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## Lapita and Western Pacific Settlement: Progress, prospects and persistent problems

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### Introduction

Lapita pottery and its associated antiquity and significance first began to be revealed in stratigraphically controlled archaeological excavations some 55 years ago (Gifford and Shutler 1956). Since that time it has remained a central focus for Pacific archaeologists (Clark *et al.* 2001; Kirch 1997; Sand 2003; Spriggs 1990a) and has subsequently led to the definition of a cultural complex that is associated with an archaeological horizon that can be identified from Island New Guinea to Samoa (Golson 1971:75). Reading through earlier general summary articles (Golson 1971; Green 1979; Kirch 1988) one is struck by both the increased progress but also the continuing complications in the understanding of the Lapita phenomenon. The papers published in this volume reflect on a broad range of interrelated themes including Lapita origins, chronology, patterns of settlement, migration, interaction and exchange, sampling strategies and ceramic analyses; all of which relate to aspects highlighting both advances and impediments associated with Lapita research.

### Lapita origins

The question of Lapita origins has been debated for decades (see Pawley this volume). As increasing archaeological research results began to emerge from both the Pacific and Island Southeast Asia in the 1970s it was argued that the presence of this intricately decorated ceramic tradition was related primarily to Neolithic Austronesian expansion into the region (Bellwood 1978; Shutler and Marck 1975; Shutler and Shutler 1975).

From the beginning of the 1980s a strongly *indigenist* counter scenario took shape, which advocated that Lapita was equally likely to have been an essentially localised development centred in the Bismarck region and was certainly much more complex than a simple migratory event from the West (Allen 1984; White and Allen 1980; White *et al.* 1988). The multi-institution *Lapita Homeland Project* was specifically designed to test the different hypotheses, but generally failed to achieve a consensus (Allen and Gosden 1991; Gosden *et al.* 1989). The debate on the origins of Lapita culminated or at least has largely remained at a standstill since Green's compromise Triple I model of *intrusion, innovation and integration* (Green 1991). In this short discussion we do not intend to examine in detail the arguments relating to indigenous versus migratory positions, rather we reflect on the nature of ceramic remains and how they might inform us in relation to the wider debate (see also Sand this volume).

Most current views in relation to Lapita tend to coalesce on the subject of the origins of the Lapita ceramic design system and certainly on the location of where that development occurred. The finely decorated Lapita ceramics are generally seen these days as something that developed mainly in the Bismarck Archipelago, following the introduction of the art of pottery making from Southeast Asia (Green 1985; Kirch 1997). Explanations for this, however, have largely been restricted to the idea that the dentate along with the design system may have been a medium used on other surfaces (like tattooing) and that in the Bismarcks it was simply transferred to the ceramics (Green 1985; Kirch 1997:142-143; Torrence and White 2001).

One of the major lines of evidence cited (albeit often with an associated caveat) as supporting its development in the Bismarcks is lack of any similar dentate-stamped ceramics having been identified further to the west. But how confident can we be that this is in fact the actual situation? Although a small number of specifically targeted projects searching for antecedent Lapita sites in the grand expanse of coastal and island West Papua and Southeast Asia have been undertaken (see Spriggs 2007 for the latest summary), the often very large islands of this vast region render the search for first ceramic settlement sites much more difficult than much of the Western Pacific. It must be also added that the majority of excavations that have been carried out in Island Southeast Asia to date have been undertaken in cave and rockshelter sites. If this same strategy had been the primary focus of excavations in the Pacific over the last 50 years of Lapita research, we would have little more than a handful of sherds and sites across the entire Lapita spectrum.

