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Goemulgaw Lagal: Cultural and Natural Histories of the Island of Mabuyag, Torres Strait

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COVER

Image on book cover: Pearlshelling station at Panay, Mabuyag, 1890s. Photographer unknown (Cambridge University Museum of Archaeology and Anthropology: N23274.ACH2).

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Convergence of ceremonial and secular: The archaeology of Dabangay village on Mabuyag in Western Torres Strait

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In Goemulgaw oral history and ethnography Dabangay is an important village, central for activities and ceremonies relating to the dugong and the setting for the 'Coming of the Light' (Christian missionisation) to Mabuyag. Recent archaeological excavations identify the long-term significance of Dabangay, with two discrete periods of human activity. Phase 1 (7,000-5,200 cal BP) is associated with recurring/permanent occupation involving marine-based subsistence. Phase 2 (300 cal BP-present) is a period of increased site use including an escalation of marine subsistence activities. This paper presents a settlement chronology for Dabangay and reevaluates the archaeology of secular and ceremonial middens in Goemulgaw villages.

❑ *Ceremonial midden, Dabangay, late Holocene, Torres Strait*

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A key question emerging from research on Mabuyag is whether ceremonial and secular activities can be identified through archaeological remains. At Goemu oral histories recognised that a secondary 'ceremonial' and 'symbolic' role existed for subsistence remains (Ghaleb, 1990). Subsequent investigation identified morphological and compositional distinctions between various types of midden mounds (McNiven & Feldman, 2003; McNiven & Wright, 2008: 144). Circular, ceremonial mounds (at Goemu, Dabangay, Wagadagam, Pulu and Tudu) were dominated by dugong rib, skull and ear bones while level middens (associated with refuse heaps) contained a much greater variety of cultural materials (McNiven & Bedingfield, 2008; McNiven & Feldman, 2003; McNiven & Wright, 2008, Wright, 2010). It was recognised, however, that ceremonial and secular merged in Torres Strait villages with midden deposits 'a key part of the formal and enduring ritualized architecture of a village' (McNiven & Wright, 2008: 145). Ongoing research at sites with mounded and level middens was required to better understand the nature and chronology of this integration.

Dugong bone mounds on Pulu and Dabangay were observed to post date, and in the case of the Pulu *kod* communal ceremonial site, overlay midden materials (McNiven & Bedingfield, 2008; McNiven & Feldman, 2003; McNiven *et al*., 2009: 314). This change was interpreted as evidence for a 'profound structural reorganization' over the past 400 years involving a 'reconfiguration between specific locales – such as villages on home islands and sacred rituals at more distant, liminal spaces' (McNiven *et al*., 2009: 23; see also McNiven *et al*., 2008). McNiven *et al*. (2009: 311) stated that to fully understand the chronology of this shift it is necessary to excavate 'other village sites on Mabuyag (Dabangai, Wagadagam and Mui)'. This paper presents results of archaeological excavations undertaken at Dabangay.

DABANGAY

Dabangay is an ethnographically-significant village situated on the northeast coast of Mabuyag (Figure 1). It is the headquarters of the dugong (*dhangal*) clan who during the nineteenth century lived 'in huts, pitched under the shelter of some enormous banyan trees' (Moresby, 1876: 131). At Dabangay ceremonies relating to the dugong were held at the *kod* (men's meeting house) located on the sea shore (Gill, 1876; Haddon, 1904: 182). Ceremonies involved 'proprietary offerings' of dugong bones, which decorated banyan trees in the village (Gill, 1876: 302; Moresby, 1876: 131). In the late nineteenth century, Dabangay was used as a residence for missionary teachers (Murray, 1873), pearl shellers (Gill, 1876: 202; Eseli, 1998: 74; Sharp, 1993: 160) and Goemulgal (MacFarlane, 1874) (see Shnukal, 2015).

Archaeological research at Dabangay in the 1980s identified abundant features including 30 stone-bone-shell mounds and five cylindrical, turret-like stone 'cairns' and one crocodile stone arrangement (Barham & Harris, 1987: 28; Harris *et al*., 1985: 26-27). The village was also associated with a large number of mound and ditch fields along with 'rectangular units which may represent old occupation areas, or former fields' (Barham & Harris, 1987: 48; Harris *et al*., 1985: 27). A large, oval dugong bone mound was excavated and radiocarbon dated to 400-100 cal BP (McNiven & Bedingfield, 2008).

2006 EXCAVATIONS

In September 2006, a single 1 m x 1 m excavation was conducted 55 m inland from, and 3.7 m above, the current high water mark in an area of level midden (Wright, 2010) (Figures 2-3). The excavation pit (Square A) was located 3 m northwest of a sewerage trench and at the edge of a waste dump

FIG 1. Map of ancestral Goemulgaw villages on Mabuyag and adjacent islands (map courtesy of Schlenker mapping; GIS by Matthew Coller). Aligned grid north.

FIG. 2. Dabangay from the air, October 2010 (Photo: Ian J. McNiven).

