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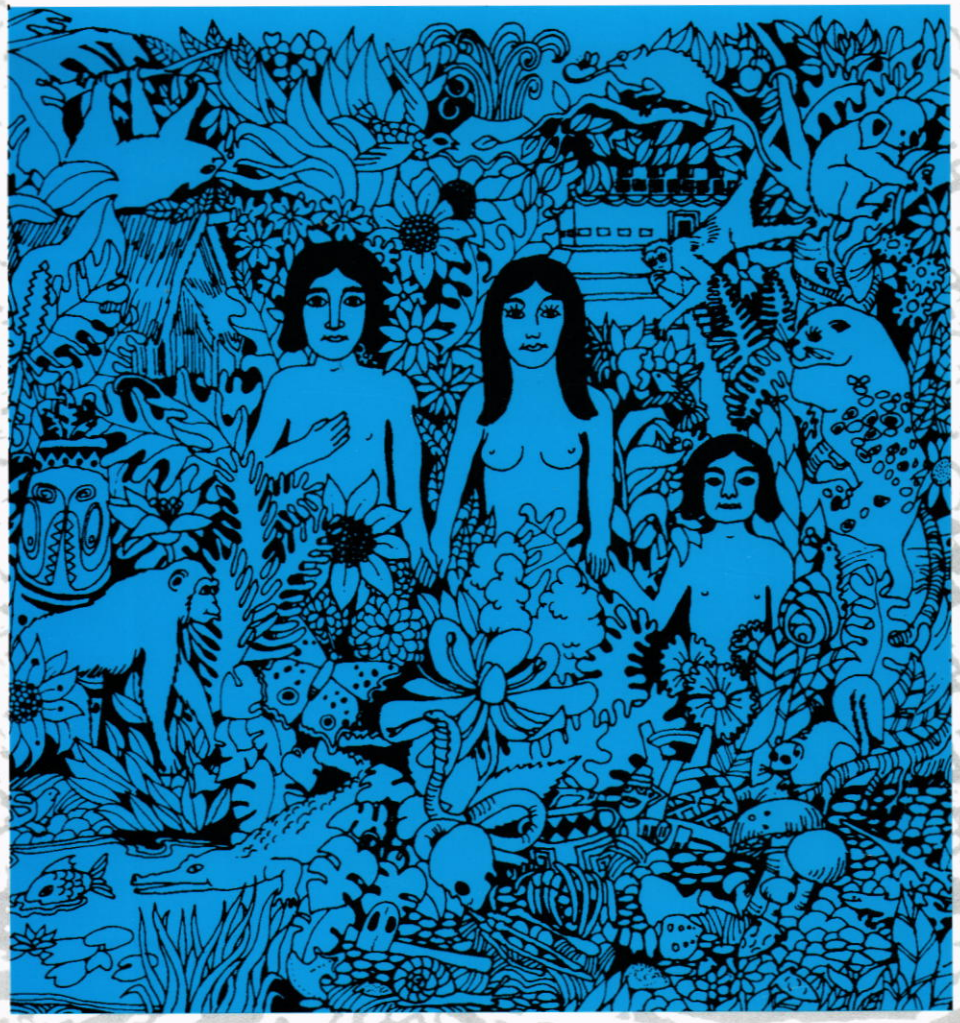

FIFTY YEARS IN THE FIELD. ESSAYS IN HONOUR AND CELEBRATION OF RICHARD SHUTLER JR'S ARCHAEOLOGICAL CAREER

Edited by Stuart Bedford, Christophe Sand and David Burley

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NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION MONOGRAPH

LAPITA AND TYPE Y POTTERY IN THE KLK SITE, SIASSI, PAPUA NEW GUINEA

Ian Lilley

Like many colleagues my age, I imagine, I was introduced to Lapita archaeology through Richard Shutler's and Jeff Marck's (1975) "On the dispersal of the Austronesian horticulturalists". That was in 1980, when I was first heading to New Britain with Jim Specht (Specht *et al.* 1981). I had spent the previous five years learning about Australian archaeology, and Jim correctly divined that I had a bit of catching up to do before actually trying to find some Lapita. Inspiring as it was, Shutler and Marck was not as much help as it needed to be. I found an awful lot of broken coconut shell which, even at the greatest stretch of the imagination, displayed little in the way of dentate stamping! I eventually got better at it, as I hope the following demonstrates.

