1959. Haddon (1935: 83) noted that the bones of Yasabab were taken from Yam Island and sent to Sydney. The most famous removal of skulls was by Capt. Charles Lewis who removed 45 skulls (many attached to a turtle shell mask) from a skull house on Aureed in 1836. Lewis believed that many of the skulls were the remains of castaways from the *Charles Eaton* wrecked near Raine Island in 1834 (King, 1837). Examination of the skulls in Sydney revealed that only 17 were European. Perhaps the most famous removal of a sacred cultural item from Torres Strait is *Waiet* (anthropomorphic statue) that was taken from a cave on Waier near Mer by A. Davies (school teacher on Mer) in 1925 and deposited in the Queensland Museum (Simpson, 1955: 26-28; Singe, 1979: 108).

Haddon (1935: 360) suggested that the general lack of stone carvings from the Western Islands may indicate removal by 'Christian zealots of various nationalities'. Despite these protestations, Haddon's team collected their fair share of carvings (Moore, 1984). The Queensland Museum holds stone carvings from Mer (Haddon, 1935: 143, 157, 170), a stone 'idol God' from Waier near Mer (Teske, 1986c: 52; see also Haddon, 1935: 399) and stone figures from Erub (Haddon, 1935: 192). Other stone figures from Erub were taken to the Diocesan Museum on Thursday Island (Haddon, 1935: 192) while stone figures from Mer were said to be 'in the safe keeping of the Bishop, at Thursday Island' (Raven-Hart, 1949: 10).

The Gawer shell and stone arrangement on Dauer near Mer was taken to the Cambridge University Museum of Anthropology and Archaeology (Haddon, 1908b: 28, pl. 3.1, 3.26.4). Teske (1987b: 38) reported the removal of the 'father' stone from a cluster of 3 stones forming the Dugong site on Ugar. While the large rock used for club manufacture on Saibai was said to have been taken to the Queensland Museum (Haddon, 1935: 46; Hamlyn-Harris, 1913: 5), neither records of this event nor the presence of this item exists at the Museum

(Michael Quinnell, Queensland Museum, pers. comm., 1997). The turtle head *zogo* carving (Nam Kerem) on Erub was moved to Mer but brought back to Erub in 1976 where it is 'awaiting a new resting place' (Teske, n.d.: 46).

NEXT STEP: A TORRES STRAIT CULTURAL HERITAGE PROGRAM

Time is ripe to develop a formalised cultural heritage management program for Torres Strait. The key to the success of any program is community control. However, while individual island communities can develop community-based cultural heritage programs tailored to their own needs, mechanisms need to be developed to integrate these programs across Torres Strait and effect communications with centralised government bodies on Thursday Island. Suggestions for such a 2 tiered management structure are outlined below.

FOUNDATION: COMMUNITY-BASED MANAGEMENT. A key recommendation of the CSDP is that cultural heritage management in Torres Strait must be community-based with each island community in control of its own culture sites. In this way island communities will own and control the processes by which their culture sites are recorded and documenetd, where and how sensitive information on these sites is kept, and how these sites are to be conserved and managed for the future. Furthermore, individual island communities can design a management program that best serves local resources and local cultural needs and sensitivities. An example of a small-scale community initiative to protect a particular class of culture site is the Dauan Rock Art Project (McNiven, David et al., this volume). For many island communities, culture site management is being coordinated through local Native Title bodies (e.g., Mualgal Native Title Group on Mua Island). The Mabuiag Island community provides a further example of a broader-scale, culture site documentation and management initiative.

Mabuiag and the Goemulgaw Kod. In 1994, the Mabuiag community formed a group called the *Goemulgaw Kod* (Mabuiag People's Place of Learning and Justice) as a focus for local cultural heritage issues. The *Goemulgaw Kod* is not seen as a museum but a community learning centre that will also have a Keeping Place for important cultural items and documents. It is hoped that the *Goemulgaw Kod* will help build confidence, pride and esteem while nurturing memory and allowing storage of information about the past among the residents of Mabuiag Island (Fitzpatrick, 2001).

Since 1996, the *Goemulgaw Kod* has approved and sponsored a range of culture site research/management initiatives. Between 1996 and 1998, permission was granted to Ian McNiven to prepare a report on the nature and significance of a number of stone club heads (*gabagaba*) from the Mabuiag region (all now in the care of the *Goemulgaw Kod*). Results were summarised in an A4-sized mini-poster and distributed to all households on Mabuiag. This research also resulted in a detailed re-assessment of Torres Strait *gabagaba* manufacture and trade (McNiven, 1998).

