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Research Report

Movement of ideas not materials: locally manufactured pottery on Mabuyag Island, Western Torres Strait

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Abstract

We report a new site with locally made pottery on the Western Torres Strait island of Mabuyag (Mabuiag). The study uses petrographic and chronological results to reassess the antiquity of pottery in the region. It adds to knowledge which points to significant changes in the Torres Strait after 1700 BP.

In December 2006 one square metre was excavated at Mui on the south-east coast of Mabuyag. (Fig. 1) It tested an area of localized midden bone, 150 m inland of the current high tide line on the islands largest beach flat.

Excavation reached 1.65 m below surface with five stratigraphic units (SU) identified (Fig. 2). As was also the case further along the coast, the upper layers (SU 1 and 2) contained rich organic soils and midden bone (Barham and Harris 1987: 26-7; Ghaleb 1990; McNiven and Wright 2008). At Mui the midden deposit also contained fire-fractured rock, charcoal and, in the upper spits, fragments of glass and metal. Excavation continued into increasingly consolidated, damp beach sand (SU 3, 4, 5) and was discontinued when trowels were unable to penetrate through cokina (or calcite conglomerate). Little cultural material was recovered from these layers. However at the base of SU 5 (135 cm bs) two conjoining pottery sherds were recovered within the same spit as fragments of burnt large vertebrate bone. These were recorded *in situ* within a matrix of consolidated beach sand and were well outside an intrusive feature isolated in SU 4 (Fig. 2).

One shell and two charcoal samples were sent to Waikato (NZ) for AMS dating. Five *Paphies* sp. shells (sieve residue) were used to determine the base of the midden layer while the pottery was dated using charcoal from immediately above and below the sherds (Fig 2). Only a few hundred years separate all three dates (Table 2). The pottery is bracketed between 1336–1398 and 1508–1567 cal BP. As there is a gap of at least 6 cm between pottery and upper sample the latter determination may be closer to the truth.

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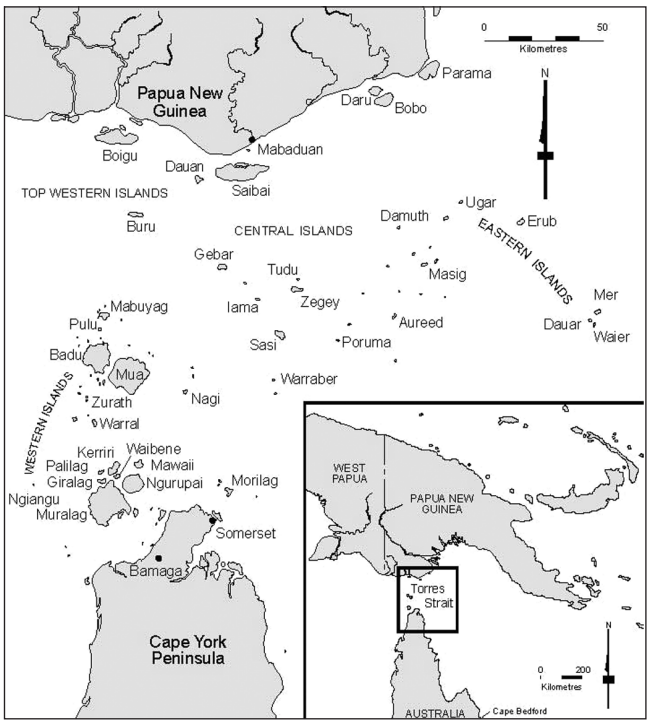

Figure 1. Torres Strait including pottery centres: Mabuyag, Pulu and Dauar (courtesy Ian McNiven).

Grain type	Frequency (%)
Plagioclase feldspar mineral grains	50
quartz mineral grains	15
biotite mica flakes	12
polycrystalline-polymineralic (quartz-feldspar) microgranitic rock fragments	10
K-feldspar mineral grains	8
opaque iron oxide grains (probably magnetite)	3
hornblende (pale green) mineral grains	2

Table 1. Terrigenous grain composition of Mabuyag sherd.

The sherds

As with all the Torres Strait pottery the Mabuyag sherds belong to a thin walled, plain ware (Fig. 3). No rims were recovered leaving the vessel morphology uncertain; however the curvature is more suggestive of a jar or pot than a bowl. No body whorls were observed to support the use of a coiling technique however the sherd is too small to discount this possibility.