THE PROBLEM

Siassi proper comprises a group of tiny, raised-coral islands lying in the Vitiaz Strait between New Guinea and New Britain, immediately southeast of the large volcanic island of Umboi (Figure 1). Today, Umboi, the Siassi islands and several other larger volcanic islands in their neighbourhood form the Siassi District of Papua New Guinea's Morobe Province. At the time of European contact, the Siassi Islanders were long-distance subsistence middleman traders whose activities linked the New Guinea mainland with the Bismarck Archipelago (Harding 1967). My archaeological investigations (Lilley 1986, 1986/7, 1988a) showed that the ethnographically-recorded trading system was only a few

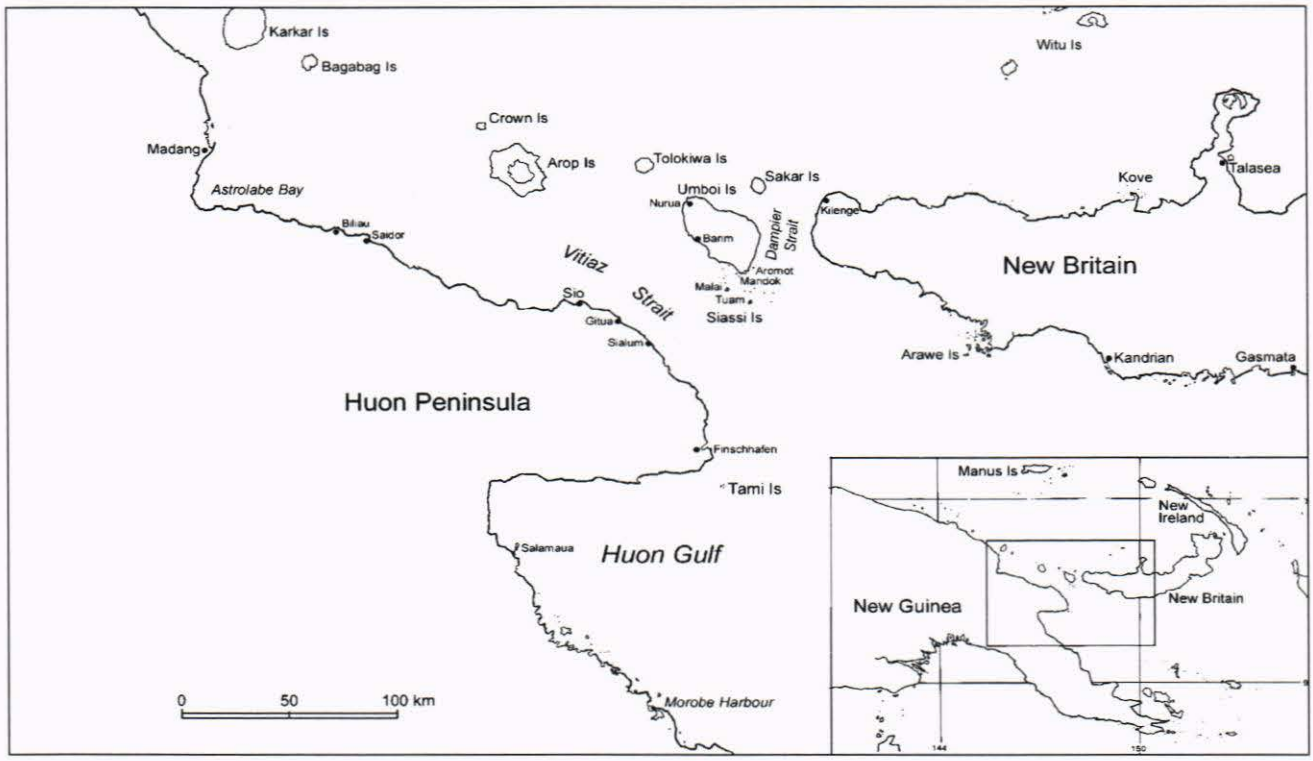

FIGURE 1. Regional location map.