In 1998, the *Goemulgaw Kod* began work on a much larger project to document the cultural heritage values and conservation needs of Pulu Islet off the W coast of Mabuiag. This research is exploring the possibility of including Pulu within an Indigenous Protection Area (IPA) with the support of Environment Australia in Canberra. The first phase of research in 1998 resulted in project consultants, Judith Fitzpatrick and Ian McNiven, being introduced to the special cultural values of Pulu by members of the *Goemulgaw Kod*. These visits resulted in the identification of a number of previously unknown rock-art sites and a rockshelter site with archaeological (occupation) deposit (since named *Baidamau Mudh* or Tigershark Rockshelter) (Fig. 4). In early 1999, the second phase of research focused on gathering more information on the cultural values and 'traditional' stories for Pulu and undertaking archaeological excavations at Tigershark Rockshelter. The excavations were used as an educational exercise to introduce members of the Mabuiag community to 1) archaeological field techniques, 2) the potential range of cultural information contained within archaeological occupation deposits, and 3) site conservation. In terms of the later, the excavations provided an opportunity to better assess and appreciate the impact of pig disturbance at the site and to undertake conservation measures (e.g., laying of wire mesh across the deposit) to deter further pig visitation and disturbance.

In 2001, the third phase of fieldwork on Pulu took place. It involved detailed documentation and development of management plans for the *kod* site using funds provided by Environment Australia (results detailed in McNiven et al., 2002). This project, a partnership project between university researchers/cultural heritage consultants (Ian McNiven, Judith Fitzpatrick and

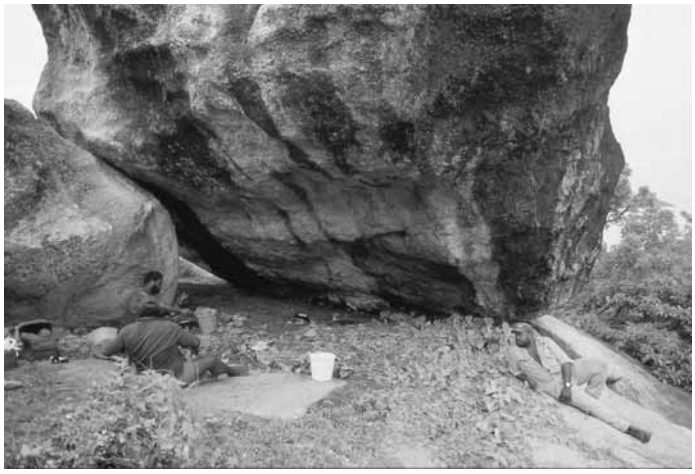

FIG. 4. Tigershark Rockshelter, Pulu, during excavation in 1999. Iona Mooka excavating, Harold Whap, left foreground and John Bani, right. (Photo: Ian McNiven).

Bruno David) and the Mabuiag Island community, produced the most comprehensive and detailed cultural heritage and archaeological site assessment in Torres Strait. The *Goemulgaw Kod* helped design a colour poster summarising project results that was distributed to Mabuiag households.

REGIONAL INTEGRATION: TORRES STRAIT CULTURAL HERITAGE UNIT. For community-based heritage programs to work effectively, regional protocols need to be developed for site recording, site conservation, funding, and impact assessments. The key to developing and implementing these regionally tailored protocols will be the development of mechanisms to promote cohesion between different communities and articulation with the centralised regional government administration bodies on Thursday Island (e.g., Island Co-ordinating Council and Torres Strait Regional Authority) and mainland State and Federal government heritage agencies (e.g., Queensland Environmental Protection Agency and Environment Australia). The most effective way of implementing regional cohesion and articulation is through establishment of a centralised Torres Strait Cultural Heritage Unit with cultural officers on Thursday Island.

Minimising Development Impacts. An important role and priority for any centralised heritage unit will be ensuring cultural heritage assessments become part of the planning stage of all local infrastructure developments. As noted above, infrastructure developments have arisen in the last 2 decades as a key destruction force in terms of Torres Strait culture sites. Formal processes need to be devised whereby assessment of culture site issues becomes mandatory for all development proposals (capital works, infrastructure developments, etc), including CDEP Projects, in the region. Such processes need to include activities of the TRSA and local island community councils.

CONCLUSION

The activities of the *Goemulgaw Kod* on Mabuiag reveal the benefits of community-based cultural heritage research/management projects in Torres Strait. They represent part of a range of broader concerns being expressed across Torres Strait over the past decade on the maintenance of Islander traditions and the documentation and preservation of culture sites — e.g., Boigu (Boigu Island Community Council, 1991), Erub (Darnley Island Cultural Heritage Survey – Camp Scott Furby Pty Ltd, 1994) and Murray Group (Murray Islands Archaeological Project – Carter et al., this volume). In this sense, the CSDP brought into focus the main conservation issues associated with documenting and protecting archaeological materials. In particular, the CSDP has highlighted the urgent need for general site protection against the impacts of infrastructure developments and specific site protection for the region's rock-art sites. From a broader cultural heritage perspective, the CSDP has drawn attention to the urgent need for investigations into the conservation status and needs of the many hundreds of storyplaces that exist on the islands and across the seas and reefs of Torres Strait. This later issue will require careful consideration given that few cultural heritage conservation models have ever considered seascapes. While the cultural landscape model is starting to influence the management of Aboriginal terrestrial sites in Queensland (e.g., Godwin et al., 1999; L'Oste-Brown et al., 1999; McNiven & Russell, 1997; Ross, 1996), serious thought now needs to be given to the management of cultural seascapes in terms of the unique culture sites they reveal and the cultural

resources (e.g., fish, turtles and Dugongs) they contain. When regionally unique sites like *zogo* sites and *kod* sites are added to the issue of seascapes, it is clear that Torres Strait will require the development of its own regionally- and culturally-specific management models as have been developed for Aboriginal Australia.