The only site found in the Western Pacific where there has been arguments relating to actual evidence for Lapita antecedents is Mussau. Kirch originally argued that the plainware of Area A at site ECA of Talepakemalai represented "later, 'simplified' Lapitoid ceramics in the first millennium B.C." (Kirch 1987: 172), before later asserting that the concentrations of plainware and decorated sherds found in different parts of the site represented different but contemporaneous activity areas (Kirch 1997:172). He has more recently argued that the plainware ceramics are earlier, have parallels with contemporary plainwares in Southeast Asia and that the dentate-stamping at the site developed later (Kirch 2001:205). While more details regarding the Mussau site assemblage are eagerly awaited, we argue that this scenario along with the idea of simple transference of a design system found on one medium to pottery seems unlikely. The very fact of the "full-blown" nature of the Far Western Lapita ceramics recovered from the earliest sites in the Bismarcks (which are relatively dispersed and chronologically indistinguishable) suggests otherwise to us. At these sites, the earliest thus far identified phase of Lapita ceramics, the pottery is at its most spectacular, with needlepoint dentate, a specific range of vessel forms and often very complex design motifs. There is no hint at any of these sites, or at least none that have been mentioned, that indicate an experimental or developmental phase in the earliest Lapita decoration. These earliest pots and their often elaborate and finely applied decoration required high levels of skill and therefore suggest some degree of familiarity at least with the techniques employed.

Pre-Lapita age dentate-stamped sherds have more recently been reported from northern Luzon (Tsang 2007), indicating the presence of this comb-tool type and its use in the decoration of ceramics prior to its appearance in the Bismarcks. At the same time, however, the tools used in northern Luzon sites appear

thus far to have been only straight with no evidence for any use of curved dentate tools. When this decorative technique is employed in the Bismarcks we may possibly be witnessing some level of innovation both in tools and design, although this has yet to be determined. In-depth analysis of the actual combed tools used to make the dentate-stamped Lapita motifs suggests that they were probably made out of turtle scute (Ambrose 1999, and this volume) and for the first time the bent or curved form, which has been demonstrated as being integral in the production of the Lapita motifs, makes its appearance. These data we believe demonstrate that it was unlikely to have been a straight forward transfer of tattooing technique (Kirch 1997:142), but that rather a more complex process was involved (see Sand this volume). Certainly in relation to the emergence of Far Western Lapita, we do not currently have enough accumulated data to fully disentangle and determine the levels of influence that might be ascribed specifically to an intrusive and sudden migratory event or to local innovation.

Whatever the scenario relating to Southeast Asian influences, emerging data associated with pre-Lapita era populations of the Bismarcks are highlighting the essential need to integrate aspects such as the evidence for complex exchange networks and the production of specialized items associated with this period, into the wider debate (Torrence 2007). Other possible regional influences also need to be taken into account including natural events such as the massive W-K2 volcanic eruption in New Britain in reshaping social constraints around 3350 BP, just at the time of the first widespread appearance of Lapita (Specht 2007). A more inclusive debate is also likely to lead to a more balanced picture that avoids the spurious implications or interpretations of supposed greater or lesser levels of social evolution in a particular population, a concern long ago expressed by Golson (1977). The Lapita phenomenon was likely to have involved a myriad of complex contact and interaction situations over the centuries, with varying and changing outcomes depending on the place and the time period, as is the case with all migratory events that arrive on the shores of already occupied beaches.

## Lapita boundaries

The number and temporal boundaries of Lapita sites have radically changed since being first tentatively advanced in the 1970s (Golson 1971). While the geographical boundaries or limits of where Lapita pottery has been discovered (Manus to New Caledonia to Samoa) remain fairly much the same (Anderson *et al.* 2001), the number of recorded Lapita sites has expanded at an exponential rate including in those archipelagos where Lapita was once seen as marginal or non-existent. In 1979 the tally was around 50 sites (Green 1979), up to 79 in 1988 (Kirch and Hunt 1988:9), 182 by the year 2000 (Anderson *et al.* 2001) and now in 2007 some 229 (see Table 1). They comprise a wide range of site types and activity areas (Burley, Specht, Specht and Torrence this volume) that span an accumulated overall period of around 7-800 years from Northwest to the East. While certainly many sites have only been sampled at the most basic level, the pattern now emerging does point to the widespread nature of the Lapita horizon. In archipelagos where the archaeology has been undertaken in collaboration with geomorphological research or assessment the Lapita "gaps" have either been infilled through the identification of early ceramic sites (e.g. Burley, Connaughton, Felgate this volume) or post-depositional processes have been identified which explain why Lapita sites might be extremely difficult to locate (Dickinson 2006; Felgate 2001; Green 2002a). The more recent discoveries in Fiji (Nunn this volume; Nunn *et al.* 2007) also highlight that even in regions where there has already been a number of archaeological research programs focusing on the Lapita period it is difficult to confidently state that there will be no further major sites found. The benefits and requirement of long-term research programs committed to specific regions are also being highlighted by the results gleaned over many decades from a number of archipelagos (New Britain [Specht and Torrence this volume; Summerhayes 2000], Solomon Islands [Felgate 2001; this volume], the Reef/Santa Cruz [Chiu this volume; Green 1976], Vanuatu [Bedford *et al.* this volume; Galipaud and Swete-Kelly this