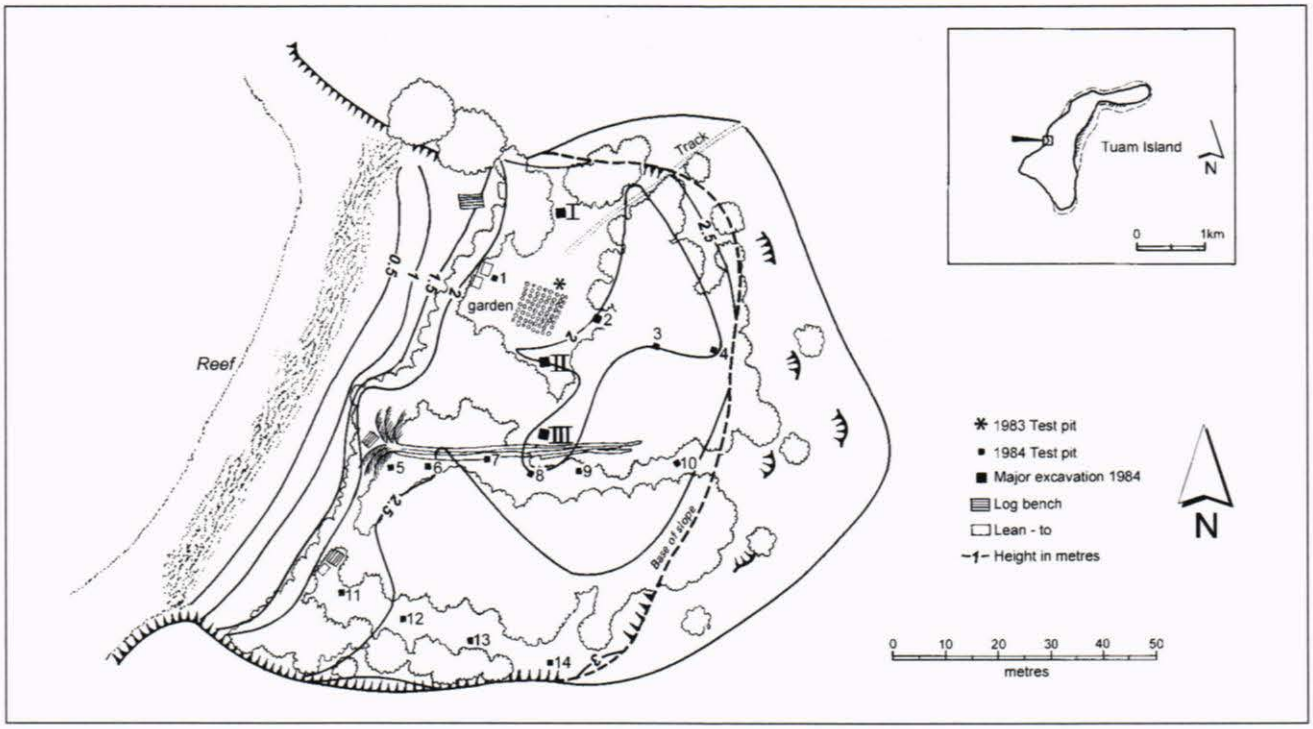

FIGURE 2. Map of KLK locality, showing topography, vegetation, built features and locations of excavations.

hundred years old and was preceded by a discontinuous series of three interaction networks which differed considerably in configuration, content and intensity. The earliest of these was a Lapita network, evidenced in the KLK site on Tuam Island (Figure 2). Unlike all the later systems, this Lapita network did not operate across Vitiaz Strait to link the Bismarck Archipelago with the New Guinea mainland. In my original reports on Siassi I hypothesised that there was a gap of about 1000 years between the Lapita network and the next expression of human activity in the region, which came in the form of the archaeologically-sudden emergence of the first post-Lapita trading system. This last was seen to be directly ancestral to the remaining systems in the series, including the one ethnographically reconstructed by Harding in the 1960s.

In this paper I provide details of the KLK site, its chronostratigraphic interpretation and the analysis of some of its ceramics. My purpose is to underpin discussion of ambiguous evidence for an immediately post-Lapita presence signalled by Type Y ceramics. I have mentioned this ware elsewhere in passing (Lilley 1999, 2000, in press), but describe it more comprehensively here. In keeping with my original hypotheses, I argue that Type Y was made only from about 1700 years ago and circulated as part of the first post-Lapita trading system in the region, rather than overlapping with terminal Lapita. My position is based upon further analysis of the ceramics from the KLK site, which facilitated the clear identification of Type Y and the assessment of its chronostratigraphic disposition in relation to Lapita and various post-Lapita wares.