FIG. 3. Dabangay excavations in progress (from left to right: Ben Watson, Beboy Whap, Cameo Daley and Thomas Whap) (Photo: Duncan Wright).

excavated into the site immediately after fieldwork. The aim of the archaeological excavation was to provide basic temporal information about a key Goemulgaw village. Square A was excavated to a depth of 92 cm (35 excavation units, henceforth XUs) at which point the excavated area was reduced to 40 cm x 40 cm in the northeast corner. This reduction was necessary due to increasingly concreted sediment and a desire to avoid areas of termite disturbance. Excavation continued for a further 67 cm to a maximum depth of 169 cm before being discontinued when confined space made it impractical to continue. The excavation did not reach culturally sterile deposits. Where possible Excavation Units followed stratigraphy with excavated sediments weighed and dry sieved in the field through a 2.1 mm mesh. The weight and volume of each XU was recorded and depth elevations were taken at the corners and centre of each square at the beginning and end of each XU.

STRATIGRAPHY AND SEDIMENTS

Two major and six minor stratigraphic units (SUs) were identified in Square A (Figures 4-5). The upper 30-40 cm (SUs 1 and 2, XUs 1 to 14) feature a very dark grey, humic soil (Munsell = 7.5YR-3/1) with the exception of the topsoil which was black (7.5YR-2.5/1). Sediment was

FIG 5: East Wall of Dabangay excavation. Note discolouration of SU3 'pit feature' (Photo: Duncan Wright).

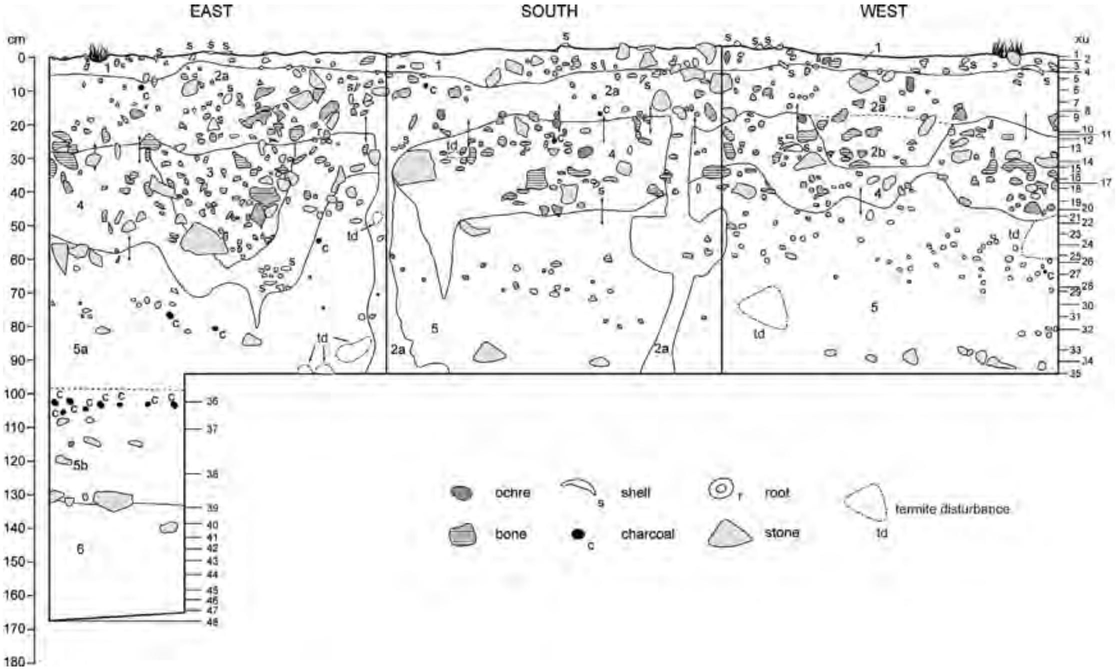

FIG. 4. Stratigraphic section, Square A, Dabangay.

neutral to slightly alkaline (pH: 6.06-6.61), becoming increasingly loose/friable with depth. At the base of SU2 was a 'pit feature' (SU3) which contained extremely fine, brownish yellow (10YR-6/6) silty soil and a large quantity of burnt fishbone. The pH levels were similar to surrounding deposits (6.66-6.78).

A mixed zone (SU4) underlies SU2 and surrounds the 'pit feature' (SU3). This SU continues to a depth of approximately 60 cm (XUs 14 to 24) grading from dark grey (7.5YR-3/1) at the top to brown sediment at the base (7.5YR-5/2). There was no change in the pH levels throughout this gradation (6.01-6.75) and sediment was patchy, varying from loose, silty soil to more consolidated sandy sediment. Basal SUs 5 and 6 became consistently lighter and sandier (brown to pinkish grey – 7.5YR-5/4 to 7.5YR-6/2) with depth. This shift was also marked by increasing cementation after XU28.

Localised disturbance (primarily termite activity) was prevalent throughout SUs 1 to 5a with soft, darker soil trickling down through tunnels into lower SUs (Figures 4-5). Tunnels were isolated and excavated separately along with a 3 cm-wide buffer. SUs 5b and 6 contained no evidence of post depositional movement with sediment cemented into a calcite conglomerate. In SUs 5b and 6 there were intact lenses of charcoal (XU36), stone (XU39) and pumice (XU41).

RADIOCARBON DATES AND CHRONOLOGY

Eight in situ charcoal samples and one fragment of burnt large vertebrate bone were selected to date key stratigraphic changes and test the extent of site disturbance (Table 1). AMS dating was undertaken by The University of Waikato and Australian Institute for Nuclear Science and Engineering. At Waikato charcoal was prepared in a bath of hot 10% HCl and then further treated with hot 5% NaOH before being filtered, rinsed and dried. At ANSTO the charcoal was treated with HCl (2M, 60°C) for 2 hours, NaOH (3%, 60°C) for 2 hours and HCl (2M, 60°C) for 2 hours. Samples were washed thoroughly with Milli-Q water and dried before combustion and conversion of the resulting carbon dioxide to graphite for AMS analysis.