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LITERATURE CITED

ALLEN, J. & CORRIS, P. (eds) 1977. The journal of John Sweatman. (University of Queensland Press: St Lucia).

ARTHUR, W.S. & TAYLOR, J. 1995. The comparative economic status of Torres Strait Islanders in Torres Strait and mainland Australia. Australian Aboriginal Studies 1: 18-29.

BARHAM, A.J. 2000. Late Holocene maritime societies in the Torres Strait Islands, northern Australia – cultural arrival or cultural emergence? Pp. 223-314. In O'Connor, S. & Veth, P. (eds) East of Wallace's Line: studies of past and present maritime cultures of the Indo-Pacific region. Modern Quaternary Research in Southeast Asia Vol. 16. (A.A. Balkema: Rotterdam).

BARHAM, A.J. & HARRIS, D.R. 1983. Prehistory and palaeoecology of Torres Strait. Pp. 529-557. In Masters, P.M. & Flemming, N.C. (eds) Quaternary coastlines and marine archaeology. (Academic Press: London).

1985. Relict field systems in the Torres Strait region. Pp. 247-283. In Farrington, I.S. (ed.) Prehistoric intensive agriculture in the tropics. BAR International Series 232.

1987 (eds). Archaeological and palaeoenvironmental investigations in Western Torres Strait, northern Australia. Final report to the Research and Exploration Committee of the National Geographic Society on the Torres Strait Research Project Part IIB: July-October 1985. (Unpubl.).

BARRETT, C. 1954. Isles of the sun. (William Heinemann: Melbourne).

BECKETT, J. 1963. Rock art of the Torres Strait islands. Mankind 6(2): 52-54.

BOIGU ISLAND COMMUNITY COUNCIL 1991. Boigu: our history and culture. (Aboriginal Studies Press: Canberra).

BOWLER, J.M., JONES, R., ALLEN, H. & THORNE, A.G. 1970. Pleistocene human remains from Australia: a living site and human cremation from Lake Mungo, western New South Wales. World Archaeology 2: 39-60.

CAMP SCOTT FURPHY PTY LTD 1994. Darnley Island cultural heritage survey. Report to Department of Environment and Heritage, Brisbane. (Unpubl.).

COLE, N. & DAVID, B. 1992. 'Curious drawings' at Cape York Peninsula. Rock Art Research 9(1): 3-26.

COLEMAN, R. 1991. A preliminary report to the Heritage Branch, Department of Environment

and Conservation on investigations at Booby Island, August 1990. Queensland Museum: Brisbane. (Unpubl.).

COOK, N., DAVIDSON, I. & SUTTON, S. 1990. Why are so many ancient rock paintings red? Australian Aboriginal Studies 1: 30-32.

D'URVILLE, M.J.D. 1846. Voyage au Pole Sud et dans l'Oceanie: sur les Corvettes l'Astrolabe et la Zelee, Execute par Ordre du roi Pendant les Annees 1837-1838-1839-1840, Sous le Commandement de M.J. Dumont-d'Urville, Capitaine de Vaisseau. Atlas Pittoresque. 2nd volume. (Gide et cie, Editeurs: Paris).

FEDERAL RACE DISCRIMINATION COMMISSIONER 1994. Water: a report on the provision of water and sanitation in remote Aboriginal and Torres Strait Islander communities. (Australian Government Publishing Service: Canberra).

FITZPATRICK, J. 2001. The Torres Strait Islanders of Australia. Pp. 213-231. In Fitzpatrick, J.M. (ed.) Endangered peoples of Oceania: struggles to survive and thrive. (Greenwood Press: London).

FITZPATRICK, J., CORDELL, J. & MCNIVEN, I.J. 1998. Torres Strait Culture Site Documentation Project. Final Draft Report. Prepared for the Island Coordinating Council, Thursday Island, Queensland. (Unpubl.).

FLOOD, J. 1995. Archaeology of the Dreamtime. (Angus & Robertson: Sydney).

GABEY, J. 1949. Notebook on the Torres Strait Islanders. Ms, Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra. (Unpubl.).

GHALEB, B. 1990. An ethnoarchaeological study of Mabuiag Island, Torres Strait, Northern Australia. Unpubl. PhD thesis, University College, London.

GILL, W.W. 1876. Life in the southern isles; or, scenes and incidents in the South Pacific and New Guinea. (The Religious Tract Society: London).

GODWIN, L., MORWOOD, M.J., L'OSTE-BROWN, S. & DALE, A. 1999. Bowen Basin Aboriginal Cultural Heritage Project: a strategic regional approach for research and management. Australian Archaeology 48: 29-34.

HADDON, A.C. 1901. Head-hunters: black, brown and white. (Methuen: London).