The presence and dating of Type Y has implications for continuing debates regarding Lapita chronology (e.g. Specht and Gosden 1997; Spriggs 1990; Summerhayes 2000, 2001) and post-Lapita developments in island Melanesia (e.g. Lilley 1999, Lilley in press; Spriggs 1993; Terrell and Welsch 1997). Of specific concern is whether there really was a 1000-year hiatus between Lapita and the next phase of human activity in the West New Britain-Vitiaz Strait-north New Guinea coastal region. If there were such a gap, the course of that region's prehistory was significantly different from that in other parts of Melanesia, where clear continuities have been discerned in Lapita to post-Lapita sequences of human occupation. Until very recently, this occupation was linked with a coherent, widespread and long-lived incised and applied relief ceramic tradition (e.g. Wahome 1997, 1999). This tradition has now been deconstructed (Bedford and Clark 2001), but that does not alter the fact that the Lapita to post-Lapita sequence of occupation is continuous throughout a very large portion of Near and western Remote Oceania, and in that critical dimension appears to differ from the disjointed pattern I have discerned to the west.

SITE AND SETTING

The KLK site is a sparse midden located at Sau, a relatively flat and roughly semi-circular locality of about 1 ha in area on Tuam's southwest coast (Figure 2). The surface of the site is only a few metres above sea level, the highest part being the foredune immediately inland from the beach. Like other low parts of Tuam, Sau is formed in an embayment in the coastal cliffs, on a coral platform which merges with the present fringing reef. As shown in Figure 2, the cliffs remain intact on the northern and southern edges of the area, but have collapsed on the eastern, inland side, to form a steep slope studded with coral outcrops.

The site was excavated over two seasons in 1983 and 1984. At the time of excavation, Sau was closely planted with coconut palms, with a dense pandanus thicket towards the southern end. During the 1984 field season, a small sweet potato and tapioca garden was created towards the northern end, but apart from the garden, day-to-day use of the area when I was there was limited to fishing, collecting driftwood and swimming. Tuam people stated that the area had never been permanently inhabited or intensively used and was traditionally used as a canoe harbour. Solution holes and shallow, elevated wave-cut notches in the cliffs immediately south of the site were favoured as hiding places during World War Two. They were not used traditionally and contain no habitation deposits other than those from the war. While I was on Tuam, Sau was almost never visited by people other than its owners, apart from anything else because it is home to *Mankilang*, a sometimes-difficult *masalai* or spirit.

EXCAVATION PROCEDURE

In 1983, a 1m^2 test pit was dug towards the northern end of the site (Figure 2) to assess its archaeological research potential. The 1984 season saw a 2.25m^2 square opened on the northern edge of the site (Pit I; Figure 2), to provide a better picture of the stratigraphy than that gained from the 1983 test pit. The general nature of the deposits thus confirmed, 14 x 1m^2 test pits (Test Pits 1 to 14; Figure 2) were then dug to the top of beach sand (the surface of Layer 4; see below) at 10m intervals along three approximately east-west transects across the site, to define better the site's stratigraphy. With the site mapped in this way, I excavated two more 2.25m^2 squares where subsurface cultural material in the sediments above the beach sand was densest (Pits I and II; Figure 2). In all instances the pits were the maximum size possible to fit between trees and land-crab holes. All excavation was done with a trowel and all material was wet-sieved through 12mm and 6mm screens. Mollusc shell and stone manuports were identified, counted, measured, weighed and then left in the field. All other cultural material was returned to Australia for analysis, then repatriated to the Papua New Guinea National Museum and Art Gallery at the end of the project. Some of it was later temporarily returned to Australia to allow the reanalyses documented below.

STRATIGRAPHY

The stratigraphy of the site is straightforward, comprising five continuous layers which extend almost to the edges of the site at comparable depths (Figure 3). The lowermost levels, Layers 5 and 4, are very coarse calcareous beach sands. Layer 5 is a natural unit which contains large numbers of coral fragments and only trace quantities of cultural material. Layer 4 has a sparse cultural component. Overall, this level has a slightly lower content of small coral fragments than Layer 5, but in areas close to the cliffs surrounding the site it contains large numbers of sometimes cemented coral cobbles.

Above these beach sand levels there are three layers of slightly clayey coarse sand which contain some cultural material and become progressively darker coloured with depth. The thickness of Layer 3 increases from Pit I to Pits II and III, or in other words towards the centre of the Sau locality, and in the last two pits can be divided into sublayers A and B. The latter is a mixture of material from Layer 3A and the beach sand in Layer 4 and appears only in the centre of the site. The thickness of Layer 2, on the other hand, decreases from Pit I to Pits II and III. Layer 1 is a very shallow humic topsoil. Layers 1-3 have been built up by the accumulation of cultural debris, wind- and possibly water-transported sands, and clay from the high part of the island surrounding the site. The deposits become increasingly clayey away from the beach towards the east, where the cliffed edges of the site give way to a steep slope. At the base of the slope Layers 2 and 3 are replaced by 60cm of stiff, red-brown clay which seals Layer 4.

