

Chapter 10

THE TEOUMA LAPITA SITE, SOUTH EFATE, VANUATU: A Summary of Three Field Seasons (2004-2006)

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INTRODUCTION

The Teouma Lapita site, located on the south coast of Efate Island, Central Vanuatu (Figure 10.1a and b) was found in January 2004, following a series of serendipitous circumstances (Bedford *et al.* 2004, Bedford, Spriggs and Regenvanu 2006). Tectonic uplift, volcanic ashfall and alluvial deposits have repositioned this once immediately-coastal colonisation period site, situated on an uplifted reef terrace, to a current location some 800 m from the sea and buried beneath up to 80 cm of black tephra-rich sediment. Earthmoving activity in 2003 removed 1000 m² of the overlying black tephra-rich layer and in the process exposed the Lapita site. An initial assessment prior to excavation recognised it as an important well-preserved early Lapita site, a site type that had been missing from the Central Vanuatu sequence. Excavations in 2004, however, quickly revealed that the first use of the site was as a cemetery, and it was therefore not simply important at a local Vanuatu level, but provided the first real opportunity in more than 50 years of research to describe a group of Lapita people themselves, and at the same time glean insights into their ritual and mortuary practices. Three field seasons have been undertaken at the site (2004-2006). Those of 2004 and 2005 have been previously been outlined (Bedford *et al.* 2006) and will only be further referred to here to provide background and comparison with results from excavations undertaken in 2006 (Figure 10.2a-c). Some aspects of the on-going analysis have been reported on in detail elsewhere, and will be into the future, in collaboration with various specialists, but some general observations and summary conclusions are outlined in this paper.

ARCHAEOLOGICAL EXCAVATIONS: SITE EXTENT, STRATIGRAPHY AND CHRONOLOGY

Excavations 2004-2005

A total of 57 m² were excavated during initial investigations undertaken in July 2004 (Figure 10.2b). The excavations were designed to assess the extent of the damage caused to the site by the mechanical earthmoving activity and define the boundaries of the site, along with its stratigraphy, chronology and composition. A primary focus, where areal excavation of c. 24 m² was undertaken, was in a part of the site (Area 3) where Lapita sherds and other midden were seen eroding out of a more deeply machine-mined zone. A further nine test-pits or test-trenches totalling 33 m² were excavated across the wider site to try and determine its stratigraphy and extent. At the close of excavations in 2004 it had been established that the first use of the site had been as a Lapita period cemetery of considerable extent, with a concentration of 10 burials recovered from Area 3, and a further three burials identified in Trenches 3 and 3a and Test-pit 4.3.

In 2005 the focus of excavations was a 100 m² area adjacent and east of Area 3 (Area 2) (Figure 10.2c) where the greatest concentration of burials had been located in 2004 (Bedford *et al.* 2006). The northwestern half of the 100 m² had been scraped by machine almost down to the underlying reef, facilitating access to the Lapita layers, but also potentially affecting conditions of preservation. The southeastern part of the area had not been modified. Thirteen burials were uncovered, the

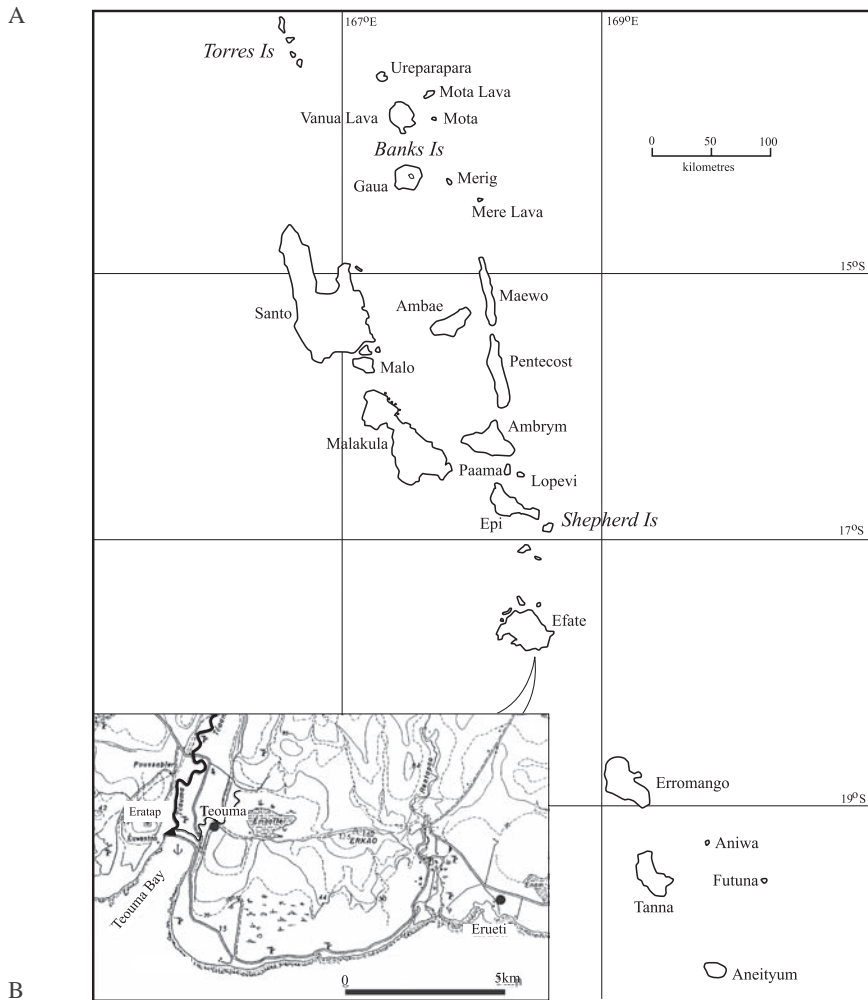
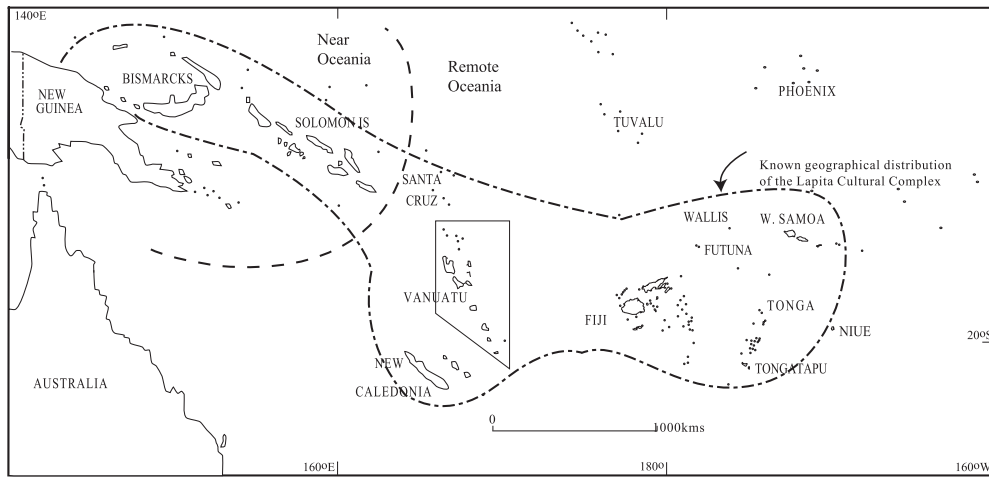


Figure 10.1 a. Southwest Pacific and Vanuatu; b. Vanuatu and south Efate (inset).

