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The Lapita pottery of Tamuarawai (EQS), Emirau Island, Papua New Guinea: Studying the form and decoration of one of the earliest pottery assemblages in the western Pacific

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Abstract

Over a three-year period beginning in 2007, a new Lapita site called Tamuarawai was revealed. Tamuarawai, located on the island of Emirau in the northern Bismarck Archipelago of Papua New Guinea, belongs to a selected group of exceedingly rare Early Lapita sites that chronicle the arrival of Austronesian-speaking populations in the western Pacific. The primary archaeological signature of such populations is intricately decorated, complex pottery that is unique among all the sites of the Lapita range and represents an important source of information pertaining to the lives of the Early Lapita populations. The aim of this research is to document the full range of vessel forms and decoration of the pottery assemblages of this unique site, and to employ these data to further understand the lives of those that occupied it. Drawing upon both current understandings concerning the social functions of plain and decorated Lapita pottery and the distribution of vessel forms and their decoration, it looks to clarify the range of activities occurring across the site, and in so doing, to ascertain whether (1) it represented a specialised fishing camp or a hamlet when first settled in the Early Lapita Period, and (2) whether subsequent phases of occupation occurred after the Early Period, and if so, how this Lapita settlement changed over time. The study concludes that the ceramic and broader archaeological record indicates the site most likely represented a small hamlet occupied during the Early Lapita Period, with no subsequent phases of Lapita occupation. It further argues that separate activity areas, delineating between highly socially significant and more utilitarian activities, can be seen within the archaeological record.

Introduction

Early Lapita sites, concentrated in the Bismarck Archipelago of Papua New Guinea, represent the first steps by Austronesian-speaking populations into the Western Pacific (Pawley 2007; Summerhayes 2010a), a journey which would eventually see these peoples occupy some 293 known locations from Near Oceania through to Tonga and Samoa in Remote Oceania (Bedford et al. 2019:8). Lapita is an archaeologically reconstructed culture associated with the introduction of pottery into the Pacific region by groups of people from Island Southeast Asia, who interacted with indigenous populations and were the first inhabitants of the Remote Oceanic islands. Dating to ca 3300–3100 cal. BP (Specht and Gosden 2019:186; Summerhayes 2010b:Table 3; for an alternative view see Kirch 2021a:162–163, 2021b:512), the settlements of these colonising populations thus hold critical information concerning both the nature of the first Lapita populations, their material culture, lifeways and even ancestry, and the adaptations they underwent upon arrival into a new and foreign landscape. However, only 13 such sites have been discovered in the Bismarck Archipelago as of 2019 (Bedford et al. 2019:Table 1.1). Lapita pottery from the most recently discovered of these rare sites, Tamuarawai (Papua New Guinea National Museum and Art Gallery site code EQS), located on the island of Emirau in the northern Bismarck Archipelago of Papua New Guinea, is the focus of this research.

The aim of this study is to present the results of a formal and decorative analysis conducted upon pottery assemblages from EQS (Hogg 2022), and to employ this data to further understand the lives of those that lived at the site in the past. To achieve this, models concerning the social functions of Lapita pottery, typically divided into plainwares with an arguable utilitarian role and decorated wares that are seen as fulfilling a 'socially significant' role (Kirch 2017:95, 97; Summerhayes 2000b:303), alongside an understanding of the distribution of vessel forms and decoration across the site, are employed to investigate the possible range of activities being undertaken, and their spatial and chronological distribution. Ultimately, it looks to elucidate if Tamuarawai represented a specialised 'fishing camp' or a larger Lapita settlement when first occupied (Summerhayes et al. 2010:72), and to determine whether subsequent phases of occupation are evident in the archaeological record—and if so, how the settlement changed over time.

Tamuarawai, Emirau Island, St Matthias Group

The site of Tamuarawai (EQS) is located on the island of Emirau, lying in between the remaining islands of the St Matthias Group (see Figure 5.1), including the Mussau Islands, 25 km to the west, and the isolated island of Tench, which lies approximately 73 km to the east (Summerhayes et al. 2010:62). Located approximately 140 km to the north-west of the town of Kavieng, on the northern tip of New Ireland, the St Matthias Group represents the northernmost point of the Bismarck Archipelago (Kirch and Catterall 2001:28).

The site was excavated over three field seasons between 2007 and 2009 and covers some 22,500 m in extent (Bedford et al. 2019:Table 1.1). A total of four test pits (TP), including three 1 × 1 m test pits (TPs 1, 2 and 4) and one 2 × 2 m test pit (TP 3 A-D) were excavated, alongside a further 13 shovel pits (SP).

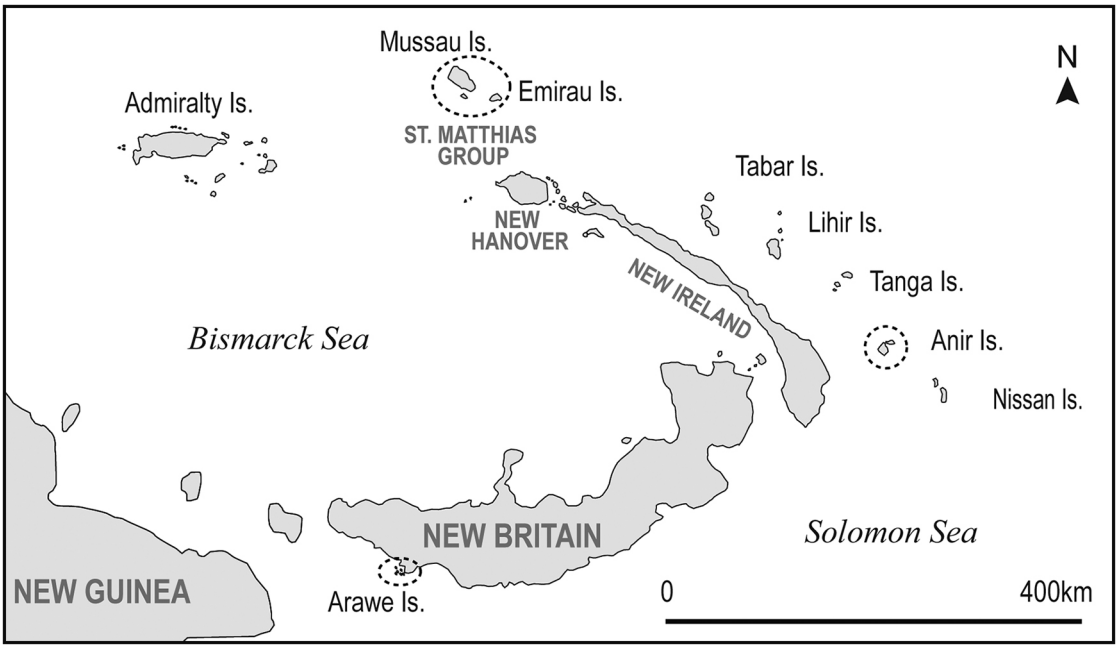

Figure 5.1: The Bismarck Archipelago with locations discussed in text circled.
Source: Illustration by authors.

SP 15, material from which is studied in this research, was 1 × 1 m in extent (Hogg 2022:100; Summerhayes et al. 2010:64). Stratigraphically, the same four layers were identified across the site: Layer 1 consists of a brown/black gardening soil which increases in thickness from 10 cm in the north to over 30 cm in the south; Layer 2 is a yellow/brown sand with variable thickness of between 8 and 30 cm; Layer 3 consists of an unconsolidated yellow/grey to white beach sand ranging in thickness between 15 and 40 cm; finally, Layer 4 is a coarse, gritty sand sitting on top of the underlying coral bedrock with a variable thickness of between 40 and 50 cm (Hogg 2022:Table 4.1; Summerhayes et al. 2010:64) (see Summerhayes et al. (2010) and Hogg (2022:98–102) for further details of the site's excavation and stratigraphy).

Initial occupation is represented by material in the basal layer of TP 1 and 3 A-D in the south-eastern corner of the site (Summerhayes et al. 2010:65, 67), and is dated by two determinations, Wk-21349 (charcoal), previously published by Summerhayes et al. (2010:Table 1) dating to 3350–3168 cal. BP, and a previously unpublished determination, Wk-49133 (marine shell) with a date of 3403–3111 cal. BP (see Table 5.1), indicating that the site was first occupied during the Early Lapita Period (3300–3100 cal. BP, hereafter referred to as Early Period) (Summerhayes 2010b:Table 3).