Radiocarbon dates were calibrated using OxCal 4.1 (Bronk Ramsey, 2009) with the Southern Hemisphere calibration dataset (SHCal04) (McCormac *et al*., 2004) for charcoal dates and the marine calibration dataset (Marine09) (Reimer *et al*., 2009) for the marine bone date with the new ΔR value of -63±44 years determined recently for Torres Strait (Ulm *et al*., 2009).

Two settlement phases were observed, marked by quantitative and to a lesser extent qualitative shifts in cultural materials. Phase 1 is represented by five AMS dates which bracket SUs 5b and 6 between 7,239 and 4,888 cal BP (at 2σ) accumulating at a rate of 0.08 – 0.1 kg / year (Table 1). These dates were associated with highly consolidated sand and in the case of OZM309 a lens of charcoal (see Figure 4). Samples of turtle and fish bone were submitted to Waikato for dating, to ascertain whether or not faunal remains were intrusive. A fragment of calcined large vertebrate bone (probable turtle) was chosen by Waikato for AMS dating. This confirms the in situ provenance of large vertebrate bone in SU6 (see Table 1). No chronological inversions occur in the AMS dates from SUs 5b and 6.

A late-Holocene settlement phase (XUs 1-31, 313-0 cal BP) was marked by a significant increase in sedimentation rates (minimum = 2.32 kg / year) and cultural materials. A single radiocarbon age of 175±40 BP (OZM308) was obtained from XU30 (beneath midden materials) providing a maximum date for midden development and an intrusive 'pit feature' (SU3). Stratigraphic inversions in the AMS determinations exist in SUs 1-4, however all carbon samples date to within the past

TABLE 1. AMS radiocarbon dates, Square A, Dabangay. NDA = no data available.

Laboratory Code	Excavation Unit (XU)	Depth Below Surface (cm)	Sample Type	Sample Weight (g)	δC13 (‰)	C14 Age (BP)	Calibrated Age cal BP 68.3% (with probabilities)	Calibrated Age cal BP 95.4% (with probabilities)	Median Age (cal BP)
WK24928	9	16-18	Burnt seed	0.43	-23.4±0.2	197±30	282-253 (18.6) 226-165 (38.3) 157-143 (8.9) 80-75 (2.4)	295-136 (71.3) 117-59 (14.7) 29-0 (9.4)	184
WK24929	19A	40-43	Charcoal	0.23	-25±0.2	247±30	301-279 (29.0) 205-195 (11.2) 187-180 (7.0) 170-154 (20.9)	313-265 (35.3) 222-147 (60.1)	202
WK25437	25A	56-59	Charcoal	0.2	-25.4±0.2	142±30	253-226 (12.9) 142-131 (5.2) 125-80 (20.6) 75-53 (10.2) 45-2 (19.4)	267-220 (21.1) 148-0 (74.3)	98
OZM308	30	70-73	Charcoal	0.2	-24.9±0.1	175±40	276-238 (16.8) 233-212 (8.9) 152-137 (6.6) 116-59 (23.3) 28-0 (12.6)	281-167 (40.0) 155-0 (55.4)	140
WK25438	35	90-93	Charcoal	0.46	-25.4±0.2	4,510±30	5274-5182 (33.4) 5172-5169 (0.7) 5122-5110 (3.9) 5067-5031 (13.5) 5018-4975 (16.6)	5,288-5,155 (41.7) 5,145-4,959 (50.8) 4,928-4,909 (1.8) 4,901-4,888 (1.2)	5,113
OZM309	36	102	Charcoal	0.3	NDA	5,530±100	6,401-6,182 (67.2) 6137-6,132 (1.0)	6,468-5,996 (95.4)	6,262
OZM310	39	124-131	Charcoal	0.3	-23.6± 0.3	5,510±45	6,299-6,208 (68.2)	6,396-6,367 (2.8) 6,351-6,178 (89.6) 6,148-6,120 (2.7) 6,037-6,033 (0.3)	6,248
WK28931	46	162-164	Burnt bone	8.0	-9.8±0.2	6,005±30	6,402-6,291 (68.2)	6,480-6,256 (95.4)	6,354
OZM311	48	166-169	Charcoal	0.2	NDA	6,160±80	7,156-7,094 (15.9) 7,087-7,076 (2.4) 7,071-7,043 (6.5) 7,030-6,886 (43.4)	7,239-7,218 (1.2) 7,176-6,775 (93.2) 6,765-6,750 (1.0)	6,985

NDA = no data available. Calibrated using OxCal 4.1 (Bronk Ramsey, 2009).

313 years (Table 1). This range can be readily explained through rapid sedimentation and the burning of old wood. Considering the lack of European materials below XU9 it is expected that the majority of midden materials were deposited over 140 years ago. The two settlement phases are separated by five XUs (17-23 cm) suggesting low (0.02 – 0.03 kg / year) sedimentation rates during the 4888-4288 year hiatus (Wright, 2010).