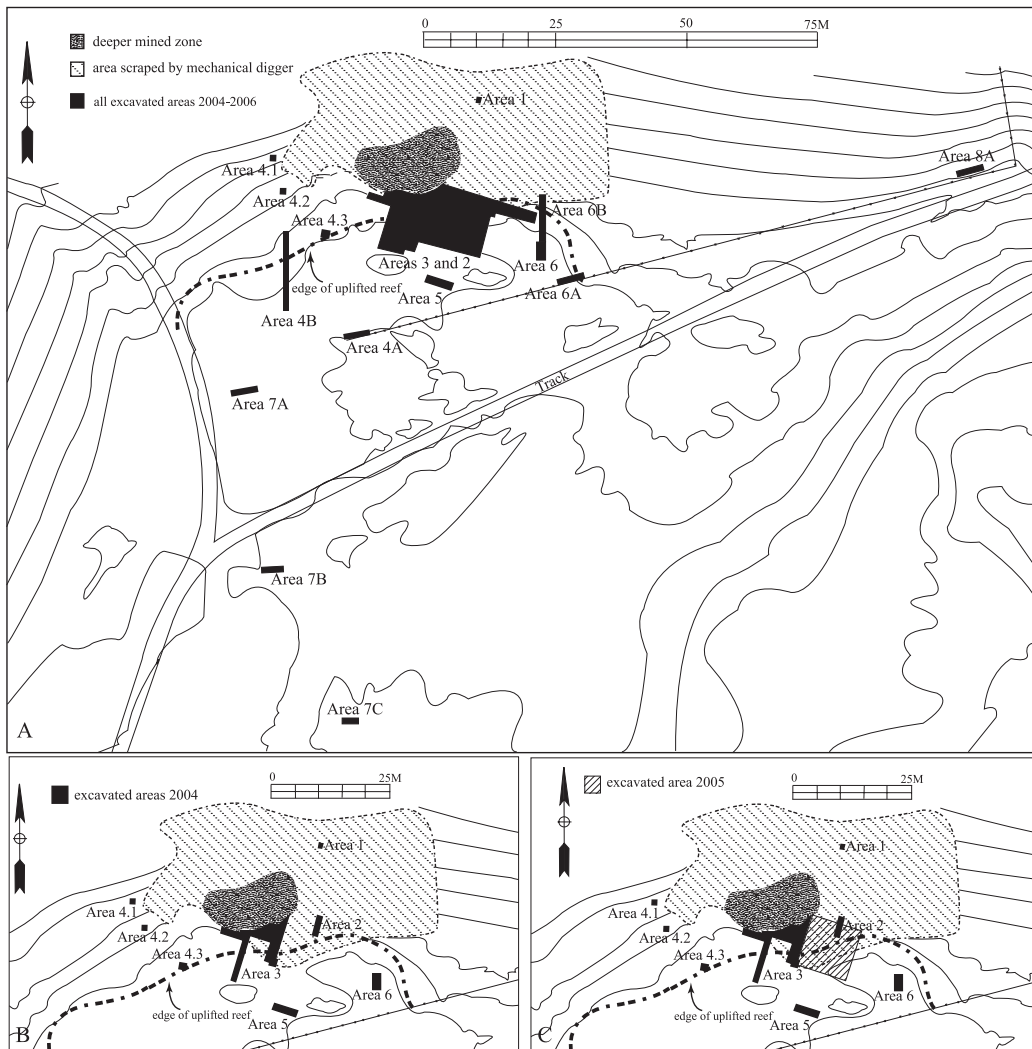


Figure 10.2 a. Excavated areas 2004-2006; b. Excavated areas 2004; c. Excavated area 2005.

cemetery extending only really into the southwestern corner of the 100 m² area. Two outliers were found in the rest of the excavated area, an inhumation burial in a solution hole in the far northeast corner and a possibly later cremation burial in the southeast corner (Valentin *et al.* in prep. a).

Excavations 2006

The aims of the excavations in 2006 were to complete the investigation of areas that had been damaged but not destroyed by mechanical scraping, focusing in an area that was considered to be an extension of the focal burial area for the site and which was likely to contain multiple interments. Further definition of the area of the cemetery and any associated activity areas, particularly any habitation remains, were also a priority. A laser theodolite was employed during the course of the excavations in 2006 to facilitate detailed recording of the excavated areas, including burial features and artefacts, and to complete a topographic map of the wider site.

The targeted area of the cemetery, bounded on the west by the north-south aligned Trench 3 and on the east by part of Area 3, both of which had been excavated in 2004, eventually comprised a contiguous area of some 53 m² (Figure 10.2a). A further 22 interments were found concentrated in this area, and as was the case in both 2004 and 2005, they displayed wide variation in burial position and mortuary practice. Excavations confirmed that this part of the site was more towards the centre of the cemetery, which probably extends at least as far as Area 4.3. The other nine test-trenches comprising a total of 65 m² were both adjacent to the cemetery area and spread across the terrace (Figure 10.2a). They all contributed to a greater understanding of the overall site, but at the same time have highlighted the challenges of thoroughly investigating a site that covers a potential area of more than 10,000 m².

Area 6B (9 x 1 m) was a northern extension of Area 6, a largely sterile 3 by 2 m test-pit that had been excavated on the flat part of the terrace in 2004. Area 6B was laid out in a north-south alignment running down the slope at the edge of the terrace to determine if midden dumping, as had been identified further west in 2005, was present. Similarly the 8 by 2 m eastern extension of Area 2 was aligned along the edge of the terrace, to both determine the extent of midden deposits and if there was any further sign of burials. The combined excavated 26 m² revealed concentrated Lapita and post-Lapita midden deposits but no sign of any further burials, confirming that the eastern edge of the cemetery had been established in 2005. The Lapita midden deposits uncovered in this area suggest that this may have been the immediate area of initial habitation at the site and may even be contemporary with cemetery activity. The boundary of the cemetery was certainly respected in terms of midden dumping during this period. The concentrated, overlying post-Lapita midden deposits were contiguous with and paralleled those that had been identified right across the cemetery area in 2004 and 2005, and relate to later habitation at the site which spilled over the cemetery area and across the former beach towards the current stream to the north. Area 6A, a trench measuring 5 by 1 m, just to the south of Area 6, on the edge of the flat terrace, revealed the familiar stratigraphy of a black tephra-rich soil, overlying a yellow brown tephra on top of the uplifted reef, but was archaeologically fairly sterile. Sparse, weathered dentate-stamped and plain sherds and occasional shells were recovered.