Some vertical displacement of cultural material, both upward and downward, is to be expected in sandy beachside deposits such as those just described. There can be little doubt, for example, that the site has been affected to some degree by treadage and scuffage as well as various other processes of disturbance commonly reported for Melanesian sites (e.g. Specht 1985:11-12; White and Downie 1983:197). However, there is no evidence in the form of homogenized sedimentary profiles or out-of-sequence radiocarbon age ranges to suggest that the stratigraphic integrity of the site has been compromised to any significant extent by human activity or other processes of pedoturbation.

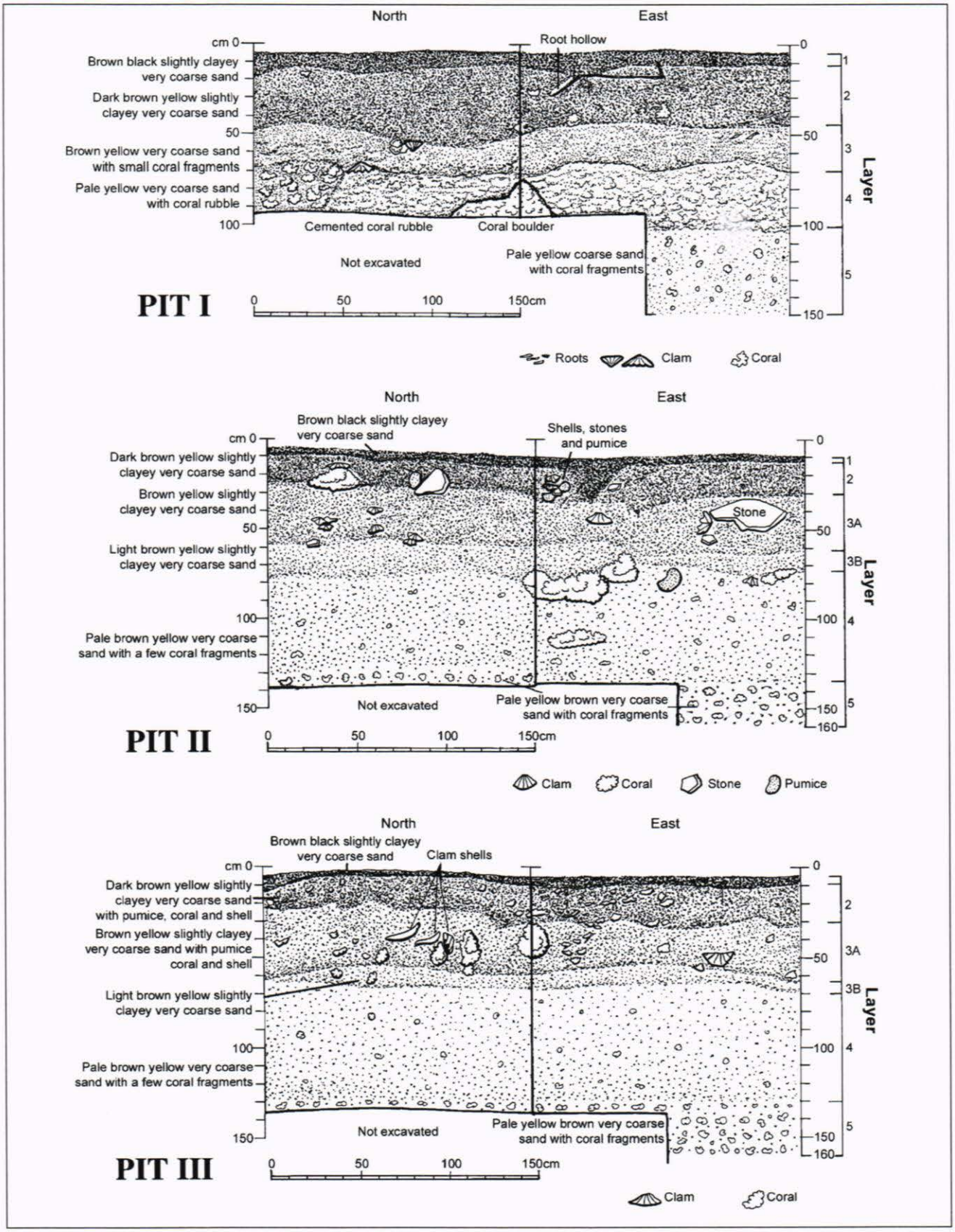

FIGURE 3. Representative stratigraphic profiles of KLK Pits I-III.