CULTURAL MATERIALS

The Dabangay excavation contained a wide variety of cultural materials. Flaked stone artefacts dominate the assemblage (n=16,670) with five pieces of ground stone and ochre also recorded. Charcoal (164.5 g) and European materials (metal, glass, clay pipe and ceramics) were prominent alongside large vertebrate bone (36.6 kg) and dugong bone (5.2 kg). Small vertebrates (183.4 g), fish (156.3 g), shark (19.3 g), ray (0.7 g), turtle (40.9 g) and shellfish (308.5 g) were also recovered.

Marine invertebrates

Shellfish over 15 mm long (maximum dimension) that did not show signs of natural kills (i.e. bore holes) were classed as economic (see also Claassen, 1998: 111; Crouch *et al.*, 2009; McNiven, 2006). The authors accept that size may not in all cases be an indicator of economic shellfish (e.g. Rowland, 1994). At Dabangay, 231.0 g of shells were classified as economic (both MNI diagnostic and non MNI diagnostic pieces), almost all of which (98%) came from SU1 and the top of SU2 (XUs 1-7) (Figure 6). No MNI diagnostic taxa were identified in the 'pit feature' (SU3).

Of the 39 MNI diagnostic shellfish the most common targeted species were *Nerita* spp. (MNI=26), *Anadara antiquita* (MNI=6) and *Melo amphora* (MNI=4) (Table 2). The low numbers suggest occasional exploitation of molluscs with a focus on littoral zones.

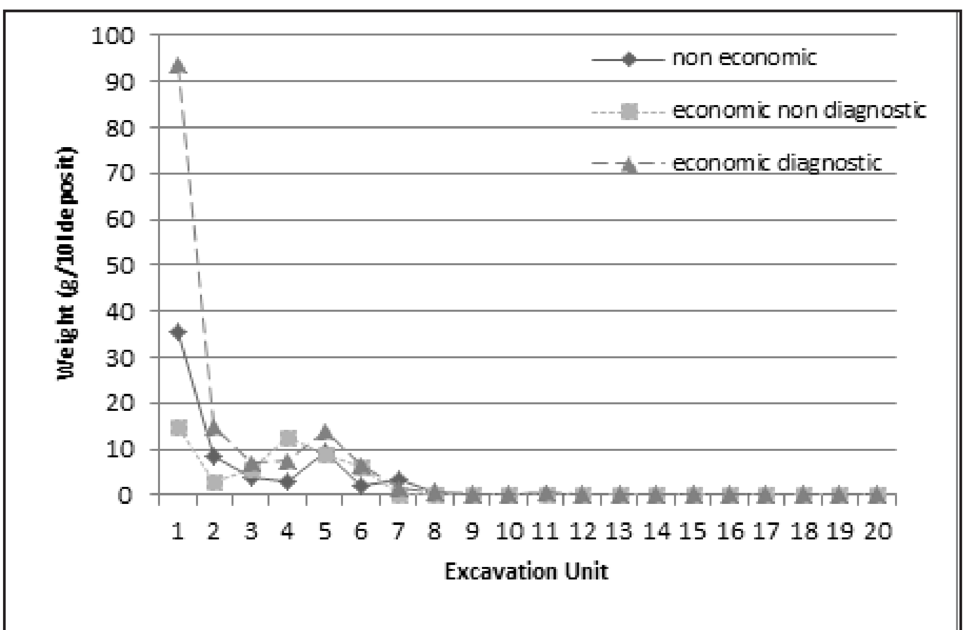

FIG. 6. Vertical changes in marine shell density, Square A (excluding SU3 'pit feature'), Dabangay.

TABLE 2. Shellfish (MNI), Square A, Dabangay.

Taxon	Tidal zone	Substrate	MNI	
Gastropods			SU 1	SU 2
Nerita spp.	Littoral	rocky	5	21
Cyprae sp.	littoral + sublittoral	coral reefs	0	1
Melo sp.	littoral + sublittoral	sand/ mud	1	3
Bivalves				
Chama sp.	littoral + sublittoral	rocky/ coral reefs	1	0
Paphies striata	Littoral	sand	0	1
Anadara antiquita	Littoral	sand/ mud	1	5

TABLE 3. Vertical distribution of dugong bone elements, Square A, Dabangay.

XU	Rib (g)	Ear (g)	Vertebrae (g)	Humerus (g)	Scapula (g)	Skull (other) (g)	Condylus (g)	Temporale (g)
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	0	3.7	90.9	0	0	0	0	0
5	106.6	0	0	0	0	0	0	0
6	130.8	3.2	74.7	0	0	88.8	0	0
7	160.2	0	108.5	0	33.9	43.6	0	0
8	19.04	0	39.8	0	0	0	0	0
9	183.8	32.1	31.2	0	0	0	0	0
10A	87.3	0	13.3	80.2	0	0	0	0
11A	167.5	0	0	0	0	0	21.6	0
12A	0	0	12.5	0	14.7	0	6.9	0
13A	141.3	0	189.4	0	0	0	24.7	0
14A	72	0	19.2	66.2	23.4	0	0	21.1
15A	140.4	0	0	0	19.8	0	0	0
16A	254.9	0	0	59.5	0	106.8	0	0
17A	122.01	0	14.2	0	0	0	0	0
18A	233.4	0	0	56.2	0	0	0	0
19A	174.2	0	15.8	119.7	0	0	0	0
20A	0	0	0	28.8	0	0	0	0
21A	0	0	0	0	0	0	0	0
22A	0	0	0	0	0	0	0	0
23A	55.1	0	0	0	0	0	0	0

TABLE 4. Vertical distribution of dugong bone elements, SU3 'pit feature', Square A, Dabangay.