1904a. Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 5 Sociology, magic and religion of the Western Islanders. (Cambridge University Press: Cambridge).

1904b. Introduction. Pp. 1-6. In Haddon, A.C. (ed.) Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 5 Sociology, magic and religion of the Western Islanders. (Cambridge University Press: Cambridge).

1904c. Magic and religion. Pp. 320-378. In Haddon, A.C. (ed.) Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 5 Sociology, magic and religion of the Western Islanders. (Cambridge University Press: Cambridge).

1904d. Warfare. Pp. 298-307. In Haddon, A.C. (ed.) Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 5 Sociology, magic and religion of the Western Islanders. (Cambridge University Press: Cambridge).

1904e. Folk-tales. Pp. 9-120. In Haddon A.C. (ed.) Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 5 Sociology, magic and religion of the Western Islanders. (Cambridge University Press: Cambridge).

1904f. Funeral ceremonies. Pp. 248-262. In Haddon, A.C. (ed.) Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 5 Sociology, magic and religion of the Western Islanders. (Cambridge University Press: Cambridge).

1908a. Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 6 Sociology, magic and religion of the Eastern Islanders. (Cambridge University Press: Cambridge).

1908b. Folk-tales. Pp. 1-63. In Haddon A.C. (ed.) Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 6 Sociology, magic and religion of the Eastern Islanders. (Cambridge University Press: Cambridge).

1912a. Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 4 Arts and crafts. (Cambridge University Press: Cambridge).

1912b. Food and its preparation and narcotics. Pp. 130-143. In Haddon, A.C. (ed.) Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 4 Arts and crafts. (Cambridge University Press: Cambridge).

1935. Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 1 General ethnography. (Cambridge University Press: Cambridge).

HAMLYN-HARRIS, R. 1913. Ethnographical notes of Torres Strait. Memoirs of the Queensland Museum 2: 1-6.

HARRIS, D.R., BARHAM, A.J. & GHALEB, B. 1985. Archaeology and recent palaeoenvironmental history of Torres Strait, northern Australia. Preliminary report to the Research and Exploration Committee of the National Geographic Society on the Torres Strait Research Project Part IIA: July-October 1984. (Unpubl.).

HOUSE OF REPRESENTATIVES STANDING COMMITTEE ON ABORIGINAL & TORRES STRAIT ISLANDER AFFAIRS 1997. Torres Strait Islanders: a new deal. A report on greater autonomy for Torres Strait Islanders. (The Parliament of the Commonwealth of Australia: Canberra).

JUKES, J.B. 1847. Narrative of the surveying voyage of H.M.S. Fly. 2 vols. (Boone: London).

KING, P.P. 1837. A voyage to Torres Strait in search of the survivors of the ship 'Charles Eaton', which was wrecked upon the Barrier Reefs, in the month of August 1834 in H.M. Colonial Schooner