RADIOCARBON CHRONOLOGY

Sixteen samples of marine shell from Layers 1-4, including one whole *Tridacna* clam shell adze (ANU 4664), were submitted for radiocarbon dating. A copy of the adze was cast before it was destroyed. The dates are shown in Table 1. The values differ from the Tuam dates I have published elsewhere owing to continual changes in calibration procedures. Depths are measured to the middle of the relevant excavation unit from pit datum, which is shown as 0cm on each profile drawing (Figure 3). The dating of Layer 4 will be considered first.

It can seen from Table 1 that if ANU 3803, ANU 4610 and ANU 4613 are excluded, the four remaining Layer 4 dates, including the one on the shell adze, fall between 2500 cal B.P. and 3350 cal B.P.. The four intercepts suggest a likely date of occupation between 2750 and 3150 years ago. It can be argued convincingly that ANU 4613 (1680 cal B.P.) and ANU 3803 (935 cal B.P.) reflect down-movement from Layer 3 on the following grounds. First, both samples are from the very top of Layer 4. Second, both estimates overlap with other Layer 3 dates but do not overlap at two standard deviations with any other Layer 4 dates. ANU 4610 (3827 cal B.P.), on the other hand, was obtained on a sample of a whole *Tridacna* clam shell from the surface of Lapita-bearing Layer 4 in Test Pit 10 at the eastern edge of the site (Figure 2). It is the oldest date in Kirch and Hunt's (1988:24) list of the "earliest reliable dates for Lapita". While there is no doubt that the determination itself is reliable, it is not associated with Lapita. The clam was embedded in the top of Layer 4, which, as mentioned above, is sealed by 60cm of clay at the eastern edge of the site. Two minute potsherds were found in Layer 1 above the clay, but there was no cultural material associated with the clam or beneath it. Moreover, there is no overlap at two standard deviations between ANU 4610 and any other date from the site.

Sample No	Depth	Pit & Layer	Age B.P.	Age cal B.P.
ANU 3870	18cm	1983 test	1300 ± 70	967(868)685
ANU 3871	38cm	1983 test	1610 ± 70	1289(1170)998
ANU 3803	80cm	1983 test	1400 ± 70	1085(935)787
ANU 4610	70cm	TP10 4	3870 ± 80	4062(3827)3625
ANU 4611	17cm	I 1	850 ± 70	558(484)325
ANU 4612	55cm	I 3	2000 ± 70	1717(1545)1391
ANU 4613	76cm	I 4	2090 ± 70	1828(1680)1507
ANU 4614	22cm	II 2	780 ± 70	519(434)281
ANU 4615	43cm	II 3	1740 ± 70	1410(1283)1164
ANU 4616	63cm	II 3	1920 ± 70	1621(1477)1306
ANU 4617	130cm	II 4	3010 ± 80	2948(2759)2671
ANU 4618	18cm	III 2	1560 ± 70	1261(1121)950
ANU 4619	41cm	III 3	2630 ± 70	2473(2315)2131
ANU 4620	69cm	III 4	3040 ± 70	2957(2780)2704
ANU 4621	130cm	III 4	3300 ± 80	3342(3150)2914
ANU 4664	132cm	III 4	3000 ± 100	2988(2753)2525

TABLE 1. Radiocarbon dates for the KLK site, Tuam Island. All determinations were undertaken on marine shell. Conventional radiocarbon ages were converted to calendar years using the CALIB (v4.3) computer program (Stuiver and Reimer 1993). Dates were calibrated using the marine calibration model of Stuiver *et al.* (1998) with a DR correction value of 0 ± 0 and no laboratory error multiplier (K=1.0). This DR value was used as a default as no local values are available for the study area (see Reimer and Reimer 2000). The calibrated ages reported span the 2s calibrated age-range.