To the west of the site, Area 4B, a north-south aligned trench measuring 15 by 1 m, was laid out in order to further determine the location of the edge of the reef terrace, the extent of the cemetery and later midden deposits. This trench revealed the edge of the reef terrace but no further skeletal remains or the later concentrated post-Lapita midden deposits were present. The stratigraphy paralleled that which had been identified elsewhere but only weathered dentate-stamped, plain and Erueti-style sherds were recovered. Area 4A (5 by 1 m) to the southeast and on the flat area of the terrace was similar to Area 6A, showing increasingly sterile deposits, although occasional weathered dentate-stamped sherds were still present.

Three further trenches were excavated to the southwest of the site, two on the edge of the terrace in areas that would have once faced across the bay (Area 7A [5 by 1 m] and Area 7B [4 by 1 m]) and another, Area 7C (3 by 1 m), more than 75 m south of the cemetery area, on top of a low mound feature. These were seen as potential locations for habitation. Areas 7A and B demonstrated the standard stratigraphy identified across the site but were largely culturally sterile apart from, again, the presence of weathered dentate-stamped and Erueti-style sherds. Area 7C, however, revealed evidence of at least two mortuary features apparently associated with scattered Lapita and early Erueti-style sherds. These burials were left in place for later investigation and are not included in the burial inventory.

A final trench, Area 8A (3 by 1 m), was excavated in the far northeastern edge of the terrace where sherds had been exposed during fencing activity. This area again proved to have evidence of Lapita presence albeit only in the form of occasional weathered sherds.

Site Extent and Stratigraphy

The excavations undertaken in 2006 have confirmed some aspects of the site that had been established earlier, but have also led to some reinterpretation and a broader understanding of its development over time. In all some 275 m² were excavated at the Teouma site over the 2004-2006 field seasons. The areal excavations, undertaken in Areas 2 and 3 (177 m²) have provided fine detail of the Lapita cemetery and the subsequent history of the site in the northern area of the terrace, while the other trenches and test-pits have provided evidence of site and activity boundaries and site formation. We are dealing with a site that potentially encompasses an area of more than 10,000 m², situated on a promontory that during the initial Lapita occupation was bounded to the north by a small river, by the sea on its western side, and uplifted limestone cliffs extending several hundred metres to the east and southeast.

Excavations have shown that there is archaeological evidence dating to the Lapita and Early Erueti Phases, albeit in some cases fairly ephemeral, in all the trenches and test-pits excavated to date. Thus far we have concentrated investigations on or near the edge of the large terrace where we would expect habitational evidence. The centre of the terrace appears not to have similar evidence of occupation and may have been used for gardening activities.

When people first arrived at Teouma Bay they would have been greeted by a wide sheltered bay. Located on the eastern side was a large flat uplifted karstic reef terrace, with a coral-rubble beach at its edge and a permanent water source in the form of a stream draining from a swamp in the nearby eastern interior. Around 3300-3200 B.P., just prior to human arrival, a thick and still largely unweathered orange/yellow tephra, which has been identified in other areas of Efate (Bedford 2006, Bedford and Spriggs 2000, Spriggs and Bedford 2001), was deposited across the uplifted terrace. This created a level surface across the once jagged uplifted reef (Figures 10.3a-c). The initial use of the area was as a cemetery with burials placed in shallow graves dug into the tephra in gaps in the uplifted reef and in the upper beach zone. The Lapita cemetery is concentrated along a north-east to south-west trending zone, 10-15 metres wide adjacent and parallel to the former beach. There is potentially a further 200 m² of the site where burials may be located, across from Area 3 at least as far as Area 4.3 but presumably no further than Area 4B. Evidence of initial habitation, possibly contemporary with the life of the cemetery, was identified in the form of concentrated midden dumping, adjacent and east of the cemetery, in Area 6B and the east-west aligned trench extension of Area 2. Evidence of Lapita period activity, although sparse, has been identified in all other excavated areas, most of which were located on or near the edge of the old reef terrace. Further burials were revealed in the southern-most trench (Area 7C) on a low mound feature, but not fully investigated due to time constraints. It is possible that they mark a cemetery associated with the later habitation areas of the site.

Some 50 cm of midden was subsequently deposited across the site; presumably after its significance or location as a cemetery had been forgotten (Figure 10.3a). It is associated with habitation activities dating to the Early Erueti phases of Central Vanuatu at c. 2800-2500 B.P. (Bedford 2006, Bedford *et al.* 2004, 2006). These later deposits provide insights into changing settlement pattern and site use over time. They overlie the earlier Lapita deposits but also cover a significantly larger area of the site. The southern extent of the Erueti deposits parallels that of the Lapita deposits on the edge of the old reef but extends at least a further 20 m in a northerly



Figure 10.3 a. Stratigraphic section showing the black tephra-rich layer (Layer 1), overlying the midden layer (Layer 2), which has been deposited across the cemetery and uplifted reef, that is seen in the trench at the rear. Willy Damelip, facing the camera, is seated on top of the former upper beach; b. Excavation of a Lapita burial in the top of Layer 3, Area 3 (2006). Layers 1 and 2 have been completely removed across the site but can be seen in the section at the rear; c. Completed excavation of Area 2, 2005. The uplifted reef is exposed across the site. All photos have been taken from the northern end of the excavations, looking south.

direction as evidenced in Areas 1, 4.1, 4.2, but also in an easterly and westerly direction as seen in Area 4.3 and Area 6B. This pattern of deposition, representing realigned and expanding settlement has been recorded at the Arapus/Mangaasi site on the northwest coast of Efate (Bedford 2006, Bedford and Spriggs 2000, Spriggs and Bedford 2001). During occupation of the site there was on-going tectonic activity which created a progressively prograding shoreline. The preferred location for habitation remained adjacent and parallel to the contemporary beach, requiring episodic realignment of the settlement. The continued uplift and alluvial infilling of the bay led to the abandonment of the settlement as access to the sea became increasingly problematic.