volume], New Caledonia [Sand 2000; this volume] and Tonga [Burley this volume; Burley *et al.* 2002]). We argue that the accumulating evidence is severely weakening arguments postulating “leap-frogging” (Felgate this volume) during initial expansion, a long speculated scenario for some regions of the Lapita distribution and again more recently argued for the central Solomons (Sheppard and Walter 2006). At the same time, our often simple, single directional arrow indicating Lapita expansion into Remote Oceania, being undertaken by one homogeneous cultural group during one narrow time-event, is most likely overshadowing multiple departures of diverse groups in various directions over a couple of centuries, who did not all stop in the same places along their journey (Sand 2007).

Sites like Bourewa (Nunn this volume) or the Teouma Lapita cemetery (Bedford *et al.* 2006), recently discovered on islands with some history of archaeological interest at least, are unlikely to be the last of such discoveries. In fact if current rates of Lapita site discovery in Fiji and Vanuatu continue, then we might expect to easily double the current numbers of sites in these archipelagos. Concomitantly, the previously proposed Lapita preference for small islands appears to be increasingly less supported at least for Remote Oceania, although questions of chronology remain to be integrated into the model. After the numerous examples from Mainland New Caledonia (Sand 2006), a new case in point is Vanuatu, where Lapita sites have now been found at Erueti and Teouma on Efate, the third largest island in the group (915km<sup>2</sup>) and at Matantas, Big Bay, northern Santo, the largest island (3900km<sup>2</sup>) (Bedford and Spriggs 2007). It may well have been a quite different scenario in Near Oceania where pre-Lapita populations had long been in residence. But the post-Lapita landscape transformations over the last millennia on mountainous islands that are sometimes tens of thousands of square kilometres in area, also renders the finding of the earliest ceramic settlement sites a major challenge (Specht and Torrence this volume). Certainly, particularly in volcanically active regions, surface surveys and excavations in caves and rockshelters alone are not enough to determine Lapita presence. Major post-depositional landscape change and island size are also still likely to be major influencing factors in the current known western boundaries of Lapita, almost certainly on mainland New Guinea but also further west (Kirch 1988:158; Spriggs 1984, 2007). Finally, while Lapita sites remain overwhelmingly coastal there are a growing number of sites that have now been identified some distance from the sea (Anderson *et al.* 2001; Specht and Torrence this volume).

## Provinces and chronology

Through the pioneering stylistic analyses of Lapita ceramics along with a limited number of radiocarbon dates, researchers were able to establish that there was a broad clinal west-east pattern of Lapita settlement with accompanying “distance decay” in ceramic decoration. On evidence available in the mid 1970s, Western and Eastern Lapita styles were initially proposed (Green 1978, 1979) with a Far Western being added some years later (Anson 1983). Over time as more and more sites have been excavated across the Lapita spectrum a series of interlinked stylistic “Provinces” have been proposed, namely Far Western (Bismarck Archipelago [cf. Kirch 1997]), Central (Reef/Santa Cruz and north and central Vanuatu [Sand 2001]), Southern (southern Vanuatu and New Caledonia [Sand 2000]) and Eastern (Fiji, Tonga, Samoa [Burley *et al.* 1999; Kirch 1997]).