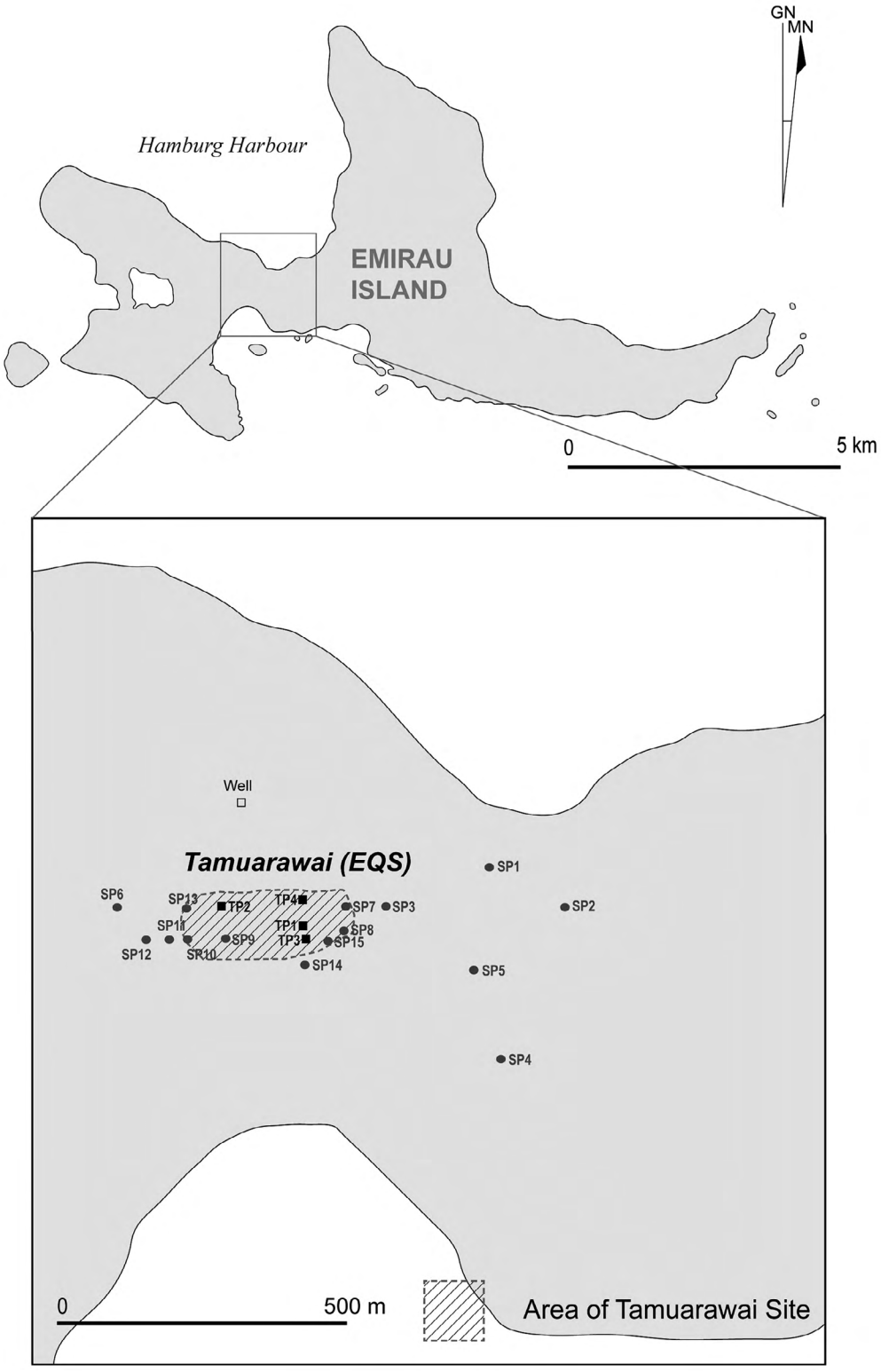

Figure 5.2: (Top) Map of Emirau Island. (Bottom) Map of Tamuarawai (EQS) showing the site boundaries (outlined in grey) and the test pits (TP) and shovel pits (SP) excavated at the site.

Source: Top map adapted from Summerhayes et al. (2010:Fig. 2). Bottom map adapted from Summerhayes et al. (2010:Fig. 6), readapted by Hogg (2011:Fig. 2.4).

Table 5.1: Radiocarbon determinations available for the site of Tamuarawai (EQS).

Lab reference	Sample type	Provenance	Uncalibrated range (BP)	Calibrated range cal. BP (1σ)	Calibrated range cal. BP (2σ)
Wk-21345	Charcoal	TP 2, Layer 4	2917 ± 31	3140–2999	3160–2965
Wk-21349	Charcoal	TP 1, Layer 4	3044 ± 31	3332–3185	3350–3168
Wk-49133	*Trachycardium* sp. Marine shell	TP 3 A, Layer 4 – Spit 17	3332 ± 21	3345–3200	3403–3111

Source: Hogg (2022), Table A1.1.

The site is believed to have represented several stilt structures built out over the water. A series of circular discolourations found in TP 3 B, approximately 10 cm in diameter with a depth of 2–3 cm and arranged in an apparent right-angle, are potentially related to these structures, although further work is required to confirm this for sure (Summerhayes et al. 2010:72). After initial occupation, geomorphological changes occurred, leading to the deposition of material onto a beach or sandbank (as represented by Layer 4 of TP 2 and 4) in the north of the site between 3160 and 2965 cal. BP (Wk-21345, charcoal), indicating deposition occurred either at the end of the Early Period or alternately during the Middle Period (3100–2900 cal. BP) (Summerhayes 2010b:Table 3). Finally, further undated depositional events occurred, as represented by Layers 3–1 across the site (Summerhayes et al. 2010:72).

A broad range of material culture was excavated from EQS besides the pottery assemblages at the heart of this study, including 563 pieces of obsidian (Muir 2017:Appendix 1), a range of shell valuables and other worked shell artefacts and an extremely rare jadeite stone chisel excavated in the vicinity of TP 1 (Summerhayes et al. 2010:65–72), which was transported some 1000 km from Northeast Papua (Indonesia) to the island (Harlow et al. 2012:395–396). From the shell artefacts, with the exception of a net sinker and a fishhook from TP 4 – Layer 4, and a drilled shell bead from Layer 3 of the same TP, all are concentrated in TP 1 and 3 A-D. TP 3 A-D contained the larger of the two assemblages, including four drilled shell beads, three fishhooks and blanks, two cowrie shell octopus lures and a net sinker, all of which came from Layer 4 with the exception of two shell beads from Layers 1–2. Alternatively, TP 1 is slightly smaller but includes both a *Conus* shell armband and a disk made of the same, from Layers 4 and 1, respectively, alongside a further three shell beads, two of which came from Layer 3 and one from Layer 1, and an additional fishhook blank from Layer 2 (Summerhayes et al. 2010:70).

Finally, from the faunal materials excavated (NISP = 1862) from TP 1, 3 A-D and 4, roughly 93 per cent were fishbones, with the remainder primarily composed of turtle bones (Summerhayes et al. 2010:70, Table 10). While the preponderance of fish is not surprising (for comparison, 58 per cent (n = 763) of the faunal remains of the Early Period deposits of Kamgot (ERA) in the Anir Group (n = 1311) were composed of fish) (Summerhayes et al. 2019:384), what is noteworthy is how few mammalian remains were identified (n = 24, 1.3 per cent) (Summerhayes et al. 2010:70, Table 10). ERA, for comparison, identified some 335 mammal bones, comprising 25.6 per cent of the assemblage (Summerhayes et al. 2019:380). Comparison of faunal remains by TP and layer shows very little difference in their distribution, with assemblages from all layers, irrespective of TP, dominated by fishbone, with turtle bone making most of the remainder. Finally, mammalian bones are primarily found in Layer 1 (Summerhayes et al. 2010:Table 10).