Once abandoned, the site was subsequently capped by a weathered tephra-rich black layer probably associated with volcanic activity on Nguna Island to the north around 2300 B.P., and which has again been identified across much of west coast of Efate (Figure 10.3a). Further tephra-rich soil completes the stratigraphy of the site, and this may relate to further activity on Nguna or

indeed to the massive 1452 A.D. Kuwae eruption further to the north (Robin, Monzier and Eissen 1994). The site shows no signs of use or occupation after 2500 B.P. until the development of the coconut plantation on the site about 100 years ago. There is no sign at Teouma of the late Erueti or Mangaasi-style pottery (c. 2500-1200 B.P.) that is common in many other archaeological sites on Efate and the Shepherd Group (Bedford 2006).

Chronology

Multiple radiocarbon dates, utilised in combination with the already established, dated tephrostratigraphy, well-defined ceramic chronology from Efate, and regional Lapita ceramic sequences are providing a detailed and broadly reliable chronology for Teouma. A single conventional date¹ (4227±38 B.P. [Wk-17766] 4410-4160 B.P.) on natural shell embedded in growth position in the crevices of the old reef gives some idea of the period when the reef was initially uplifted above sea level. People arrived after 3300 B.P., the earliest possible date for the underlying tephra-rich layer that overlay the reef. Occupation would have begun between 3200 B.P., the date of initial occupation suggested for the Reefs/Santa Cruz Group to the north (Green, Jones and Sheppard 2008) and the Makue site on Aore, northern Vanuatu (Galipaud and Swete Kelly 2007), and 3000 B.P. A range of decorative features and vessel forms associated with the dentate-stamped ceramics from the site, which are discussed below, also support this date for arrival, as does the recovery of obsidian from the Bismarck Archipelago to the northwest. As noted earlier, pottery recovered from the midden dumped across the cemetery belonged to the Early Erueti phases of Central Vanuatu dated to c. 2800-2500 B.P. The site was abandoned no later than 2500 B.P., after which time the late Erueti-style pottery, not present at Teouma, appears across Efate (Bedford 2006).

Radiocarbon dates thus far have concentrated on attempting to define the chronology of the cemetery. Four previously published AMS dates (Bedford *et al.* 2006) included those assayed on *Conus sp.* shell rings associated with two burials (3139±36 B.P. [Wk-16831] 2980-2755 B.P. Burial 4, and 3162±34 B.P. [Wk-15729] 3016-2774 B.P. Burial 11), and two charcoal samples unidentified as to species. One charcoal sample came from just above the lowest levels of the midden deposit in Trench 3A (2848±35 B.P. [Wk-15728] 3070-2867 B.P.), and another sample was retrieved from the more recent Erueti deposits of Trench 3A (2961±36 B.P. [Wk-16830] 3254-3001 B.P.). The last date is not consistent with the associated ceramics that would be expected to date in the range of 2800-2500 B.P. These results highlight the difficulties of definitively dating the period of use of the cemetery. There are a number of factors that hinder such precision: the flatness of the calibration curve in this time period (Pearson 1993: Fig. 1b), variability in Delta R values for marine shells of the region, and the potential problem of in-built age in unidentified charcoal samples.

However, more recent radiocarbon results from the direct dating of human bone from 20 individuals do suggest that the site was used as a burial place for a time interval of perhaps a century around 3000 B.P. (Spriggs *et al.* in prep). The similarity of mortuary practice across the site and the very limited cases of inter-cutting or disturbance by subsequent burials confirm this relatively short period of use. They also indicate that people had a level of awareness of the location of particular burials, perhaps through grave markers, a situation that has some parallels with the colonisation phase cemetery associated with Wairau Bar in New Zealand (Higham, Anderson and Jacomb 1999).

THE POTTERY ASSEMBLAGE

The discovery of dentate-decorated vessels in direct association with skeletal remains has confirmed a long-proffered hypothesis that decorated pots had a significant role in Lapita ceremonial activity. Confirmation of the association of dentate-decorated vessels with the mortuary rituals at Teouma was established from excavations in 2004. In 2005 this was further detailed when three whole pots were recovered in amongst and enclosing skeletal remains. One was a complete flat-bottomed dish that had been up-turned and used as a lid. It lay on top of a dentate-stamped carinated vessel into which a human skull had been placed (B19). Another inverted carinated vessel lay nearby alongside another burial (B18: Bedford *et al.* 2007: 223-40). Evidence of secondary deposition of skeletal remains in a pot was also identified (Bedford and Spriggs 2007).

During the excavations of 2006 the association of decorated Lapita pots and mortuary ritual was further confirmed. Another whole carinated vessel and a plain stand were recovered (Bedford *et al.* 2007: 223-40) amongst burials. There was also another instance of a pot base containing assorted human bone being recorded *in situ*, and associated upper parts of the vessel were scattered nearby. In many cases discrete concentrations of sherds from other vessels, broken and disturbed during the use of the site, were recovered over several square metres amongst the burials.

The range of Lapita vessel forms recovered from the cemetery area includes flat-bottomed dishes, a wide assortment of carinated vessels and cylinder stands. The flat-bottomed dishes, some 15 of which have been identified thus far, range in diameter from 28 to 45 cm and have an assortment of dentate-stamped designs, including a number with varied anthropomorphic motifs (Figure 10.4ai, 10.4aii, 10.4bi and 10.4bii). Several of the lips of these dishes are “stepped” and are excised (Figure 10.4biii and 10.4ciii), a feature also found near the base on some of the dishes. In addition there are occasional paired pierced holes near the lip (Figure 10.4ci). The dish used as a lid (10.4ai) was decorated with a double face motif, and had a circular groove in the centre of its basal exterior, indicating that it was originally made to sit on top of a cylinder stand. Also recovered from the burial area was a single example of a flat-bottomed dish with attached pedestal foot.

Three separate cylinder stands have thus far been identified at the site, although a further two to three single sherds may represent others. The difficulty of being able to identify these vessel forms from small sherds appears to have contributed to the relatively rare positive identification of such forms from Lapita sites (Best 2002: 82, Kirch 1997: 137), although this is a situation that is beginning to change (Specht 2007: 60). Their current known geographic range stretches from the far west of the Lapita distribution in the Bismarck Archipelago to Vanuatu and New Caledonia. The Teouma examples are decorated with zigzag motifs and a range of anthropomorphic figures (Figure 10.5i and 10.5ii) including different stylistic forms on the same stand. These tubular vessel types, which are approximately 30 cm tall, have no decoration on the upper lip, suggesting that they were indeed used as stands on to which other vessels, such as flat-dishes, were placed.