Summerhayes (2000, 2001) however, has argued that the primary factor in Lapita ceramic variation is chronological and suggested that more appropriate terms for the different phases of the changing Lapita design system should be Early, Middle and Late Lapita. He quite rightly pointed out that geographically-loaded terms such as Western and Eastern can be seen as misleading. He argued in fact, that the data available indicates there was no geographical divide and interaction was sustained, as evidenced for example in the similarities of the late Lapita ceramics from Tonga and the Bismarcks (Summerhayes 2000:235). Best (2002) has argued otherwise, suggesting that perceived similarities have more to do with the simplicity of widespread designs

which are seen in the later part of the sequence rather than anything to do with levels of interaction. More recently the proposal of simple temporal divisions has been further questioned, following focused research in relation to gauging chronological variation in Lapita ceramics. Results show that vessel form, decorative finesse, and design structure and content are not always a definitive marker of chronological divergence or levels of interaction (Bedford *et al.* this volume; Clark and Murray 2006; Chiu 2005:27; Sand 2001:70; Sand *et al.* 1998:41).

Far Western or Early Lapita remains geographically restricted to the Bismarck Archipelago as identified some time ago (Anson 1983), with the possible exception of recent evidence from northern Vanuatu (Galipaud and Swete-Kelly this volume; Galipaud pers. comm. 2006). In this northern Melanesian region it has been argued that there was a Lapita “pause” before rapid expansion further east into Remote Oceania (Kirch 1997). This “pause” argument is of course linked to the idea that dentate-stamping was a development that occurred in the Bismarcks and so a time period of some kind is required for this to have happened. Specht (this volume) reviews the time period for this “pause” by reassessing radiocarbon dates for the earliest sites in Near and Remote Oceania and shortens previous estimates of the “pause” to 150-250 years. The emerging overall similarities found amongst the Lapita ceramics in the Reef/Santa Cruz, Vanuatu and New Caledonia as well as the earliest sites in Fiji (Nunn this volume; Nunn *et al.* 2004) and Tongatapu (Burley and Dickinson 2001; Burley pers. comm. 2007), appear to support a scenario of a shorter “pause” before a first phase of very rapid expansion out of Near Oceania. This same scenario is also supported by the linguistic evidence (Pawley this volume).

Whether the primary drivers of ceramic stylistic change across the Lapita spectrum are temporal, geographical, cultural (Best 2002; Clark and Murray 2006; Sand 2001; Summerhayes 2000) or as seems the most likely, a varying combination of all these factors (Green 2003; Sand 2007), it remains an unresolved and on-going debate in Lapita research and one which will remain so until regional Lapita ceramic sequences are further refined and published in detail. One of the few archipelagos which is beginning to produce a more detailed regional Lapita sequence is New Caledonia (Sand 2006). The sequence demonstrates the emergence of some distinctive vessel forms and motif combinations during the 250 years of the local chronology (Sand this volume).

Immediately post-dentate stamped ceramic sequences in different areas are also beginning to shed some light on the regional diversification debate. There is emerging evidence from some archipelagos in Remote Oceania of dentate-stamping dropping out by 2800 BP (e.g. central and southern Vanuatu and New Caledonia) and distinctive regionally diverse ceramic sequences developing (Bedford 2006a; Bedford and Clark 2001; Sand 1999). However, while this is happening dentate-stamping continues a little later in northern Vanuatu (Bedford 2003) and remains present in places like Tonga (Burley 1998) for another one to two centuries, indicating at the very least that there was substantial regional variation and suggesting that at least both geographical and temporal factors have influenced the Lapita design system (Green 2003). As with all things Lapita, we must be wary of assuming that data sets (which can be often outdated or incomplete) restricted to a particular region are representative of the entire Lapita Cultural Complex over space and time (Green and Kirch 1997). Aside from a few possible exceptions (Anson *et al.* 2005; Torrence and Stevenson 2000), we do, however, see it as very unlikely that Lapita dentate-stamping continues anywhere in the Western Pacific beyond c. 2500 BP.