The difference between ANU 4610 and the other dates from Layer 4 can be accounted for, but it is impossible to be absolutely sure whether the clam shell which was dated is in primary or secondary depositional context. On the stratigraphic evidence in Test Pit 10, I contend that the clam shell is *in situ* and represents natural deposition. The implication of this is that cultural material from the occupation of the surface of Layer 4 some 2750-3150 years ago has migrated down into a non-cultural beach deposit perhaps a thousand years older. If this proposition is accepted, the concentration of intercepts between 2750-3150 B.P. suggests that deposition of cultural material on the surface of Layer 4 was relatively rapid and short-lived.

While the maximum age range for Layers 2 and 3 together is about 700 to 1800 cal B.P., the intercepts suggest these sediments were deposited between about 850 and 1700 cal B.P. (Table 1). Age estimates from these layers which are outside the nominated range include ANU 4614 (434 cal B.P.) from the bottom half of Layer 2 in Pit II and ANU 4619 (2315 cal B.P.) from the middle of Layer 3A in Pit III. There is no overlap at two standard deviations between either estimate and any other date from Layers 2 and 3. ANU 4614 probably results from the down-movement of material from Layer 1, as it overlaps with ANU 4611 (484 cal B.P.). ANU 4619 does not overlap at two standard deviations with any other date from the site, and may date a naturally or humanly-deposited "old shell'. Alternatively, it might in fact relate to early post-Lapita activity not identified in my earlier studies, a possibility discussed later in the paper. Be that as it may, there is no overlap at two standard deviations between any age determinations for Layers 3 and 4, which clearly separates one from the other. Given the combined depth of Layers 2 and 3, the dates suggest that the levels may have been slowly deposited at an average rate of 0.1cm/year.

If it is accepted that ANU 4614 in fact dates Layer 1 material, that estimate and ANU 4611 together suggest that the cultural remains in the topsoil were deposited between about 300 and 550 years ago, with the two intercepts around 450 to 500 cal B.P., and indicate there is no overlap between Layers 1 and 2 (Table 1). On that basis, the fact that Layer 1 is only 10cm deep on average indicates either that the level is the product of minimal deposition which ended before the historic period or that some of it has been removed. The former is more likely, first because there is no evidence for erosion and redeposition of the deposit elsewhere on the site and, second, because low rates of deposition accord with oral historical evidence for minimal occupation.

In sum, stratigraphic and radiocarbon evidence from the KLK site shows that at least three and possibly four chronometrically-discrete phases of cultural deposition are represented at Sau:

1. an initial phase of rapid, short-term deposition, dating to 2750-3150 cal B.P., on an unoccupied beach sand which dates to about 3800 cal B.P.,
2. a second phase of very gradual accumulation dating to between 850 and 1700 cal B.P., and
3. a third and final phase of minimal deposition dating to about 450-500 cal B.P..

A fourth, ephemeral phase dating to around 2300 B.P. may fit between the first and second periods.

THE POTTERY

A total of 1139 potsherds weighing 3.4 kg was excavated from the three main pits. Pottery occurs in all five stratigraphic layers in Pits I and II but only in Layers 1-4 in Pit III. The concentration of pottery in the deposits decreases with depth from Layer 1 throughout the site. In Layers 1-3, concentrations increase towards Pit III, while in Layers 4 and 5 the highest concentrations occur in Pit II. This means that most of the excavated ceramics deposited over the last 1700 years are from the centre of the Sau locality, while most of the older excavated material is from the northern half of the area (note though that there was no excavation of Layers 4 and 5 in the southern half of the locality). Average sherd weights in each layer indicate that there is little change within or between pits in the degree of fragmentation of the pottery, which is marked throughout.

Including 241 Type X body sherds exhibiting only that ware's defining waxy-feeling, burnished red-slip as decoration, the 369 rim and decorated body sherds recovered from the three main pits weigh 1.3kg. This material comprises 32% by number and 39% by weight of all the pottery from these excavations. In all pits, rim and decorated sherds occur only in Layers 1-4. In overall terms, concentrations decrease with depth from Layer 1 and are highest in Pit II, while average sherd weights indicate that rim and decorated sherds in the centre of the site tend to be a little less fragmented than those on the northern edge of the area.

Four wares are represented in the site: Lapita, Type Y, Type X (Lilley 1988b), and Sio (May and Tuckson 1982:151-155). Variations with depth in the proportions of the four different wares are shown in Table 2. The table excludes the abovementioned 241 Type X body sherds, which were treated as plain in order to keep numbers roughly comparable between wares (i.e. the Type X column tabulates only rims and those body sherds which exhibit additional forms of decoration). The following discussion considers only Lapita and Type Y and focuses on rim and decorated sherds.