XU	Rib (g)	Vertebrae (g)	Scapula (g)	Skull (other) (g)	Ear (g)	Tusk (g)
1	33.9	38	0	135.4	0	0.4
2	177.3	50	0	0	0	0
3	27.3	14.6	0	0	0	0
4	105.3	51.3	43.6	133.5	0	0
5	0	10.6	0	7.9	0	0
6	0	7.1	0	0	0	0
7	0	0	0	0	15.7	0
8	59.6	7.7	0	0	0	0
9	0	27.2	0	0	0	0
10	147.8	49.4	0	0	0	0
11	0	0	0	0	0	0
12	21.8	0	0	0	0	0
13	100.8	15.5	0	0	0	0
14	113.7	0	0	0	0	0
15	31.5	0	0	0	0	0
16	0	12.1	0	0	0	0
17	13.8	0	0	0	0	0

Large vertebrate and dugong

Of the 43.1 kg of marine vertebrate bone excavated from Dabangay, 85% was large vertebrate (36.6 kg) and 12% dugong (5.2 kg). The majority of large vertebrate bone and all dugong bone were excavated from XUs 1-25 (Figure 7). A conservative MNI estimate of three dugongs was made based on ear-bones excavated from XUs 4, 6 and 9. No identifiable dugong bone was recorded below XU25, corresponding with the stratigraphic transition from SUs 4 to 5. Significant quantities of dugong bone (1.4 kg) were recovered from the 'pit feature', including one ear-bone (raising the total MNI count to four dugongs).

Excluding SU3 ('pit feature'), the majority of dugong elements (by weight) are ribs (58%), vertebrae (17%) and humeri (11%). Minor quantities of skull fragments (9%) and scapula (3%) were recorded (Table 3). There are similar proportions of ribs, vertebrae and scapula in the 'pit feature' (58%, 18%, 3% respectively). However, skull fragments occur in significantly higher quantities (19%). While most elements were distributed evenly through this 'pit feature', skull fragments, tusks and scapula were restricted to the upper XUs (Table 4).

Turtle

Identification of turtle was based on characteristic pitting and linear grooves on the surface of osteoderm (carapace/plastron) plates. Four fragments of osteoderm were excavated from XUs 5 and 19 (6.1 g). A further 34.8 g of turtle bone was dispersed through the SU3 'pit feature'.

Small vertebrate and fish

Bone from small vertebrates (including fish, sharks and rays) made up less than 1% of the total assemblage of marine vertebrates. Not taking into account the 'pit feature' a total of 106.8 g of fish bone was excavated as well as 85.0 g of small vertebrate bone. The vertical

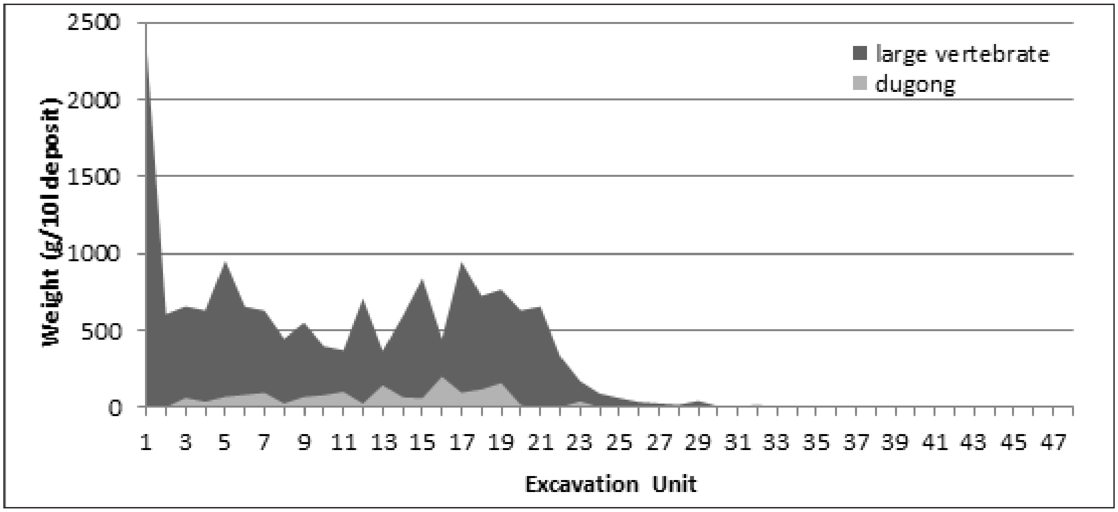

FIG. 7. Vertical changes in large vertebrate and dugong bone density, Square A (excluding SU3 'pit feature'), Dabangay.

distribution of small vertebrate bone in Square A shows peak quantities in XUs 3-9, with a broad secondary peak between XUs 14 and 25. Fifty eight percent of fish bone came from the upper nine XUs and 96% from the upper 25 XUs. A similar trend exists for small vertebrate bone (54% and 95% respectively) indicating that fish bone makes up a large component of this category. The survival of well-preserved marine vertebrate bone in basal layers suggests that this distribution is not the result of differential preservation.