## Persistent problems

Lapita archaeology has generally, until relatively recently, been necessarily in a pioneering research mode, establishing boundaries and chronology, settlement patterns, basic artefactual sequences, and the profiling of Lapita ceramic decoration and form. Large-scale areal excavations that would make possible at least partial

investigation of villages or even single house sites have been generally lacking and as a consequence there has been limited potential for modelling and discussion of Lapita social dynamics based on archaeological evidence (Green 2002b).

Another major factor that has impaired progress on these topics is the poor state of preservation of many of the Lapita sites excavated to date. As Green noted decades ago “the integrity of deposits in Lapita sites represents a major and continuing problem” (Green 1979:31). The vast majority of the more than 200 Lapita sites that have been recorded to date are generally poorly preserved, as the stratigraphy is often shallow and has been heavily mixed and saturated by tropical rainfall over millennia. Most Lapita sites have been identified through surface survey where collections of sherds and other remains are exposed on the ground surface, indicating post-depositional turbation. The only very recent identification of the potentially widespread nature of painted Lapita is a reflection of this situation (Bedford 2006b). We argue there needs to be a greater assessment of taphonomic process associated with Lapita sites. If patterns of settlement and subsistence are being summarised from the recovered remains they must be assessed against such variables as the site’s state of preservation and the percentage of the site that has been sampled (see Sheppard and Green this volume). While an assessment of or comment on the levels of mixing or disturbance at a site is often made, this is rarely translated into the summary conclusions relating to a particular site and the supposed patterns identified from the record (see also Spriggs 1999:17-18).

Another major flaw in Lapita research is the lack of analysis and publication of the Lapita sites that have been excavated (noted amongst others by Clark and Murray 2006; Green 1979; Kirch 1988; Spriggs 1990b; Summerhayes 2001). Often when attempting such a basic exercise as comparing sherds from a number of sites one is forced to revisit the original excavated collections which are inevitably housed in many different institutions.

Chronology has long been a central research aspect in Lapita studies and the results have been used to model such aspects as Lapita migration and cultural and social changes over time. Radiocarbon dating and ceramic seriation have featured prominently although the former tends to hold a somewhat undeserving pre-eminence when conclusions regarding sites are presented. The attraction of “hard science” in the form of radiocarbon dating has long ensnared Pacific archaeologists’ but the associated vagaries, of which we have become increasingly aware (see Kirch and Hunt 1988; Spriggs 1990b, 1996; Spriggs and Anderson 1993), have also provided much confusion and uncritical conclusions. There has in the past been a tendency for archaeologists’ interpretations to be overwhelmingly influenced by radiocarbon dates rather than assessing those dates in relation to the recovered archaeological data. Now long gone are the once widely accepted claims of Lapita appearing soon after 4000 BP, with a succeeding 1500 years or more of a dentate-stamping pottery tradition, to be replaced today by first appearance at around 3400-3300 BP and being present as a decorative technique for 500 to 600 years in Near Oceania and anywhere from 50 to over 400 years in Remote Oceania, depending on individual islands.

However, even though the problems with radiocarbon dating have now long been identified, if we undertake the exercise of compiling radiocarbon dates from a whole number of Lapita sites, especially in Remote Oceania, we repeatedly find that those chosen to date the earliest and latest phases of a Lapita occupation within and across archipelagos will overlap within two standard deviations because of the flatness of the calibration curve around 3000 BP (Anderson and Clark 1999; Pearson 1993: Fig 1b). The flat section of the calibration curve around 2500 BP is also a major obstacle in assessing ceramic change around this crucial period of transition from Lapita to later traditions. Sites that may appear from the archaeological remains to represent a short-lived occupation will return a two sigma date of 2700-2300 BP. Other dating variables which continue to confuse the picture are variability in Delta R values for marine shells of the region (Jones *et al.* 2007), as well as the potential problem of in-built age in unidentified charcoal samples (Kirch and Hunt 1988; Spriggs 1990b) and even in long-lived shell species (Fiona Petchey pers. comm. 2007).

## Prospects

With the rapidly accumulating dataset associated with Lapita sites across the Western Pacific, we are beginning to fully realise the complex nature of Lapita and the major challenges in gleaning a deeper understanding from the archaeological record. Increasing awareness of this complexity alone is a major advance and has stimulated a series of critical reassessments (exemplified in a number of papers in this volume) of theories relating to Lapita that were developed decades ago on much sparser evidence than we have at hand today.