When viewed together, the archaeological record from Tamuarawai is something of a conundrum, with several outstanding questions. First, what did the site represent when it was first settled during the Early Period? As originally argued by Summerhayes et al. (2010:67–71, 72), the restricted range of fauna represented—composed primarily of fish and to a lesser extent turtle, with little to no mammalian remains—in addition to the small overall size of the site, suggests it may have represented a specialised 'fishing camp' (Summerhayes et al. 2010:72, Table 10). However, they also note that the broad range of material culture (including pottery, obsidian, worked shell artefacts and the green stone (jadeite) chisel) (see Harlow et al. 2012 for more details) and the possibility that a serious investment in time and labour may have been expended to build stilt structures out over the lagoon, are more akin to a village than a smaller specialised settlement (Summerhayes et al. 2010:67–71, 72, Tables 2–3). In the latter instance, the restricted nature of the faunal record was seen by Summerhayes et al. (2010:72) as a by-product of the process of colonisation, as populations were forced to rely on local food supplies while waiting for the establishment of their agricultural systems. While Summerhayes et al. (2010:72) specifically use the term 'village' when describing the possibility of the site being a larger settlement, we instead employ the term 'hamlet', representing a small settlement with fewer than 10 dwellings or structures (Kirch 2017:98), in order to better suit the small scale of the site in question.

Second, is there evidence in the archaeological record to suggest EQS is a multicomponent site with phases of occupation following the Early Period? The radiocarbon chronology is the basis for two possible scenarios: The first envisages all deposits within the TPs/SPs studied as relating to an Early Period occupation, with those in Layers 3 and 4 in TP 1 and 3 A-D and the nearby deposits in SP 15 associated with the initial occupation of the site, while those in Layers 3–4 of TP 1 and 2 relate to an expansion of the site's boundaries occurring around 3160 cal. BP. In this instance, Layer 2 is seen as relating to the continued use of the site during the Early Period, while Layer 1 consists of a mixture of a modern gardening soil and disturbed materials from the previous layer. The second posits that the cultural remains of EQS relate to multiple periods of occupation occurring at differing times in the past. This view acknowledges that the range of Wk-21345 overlaps with the theoretical range of the Middle Period (3100–2900 cal. BP) (Summerhayes 2010b:Table 3), and thus deposits in Layer 4 of TP 2 and 4 in the north and those within Layers 1–3 in this and other parts of the site, may derive from a later Middle Period occupation, while also considering that Layers 1–3 and SP 15 are undated and thus may derive from later depositional events.

These outstanding questions concerning the nature of the Lapita occupation at EQS are the central focus of this research. These questions are approached via an analysis of pottery assemblages excavated from TP 1–4 and SP 15, amounting to 3807 sherds, discussed in detail further below. The next section introduces the material culture at the heart of this study, Lapita pottery, and reviews previous research into the possible social functions it may have performed in the past.

Lapita pottery and its social functions

Early and Middle Period pottery from the Bismarck Archipelago has been the focus of a considerable amount of research (for example, see: Anson 1983, 1986; Hogg et al. 2021; Hunt 1989; Kirch 2001, 2021c; Sand 2015; Scahill 2020; and Summerhayes 2000b, 2001; among others), which has helped to delineate clear differences between the two sets of assemblages. The pottery of the Early Period, for example, is typified by the presence of high proportions of dentate-stamped vessels, predominantly open bowls/cups and pot stands (or bowls with such stands attached). Conversely, Middle Period assemblages have higher proportions of incised vessels, typically outcurving

carinated jars (Hogg et al. 2021:81–82; Kirch and Chiu 2021:299–303; Specht and Summerhayes 2007:67–70; Summerhayes 2000b:163, 231–232, 2001:29–30). In addition, Early and Middle Period assemblages are associated with a unique inventory of decorative motifs that are only found on vessels of each period (Summerhayes 2000b:160–163), and were each produced with unique production strategies (see Summerhayes (2000b:167–229) for more detail on the production of vessels).

It is widely recognised within Lapita scholarship that this pottery can be divided into two main groups, plainwares and decorated wares, and that each set of assemblages performed a distinct role within Lapita society. Plainwares are widely accepted as performing utilitarian functions such as cooking or the storage of water (Summerhayes 2000a:303) or foodstuffs (Kirch 2017:97). Kirch and Chiu (2021:287), for example, recently argued that the general form of globular jars (equivalent to the Form VI—globular pots in Figure 5.3) identified within the Mussau Island assemblages, along with their restricted necks and lack of decoration beyond lip notching, in combination with the lack of evidence for their use in cooking, suggested these vessels were used to store either liquids or dry materials, such as sago flour.

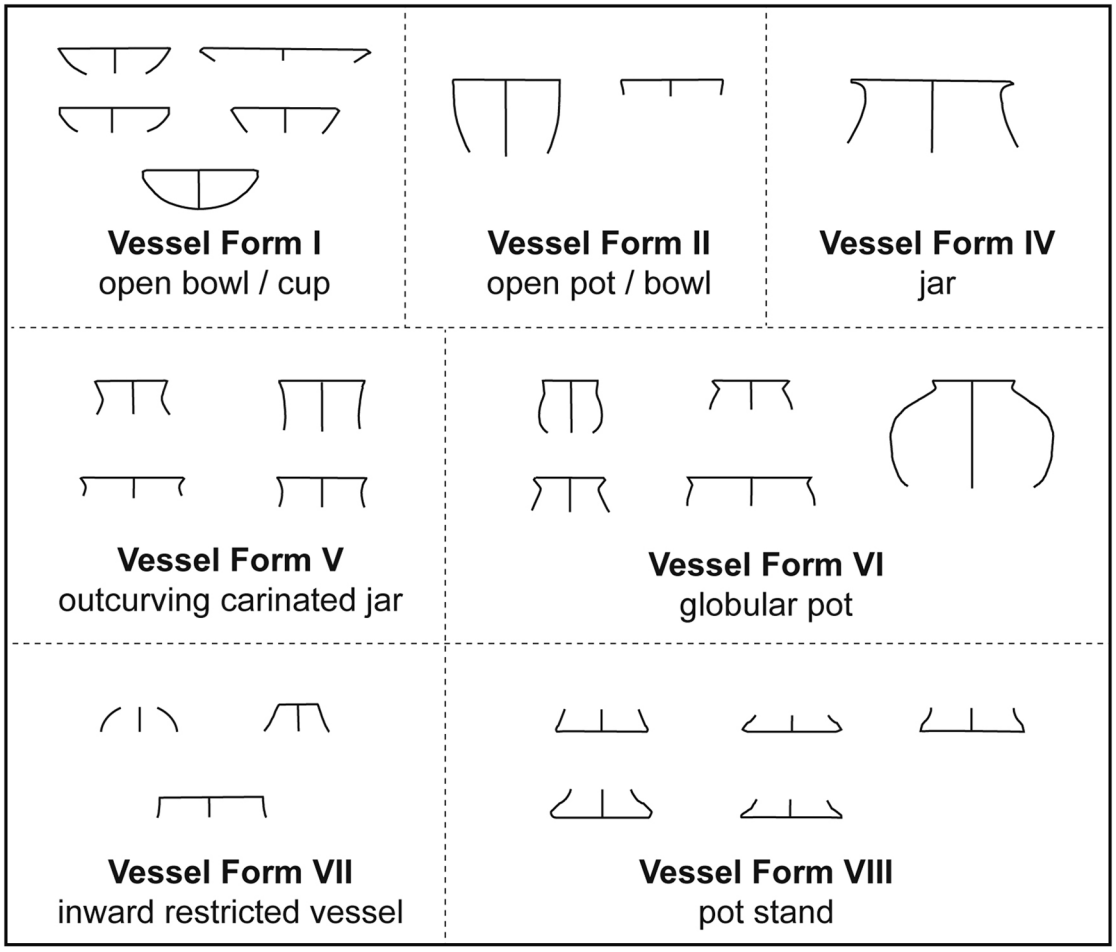

Figure 5.3: Vessel forms.

Source: Adapted from Summerhayes (2000b:Fig. 4.1–4.3).