A thin section of the Mabuyag sherd was subjected to petrographic analysis to identify the component elements of the clay and temper. Results identified a high ratio of sand to clay (>60:40) with temper predominately calcareous (beach) sand. This is coarse grained (medium rather than fine) with an estimated 80%–85% being well sorted. Calcareous sand is rounded to sub-rounded and contains fragments of reef debris. These are largely algal in origin although some micritic grains are observed with internal fabrics of diagenetic origin. Appropriate reefs are located on the western shoreline of Mabuyag and beneath extensive

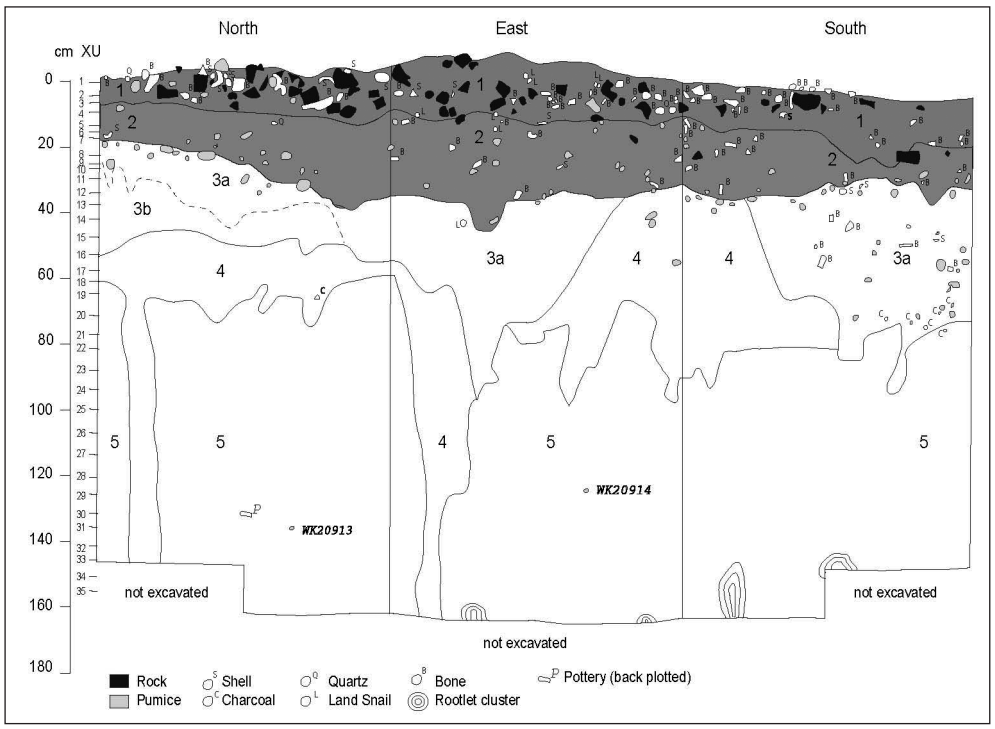

Figure 2. Mui 1, Sq A, including depth below surface and XU depth.

shoals lying about one kilometre north and south of the island (Willmott and Chertok 1972).

The subordinate terrigenous grains are also well sorted, but are sub-rounded to sub-angular. This may in part be due to the greater hardness and resistance to abrasion of these silicate grains. A count of terrigenous grains (N=105) present in a thin section documents the composition (Table 1).

The nature of the terrigenous grains is appropriate for derivation from Mabuyag bedrock and in particular from the Badu suite of granite exposed in north-eastern Mabuyag (Willmott and Chertok 1972; Willmott *et al.* 1973). This explains the high ratio of plagioclase feldspar as well as the subordinate grains identified in Table 1.

The mixed grain aggregate is interpreted as a modern, hybrid beach sand to which grains were contributed from both island bedrock and reef tracts. There are no volcanic rock fragments, chert/slate grains, or any other geologic indication that the sherds are exotic to Mabuyag.

Figure 3. Conjoining body sherds from Mui 1, Sq A.

Lab. Code	XU	XU mean depth below surface (cm)	Sample Wt (g)	Sample context SF = single fragment	$\delta^{13}C$‰	^{14}C date (BP)	Calibrated Age BP 68.3% (1 sigma range)	Calibrated Age BP 95.4% (2 sigma range)
WK21806	4	5–9	3.2	*Paphies* sp.	1.8± 0.2	1681±35	1227–1304	1173–1341
WK20914	28	117–124	0.07	*In situ* burnt wood (SF)	-27.7 ± 0.2	1538±30	1336–1398	1301–1416* 1469-1483
WK20913	31	135–139	0.08	*In situ* burnt seed (SF)	-25.9± 0.2	1686±37	1418–1466 1489–1498 1508-1567*	1410–1615* 1677-1684