Future excavation and sampling strategies need to be modified. Although invariably easier said than done the employment of areal excavations at targeted sites must be a major priority. We might then move beyond collecting and sifting through small samples of very large midden areas and the thus far recorded two house sites for the entire Lapita region (Kirch 1997:171; Sheppard and Green 1991) and into greater intra-site detail which in turn may provide archaeological insights into Lapita social organisation.

As already mentioned the detailed analysis, illustration and publication of excavated sites is essential if we want to go beyond our present-day basic comparative studies. There are many excavated Lapita collections that have languished in boxes for decades or have only reached the preliminary publication stage. A first effort should be a digital record of these collections (which in some cases have deteriorated since excavation) that can ultimately be accessed on the web, as is already the case for part of the Reef/Santa Cruz data (<http://magic.lbr.auckland.ac.nz/anthpd/content/archive/>).

There needs to be much more fieldwork particularly in those regions which appear to currently represent Lapita gaps or boundaries (West Papua, Central Solomons, Vanua Levu). In particular, further intensive surveys and excavations need to target open coastal sites on a series of islands west of the Bismarcks, with programs taking into account tectonic variability and coastal progradation over the past 4000 years. This remains a major research priority and may provide us with a basic understanding of the cultural specificity of this region during the advent of Lapita (Sand, Liu and Chiu 2007). Recent publications associated with this very research objective show for example the existence of now securely dated pre-Lapita age dentate-stamped pottery in Luzon (see Tsang 2007), a result that has major implications for our discussions relating to the origins of the Lapita design system and the decoration technique in northern Island Melanesia. In parallel with efforts further west, the Bismarcks themselves still require major research input. Although the *Lapita Homeland Project* achieved a number of important results, it is still the case that the overall Lapita chronology of the Bismarcks remains unclear: when does Lapita first appear, is it already fully-blown or are we still missing an earlier step, what are the regional diversification processes like and when do the dentate-stamped decorations finally drop out etc? All these questions pertain directly to our understanding of the Lapita dynamics in the rest of the Western Pacific, which need to be reassessed in tandem with renewed investigations. Without clear answers from the Bismarcks as well as further West, no definitive reconstruction of the first settlement of Remote Oceania can be conclusively proposed.

Finally, it needs to be stressed that some programs should focus on a number of already excavated key Lapita sites which require re-investigation. These are sites which have attracted often heated academic debate over the years, although in some cases it has been an exercise in scrapping over scraps. This sort of initiative appears to be underway at Watom, the earliest Lapita site recorded almost 100 years ago, which has seen a number of contested interpretations. The most recent substantial publication has concluded that the most profitable area of the site in terms of preserved deposits has yet to be excavated (Anson *et al.* 2005) and which may inspire a further archaeological expedition to the site (Richard Walter pers. comm. 2007).

## Updated inventory

As part of the overall preparation of this volume, we have compiled an inventory of sites where dentate-stamped pottery has been found since the comprehensive list of Anderson *et al.* (2001). We follow the historical pattern of such inventories (Clark *et al.* 2001; Green 1979; Kirch and Hunt 1988) in that we include sites where a dentate-stamped component of decoration is included in the ceramics recovered. This will no doubt attract the now familiar charge of being “dentate-centric” but dentate decoration is both a chronological and symbolically significant marker. We are well aware that the Lapita ceramic series includes decorative techniques such as appliqué, incision, excising and shell impressing along with an often substantial component of plain pots, but we concur with Summerhayes (2000), amongst many others (e.g., Kirch 1990:128), who notes that where the “fundamental nature of interaction does change is with the end of Lapita. This regionalisation is seen in part with the disappearance of dentate vessels. If dentate vessels were social markers, then their change over time and their disappearance reflects a greater social breakdown” (Summerhayes 2000:235). Dentate decorated vessels were an integral social and cultural component of the populations linked with one of the major Pacific migratory colonising events (Green 2003). Moreover, all non-dentate forms of decorative technique and the plainware vessels are also found after the dentate phase. Additionally, by focusing on the relatively short-lived dentate-stamped phase of Pacific prehistory we are concentrating on fundamental research issues and processes associated with prehistoric migration, interaction and colonisation which have both regional and global significance (Anderson *et al.* 2001:3).