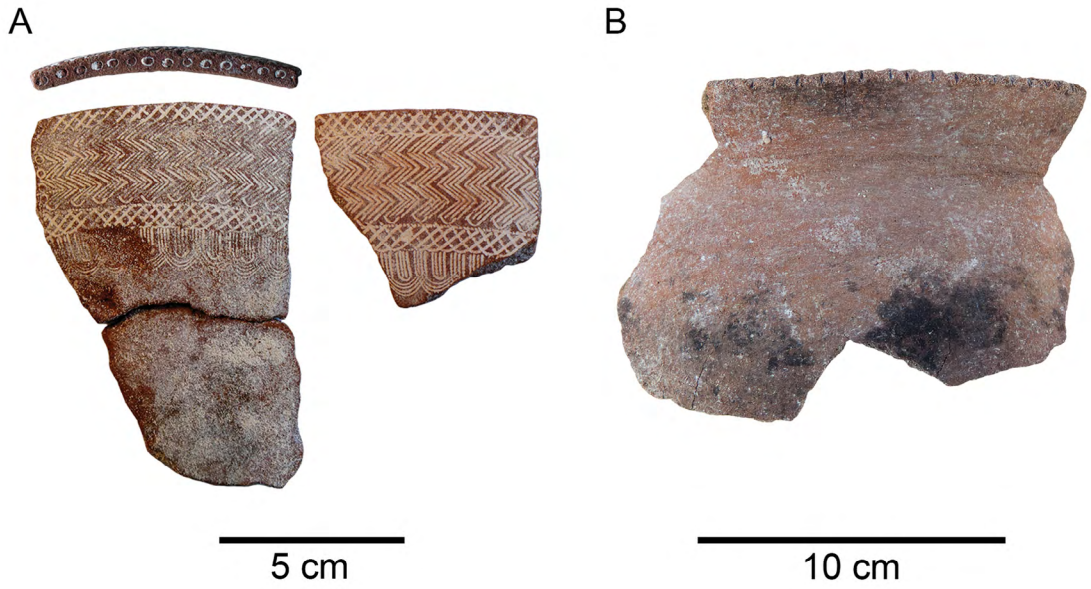

Figure 5.4: Pottery from the site of Tamuarawai (EQS).
Note: (A) Form I (#EQS 110 & 126, TP 3 A-D); (B) Form VI (#EQS 1, TP 1).
Source: Illustration by authors.

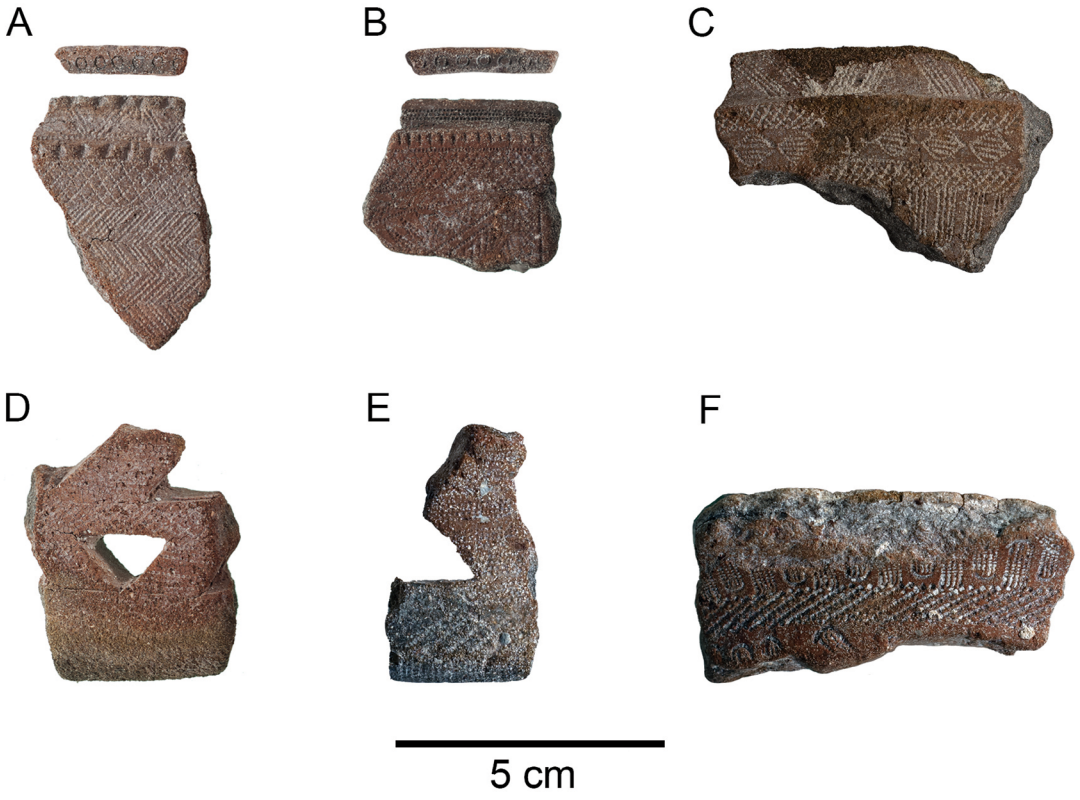

Figure 5.5: Additional pottery from the site of Tamuarawai (EQS).
Notes: (A) Form I (#EQS 127, TP 3 A-D); (B) Form I (#EQS 88, TP 3 A-D); (C) Form II (#EQS 89, TP 3 A-D); (D) Form VIII (#EQS 109, TP 3 A-D); (E) Form VIII (#EQS 129, TP 3 A-D); (F) Base with stand attachment (#EQS 296, TP 3 A-D).
Source: Illustration by authors.

Kirch (2017:97) further argues that such flour (produced from the pith of sago (*Metroxylon*) palm trees), which can last a long time when stored in a dry environment, may have provided an important staple food source for colonising populations prior to the establishment of their horticultural systems. However, the presence of external fire blackening, evidence of a vessel's use in cooking foodstuffs (Kirch and Chiu 2021:287), on a globular pot excavated from the Tamuarawai site (#EQS 1, Figure 5.4B), indicates the likelihood that some vessels of this form also performed this function in the past.

In opposition to plainwares, decorated wares (particularly dentate-stamped wares) are generally ascribed a function of high social significance; a number of models have been put forward to further understand the social function(s) performed by these vessels. Kirch (1997:145–146, 2017:96–97) for example, argued that dentate-stamped wares depicting anthropomorphic designs may have been employed as prestige items in marriage exchanges or other important social occasions. Later research by Chiu (2005:5, 2007:257–260, 2015:198–200, 2019:329–331) similarly argued for certain decorative motifs to have acted as highly prestigious 'crests' or symbols of houses or social groups within Lapita society, which acted as a means of differentiating between houses or groups of varying status, or to affect group cohesion depending upon the social situation. For their part, Summerhayes and Allen (2007:116–117) suggested, following the behavioural ecological approach of costly signalling, that decorated vessels acted as a means of establishing and maintaining social links between Lapita groups. They additionally argued, with specific reference to the Early Period when Lapita and non-Lapita populations first met, that such vessels were used as a means of signalling the strength of a Lapita population(s) to others (in the manner of a costly display), while simultaneously conferring values (whether prestigious or utilitarian in nature) onto said groups when engaged in exchange. Lastly, it is widely believed that the forms of decorated vessels directly related to the social occasions within which they were employed. This is particularly the case with dentate-stamped vessels that were elevated upon stands, which have been highlighted by a number of authors as being related to the preparation and presentation of food at important social events (Kirch 1997:122; Leclerc 2018:713; Marshall 2008:70; Summerhayes 2000a:303), or more specifically in the context of ceremonial feasts (Clark 2007:297; Jones 2015; Kirch 2021c:83) (for further discussion concerning the social function(s) of Lapita decorated wares see Best 2002:99–100; Noury 2019; Spriggs 1990, 1997:156–157, 2019; Terrell and Schechter 2009:53–54; and Terrell and Welsch 1997:568).

Significantly, excavations at the site of Talepakemalai (ECA), located in the Mussau Islands, and the discovery of a 'special-function' stilt structure within the Area B (Zone C) deposits, provide an arguable glimpse at how these decorated vessels may have been used in the Early Period (Kirch 2021c:79–83). The artefactual record of Area B is unique in the site due to the presence of a wide array of finely made shell objects, including *Spondylus*-shell beads and pendants, *Nautilus* shell discs, shell rings made of *Conus* and *Tridacna* shell, large 'rectangular units' made of *Conus* shell and more, alongside a small anthropomorphic bone sculpture, and significantly, highly decorated pedestalled bowls and dishes (equivalent to Forms I and VIII in this research, see Figure 5.3) (Kirch 2021c:79). Crucially, in addition to these artefacts the deposit also contains evidence of food waste (including shell and bone midden) and artefacts associated with food preparation (such as scrapers and peeling knives), which taken together are seen as possible evidence of feasting (Kirch 2021c:83).