Large amounts of fish bone (49.5 g) were excavated from the 'pit feature' along with 98.4 g of small vertebrate bone and 1.6 g of shark/ray bone. This small feature contained 32% of the total fish bone and 86% of the total small vertebrate bone for Square A. It further contained small quantities of shark/ ray vertebrae while Tiger Shark and ray were absent. The majority of bone had a blue discolouration consistent with burning.

Almost all of the small vertebrate bone from Square A is derived from fishes. The bony fish remains includes representatives of at least four families, with Labridae (wrasses) and Scaridae (parrotfishes) dominant throughout the sequence, and Carangidae (jacks) and Lethrinidae (emperors) less abundant and only sporadically represented (Wright *et al*. 2013). Most are small to medium-sized fish, with occasional large labrids represented. Shark teeth occur sporadically through the profile. The majority derives from small sharks but several teeth from Square A XU17A are from a much larger individuals, probably a Tiger Shark (*Galeocerdo cuvier*). The degree of fragmentation of the fish remains precludes meaningful estimation of relative abundances, as the majority of dentigerous elements are fragmented. With the exception of one tooth in XU17, Tiger Sharks were restricted to the upper six XUs while small (reef) sharks were recorded down to XU28.

Terrestrial vertebrates

Bird bone was excavated in very small quantities (1.0 g) in the upper 16 XUs of Square A. One other fragment (0.2 g) was identified in the SU3 'pit feature'. A single tail vertebra of a monitor lizard (Varanidae) was recovered from XU3.

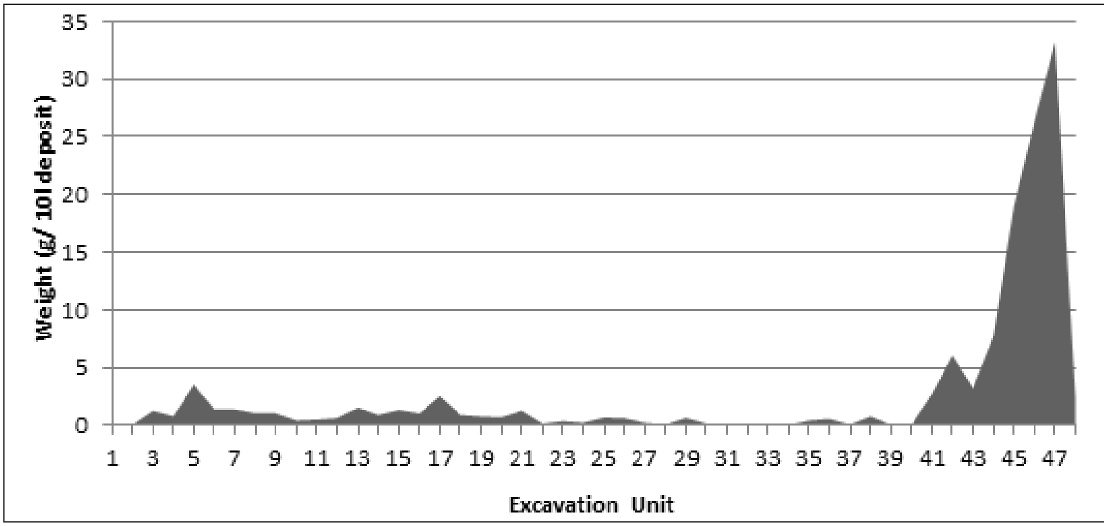

FIG. 8. Vertical changes in charcoal density, Square A (excluding SU3 'pit feature'), Dabangay.

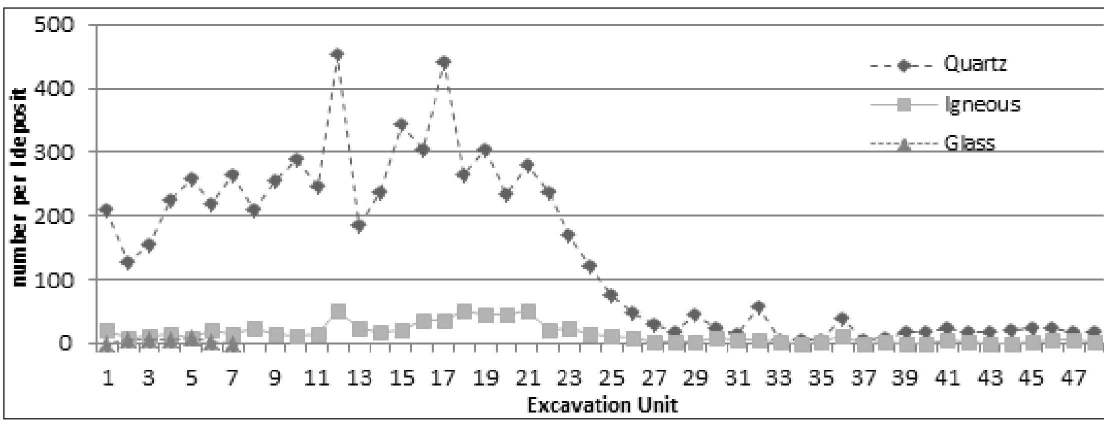

FIG. 9: Vertical changes in number of flaked stone artefacts, Square A (excluding SU3 'pit feature'), Dabangay.