Carinated vessels dominate the cemetery pottery assemblage and comprise a wide array in terms of form, size and dentate-stamped designs. Vessel shapes include carinated vessels with both concave and convex upper body forms associated with outcurving rims (Figure 10.6a and b). These dominate the assemblage, but there are also a number of carinated vessels with incurving rims. The double or composite rim form (Sand 2000: Fig 2) is also present. Just to add to the variation, two of the carinated vessels have flat bases (Bedford *et al.* 2007: Fig. 7) and one has modelled birds perched on the inner rim (Bedford and Spriggs 2007). Diameters of these pots range from the small at c. 15 cm to the very large at c. 55 cm. In some cases the rim diameter is larger than the carination and in others the carination forms the widest point. The variation in



Figure 10.4 Three Teouma flat dishes. ai-bii. Anthropomorphic designs; biii. Excised and dentate-stamped lip; ci-iii. Flat dish with excised lip, base and pierced holes. (Design motifs drawn by Richard Shing).

vessel form and size is paralleled in the design motifs, in their construction, application and positioning. Both fine and coarse dentate decoration is present amongst the recovered vessels. There may be a chronological aspect to this, but the complete vessels found in association indicate that complex finely executed dentate designs were being deposited contemporary to vessels decorated with much coarser designs. This evidence reinforces conclusions reached by others in terms of gauging chronological variation in Lapita ceramics: that vessel form, decorative finesse, and design structure and content are not always a definitive marker of chronological divergence (Chiu 2005: 27, Sand *et al.* 1998: 41).

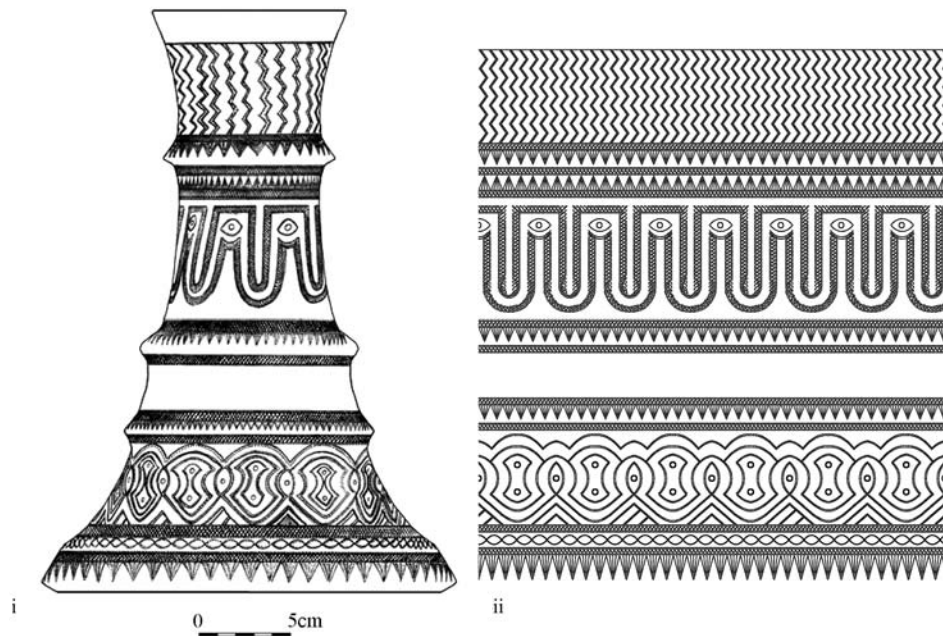


Figure 10.5 i Cylinder stand (Fidel Yoringmal); ii full motif design (Richard Shing).

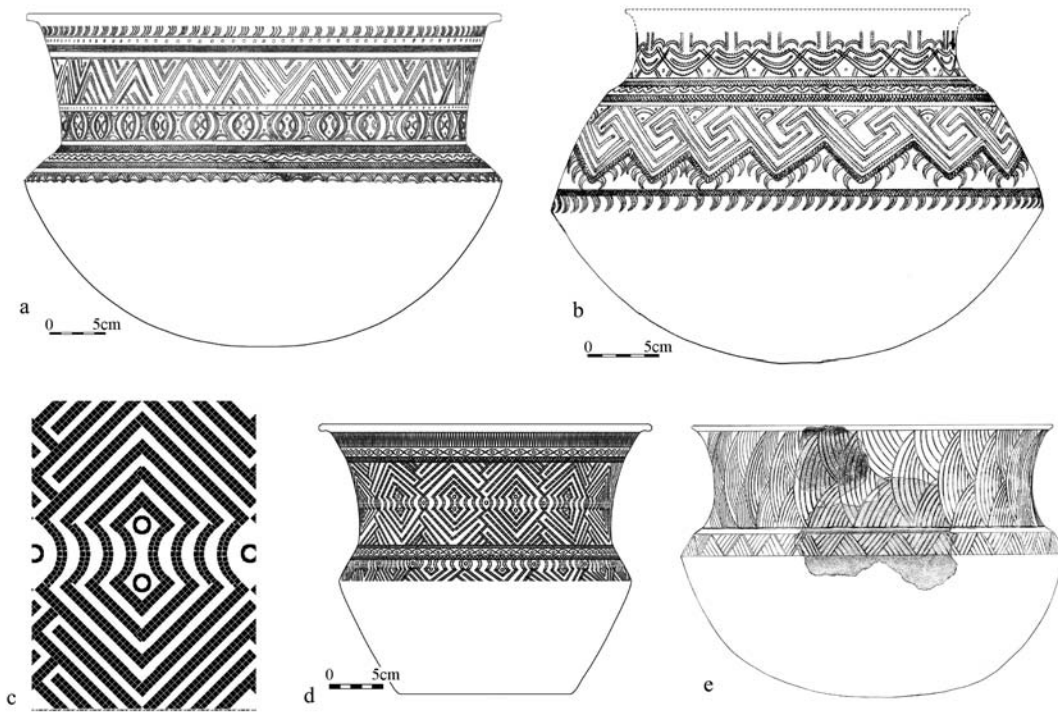


Figure 10.6 a. Carinated vessel with double central frieze motif; b. Vessel with convex upper carination; c. Common motif which is also cut in half and used on the upper part of the carination (d); e. incised vessel (a, b and e drawn by Fidel Yoringmal; c and d by Richard Shing).

Dentate-stamped designs on the carinated vessels include geometric, curvilinear, anthropomorphic, labyrinth and “house” motifs along with applied vertical lugs (Bedford *et al.* 2007: 223-40) and a whole range of other combinations. One of the more common motifs used on all vessel forms is a variation of Donovan’s M13 (Figure 10.6c; Donovan 1973). There are a number of cases of central friezes being cut in half and used on the upper part of the carination of the same vessel (Figure 10.6d). There is also certainly one case and possibly two of the central frieze comprising two different motifs (Figure 10.6a). There are two cases where decoration continues just below the carination. Incision is very rare and found only on carinated vessels. A full compilation of vessel forms and design motifs is on-going.