Pottery analysis methodology

This section details the methodologies employed to analyse the form and decoration of the Tamuarawai pottery assemblages. Data generated from these analyses represents the primary foundation of this study and forms the basis for the interpretations offered in the discussion to follow.

The methodology employed to analyse the form of the EQS vessels was based around the principle that in the absence of complete vessels, the rim is the most diagnostic element of a vessel (Bedford 2006:76–77; Joukowsky 1980:351; Poulsen 1987:87; Summerhayes 2000b:33). The attributes of rim direction, rim profile, lip profile, extra rim features, thickness, orifice diameter (Summerhayes 2000b:35–36) and orientation and inclination angle (Irwin 1985:107) were analysed to assign sherds to vessel form. In addition, wherever possible rim sherds were combined with other types of sherds, including neck, body, base and pot stands, either by the physical conjoining of sherds or by comparison of pottery attributes where appropriate (see the attributes used to calculate MNV below), to ensure the correct identification of form. The vessel forms used were modelled after those defined by Summerhayes (2000b:33) and include: Form I—open bowl/cup; Form II—open pot/bowl; Form IV—jar; Form V—outcurving carinated jar; Form VI—globular pot; Form VII—inward restricted vessel; and Form VIII—pot stand (see Figure 5.3). No Form III vessels (possible open bowl with a horizontal rim) were identified in the assemblage.

Calculation of the minimum number of vessels (MNV) was primarily made with reference to rim sherds, but in a small number of cases was based upon other types of sherds (necks or carinations with parts of the body attached or bases), which could not have been associated with any rim sherds. Attributes used to calculate MNV include those listed above alongside those collected as part of the decorative analysis (including type of decoration (Tables 5.5, 5.6 and 5.7) and location of decoration) and fabric type (designed to broadly classify sherds based upon their predominant non-plastic inclusions; details of the fabrics identified in the assemblage can be found in Hogg (2022:Volume II—Appendix 5)). A more detailed discussion of the methodology employed to analyse the EQS assemblages can be found in Hogg (2022:127–165).

Results

Results from the formal and decorative analyses of the Tamuarawai assemblages are presented in the following section (representing the most up-to-date formal and decorative datasets available for EQS, thus superseding those in the earlier study of Hogg (2011:60–63, 89–96)). Discussion is first made of the vessel forms identified, followed by the types of decoration found and the association between said decoration and the vessels they adorned.

Distribution of vessel forms in the Tamuarawai Lapita site

TP 1–4 and SP 15 produced 3807 sherds, with the total dropping to 3754 sherds following conjoining; from these, 205 sherds were found to be diagnostic to vessel form (Table 5.2). It should be noted that the numbers of excavated sherds recorded in Summerhayes et al. (2010:Table 2) for TP 1 and 4 are equivalent to the 'Sherds excavated (conjoined)' in Table 5.2; however, the total numbers of sherds recorded differ slightly as a small number of sherds were added following the publication of the earlier paper.

Table 5.2: Number of excavated sherds, number of excavated sherds following conjoining, sherds diagnostic of vessel form, decorated and plain sherds, and minimum number of vessels (MNV) for the site of Tamuarawai (EQS).

Test pit/ Shovel pit	Sherds excavated	Sherds excavated (conjoined)	Diagnostic sherds	Decorated sherds	Plain sherds	MNV
TP 1	1167	1159	46	61	1098	16
TP 2	184	184	8	11	173	4
TP 3 A-D	1817	1776	120	119	1657	66
TP 4	411	411	15	23	388	7
SP 15	228	224	16	18	206	10
Total	3807	3754	205	232	3522	103

Source: Hogg (2022), Tables 6.1–6.6 and Table 6.10.

An MNV of 103 vessels was calculated for seven vessel forms present in the five assemblages studied from the site (Tables 5.3 and 5.4, Figures 5.4 and 5.5). From these, TP 3 A-D has by far the largest amount, with a total of 66 vessels identified to form, the majority of which are found in Layers 3 (14 per cent, *n* = 9) and 4 (80 per cent, *n* = 53). Form VI—globular pots are the most common (42 per cent, *n* = 28), followed by Form I—open bowls/cups (27 per cent, *n* = 18). The remaining vessels are primarily Form V—outcurving carinated jars and Form VIII—pot stands, alongside two Form II—open pots/bowls. Studying the distribution of vessels stratigraphically, Layer 4 is dominated by Forms VI (49 per cent, *n* = 26) and I (23 per cent, *n* = 12), with the remainder primarily made up of Forms V and VIII (13 per cent, *n* = 7 each). In Layer 3, the same range of forms are present, but the number of Form VI (22 per cent, *n* = 2) vessels has proportionally declined while those from Form I (44 per cent, *n* = 4) have increased. In Layers 1–2 only three vessels are present, including single examples of Forms I, II and V.

TP 1 has the second largest assemblage, with 16 vessels identified to form, with most coming from Layers 3 (25 per cent, *n* = 4) and 4 (38 per cent, *n* = 6). The most common by a considerable margin are Form VI—globular pots (50 per cent, *n* = 8), followed by vessels belonging to Forms I and VIII (13 per cent, *n* = 2 each). Vessels of these forms are predominantly found in Layers 3 and 4; the only exception is a Form VI—globular pot in Layer 1. Finally, three vessels are present in Layer 2, including a Form IV jar and two Form VII inward-restricted vessels (13 per cent, *n* = 2).

TP 4 and SP 15 are like those discussed above, in that they are both dominated by Form VI—globular pots (71 per cent for the former and 60 per cent for the latter), with the remainder being comprised of small numbers of Form I, V and VIII vessels. In TP 4, all vessels identified, excepting a single Form VI vessel, come from Layer 4.

Finally, TP 2, the smallest assemblage studied, is entirely comprised of vessels from two forms, Forms V and VII, with only one belonging to the latter. Form V vessels are found in all layers excepting Layer 4, while the single Form VII vessel comes from Layer 1.

Table 5.3: Vessel forms identified at the site of Tamuarawai (EQS) Test Pits 1–2; Layers 1–4 and NP (no provenance).

Vessel form	TP 1												TP 2									
	1	%	2	%	3	%	4	%	NP	%	Total	%	1	%	2	%	3	%	4	%	Total	%
I—open bowl/cup	0	0	0	0	0	0	1	17	1	50	2	13	0	0	0	0	0	0	0	0	0	0
II—open pot/bowl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IV—jar	0	0	1	33	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0
V—outcurving carinated jar	0	0	0	0	1	25	0	0	0	0	1	6	1	50	1	100	1	100	0	0	3	75
VI—globular pot	1	100	0	0	2	50	4	67	1	50	8	50	0	0	0	0	0	0	0	0	0	0
VII—inward restricted vessel	0	0	2	67	0	0	0	0	0	0	2	13	1	50	0	0	0	0	0	0	1	25
VIII—pot stand	0	0	0	0	1	25	1	17	0	0	2	13	0	0	0	0	0	0	0	0	0	0
Totals	1	6	3	19	4	25	6	38	2	13	16	100	2	50	1	25	1	25	0	0	4	100

Source: Hogg (2022), Table A2.1 and Table A2.2.

Table 5.4: Vessel forms identified at the site of Tamuarawai (EQS) Test Pits 3–4 and Shovel Pit 15; Layers 1–4 and WF (wall fill).

Vessel form	TP 3 A-D										TP 4										SP 15	
	1–2	%	3	%	4	%	WF	%	Total	%	1	%	2	%	3	%	4	%	Total	%	Total	%
I—open bowl/cup	1	33	4	44	12	23	1	100	18	27	0	0	0	0	0	0	1	17	1	14	3	30
II—open pot/bowl	1	33	0	0	1	2	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0
IV—jar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V—outcurving carinated jar	1	33	1	11	7	13	0	0	9	14	0	0	0	0	0	0	0	0	0	0	1	10
VI—globular pot	0	0	2	22	26	49	0	0	28	42	1	100	0	0	0	0	4	67	5	71	6	60
VII—inward restricted vessel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VIII—pot stand	0	0	2	22	7	13	0	0	9	14	0	0	0	0	0	0	1	17	1	14	0	0
Totals	3	5	9	14	53	80	1	2	66	100	1	14	0	0	0	0	6	86	7	100	10	100

Source: Hogg (2022), Tables A2.3–A2.5.