Charcoal

The majority of charcoal (78% of total, 12.6 g per litre of deposit) was excavated from XUs 41-48 (Figure 8). Charcoal was then present in significantly reduced quantities up to the surface. In the 'pit feature' a total of 9.6 g of charcoal was recovered (with an average of 0.2 g per litre of deposit). This was slightly greater than the quantities in XUs immediately above the feature (0.1 g per litre of deposit).

Stone artefacts

Quartz (n=15,165) and igneous (n=1,505) stone artefacts dominate this assemblage. There were a further 51 glass flakes/ flaked pieces and five fragments of ground stone and ochre. A significant vertical change occurs in stone artefact discard, from 2,585 in XUs 26-38 (55-167 cm below the surface) to 14,110 in XUs 1-25 (0-54 cm below the surface). Flaked artefacts are present at the base of Square A with an increase after XU39 (Figure 9). A single ground stone fragment was also excavated in XU38. The upper deposit contains 95% of quartz and 93% of igneous flaked stone artefacts (including 109 igneous and 887 quartz artefacts excavated from the 'pit feature'). All glass artefacts came from the top seven XUs (within 20 cm of the surface) with the exception of a single bipolar glass flake in XU17 at a depth of 38 cm.

Between XU26 and XU36 the mean weight of lithics is low (Figures 10-11) which may indicate in part the movement of smaller materials into SU5 deposits. Between XUs 37 and 44 the mean weight increases for both quartz and igneous artefacts with many examples of the latter being substantially larger than those recorded in SUs 1-4 (Figures 10-11).

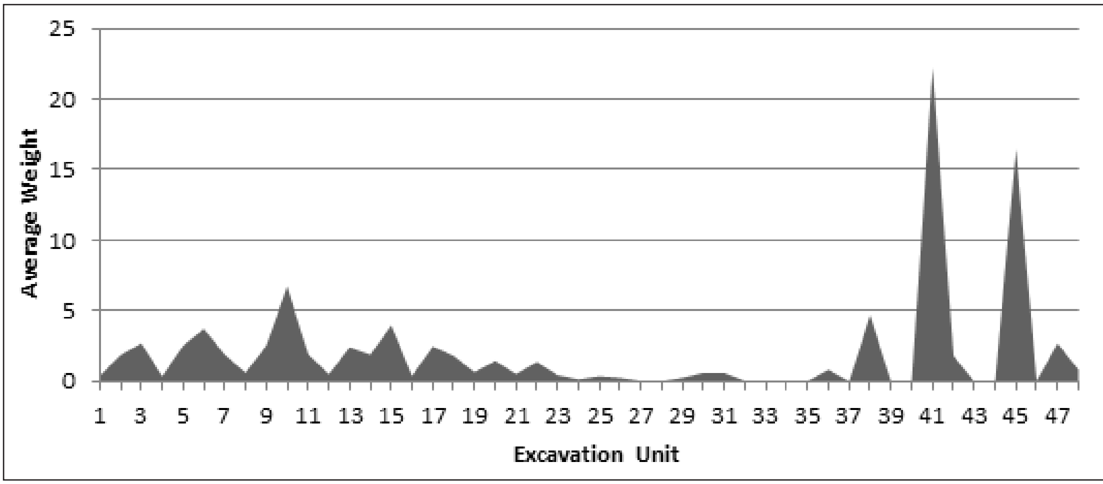

FIG. 10: Vertical changes in mean weight (g) of flaked igneous artefacts, Square A (excluding SU3 'pit feature'), Dabangay.

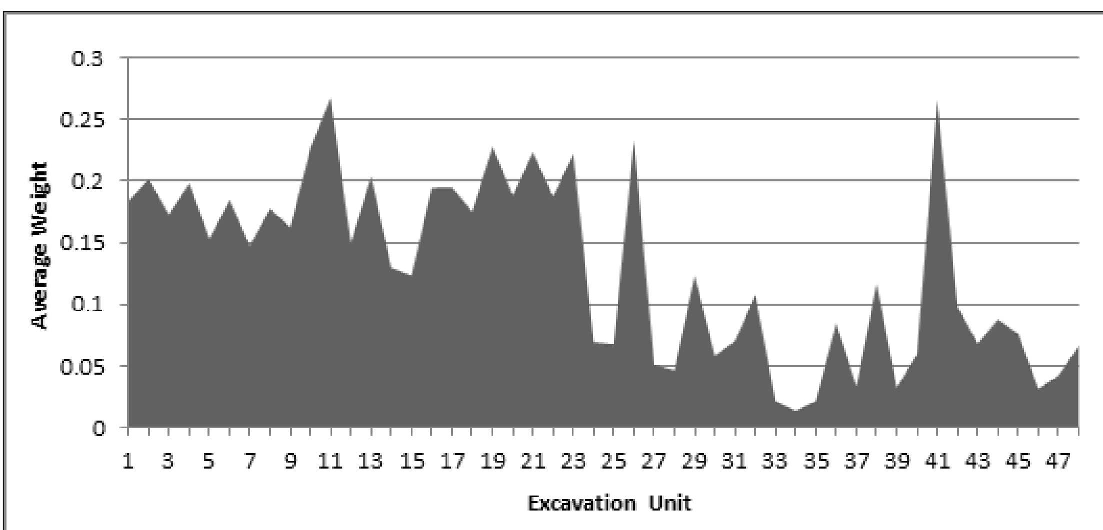

FIG. 11: Vertical changes in mean weight (g) of flaked quartz artefacts, Square A (excluding SU3 'pit feature'), Dabangay.