'Isabella', C.M. Lewis, Commander. (Stratham: Sydney).
LAADE, W. 1969. Ethnographic notes on the Murray Islanders, Torres Strait. Zeitschrift fur Ethnologie 94: 33-46.
1971. Oral traditions and written documents on the history and ethnography of the northern Torres Strait Islands, Saibai - Dauan - Boigu. Vol. 1. Adi - myths, legends, fairy tales. (Steiner: Weisbaden).
LAWRENCE, D. 1994. Customary exchange across Torres Strait. Memoirs of the Queensland Museum 34(2): 241-446.
LAWRIE, M. 1970. Myths and legends of Torres Strait. (University of Queensland Press: St Lucia).
L'OSTE-BROWN, S., GODWIN, L. & PORTER, C. (in association with the Bowen Basin Aboriginal Steering Committee) 1998. Towards an Indigenous social and cultural landscape of the Bowen Basin: Bowen Basin Aboriginal Cultural Heritage Project. Cultural Heritage Monograph Series 2. (Queensland Department of Environment: Brisbane).
LOURANDOS, H. 1997. Continent of hunter-gatherers: new perspectives in Australian prehistory. (Cambridge University Press: Cambridge).
LOURANDOS, H. & ROSS, A. 1994. The great 'intensification debate': its history and place in Australian archaeology. Australian Archaeology 39: 54-63.
MACGILLIVRAY, J. 1852. Narrative of the voyage of H.M.S. Rattlesnake. 2 vols. (Boone: London).
MCFARLANE, S. 1888. Among the cannibals of New Guinea. (London Missionary Society: London).
MCNIVEN, I.J. 1997. Aboriginal archaeology of the Corroboree Beach dune field, Fraser Island: re-survey and re-assessment. Memoirs of the Queensland Museum, Cultural Heritage Series 1(1): 1-22.
1998. Enmity and amity: reconsidering stone-headed club (gabagaba) procurement and trade in Torres Strait. Oceania 69(2): 94-115.
2001. Torres Strait Islanders and the maritime frontier in early colonial Australia. Pp. 175-195. In Russell, L. (ed.) Colonial frontiers: Indigenous-European encounters in settler societies. Studies in Colonialism Series. (Manchester University Press: Manchester).
McNIVEN, I.J., DAVID, B. & BRAYER, J. 2001. Dauan Rock-Art Project, Torres Strait. Report to the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra. (Unpubl.).
MCNIVEN, I.J., FITZPATRICK, J., DAVID, B. & GOEMULGAU KOD 2002. Pulu Culture Site Mapping Project (Torres Strait). Final report to Environment Australia, Canberra. (Unpubl.).
MCNIVEN, I.J. & RUSSELL, L. 1997. Darumbal cultural heritage, Shoalwater Bay Military Training Area: preliminary archaeological and anthropological survey. Report prepared for Darumbal-Noolar Murree Aboriginal Corporation for Land and Culture, Rockhampton. (Unpubl.).
MELVILLE, H.S. n.d. [1849]. Sketches in Australia and the adjacent islands selected from a number taken during the surveying voyage of H.M.S. 'Fly' and 'Bramble' under the command of Captain F.P. Blackwood, R.N. during the years 1842-46. (Dickson: London).
MOORE, D.R. 1979. Islanders and Aborigines at Cape York. (Australian Institute of Aboriginal Studies: Canberra).
MOORE, D.R. 1984. The Torres Strait collections of A.C. Haddon. (British Museum: London).
MULVANEY, J. & KAMMINGA, J. 1999. The prehistory of Australia. (Allen & Unwin: St Leonards).
NEAL, R.A. 1989. An archaeological inspection of alternative Telecom locations on Mabuiag and Yam Islands, Torres Strait. Report to Department of Community Services and Ethnic Affairs, Brisbane by Pirripoint Pty Ltd. (Unpubl.).
RAVEN-HART, R. 1949. The happy isles. (Georgian House: Melbourne).
ROSS, A. 1996. Landscape as heritage. In Smith, L & Clarke, A. (eds) Issues in management archaeology. Archaeology and Material Culture Studies in Anthropology, Tempus 5: 8-17.
ROWLAND, M.J. 1985. Archaeological investigations on Moa and Naghi Islands, western Torres Strait. Australian Archaeology 21: 119-132.
SHARP, N. 1993. Stars of Tagai: the Torres Strait Islanders. (Aboriginal Studies Press: Canberra).
SIMPSON, C. 1955. Islands of men. (Angas and Robertson: Sydney).
SINGE, J. nd. Aspects of rock painting in the Torres Strait with an emphasis on the Muralag Island Group. (to which is attached copies of drawings of rock paintings from various sites). Ms, Thursday Island High School. (Unpubl.).
1979. The Torres Straits: people and history. (University of Queensland Press: St Lucia).
1993. Among islands. (Torres News: Thursday Island).
SULLIVAN, S. 1985. The custodianship of Aboriginal sites in southeastern Australia. Pp. 139-156. In McBryde, I. (ed.). Who owns the past?: Papers from the Annual Symposium of the Australian Academy of the Humanities. (Oxford University Press: Melbourne).
TESKE, T. (ed.) n.d. Darnley Island of Torres Strait. (Far Northern Schools Development Unit: Cairns).
1986a. Mabuiag Island of Torres Strait. (Far Northern Schools Development Unit: Cairns).
1986b. St Pauls: Moa Island of Torres Strait. (Far Northern Schools Development Unit: Cairns).
1986c. Murray Island of Torres Strait. (Far Northern Schools Development Unit: Cairns).
1987a. Yam Island of Torres Strait. (Far Northern Schools Development Unit: Cairns).

1987b. Stephens Island of Torres Strait. (Far Northern Schools Development Unit: Cairns).
1991. Kubin Village: Moa Island of Torres Strait. (Far Northern Schools Development Unit: Cairns).
THOMAS, O. 1885. Account of a collection of human skulls from Torres Strait. Journal of the Anthropological Institute of Great Britain and Ireland 14: 328-343.
VANDERWAL, R. 1973. The Torres Strait: proto-history and beyond. University of Queensland Occasional Papers in Anthropology 2: 157-194.
WILKIN, A. 1904. Land tenure and inheritance at Mabuiag. Pp. 284-292. In Haddon, A.C. (ed.) Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. 5 Sociology, magic and religion of the Western Islanders. (Cambridge University Press: Cambridge).

APPENDIX

TORRES STRAIT ARCHAEOLOGICAL SITE TYPES

1. OLD VILLAGE SITES. Historical and oral references to old village sites were found for 20 islands of Torres Strait. Identification of villages from historical sources was limited only to specific descriptions of settlements as 'villages'. Numerous instances occur where records state that a group of people was seen or a certain person or family lived at a certain location. These references were not recorded as village sites. Laade (1971: xxiv) also made the point that on the Top Western Islands, '[t]he garden places with their camp sites were given names. The young islanders sometimes called them "villages" which is, of course, misleading.' All old village sites will reveal archaeological traces of occupation in the form of structural features and occupational debris such as food remains (shell middens) and artefacts of stone, shell and bone. Of the 71 village sites identified, most are from the Western Islands (27 sites) and Eastern Islands (27 sites).