Sherds recovered from the Lapita midden dumping area, east of the cemetery, are as one would expect from such deposits, much more fragmentary and mixed. There are both fine and coarse dentate-stamped sherds on the same range of vessel forms as found in the cemetery. Incised and plain pots are also present in this area. The pottery at the site changes after a hundred years or so, leading to a dramatic restriction of vessel form and decorative technique. Later vessel forms of the Early Erueti Phase are dominated by globular out-curving rim vessels with wide flat lips and very little evidence for decoration, apart from notching on the lip. The only other late vessel form identified, in much fewer numbers, is a carinated vessel that invariably displays incised decoration above the carination (Figure 10.6e). These vessel forms and decoration comprise a restricted sample of the typical Early Erueti Phase ceramics originally identified at the Erueti site some nine kilometres further east along the coast from Teouma (Garanger 1972: Figs 17-24), and subsequently on the northwest coast of Efate (Bedford 2006).

Limited fabric analysis has been undertaken so far but distinctive black glassy inclusions, a characteristic of Efate temper, can be seen in many of the sherds (Bedford 2006, Garanger 1972: 110-12). Intriguingly, of the 11 sherds studied thus far, two are exotic to Efate. One is sourced to New Caledonia and is from a flat-bottomed dish. The other is potentially from the Solomon-Bismarck region far to the northwest (Dickinson 2006a), and is from the very large carinated vessel placed upside down next to Burial 18 (Bedford *et al.* 2007: Fig. 10).

Wider Connections and Implications

Preliminary analysis of the Teouma Lapita ceramics places most of them in the category of Western or Middle Lapita style, although there are hints of Early/Far Western and Late/Eastern style ceramics present as well (Anson 1983, Summerhayes 2000). Distinctive traits of the Early/Far Western Lapita style that are not present at Teouma include cutouts on pedestal bases (Kirch 1997: 121, Summerhayes 2000), open bowls with a curvilinear base (Summerhayes 2000: 34), and spherical vessels and flasks (Summerhayes 2001: 58). While there are certainly missing aspects of the Early/Far Western style at Teouma, there is a range of very similar vessel forms and designs that have links with this earliest of Lapita phases. Very distinctive excised decorations found both on the “stepped” lip and at the base of flat-bottomed dishes (Figure 10.4b, c) have affinities with early sites in the Far West including Mussau (Kirch 1987: Fig 4b) and the Arawes (Summerhayes 2000: 87), but also the SZ-8 site in the Reefs/Santa Cruz Group (Donovan 1973). In New Caledonia, despite the investigation of some 40 Lapita sites, decoration of this type is extremely rare with only one or two examples having been found (Sand 2000, Siorat 1990: 81). It has not to date been found anywhere further east.

The greatest similarities are with ceramics recovered from the Reefs/Santa Cruz Group and New Caledonian Lapita sites, but comparison has also highlighted regional specificities. None of the designs on the complete vessels from Teouma, for example, have direct parallels with any of the whole pots from New Caledonia. Many elements of the full designs, however, are indeed present,

and virtually all the motifs present at Teouma can be found in the assemblages from the Reefs/Santa Cruz Group, which points to some level of chronological correspondence, and a high level of interaction during the early phase of expansion into Remote Oceania, something that is further confirmed by the presence of exotic vessels at the Teouma cemetery. More simplified dentate-stamped designs and the later incised designs (Figure 10.6e), along with evidence of shell impression, hint at some level of continued interaction in the region for several hundred years or so.

TEOUMA LAPITA BURIALS

2004-2005

All seasons at Teouma have produced the unexpected, and this is particularly the case in relation to the burials and associated mortuary practices. In the 2004 and 2005 seasons it was established that there was a wide range of burial positions, and that mortuary ritual had been a multi-faceted and on-going lengthy process, rather than a one-off event. The burials were generally placed in shallow graves dug into the underlying tephra deposits amongst gaps in the uplifted reef and coral boulders on the upper part of the beach. There is evidence that suggests the manipulation of the corpse prior to burial or at least during the early stages of decomposition, and that the graves were repeatedly visited. All the burials had had their skulls, and often many other bones, removed during the extended mortuary ritual. The majority of the burials were primary interments, although there are also examples of secondary deposition. There is a wide array of burial positions but most are laid out in a supine position, often with legs in a flexed or crossed position, possibly due both to particular burial practices and in some cases the restricted space available in reef cavities. One of the interments uncovered in 2005 and containing burnt human remains, is consistent with a cremation (Fuller 2006), adding to the diverse array of burial practices at Teouma.

At the conclusion of the 2004-2005 seasons a total of 26 burials had been excavated but only four adult crania had been found. All were associated with practices post-dating initial interment. In one case three skulls were found across the chest of a headless adult skeleton laid in a supine position, and in another a single skull was found inside a carinated vessel topped with an upturned flat-bottomed dish (Bedford *et al.* 2006: Fig. 9, 2007: Figs 3-5). The total lack of *in situ* skulls with any of the adult burials, the evidence for removal of skulls after decomposition of the soft tissue, the group placement of skulls and the identification of a sequence of ritual events occurring over time, suggests their curation for some period after initial retrieval. There was a total absence of children in the cemetery, but disturbed infant remains, none older than a few weeks at death, were recovered.

As noted previously, dentate-decorated pottery has been found in association with the burials, both whole pots adjacent to interments and assorted sherds both near to and within the grave fills. Some originally whole pots associated with earlier burials were disturbed and spread amongst the fill of later ones during subsequent burial activities. There are indications that many of the pots were not completely buried and may have been used to mark individual graves at the surface. Other associated grave goods are few, but include *Conus* sp. shell rings near where the skull would have been, and valves of large mangrove shellfish (*Geloina coxans*) on the pelvic region or limbs. In one case sections of tortoise or turtle carapace were placed over parts of the body. Finer detail on the burial practices relating to the 2004-2005 excavations at Teouma, set within a Pacific-wide context, will be found in a forthcoming paper (Valentin *et al.* in prep. a).

Preliminary analysis of the skeletal remains from the 2004-2005 field seasons has already returned significant new information relating to the health, morphology, diet and migratory patterns of this colonising population (Bentley *et al.* 2007, Buckley 2007, Buckley *et al.* 2008).

The 36 individuals studied to date from Teouma comprise generally robust, large males and gracile females with high frequencies of dental and degenerative joint disease and pathology associated with physical activity (Buckley *et al.* 2008). A relatively high incidence ($n = 7/20$) of erosive arthritis was also noted, which has been identified as potentially evidence of gout, indicating that this significant modern health problem amongst Pacific populations may have a lengthy history (Buckley 2007). All these data suggest that, although these populations were able to cope with a significant disease burden, the biological costs of colonisation were not insignificant.

Isotopic analysis of the tooth enamel of 17 individuals has shown that the majority were local residents who had at least spent their childhood near Teouma and were ultimately buried there. There were, however, four individuals who were probably immigrants from another coastal location. A number of aspects suggest that they were also treated differently in death. One of the individuals was the adult male with three skulls on his chest, and he and two other migrants were buried in a supine position with their heads towards the south, unlike the locally-raised population among whom much greater variation in burial orientation was noted (Bentley *et al.* 2007).