European materials

European materials included glass, metal, lead-shot, ceramics, clay pipe and four beads. These were restricted to the upper nine XUs with the main concentration between XUs 1 and 7. Two beads were made from glass with another two made out of material yet to be conclusively identified. The beads were recovered from XUs 2 and 5 (Figure 12).

Both ceramic fragments belong to a white ware, were under-glazed and probably manufactured in the UK during the nineteenth or early twentieth century (Ash *et al*., 2008: 476). The larger of the two fragments (XU3) belongs to an unidentified hollow vessel (probably a cup or bowl) and was decorated with a transfer print (unidentified blue). The motif appears to be a sailing frigate. A second fragment (XU6) belongs to a plate, also under-glazed with a transfer print.

FIG. 12: Beads from Square A, Dabangay (XU 2 and 5, left to right).

DISCUSSION & CONCLUSION

Localised disturbance occurs in the upper excavation layers (SUs 1-5a) at Dabangay. The basal layers (SUs 5b and 6) appear to maintain stratigraphic integrity with intact lenses of charcoal, stone and pumice observed and radiocarbon dates retaining correct chrono-stratigraphic order. The same integrity was presumably also the case for flaked stone artefacts which are considered too large to have trickled down into the cemented (and apparently undisturbed) sediment of SUs 5b and 6. A mid-Holocene radiocarbon date from burnt bone confirms the in situ provenance of large marine vertebrate bone.

In Goemulgaw oral history and ethnography, Dabangay is an important ancestral village. Archaeological research identifies two settlement periods. Phase 1 (7,000-5,200 cal BP) is associated with extensive burning, marine subsistence practices and the use of igneous and quartz artefacts (Wright, 2011). In keeping with European histories, considerable cultural materials occur within the past 300 years. This second phase (300 cal BP-present) is associated with an increase in marine subsistence activities including dugong and turtle hunting, fishing and shellfishing. Tiger Sharks and rays are also added to the subsistence economy. This period is also associated with substantial increases in lithic manufacture and a distinctive 'pit feature'.

These two settlement periods are separated by five XUs suggesting either a period of very low sedimentation (17-23 cm in 5,288-4,607 years) or a major erosion event(s) after 5288 cal. BP. We suggest the latter is more likely to be the case. The base of Square A is 1.5 m above the current high tide line and based on current predictions (1 m – 1.5 m above current sea level) well within the storm wash zone during the mid-Holocene sea level high stand (Perry and Smithers, 2011). The site chronology was strengthened through a second field season of research in 2011 (see Wright *et al*. 2013).

THE CEREMONIAL AND SECULAR ROLE OF DABANGAY VILLAGE

The presence of ceremonial mounds and secular midden at Dabangay provides a useful opportunity to review archaeological distinctions between these sites (cf. McNiven & Wright, 2008). In keeping with previous research, excavation of level middens revealed a considerably more varied assemblage than ceremonial bone mounds. A minimum number of four dugongs was excavated from level midden in contrast to 115 excavated from the nearby bone mound (McNiven & Bedingfield, 2008). Furthermore, contrary to the bone mound, considerable variety in dugong elements exists in level midden deposits.

Previous research suggests that secular and ceremonial realms may have merged on Mabuyag through the 'ritualisation of subsistence remains' (McNiven & Wright, 2008: 145; see also Ghaleb, 1990; McNiven & Feldman, 2003: 171). At Dabangay, level midden coincides chronologically with a dugong bone mound historically associated with the village *kod*. This overlap suggests that ceremonial and secular space merged at Dabangay. This hypothesis is strengthened by a small 'pit feature' (SU3) excavated in level midden which contained 43% of the total dugong bone for Square A and was dominated by skull bones. Skull fragments were only located in the upper XUs, visibly capping the 'pit feature'. This pattern is interpreted as evidence for the secondary use of faunal remains possibly associated with 'ritually closing' this feature. A similar example was recorded at Goemu where a raised midden mound provided no compositional evidence for focused, ritual activity except 'an arrangement of dugong ribs encircling a spherically-shaped coral, which precisely resembled the cranium of a human head' (Ghaleb, 1990: 209). Historical and ethnographic sources identify the prominence of dugong bone offerings at shrines at Dabangay (Gill, 1876; Haddon, 1904). Here we suggest that the structured closure of pit features may have also occurred. Clearly, further research across the Mabuyag islands is required to more comprehensively determine the range, form and complexity of ritual middening practices of the Goemulgal.

Previous research on Pulu islet (within Goemulgaw territory) suggests that a significant reconfiguration in socio-ceremonial activity occurred in the Mabuyag islands approximately 400 years ago (McNiven *et al*., 2009). This change involved the increasing prominence of ritual installations (e.g. dugong bone mounds, *bu* shell arrangements and potentially rock art) succeeding a major period of expansion associated with Goemulgaw villages (see also McNiven *et al*., 2008; McNiven *et al*., 2015). At Dabangay, midden activity postdates the commencement of dugong bone mound construction by approximately 100-200 years. This supports complex chronologies for the development of ceremonial and secular practices at Dabangay over the past 400 years. Whether this represents a regional negotiation between ceremonial and secular activity areas or wider cosmological shifts will be an interesting avenue for future research.

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