2. SHELL MIDDENS. Numerous historical references to shellfish consumption by Islanders indicate that shell middens should be a feature of the region (Haddon, 1912b: 131). Archaeological research indicates that such sites range from low density surface scatters of shell (often with bone fragments and occasionally with stone artefacts) to stratified shell middens with thick layers of shell and associated camping remains. Most large shell middens appear to mark former village sites. However, other sites, such as some ceremonial *kod* sites, can also exhibit extensive midden deposits from prolonged use. Shell middens are known on 19 islands and of the 51 sites identified, nearly all (n=45) come from the Top Western and Western Island Groups. Again, the high number of midden sites in these 2 island groups reflects concentrated archaeological research (Barham & Harris, 1983, 1985, 1987; Ghaleb, 1990; Harris et al., 1985).

3. STONE ARTEFACT SCATTERS/DEPOSITS. These sites are dominated by stone artefacts and can range from isolated artefacts on the ground surface to buried layers of stone tools. Most artefacts recorded to date across Torres Strait represent flaked or chipped tools (and associated manufacturing debris) made from local quartz or microgranite (Vanderwal, 1973). For the purposes of this study, stone artefact sites were limited to those sites where essentially the only cultural materials were stone artefacts. Shell middens containing stone tools were not listed in this category. Stone artefact sites associated with extraction of stone are included as quarries. Stone artefact sites are known on 5 islands and of the 12 sites identified, the single largest group (n=5) is on Saibai.

4. ROCKSHELTER OCCUPATION SITES. Technically, rockshelters are not a site type but a place where sites often occur. A range of site types occur in rockshelters such as rock-art sites and burial/skull sites. For the purposes of this study, rockshelters have been used as a site type only where they contain evidence of past occupation (e.g., midden deposit). Very few of these sites have been recorded for Torres Strait. For many years, the best-known rockshelter site was Frenchmans Cave on Murulag (Harris et al., 1985). However, since 1998, rockshelters on a range of other islands have been excavated: Pulu (Baidamau Mudh or Tigershark Rockshelter), Mer (Kurkur Weid Rockshelter – Carter et al., this volume), Badu (by Bruno David and Ian McNiven) and Mua (Uma Site – Bruno David, pers. comm., 2001). Other sites reveal more ephemeral evidence such as the bow and arrow in a cave on Dauan (Laade, 1971: 58) and the blackened roof (from camp fires?) of a cave within the crater on Mer (Simpson, 1955: 18). Up to 1998, only 6 rockshelter occupation sites had been recorded on 5 islands across Torres Strait.

5. OVENS. Earth ovens with stone heat retainers continue to be a common form of cooking across Torres Strait (Haddon, 1912b: 132, 137; Lawrie, 1970). Generally referred to as *kupmauri*, these sites are found either in isolation (as revealed by a cluster of burnt rocks) or associated with occupation remains such as shell middens. Earth oven sites have been recorded on 8 islands and 6 of the 10 are found within the Western Island Group (Fig. 5).

6. WELLS. Many islands of Torres Strait exhibit wells for freshwater which have been dug to some depth. Jukes (1847, II: 164) described a well on Damuth in the Central Strait that had been dug in sand to a depth of '10 feet' (3m) (see also Shnukal, this volume). On Saibai, wells are extremely large and take on the form of waterholes surrounded by a mound of fill (Fig. 6). Some 31 well sites have been observed on 14 Torres Strait islands and most are found on the Top Western Group (n=12) and Central Island Group (n=10).

7. CANALS. Saibai has 3 canals constructed in the past for canoe travel. The canals are generally thought to provide 'access to raised-field cultivation adjacent to the swamps' (Barham & Harris, 1983: 542). Canals

FIG. 5. Recent *kupmauri* for cooking sea turtle, Mabuiag, 1998. (Photo: Ian McNiven).

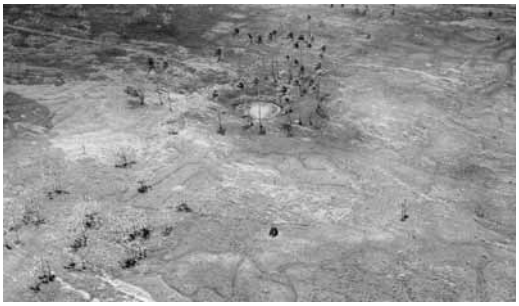

FIG. 6. Large constructed well and adjacent 'mound and ditch' horticultural fields at *Mag*, Saibai, 1980. (Photo: Tony Barham).

have not been recorded for any other Torres Strait island.

8. CLAM SHELL WATER CONTAINERS. Drinking water was often very scarce on some islands in Torres Strait as it is for many islands today (Federal Race Discrimination Commissioner 1994). Historical records indicate that large clam shells were placed under trees to catch and hold water on Tudu and Mer (Figs 7, 8) (see also Shnukal, this volume).