Since the year 2000 there have been eight new sites found in Island New Guinea (six in New Britain; two in New Ireland); two in the Western Province of the Solomons; 14 in Vanuatu; three in New Caledonia; 13 in Fiji and five in Tonga. Jim Specht confirmed the number of newly identified sites from New Britain but also pointed out some modifications required of the 2001 inventory. Sites that were found prior to 2001 but not included in the inventory (Tuam Island, Aitape, Ali Island and Vunailiu, Watom) are included in Table 1 above. Three sites should also be removed (due to an absence of dentate-stamping) from the 2001 inventory, Talasea area FEB, Garua Island FRD, Kandrian area (Apugi Island). As in the case of previous tallies of Lapita sites, reporting of new sites from different archipelagos almost always relates to the levels of research being undertaken in a particular region. The Table follows the format of Anderson *et al.* (2001) and includes national site register codes if available, site name, a general description of locality, site extent, contents, the ceramic series in terms of the localised sequence, age in calendrical years BP (gleaned from relevant radiocarbon dates or design motifs) and key references. We expect that an inventory such as this is bound to include a small number of inaccuracies and we ask that our colleagues simply bear with us.

CODE	LOCATION/ NAME	LOCALITY TYPE	EXTENT (sqm)	CONTENTS	CERAMIC SERIES	AGE	REFERENCE
<b>Mainland New Guinea</b>							
<i>Sandaun Province</i>							
No code	Aitape	unknown	—	surface sherd	?Late	—	Swadling <i>et al.</i> 1988
No code	Tubungbale, Ali Island	coastal flat	—	surface sherd	?Late	—	Terrell and Welsch 1997
<b>West New Britain</b>							
<i>Morobe Province</i>							
KLK	Tuam Island, Siassi	coastal flat	2000	pottery	Middle to Late	3150-2750	Lilley 2002
<i>Willaumez Peninsula isthmus</i>							
FACU		hill on divide	—	surface pottery	—	—	Specht and Torrence this volume
FACZ	Mt Krummel	inland foothill	—	surface pottery	—	—	Specht and Torrence this volume
FACR	Whiteman Range	inland foothill	—	surface pottery	Late	2800	Specht and Torrence this volume