Table 2. Radiocarbon dates from Mui excavation. Reservoir effect calculation for WK21806 uses Delta R of -30±20 (Ulm et al. 2007). Calibrations calculated using Calib 5.0.2 (Stuiver and Reimer. 1993).
* = highest probability of calibrated ranges

Discussion

The only previous discovery of pottery in the western Torres Strait was 16 red-slipped sherds recovered from the surface and subsurface of Mask Cave rock shelter on Pulu (McNiven *et al.* 2006: 63). The Mui excavation provides evidence for a similar plain ware pottery on Mabuyag. In both cases petrographic analysis reveals a local source for the pottery, although the composition of both sets of sherds suggest different sources were used. Temper from the Mask Cave pottery is indicative of a source on the large islands lying to the south of Mabuyag (McNiven *et al.* 2006:65). It might also derive from the nearby south-western part of Mabuyag where Torres Strait Volcanics are located. The Mui sherd, however, is likely to derive from the north-eastern coast of Mabuyag where the Badu intrusive suite of granite is exposed.

All this pottery includes a sand content which is near maximal for the retention of plasticity and workability. It is well beyond the normal temper ratio for other Oceanic sherds which rarely exceeds 30% sand to clay (Dickinson 2006: 21). As only terrigenous sands were recorded in the Pulu ceramics it was speculated that the potters may have used naturally "temper-rich clay bodies" (McNiven *et al.* 2006:56). On Mabuyag, however, the recovery of a hybrid pottery supports deliberate addition of calcareous grains (Dickinson 2006). The minimal weathering and uniformity of mineral inclusions offers further support for this (see also Summerhayes. 1997: 113; 2000). The potential methods and motives for such an innovation will be addressed in a subsequent publication.

The antiquity of ceramics in the Western Torres Strait remains unclear. On Pulu, eight of the thirteen sub-surface sherds date to between 1500–1700 BP. Therefore these are contemporaneous with or slightly earlier than the pottery on Mabuyag which spans 1300–1600 BP. A second group of five sherds from Mask Cave date to 2400–2500 BP with a single outlier also believed to fit within this early phase (McNiven *et al.* 2006:63). While there was no evidence to suggest sherds had moved within the deposit it is hard to reconcile chronology with petrography. The two analysed sherds from both periods were "indistinguishable" and based on petrography could have come "from the same vessel" (McNiven *et al.* 2006:64). This would be unusual for two ceramic groups separated by at least 700 years. An alternative sees pottery introduced to Pulu at around 1700 BP and then continuing on both islands for only a few hundred years. Given the similarity in petrography between the Mabuyag and Pulu ceramics we favour this latter scenario. However additional ceramic sequences from the Torres Strait and Papua New Guinea are needed to resolve the issue.

We posit a period of widespread expansion involving the arrival of pottery technology about 1700 years ago. The pottery itself may have also been transported to the eastern islands during this period (Carter 2001; 2002). Petrographic results from the examined Murray Island sherds identify Papua New Guinea as the most likely origin for these (Carter 2001; Dickinson 2003). This would fit within the wider picture of extensive pottery trade and exchange along the southern Papua New Guinea coast during the last 2000 years (Allen 1977; Bickler 1997: 151; David 2008: 466; Frankel & Kewibu 2000: 271).

To date in the Torres Strait only three sites with pottery and a total of 41 sherds have been excavated. This is in direct contrast to village sites in Papua New Guinea where pottery often dominates the archaeological assemblage (David 2008). The unenthusiastic adoption of pottery in the Torres Strait and its apparent rejection on the Australian mainland (Mulvaney and Kaminga 1999: 264) suggests that technologies may have already been in place that made pottery redundant. McNiven *et al.* (2006) suggest that this restricted distribution may also point to alternative (possibly ceremonial) roles for ceramics in the Torres Strait. A non-secular role for pottery has been argued elsewhere in the South Pacific based on ethnographic records (Descantes 2002; Irwin 1985) and vessel morphology/decoration (Bedford and Spriggs 2007: 13; Best 2002; Clark and Wright 2007). Very little of either is available for researchers in the Torres Strait and so further research will rely on the recovery of larger, more diagnostic samples.

Conclusion

We report further evidence for the local manufacture of pottery in the Torres Strait. This continued for at least 300 and possibly over 1000 years encompassing the two islands of Mabuyag and Pulu but on current evidence not spreading to the larger islands of Mua or Badu to the south. The discovery provides insight into a dynamic period of shifting settlement between 1700–1300 BP bringing with it new people and material culture but perhaps more importantly new ideas and technologies.

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