9. HORTICULTURE/GROVE/TREE SITES. Many Torres Strait Islanders, particularly those of the Top Western and Eastern Island Groups, traditionally practiced horticulture for the production of plants such as yams, bananas, taro and sweet potatoes. In many cases, these horticultural plots were very extensive and consisted of mound and ditch systems covering many hectares. Most old garden places are easily recognisable due to vegetation clearance and the mound and ditch features (Fig. 6). Grove sites are tree clusters that appear to have been planted by people in the past or at least introduced to the area in the past. They are represented mostly by coconut groves and bamboo groves. Special tree sites are those planted and used for some special purpose such as the 'The Tree of Spy' (*dhani*) within Boigu Village that was used as a lookout for Marind-anim raiders from West Papua. Numerous other special tree sites exist across Torres Strait, such as *wongai* trees, which were not included in the present study as no information was forthcoming to suggest that they were planted by people. Future research may indicate otherwise. To date, 174 horticulture/grove/tree sites have been recorded on 14 Torres Strait Islands, mostly the Top Western Islands (n=142) where Laade (1971) undertook extensive site mapping.

10. FISHTRAPS. A total of 115 stone-walled fishtraps were recorded in the intertidal zone of 19 Torres Strait islands, particularly in the Eastern Islands where at least 84 of these sites (known as *sui*) occur (Fig. 9). Fishtraps range from single or paired sites to the extraordinary complexes of traps found in the Eastern Island Group (Barham, 2000). These sites are constructed of rocks and function by the rise and fall of the tide. Some fishtraps recorded in the Eastern Islands had small stone carvings to help increase the catch (Haddon, 1935:197-8). Some fishtraps in the Central Islands were made from coral 'rock' (Shnukal, this volume).

11. STONE TOOL QUARRIES/SOURCES. Stone tool quarries/sources are places where rock was removed for the purpose of making tools such as flaked cutting and scraping tools, and flaked and ground axes, adzes and clubs heads (*gabagaba*). Such sites usually exhibit evidence of flaking, where pieces of stone were tested and initial tool shaping took place. Some quarry sites may even exhibit pits where stone was dug out. While only two stone tool quarries have been identified in Torres Strait (Dauan Island – Vanderwal, 1973: 183 and Saibai Island – Haddon, 1935: 46; Hamlyn-Harris, 1913), indirect archaeological evidence in the form of stone tools made from local raw materials points to other quarries (Hitchcock, this volume; McNiven, 1998; McNiven, von Gneilinski & Quinnell, this volume). Vanderwal (1973: 185) suggested that quarries are unlikely on the Eastern Islands as they do not exhibit stone suitable for tool manufacture. On Mua, care needs to be taken when identifying quartz quarries (i.e., sources of flaked cutting and scraping tools) as some sites may have been disturbed through prospecting for wolfram (tungsten) during WWII and the 1970s (Sharp, 1993: 169-170; Tennant, 1959: 166; Teske, 1991: 19-21). To date, 10 stone tool quarries/sources have been identified/suggested for 9 Torres Strait Islands with 2-3 sites for each island group.

12. OCHRE QUARRIES. Ochre quarries are places where ochre was removed either in small lumps or as a powder for use as a pigment in rock-art, body adornment, decorating artefacts and so on. Seven ochre quarries/sources on 6 islands have been suggested for the region (McNiven & David, this volume).

13. GRINDING GROOVES. Grinding grooves are places where stone tools such as axes/adzes and *gabagaba* and clam shell axes/adzes were shaped and sharpened. They usually exhibit one or more oval-shaped depressions on a large rock, often close to

FIG. 7. Clam shell water containers on Tudu as drawn by Louis Le Breton from the d'Urville expedition, 1840. (From d'Urville, 1846: pl. 188).

FIG. 8. Remains of a clam shell, possibly associated with water storage, on Tudu, 2000. (Photo: Ian McNiven).

water that is used to aid the grinding process. These sites are very rare in Torres Strait with only 3 sites recorded on Saibai, Dauan and Yam.

14. STONE CARVINGS. Seven islands of Torres Strait have 11 locations (sites) with rocks that have been shaped to represent certain animals or humans. In some cases, Islanders note that these stone figures 'made themselves'. Most are small and could be moved around relatively easily by one person. In the Top Western Islands these carvings tend to be of Dugongs and are associated with Dugong 'hunting magic'. In the Eastern Islands, stone images of people were known as *Kobripatri* ('the stone men') (Lawrie, 1970: 283; see also Haddon, 1935: 139, 192, pl. 6.1). The near life-size figure of Naga on Naghir is an exception and would require a number of people to move it.

15. CARVED/SCARRED TREES. A vague reference to trees with carved designs exists for Mer. No other references to such sites were found for Torres Strait. In terms of scarred trees (trees with sections of bark removed for artefact manufacture), available evidence suggests that such sites were not a feature of Torres Strait. For example, in the mid-19th Century, Sweatman noted that 'The canoes are procured from New Guinea, there being no trees on the islands of sufficient size to make them' (Allen & Corris, 1977: 35). Gabey (1949: 3) made similar comments, but he also noted that Murray Islanders made small canoes from local cotton trees (possibly *Bombax* sp.) (Lawrence, 1994: 283). While historical records do not mention widespread use of slabs of bark for shelters, some mention is made of the use of paperbark in ovens on Murulag (MacGillivray, 1852, II: 25). As such, scarred paperbark trees may exist.