Distribution of decoration in the Tamuarawai Lapita site

From the 3754 sherds (following conjoining) identified in TP 1–4 and SP 15, 232 (6 per cent) were found to have evidence of decoration (see Table 5.2).

The most common decoration by far is dentate stamping, which comprises 36–61 per cent of decoration present, with the only exception being TP 1, where it is slightly less common (26 per cent, *n* = 16). Stratigraphically, it makes up 50–67 per cent of that identified in Layer 4 of all TPs studied and 33–60 per cent in Layer 3, except in TP 1 where it comprises 33 per cent (*n* = 5) in the former layer and only 11 per cent (*n* = 1) in the latter. In Layers 1 and 2, it declines further to comprise 46 per cent (*n* = 5) in the combined Layer 1–2 in TP 3 A-D, while being absent in Layer 2 of TP 2 and in both layers of TP 4. Alternatively, dentate stamping increases in the same layers of TP 1 from 15 per cent (*n* = 3) to 33 per cent (*n* = 3), and also reappears in Layer 1 of TP 2 (33 per cent, *n* = 1) (see Tables 5.5 and 5.6). Following the work of Kirch and Chiu (2021:281), the dentate stamping present at the site can for the most part be described as 'fine', with very small individual tine impressions arranged in a series of well-executed, orderly designs.

Notching is also very common and is found in all TPs/SPs studied, comprising between 17 and 41 per cent of decoration. The only exception is TP 2, where such decoration only makes up 9 per cent (*n* = 1). In Layer 4, this decoration makes up a substantial 24–42 per cent of that identified (aside from TP 2, where it is absent), while in Layer 3 it proportionally declines to comprise only 13–22 per cent of decoration. TP 1 is once again the exception, where it increases from 60 per cent (*n* = 9) in Layer 4 to 78 per cent (*n* = 7) in Layer 3. In Layer 2 notching comprises only 20 per cent (*n* = 7) of decoration in TP 1, while being entirely absent in the same layer of TP 2 and 4, prior to increasing to 22 per cent (*n* = 2) in TP 1–Layer 1 and reappearing in the same layer of TP 2 and 4. Finally, notching makes up 36 per cent (*n* = 4) of decoration in the combined Layers 1–2 in TP 3 A-D.

The decorative types of incision—cut-out, single tool impression, and perforation—are commonly employed in concert with dentate stamping and notching, with one or more comprising a large proportion of all identified decoration in each assemblage studied. In TP 1, for example, incision (13 per cent, *n* = 8) and perforation (12 per cent, *n* = 7) are the next most common types after dentate stamping and notching, while in TP 3 A-D and TP 2, it is cut-out (13 per cent, *n* = 16) and single tool impression (13 per cent, *n* = 15) for the former and incision (27 per cent, *n* = 3) for the latter. The only exception is SP 15, which has only single instances of cut-out and incision. From the four decoration types, incision appears for the first time in Layers 1 and 2 in TP 1 and 3 A-D to comprise 22 per cent (*n* = 2) and 30 per cent (*n* = 6) of decoration, respectively, in the former and 18 per cent (*n* = 2) in the combined Layer 1–2 of the latter, while also appearing in TP 2, Layers 2 (100 per cent, *n* = 2) and 3 (33 per cent, *n* = 1). Cut-out, single tool impression, and perforation are primarily concentrated in Layers 3 and 4.

The remainder of the decoration is spread over several decoration types, all comprising around 5 per cent or less of that identified in any given assemblage. The only exceptions are stick impression and carving, which comprise 27 per cent (*n* = 3) and 17 per cent (*n* = 3) of the small assemblages from TP 2 and SP 15, respectively. From these minor decorative types, the majority are restricted to a small number of assemblages and are primarily found in Layers 3–4; stamp impression, fingernail impression and plain bands are only found in TP 4, SP 15 and TP 3 A-D, respectively, while brushing is restricted to TP 3 A-D and SP 15. The only exceptions are cut, groove–channel and stick impression, which are widely distributed and are found in at least three of the assemblages studied.

Table 5.5: Frequency counts and proportion of decoration within Tamuarawai (EQS) Test Pits 1–2; Layers 1–4 and NP (no provenance) by sherd count (decorated sherds can be counted more than once).

Decoration type	TP 1											TP 2										
	1	%	2	%	3	%	4	%	NP	%	Total	%	1	%	2	%	3	%	4	%	Total	%
Dentate-stamped	3	33	3	15	1	11	5	33	4	50	16	26	1	33	0	0	1	33	2	67	4	36
Notched	2	22	4	20	7	78	9	60	3	38	25	41	1	33	0	0	0	0	0	0	1	9
Cut-out	1	11	0	0	0	0	4	27	0	0	5	8	0	0	0	0	0	0	0	0	0	0
Single tool imp.	0	0	1	5	0	0	1	7	1	13	3	5	0	0	0	0	0	0	0	0	0	0
Incised	2	22	6	30	0	0	0	0	0	0	8	13	0	0	2	100	1	33	0	0	3	27
Perforated	0	0	6	30	1	11	0	0	0	0	7	12	0	0	0	0	0	0	0	0	0	0
Cut	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	33	1	9
Grooved–channelled	0	0	0	0	0	0	0	0	1	13	1	2	0	0	0	0	0	0	0	0	0	0
Brushed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stick imp.	1	11	0	0	0	0	0	0	0	0	1	2	1	33	1	50	1	33	0	0	3	27
Carved	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plain band	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fingernail imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stamped imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total decorated sherd count	9	–	20	–	9	–	15	–	8	–	61	–	3	–	2	–	3	–	3	–	11	–
Decoration frequency	9	–	20	–	9	–	19	–	9	–	66	–	3	–	3	–	3	–	3	–	12	–

Source: Hogg (2022), Table A4.2 and Table A4.3.

Table 5.6: Frequency counts and proportion of decoration within Tamuarawai (EQS) Test Pits 3–4 and Shovel Pit 15; Layers 1–4 and WF (wall fill) by sherd count (decorated sherds can be counted more than once).

Decoration type	TP 3 A-D										TP 4										SP 15	
	1–2	%	3	%	4	%	WF	%	Total	%	1	%	2	%	3	%	4	%	Total	%	Total	%
Dentate-stamped	5	46	9	60	56	61	1	100	71	60	0	0	0	0	4	44	6	50	10	44	11	61
Notched	4	36	2	13	22	24	0	0	28	24	1	100	0	0	2	22	5	42	8	35	3	17
Cut-out	0	0	2	13	14	15	0	0	16	13	0	0	0	0	1	11	0	0	1	4	1	6
Single tool imp.	1	9	0	0	13	14	1	100	15	13	0	0	0	0	0	0	1	8	1	4	0	0
Incised	2	18	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	1	6
Perforated	0	0	3	20	1	1	0	0	4	3	0	0	0	0	3	33	0	0	3	13	0	0
Cut	0	0	1	7	2	2	0	0	3	3	1	100	0	0	0	0	1	8	2	9	1	6

Decoration type	TP 3 A-D										TP 4										SP 15	
	1–2	%	3	%	4	%	WF	%	Total	%	1	%	2	%	3	%	4	%	Total	%	Total	%
Grooved–channelled	0	0	0	0	4	4	0	0	4	3	0	0	0	0	1	11	0	0	1	4	1	6
Brushed	0	0	0	0	6	7	0	0	6	5	0	0	0	0	0	0	0	0	0	0	1	6
Stick imp.	0	0	0	0	2	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
Carved	0	0	0	0	2	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	3	17
Plain band	0	0	1	7	1	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
Fingernail imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6
Stamped imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	1	4	0	0
Total decorated sherd count	11	–	15	–	92	–	1	–	119	–	2	–	0	–	9	–	12	–	23	–	18	–
Decoration frequency	12	–	18	–	123	–	2	–	155	–	2	–	0	–	11	–	14	–	27	–	23	–

Source: Hogg (2022), Tables A4.4–A4.6.

Table 5.7: Frequency counts and proportion of decoration within Tamuarawai (EQS) Test Pits 1–4 and Shovel Pit 15 by vessel form (vessels can be counted more than once).