2006

The excavations in 2006 uncovered almost the same number of burials that had been recorded in 2004-2005 field seasons, 22 as opposed to 26. There was an equally surprising array of burial positions and arrangements of skeletal elements (see Table 10.1 for a full summary). Consistent with the 2004-2005 findings was the lack of *in situ* skulls, the removal of a range of other bones, supine positioning, flexed limbs, secondary deposition in pots, an absence of children or subadults and a similar range of grave goods, including pottery. The most unusual aspects, unlike anything that had been found previously, were two examples of arrangements of skeletal elements. In one case, a cluster of forearm bones, one of the frequently missing elements from earlier graves, was found sitting on top of arranged scapulae, clavicles and sternum (Figure 10.7a). Three mandibles sitting adjacent and aligned in a row presented another case (B29) of the appearance of previously missing elements, underneath a cluster of postcranial bones encompassing the spectrum of the postcranial skeleton of at least 3 adults (Figure 10.7b). These were all placed on top of a further burial (B34).

Four infants were added to the range of individuals present at the site, including an individual that was around 6 months *in utero* at death and most likely stillborn. The infants were generally buried individually, but in one case on the shoulder of a female. Limbs were in a flexed position and unlike the adult burials, the skulls were *in situ*. A further three adult skulls were found in 2006, associated with another single burial. Two skulls were positioned between the legs and one to the side of the leg of an individual lying supine with legs outstretched (B44: Figure 10.7ci, 10.7cii). The undisturbed remains of children have still not been found at the site although there are a few bones of a child aged around 6-10 years of age at death which were included in the pile of postcranial remains associated with the three crania buried by the legs of Burial 44. Also included in this pile of postcranial remains was one of the infants.

Another complete decorated pot was found deposited in association with a burial (B49), but had been disturbed by later activity at the site in the form of a large post-hole originating from the later midden layer. Structural failure had occurred in the carination area, with the lower part of the neck shifting inwards while the upper part of the pot collapsed outward (Bedford *et al.* 2007: Fig. 6), suggesting that the upper part of the pot may have been left projecting above the ground surface at its deposition. A concentration of small unmodified *Cypraea* sp. shells was found in the base of this pot.

Table 10.1 Age and sex of individuals from 2004-2006 Teouma field seasons.

Age	Age	Male (%)	Male? (%)	Male combd. (%)	Female (%)	Female? (%)	Female combd. (%)	Sex? (%)	Total** (%)	% of sample
Subadults (yrs)	< fullterm							3		4.2
	0-0.5							8		11.2
	> 0.5							1*		1.4
Subtotal								12	12	17.0
Adults	Young	6	1	7	3	0	3		10 (17.0)	14.1
	Mid	5	0	5	3	3	6		11 (18.6)	15.5
	Old	8	0	8	7	0	7	1	16 (27.1)	22.5
	Adult #	3	5	8	2	6	8	6	22 (37.3)	30.1
Subtotal**		22 (37.3)	6 (10.2)	28 (47.4)	15 (25.4)	9 (15.2)	24 (40.7)	7 (11.9)	59	83.0
Total									71	100

* = This individual is aged between 6 and 10 years;

** = Percentage of adult sample only; male? = sex estimate is uncertain; female? = sex estimate is uncertain; # = no age estimate possible.

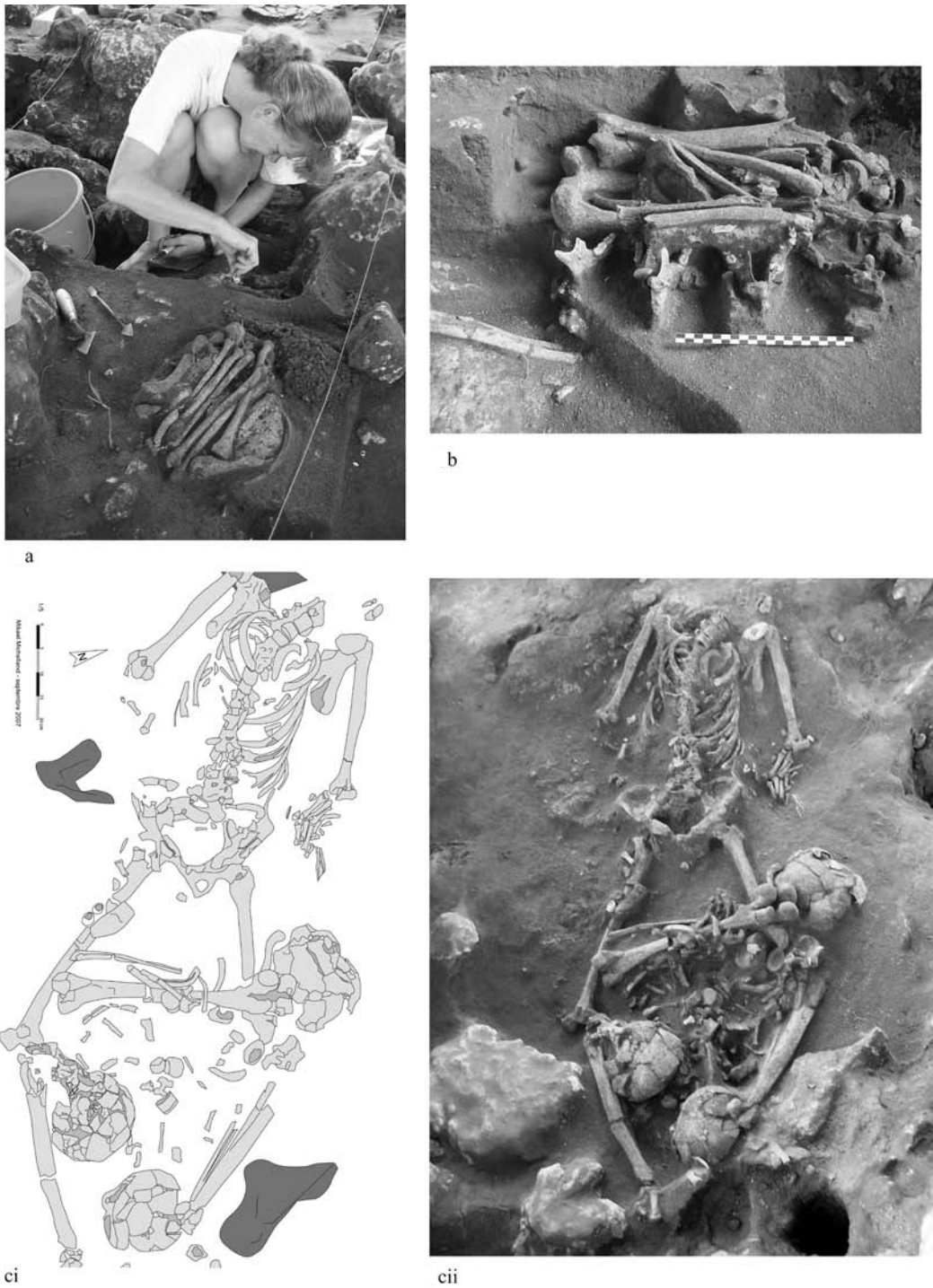


Figure 10.7 a. Cluster of forearm bones resting on two scapula (Frédérique Valentin excavating); b. three adjacent mandible sitting beneath a cluster of leg bones and above another burial; ci and cii. Burial 44 with three skulls placed between (2) and to the side of the legs of one individual.