<i>Talasea</i>							
FCT	Lagenda Island	beach/intertidal	—	surface pottery	—	—	Specht and Torrence in press
<i>Garua Island</i>							
FYS		beach/intertidal	—	pottery	—	3350-3100	Specht and Torrence in press
FAAL		beach/intertidal	—	surface pottery	—	—	Specht and Torrence in press
<b>East New Britain</b>							
<i>Watom</i>							
SAU	Vunailau	coastal hill/cliff	—	surface pottery	—	—	Specht 1968
<b>New Ireland</b>							
<i>Emira Island</i>							
No code	Erarae	coastal flat	—	full range	Early	—	Summerhayes <i>et al.</i> 2007
<i>Tanga Island</i>							
ETM	Angkitkita	coastal flat	—	pottery and lithics	Late	2750	Garling 2003
<b>Solomons</b>							
<i>New Georgia</i>							
No code	Loloma	intertidal	17500	pottery and lithics	Late	—	Felgate this volume
<i>Kolombangara</i>							
No code	Poitete	intertidal	—	surface sherds	Late	—	Summerhayes and Scales 2005
<b>New Caledonia</b>							
<i>West coast</i>							
V8	Vavouto	coastal flat	10000	full range	Early to Late	2900-2750	Sand 2006
GD 2006-042	Gouaro	coastal flat	no estimate	pottery	?Late	—	Barp 2006
<i>East coast</i>							
No code	Kouaoua	coastal flat	no estimate	pottery	?Late	—	Sand 2006
<b>Vanuatu</b>							
<i>Mota Lava, Banks Islands</i>							
No code	Nerenugman	back beach	3000	full range	Middle to Late	—	Bedford and Spriggs pers. comm.
<i>Santo</i>							
No code	Big Bay/Matantas	back beach	3500	pottery and lithics	Late	2900-2800	Bedford and Spriggs 2007
<i>Aore</i>							
No code	Makué	back beach	—	full range	Early to Late	3150-2950	Galipaud and Swete-Kelly this volume
No code	west coast	back beach	—	surface pottery	—	—	Galipaud 2001
No code	SDA Mission	back beach	—	surface pottery	—	—	Galipaud 2001
<i>Tutuba</i>							
No code	east coast	back beach	—	surface pottery	—	—	Galipaud 2001
No code	southeast coast	back beach	—	surface pottery	—	—	Galipaud 2001
<i>Mavea</i>							
No code	northeast coast	coastal flat	—	pottery	—	—	Galipaud and Vienne 2005
No code	east coast	coastal flat	—	pottery	—	—	Galipaud and Vienne 2005
<i>Malakula</i>							
No code	Uripiv Island	back beach	2000	full range	Late	2800-2600	Bedford 2003; Horrocks and Bedford 2005
No code	Wala Island	back beach	1000	full range	Late	2800-2600	Bedford 2003
No code	Atchin Island	back beach	2000	full range	Late	2800-2600	Bedford 2003
No code	Vao Island	back beach	3000	full range	Early to Late	3000-2600	Bedford 2003, 2006b
<i>Efate</i>							
No code	Teouma	back beach/ promontory	2000	full range	Early to Late	3100-2800	Bedford <i>et al.</i> 2004, 2006
<b>Fiji Islands</b>							
<i>Viti Levu and environs</i>							
No code	Bourewa	sandspit/beach	12500	full range	Early to Late	3000-2700	Nunn <i>et al.</i> 2004; Nunn this volume
No code	Rove Beach	coastal flat	—	pottery	Late	—	Kumar <i>et al.</i> 2004
No code	Waikereira Bay	coastal flat	—	surface sherds	Late	—	Nunn this volume
No code	Jugendars Farm Bay	coastal flat	—	surface sherds	Late	—	Nunn this volume

No code	Tomato Patch Bay	coastal flat	—	surface sherds	Late	—	Nunn this volume
No code	Qoqo Island	tombolo	5000	full range	Late	2850-2650	Nunn <i>et al.</i> 2006
No code	Naitabale, Moturiki Island	back beach	300	full range	Early to Late	3000-2700	Nunn <i>et al.</i> 2007
No code	Navutulevu	coastal flat	—	surface sherd	—	—	Kumar <i>et al.</i> 2004
No code	Taviya, Ovalau Island	coastal flat	—	surface sherd	—	—	Nunn <i>et al.</i> 2004
No code	Qaqaruku, NE Viti Levu	rockshelter	—	surface sherd	Late	—	Kumar 2002
<i>Yadua</i>							
No code	Vagariki	coastal flat	—	pottery	Late	2600	Nunn <i>et al.</i> 2005
<i>Lau Group</i>							
<i>Nayau Island</i>							
No code	Na Masimasi	coastal dune	—	full range	Late	—	O'Day <i>et al.</i> 2004
No code	Vulago	coastal dune	5000	full range	Late	—	O'Day <i>et al.</i> 2004
<b>Tonga</b>							
<i>Vava'u</i>							
No code	Vuna, Pangaimotu Island	coastal dune	1500	full range	Late	2850-2750	Burley this volume; Burley and Connaughton 2007
No code	Ofu Island	coastal dune	1500	full range	Late	2900-2750	Burley this volume; Burley and Connaughton 2007
No code	'Otea, Kapa Island	coastal dune	800	full range	Late	2850-2750	Burley this volume; Burley and Connaughton 2007
No code	Falevai, Kapa Island	coastal dune	600	full range	Late	2850-2750	Burley this volume; Burley and Connaughton 2007
No code	Mafana Island	coastal flat	400	pottery	Late	—	Burley this volume

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