Decoration type	Vessel form															
	I	%	II	%	IV	%	V	%	VI	%	VII	%	VIII	%	Total	%
Dentate-stamped	18	75	2	100	0	0	1	7	0	0	0	0	10	83	31	30
Stick imp.	0	0	0	0	0	0	3	21	2	4	0	0	0	0	5	5
Single tool imp.	11	46	1	50	0	0	0	0	0	0	0	0	0	0	12	12
Fingernail imp.	1	4	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Notched	2	8	0	0	0	0	6	43	17	36	2	67	0	0	27	26
Cut	2	8	0	0	0	0	0	0	1	2	0	0	2	17	5	5
Incised	0	0	0	0	1	100	1	7	0	0	0	0	0	0	2	2
Plain band	2	8	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Cut-out	0	0	0	0	0	0	0	0	0	0	0	0	8	67	8	8
Grooved–channelled	0	0	1	50	0	0	0	0	0	0	0	0	0	0	1	1
Brushed	0	0	0	0	0	0	0	0	3	6	0	0	0	0	3	3
Plain	5	21	1	50	0	0	4	29	24	51	1	33	1	8	36	35
Total vessel count	24	–	2	–	1	–	14	–	47	–	3	–	12	–	103	–
Decoration frequency	41	–	5	–	1	–	15	–	47	–	3	–	21	–	133	–

Source: Authors' data.

Finally, studying vessel form alongside type of decoration (see Table 5.7) indicates that dentate stamping is restricted to Forms I (*n* = 18), II (*n* = 2) and VIII (*n* = 10), apart from a single Form V jar. Decorative types that typically occur alongside dentate stamping are similarly restricted. This includes single tool impression, only found on Form I (*n* = 11) and Form II vessels (*n* = 1), and cut-out, only present on Form VIII pot stands (*n* = 8). Similarly, incision is only found on Form IV and V jars (one vessel each). The last decoration type found on a significant number of vessels, notching, is most closely associated with Form VI (*n* = 17) vessels. The remainder of the decoration is only found on one vessel each, excepting stick impression, which is found on five vessels from Forms V (*n* = 3) and VI (*n* = 2), brushing, found on vessels of the latter form (*n* = 3), and cut, which is found on vessels from Forms I, VIII (*n* = 2 each) and VI (*n* = 1). Lastly, plainware vessels compose 35 per cent (*n* = 36) of the vessels identified and are dominated by Form VI vessels (67 per cent, *n* = 24).

Summary

Studying the form and decoration of the EQS assemblages, the following patterns were identified:

1. Excepting TP 2, all assemblages studied are dominated by Form VI vessels, while the remainder are generally comprised of vessels from Forms I and VIII and in some assemblages Form V.
2. Vessels in Layers 3 and 4 represent the majority of those identified in most assemblages, excepting TP 2, where vessels are found throughout Layers 1–3. Generally, vessels in Layers 1–2 represent forms already present in the underlying Layers 3–4, the exceptions being TP 1 and 2, which both have new forms in the former layers.
3. Decoration is dominated by fine dentate stamping in all assemblages studied, followed by notching. The only exception is TP 1, where this scenario is reversed. After notching, the most applied decoration types that typically occur alongside dentate stamping, are incision, cut-out, single tool impression, and perforation.
4. Dentate stamping is the dominant decoration in Layer 4 in most assemblages, followed by notching, excepting TP 1 where this scenario is reversed. In Layer 3, these decoration types decline, again apart from TP 1 where notching increases. Notching continues to decline in most assemblages through Layers 1–2, while dentate stamping declines in TP 3 A-D and 4, while alternately increasing in TP 1 and Layer 1 of TP 2. Incision appears in Layers 1–2 of TP 1 and 3 A-D and increases through Layers 3–2 in TP 2.
5. Dentate stamping is most commonly associated with Form I and VIII vessels, while the plainware assemblages are dominated by Form VI vessels.

The implications of the patterns seen in the form and decoration of the EQS pottery assemblages will be discussed in further detail in the following section. For further discussion of the vessel forms identified at EQS and their general characteristics, and for greater detail concerning the decoration types identified, see Hogg (2022:166–177).

Discussion

Multi or single-phase occupation?

Now that a clear picture has been outlined of the form and decoration of the EQS assemblages, the central questions of this research can be posed. First, what does the site of EQS represent, a single Early Period occupation or a multicomponent site with multiple phases of occupation over time?

Radiocarbon determinations securely date Layer 4 of TP 3 A-D and TP 1 to the Early Period. The high proportion of dentate-stamped decoration in combination with dentate-stamped Form I—open bowl/cups and Form VIII—pot stands comprising a large, or indeed all, of the decorated vessels within TP 1 and 3 A-D, further supports the dating of these deposits. Furthermore, the nearly identical pottery assemblages in Layers 3 and 4 of TP 3 A-D indicates that Layer 3 represents a continuation of this occupation. This suggests that SP 15, which has as high a proportion of dentate stamping as TP 3 A-D, as well as a number of Form I vessels, and Layer 3 of TP 1, which has a lower proportion of dentate stamping but with a Form VIII—pot stand, also date to this period.

In the north of the site, an additional radiocarbon determination dates Layer 4 of TP 2 and 4 to the tail end of the Early Period or to the Middle Period. Proportions of dentate stamping in TP 4, Layers 3–4, are similar to those of TP 3 A-D, which, alongside examples of dentate-stamped Form I and VIII vessels in the latter layer, suggest that these deposits also date to the Early Period. Finally, the basal layers of TP 2 are similar to the previously discussed assemblages in that they also have a high rate of dentate stamping, but differ in that they feature incised pottery, with only one vessel form represented, Form V. While the latter two aspects of the TP 2 pottery would seem to indicate a Middle Period assemblage, its comparative simplicity in terms of form and decoration when compared to others in the region (for example see: Hogg et al. 2021:Tables 4–5; Kirch and Chiu 2021:299–303; Specht and Summerhayes 2007:67–70; Summerhayes 2000b:91–123), in combination with the high rate of dentate stamping and the presence of ostensibly Early Period deposits in the same layers of TP 4 close by, strongly suggests the unique characteristics of this pottery relate to a specific social activity occurring within this part of the site, rather than being indicative of a later occupation.

Comparison of pottery in Layers 1–2 in TP 3 A-D and 4 with that in underlying layers shows unique proportions of decoration, particularly in relation to dentate stamping and notching, and vessel forms that differ from those in Layers 3–4 below, alongside the appearance of incision in TP 3 A-D. In TP 1 the difference between the upper and lower layers is more marked, with both incision and new vessel forms, Form IV and Form VII, the latter of which is also present in Layer 1 of TP 2, appearing within these layers. While the pottery in Layers 1–2 of these TPs provides perhaps the strongest evidence for later Lapita occupation at EQS, most of the forms and decoration present can be found in the underlying Early Period deposits, and thus could equally support continued deposition of material in this period as they could a later Lapita occupation. Significantly, even those forms and types of decoration that are absent from the Early Period deposits can be found in other contemporaneous assemblages in the Bismarck Archipelago (for example, see Hogg et al. 2021:Tables 4–5; Summerhayes 2000b:Tables 5.4, 5.7, 8.3, 8.6) and thus could represent internal changes within the existing Lapita settlement.

The results of the pottery analyses discussed above are further reinforced by reference to the faunal materials from TP 1, 3 A-D and 4, which are dominated by fishbones irrespective of TP or layer, while mammalian remains are incredibly rare and are primarily found in Layer 1. The fact that no substantial changes are seen in the faunal record through Layers 2–4, with mammalian bones being largely restricted to Layer 1, a modern gardening soil, indicates a continuance of the subsistence strategy practised from initial settlement. If the argument by Summerhayes et al. (2010:72) is correct and the dominance of fishbones reflects a lack of access to agricultural produce at initial settlement, this further suggests that the TPs/SP studied are representative of an Early Period occupation capped by modern deposits. Taken together, while later phases of occupation at EQS are possible, as it currently stands, the archaeological record is best interpreted as being derived from a single period of occupation during the Early Period.

Hamlet or fishing camp?