16. ROCK-ART SITES. Rock-art in the form of paintings and engravings has been recorded for all the major island groups of the region (McNiven & David, this volume). Singe (1993: 6-7) noted that 'paintings were often done on overhangs, but are also found on free-standing boulders. In fact any rocky island, inhabited or not, is a likely site'. Up until 1998, 34 rock-art sites were known for 14 islands in Torres Strait with most located in the Western Island Group. (The number of known rock-art sites has now been increased to 35 – McNiven & David, this volume). Whereas all rock-art sites of the Top Western, Western and Central Island Groups are paintings/stencils, all rock-art sites across the Eastern Island Group are engravings.

17. STONE/BONE/SHELL/EARTHEN ARRANGEMENTS. While many natural rock features across

FIG. 9. Stone-walled fishtraps, Erub, 1999. (Photo: Ian McNiven).

Torres Strait have mythological/religious associations (Lawrie, 1970), stone arrangements (with or without shells and/or bones) consist of a stone or stones which have been modified either by movement (e.g., to form an arrangement) and/or by the application of special substances (e.g., blood). Most references to these sites suggest a ceremonial/ritual function. Some arrangements clearly form recognisable animals such as turtles and crocodiles. Others are simple geometric (non-figurative) designs such as circles, linear and curvi-linear forms. Piles of rocks (cairns) are also known. In a few cases, stone arrangements had more secular functions such as garden boundary markers (Wilkin, 1904: 289). Haddon (1912b: 131-132) notes that arrangements of Dugong and turtle skulls and bones are made by the 'Western Islanders'. Many stone/shell/bone arrangements in the Central and Eastern Islands are *zogo* sites (see below). Shells in these sites include *bu* (trumpet), baler and clam. Some *bu* shell arrangements are large, such as the cluster of around 70 *bu* shells at the *Augadalkula* skull site on Pulu. Some 103 arrangements of stone, bone and/or shell have been recorded on 25 islands in the Strait. These sites are found mostly within the Western, Central and Eastern Island Groups.

18. OTHER STONE STRUCTURES. A single reference was found to a terrestrial stone structure for Torres Strait. Haddon (1935: 166) noted a 'house built of small stones' at Zer on Mer that was used to store turtle shell masks.

19. BURIAL/SKULL SITES. Numerous sites have been recorded with human skeletal remains. In some cases these sites appear to be burials and often the existence of a burial is inferred only from grave markers. For example, Gill (1876: 202) saw 'recent graves' on Mabuiag with piles of sand and 'ornamented with dugong skulls and ribs and large helmet-shells (Cassis)'. Haddon (1904e: 79, 83, pl 4.3; 1935: 383) notes that Kwoiam's grave on Mabuiag is marked by a 'cairn of stones' topped by 3 of his 'shell trumpets'. More common is the recording of rockshelters or small alcoves amongst granite boulders containing skulls. In a number of cases these sites are referred to as *Augadalkula*. Most published evidence suggests such sites are skull ossuaries associated with headhunting. In some cases, the skulls were kept in a skull house such as the famous example on Aureed that contained the remains of the *Charles Eaton* castaways. Thus, it is incorrect to refer to such sites as 'burial sites'. Sixty-two burial/skull sites have been recorded on 22 islands with the majority (n=28) found in the Western Island Group.

20. *KOD* SITES. Laade (1971: xxv) noted that amongst the Top Western Islands, '[t]he *kod* is the warrior's meeting place where the men used to spend considerable time. Women and children were not allowed to enter it.' Other sources for Torres Strait also refer to *kod* sites as a secret men's meeting place (Haddon, 1904b: 3; 1904c: 365-367; see also Shnukal, this volume). However, women and children visited the *kod* site on Pulu during mortuary ceremonies (Haddon 1904f: 252-56). Some 13 *kod* sites have been recorded on 12 islands within all island groups except the Eastern Island Group.

21. *ZOGO* SITES. Haddon (1901: 67) noted that the 'most satisfactory translation of the word *zogo* is "holy" or "sacred"; or a holy or sacred spot such as an oracle or a shrine for magical rites'. *Zogo* sites are associated with sacred powers and only certain individuals, members of the *zogo le*, had the skills/powers to perform rituals at these sites which are often referred to as 'shrines'. They tend to be more a feature of the Eastern and Central Island Groups. In many cases, *zogo* sites are a type of increase site as they are associated with increasing the productivity of certain food items such as *wongai* (fruit) trees and turtles. Alternatively, *zogo* sites can also be associated with effecting the weather or even controlling the number of mosquitoes. Most *zogo* sites consist of a small cluster of shells (e.g., clams, *bu*) and stone cobbles and sometimes stone carvings. Fifteen *zogo* sites have been recorded on 9 islands with most located in the Eastern Island Group.