Findings from analyses of the individuals found in 2006 are consistent with those from the first two field seasons (Buckley *et al.* 2008), with high levels of degenerative joint disease, poor dental health, and further evidence of an erosive arthropathy consistent with gout. A study looking at muscle insertion sites as a way of assessing physical activity in the Teouma population has found possible evidence of pottery manufacture in the hands of the adults by comparing the sample with a non-pottery making population (Foster 2007). Publication of these findings is currently in preparation. Isotopic analyses of the adults suggest that the Teouma population had consumed a mixed marine and terrestrial diet (Valentin *et al.* in prep.b). Further isotopic analyses of the infants and females from Teouma suggest that maternal and infant mortality may have been influenced by maternal ill-health, adding another layer of understanding to the health of these colonising people (Kinaston *et al.* in prep).

DISCUSSION AND CONCLUSION

Excavations undertaken in 2006, building on those of 2004-2005, greatly increased our knowledge of the layout of the cemetery, the complex mortuary rituals, and the population sample at the Teouma site. A broader understanding of the development of the site over time has also been achieved. Some 48 burial features representing at least 71 individuals have been excavated, providing a statistically robust sample of Lapita individuals for the first time. The cemetery at Teouma is providing insight into the ritual life of the earliest Lapita settlers of Remote Oceania. The evidence thus far demonstrates that the mortuary ceremony and associated ritual were a multi-faceted and lengthy process. In many respects these rituals were not dissimilar to contact burial ritual in Vanuatu and other areas of the Pacific (Speiser 1996: 272-81). More pertinent is the fact that certain aspects of the burial practices at Teouma, such as the placement of skulls and other bones in pots and the use of pots in burial ceremony, have close parallels with burial practices in Neolithic Island Southeast Asia, including Taiwan, during contemporary and slightly earlier periods (Bellwood 1997).

The site provides the first real detail for Vanuatu of the various vessel forms and elaborate designs associated with early Lapita settlement of the archipelago. More significantly, the remains also provide insight into wider issues such as the association of vessel form and use, and the chronology and pattern of Lapita settlement across the Southwestern Pacific. We suggest that to have a range of very similar vessel forms and designs at Teouma as some of those found in several Early/Far Western sites implies rapid movement of people out of the Bismarcks “homeland” region into western Remote Oceania. The long-postulated “pause” in the Bismarcks region needs to be reassessed and may need to be further shortened (Bedford and Sand 2007, Specht 2007). The decorative techniques, motifs and petrography of the pottery indicate some level of regional interaction throughout the period of the use of the cemetery. There is striking variation in vessel form and design structure found amongst the ceramics recovered from the cemetery area, suggestive of a dispersed household mode of production, as opposed to any significant level of craft specialisation (Clark 2007).

An intriguing question is whether these vessels associated with ritual activity were being produced in a settlement or settlements nearby, or whether a significant number of them were transported from afar? Preliminary fabric analysis indicates that the Teouma pottery was mostly made locally, incorporating sand from the Teouma River. Two sherds analysed by Dickinson (2006a) were exotic, amplifying results he had previously reported from other Lapita sites (conveniently summarised in Dickinson 2006b). Dickinson had earlier found that some Lapita pottery in Tonga is made from clay and temper from the same source as some of the pottery in the Reefs/Santa Cruz Islands of the Southeast Solomons. The source is not yet identified but may well be

somewhere in Northern Vanuatu on current evidence (Dickinson 2006b: 63,119). One of the Teouma cemetery pots comes from the same source as some further pottery from the Reef Islands. The most likely source is thought to be either in the main Solomon Islands or in the Bismarck Archipelago (Dickinson 2006a, cf. 2006b: 63). Another Teouma pot derived from New Caledonia and fits a previously-identified pattern (Dickinson 2006b: 115) of the import of occasional pots from there both to the south of Vanuatu (Erromango Island) and to the north (Malo and Santo Islands). Further petrographic analysis of all individual vessels is planned.

Prior to the excavation of Teouma (and of Makue on Aore Island in Northern Vanuatu [Galipaud and Swete Kelly 2007]), it was thought that there was a major Lapita threshold in the Reefs/Santa Cruz Islands of the Southeast Solomons, the last sites to show considerable exchange with the Lapita “homeland” in the Bismarcks in terms of obsidian from New Britain sources and close parallels in Lapita vessel form and design (Green 1976, Green and Kirch 1997, Sheppard and Walter 2006: 59). The Teouma Project has now extended this interaction sphere down to Central Vanuatu (Bedford and Spriggs 2008). Only very small quantities of obsidian have been found in Lapita sites beyond Teouma to the east in Fiji and south in New Caledonia, rather than the tens to hundreds of pieces now known in northern and central Vanuatu. The idea, (most recently in Anderson 2006), that Vanuatu was somehow leapfrogged in the settlement of the further Pacific – in particular Fiji and Tonga – can now be well and truly laid to rest. The Teouma pottery shows very close parallels to the Reefs/Santa Cruz pottery, and is more complex than all Fijian and Tongan and all but a very restricted set of New Caledonian Lapita pottery.

The Teouma cemetery represents one of the very rare examples of archaeological remains of a true pioneering population of the first one or two generations of settlement of an island group anywhere in the world. Many questions of course remain, and one of the more challenging is determining the existence or not of a settlement contemporary with the use of the cemetery. This will be a focus of excavations to be undertaken in 2008 and 2009 funded by the Australian Research Council (DP0880789). The Teouma site is providing a whole new impetus for Lapita research, leading to new interpretations and layers of understanding of Lapita settlement and society both in Vanuatu and the wider region.

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ENDNOTES.

The radiocarbon dates are presented in the following format: date, sample number and calibrated age at two standard deviations using the Calib. Program REV 5.0.1 (Reimer et al. 2004, Stuiver, Reimer and Reimer 2005). A Delta R value of 45 ± 19 was applied to shell samples (Petchev, Phelan and White 2004).

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