Following on from the above argument, the second primary question of this research can be posed: Does this pottery data support the site as being a fishing camp or a hamlet (Summerhayes et al. 2010:67–71, 72)? Looking at this debate from the perspective of the EQS pottery assemblages, it is apparent that a high proportion of vessels (by MNV) are plainware (35 per cent) (see Table 5.7). While this value is not aberrant for Early Period assemblages—50 per cent and 35 per cent of vessels from the Arawe Islands (western New Britain) sites of Paligmete (FNY) and Adwe (FOH – Squares D, E, F), respectively are plainwares, for example (Summerhayes 2000b:45, 126)—what is unusual is the restricted range of forms identified within this assemblage (Table 5.8).

Table 5.8: Counts and proportions of plainware vessels for the site of Tamuarawai (EQS), alongside the Early Lapita Arawe Islands sites of Adwe (FOH – Squares D, E, F) and Paligmete (FNY).

Vessel form	EQS		FOH		FNY	
	Plain vessels	%	Plain vessels	%	Plain vessels	%
I	5	14	14	13	2	8
II	1	3	17	16	6	24
III	N/A	N/A	11	10	3	12
IV	0	0	8	7	4	16
V	4	11	24	22	2	8
VI	24	67	25	23	4	16
VII	1	3	3	3	2	8
VIII	1	3	7	6	2	8
Total	36	100	109	100	25	100

Note: Percentages of plain vessels for EQS total 101% due to rounding.

Source: Authors' tabulation, and Summerhayes (2000b),Table 5.11 and Table 8.8.

In EQS the vast majority of the plain vessels are Form VI—globular pots (67 per cent), with vessels of Forms I (14 per cent) and V (11 per cent) making up the bulk of the remainder. In comparison, plainwares in FOH – Squares D, E, F and FNY (Summerhayes 2000b:Table 5.11, Table 8.8) are composed of vessels from four to five forms, each comprising a significant proportion of plainware vessels identified. Like globular pots in EQS, such vessels in FOH – Squares D, E, F and FNY are either plain or only have simple decoration applied to their lips (Summerhayes 2000b:Table 5.9, Table 8.8), which, based upon the arguments made above, suggests such vessels served a similar utilitarian function, such as cooking or food storage, within all of these settlements.

If globular pots were indeed used by the populations of Tamuarawai for utilitarian purposes, this suggests the activity associated with this pottery was being practised equally across the site, where such vessels comprise between 42 and 71 per cent of those identified, with the exception of TP 2 where they are absent. While the high proportion of globular pots lends credence to the possibility that the site had a utilitarian function, the presence of dentate-stamped vessels in every TP and SP studied, alongside a significant number of other decoration types (such as cut-outs, single tool impression, incision etc.; see Tables 5.5, 5.6 and 5.7), strongly suggests that a far more complex range of social activities were occurring. Accepting arguments for decorated wares to have played a differing socially significant role in society to plainwares, as discussed previously, their presence alongside utilitarian vessels gives considerable support to Tamuarawai representing a hamlet over that of a specialised fishing camp. In the earlier deposits in TP 1, 3 A-D and SP 15, the presence of a high proportion of plainware globular pots in almost every excavation unit and the dominance of fish within the faunal

remains studied may well be related: upon arrival, colonising Lapita populations augmented their restricted diet of seafood by eating foodstuffs stored (perhaps sago flour), and possibly also cooked, in globular pots prior to the establishment of their agricultural systems. Whether this scenario also applies to the globular pots within the slightly later deposits in TP 4, or if perhaps another scenario applies (e.g. a drought impacting food supplies, or a change in vessel function) is uncertain.

Regarding the possible social activities involving decorated pottery within this hamlet, if the distribution of decoration and vessel forms is considered, one excavation area in particular stands out: TP 3 A-D. This assemblage is both one of the most heavily decorated of any of those studied, with 60 per cent of decorated pottery bearing dentate stamping alongside a further 11 decorative types (see Table 5.6), and has the highest proportions of the specialised dentate-stamped Form I—open bowls/cups and Form VIII—pot stands (see Table 5.4). The differences in the application of decoration and the high proportion of specialised vessels raises the possibility that a special-function structure, as discussed above for ECA Area B (Kirch 2021c:79–83), may have existed in this part of the site in the past. Furthermore, there is a possibility that this structure, if it indeed existed, may have extended further to the north to include the contemporaneous deposits of TP 1, as tentatively suggested by the presence of vessels from both Forms I and VIII in this assemblage. Furthermore, the presence of these same forms in the slightly later TP 4 deposits still further to the north, in conjunction with their complete absence, alongside vessels of Form VI, in the contemporaneous deposits in TP 2, may indicate that the locus of the social activities associated with TP 1 and 3 A-D may have shifted further to the north over time.

The possible presence of such a special-function structure in the vicinity of TP 1 and 3 A-D is further strengthened by the high concentration of shell valuables and other high-value items (including drilled shell beads, an armband and shell disk, and a jadeite stone chisel) in, or around, these TPs, mirroring the same in the deposits of ECA Area B discussed above. Finally, the abundance of faunal remains in the TP 1 and 3 A-D deposits and high proportion of utilitarian globular pots (one of which from TP 1 (#EQS 1, Figure 5.4B) has external fire blackening, indicative of its use in cooking), alongside specialised open bowls/cups and associated stands in the same deposits, suggests that the activity in this area potentially involved the cooking, presentation and consumption of foods, perhaps in the context of a 'feasting event' (Kirch 2021c:83). Finally, the possibility that the location of these feasts within the site shifted further to the north over time (to include TP 4), has additional tentative support in the presence of a small number of worked shell artefacts (representing the only other artefacts discovered after those in TP 1 and 3 A-D), and the presence of an abundance of fish remains in this deposit.

Conclusions

The data presented in this study allows the following conclusions.

First, radiocarbon determinations from Layer 4 of TP 1 and 3 A-D securely date the settlement of EQS to the Early Period, while that found in the same layer of TP 2 indicates a second later depositional event occurred during either the tail end of the former period or the Middle Period. The lack of determinations from Layers 1–3 across the site and SP 15 means they too could have been deposited later in time. However, while the pottery found in the upper layers of most TPs can be differentiated by the presence of either unique vessel forms and decoration types or proportions of such (or both), particularly TP 1 and TP 2, it is argued that these likely relate to either changes

occurring over time within an Early Period settlement, or with regards to the latter TP, are interpreted as indicative of their use in a specific social activity. Thus, it is argued that the most likely scenario is the site represents a single phase of occupation during the Early Period.

Second, interpreting the differences in the proportions of vessel forms and types of decoration from the TP 1–4 and SP 15 assemblages, via an understanding of the theoretical social functions of plain and decorated pottery within Lapita society, it is argued that the presence of both plain and decorated ceramics within the same deposits suggests that the site represented a hamlet rather than a specialised fishing camp. It is further argued that the high proportions of largely plain globular pots within TP 1, 3 A-D and SP 15 may have resulted from colonising populations' need to augment their diets, composed predominantly of fish, with stored foods in anticipation of later agricultural produce.

Third, comparison of the decorated wares excavated from EQS highlighted the unique nature of the TP 3 A-D assemblages and to a lesser extent those from TP 1. The concentration of complex decorated pottery, particularly Form I and VIII vessels, a range of shell artefacts and other materials and an abundance of largely plain globular pots and faunal materials within the two deposits pointed to the possible presence of a special-function structure in this part of the site that may have been used for feasting events. The possibility that the location of such events may have shifted further to the north over time to include deposits in TP 4, was also raised.

Acknowledgements

Hogg recalls a story from his first trip to the island of Emirau in 2008 with Prof Glenn Summerhayes. When given the opportunity by Glenn to excavate a test pit in Tamuarawai alongside another junior colleague, the two were excited to find what they thought was an in situ feature. When seeing this feature himself, Glenn politely suggested all was not what it seemed, and told them to check again in the morning. After duly doing so, two somewhat embarrassed students realised their mistake—they had identified a modern rubbish pit dug into the topsoil. Taking this all in his stride Glenn, used this as a teaching opportunity, showing them where they had gone wrong, what to look out for next time and, equally importantly, through good-humoured jokes, why it's never a good idea to brag about something you have found—until you knew you actually found it! Hogg wishes to congratulate Glenn on his many years of fantastic research in Papua New Guinea, and to extend his personal gratitude for all of the help he has provided over three separate theses and more besides.

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