Lapita

In addition to some 250 plain Lapita sherds, 17 rims and 24 decorated body sherds were recovered from the three main excavations. This material is the only Lapita found so far in the Vitiaz Strait region. This means that apart from the (in)famous Aitape sherd and one other surface

	Lapita (L)	Type Y (Y)	Type X (X)	Sio (S)	total
Layer 1 (L1)	0	0	7 (28%X, 39%L1)	11 (33%S, 61%L1)	**18**
Layer 2 (L2)	6 (15%L, 15%L2)	10 (35%Y, 26%L2)	14 (56%X, 36%L2)	9 (27%S, 23%L2)	**39**
Layer 3 (L3)	5 (12%L, 12%L3)	18 (62%Y, 45%L3)	4 (16%X, 10%L3)	13 (40%S, 33%L3)	**40**
Layer 4 (L4)	30 (73%L, 97%L4)	1 (3%Y, 3% L4)	0	0	**31**
total	**41**	**29**	**25**	**33**	**128**

TABLE 2. Variation with depth in rim and decorated sherds from KLK Pits I-III, shown by ware and layer. Note that all Type X is by definition decorated with burnished red slip. Only Type X body sherds with additional forms of decoration are tabulated, so as not to distort numerical comparisons. Numbers of sherds shown in bold text.

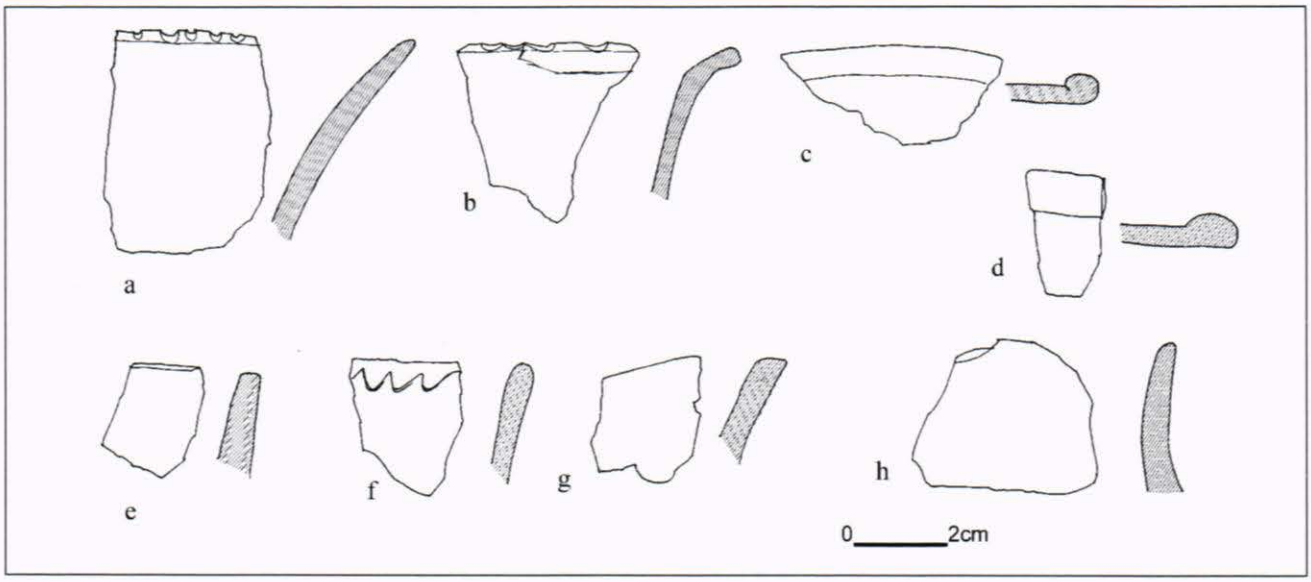

FIGURE 4. KLK Lapita and Type Y rim forms: a, b Lapita Class 1; e, f Lapita Class 2; g Lapita Class 4; h Lapita Class 3; c, d rolled Type Y rims. Exterior of vessel to right in cross-sections.

find from Ali Island off the Sepik coast (Terrell and Welsch 1997:558), the Siassi finds are the only Lapita known from within sight of the New Guinea mainland.

There are four rim classes (Figure 4a, b, e-h):

1. thin, everted forms with flat, notched lips (n=9; 52.9%) (Figure 4a, b),
2. thin everted forms without lip-notching (n=4; 23.5%) (Figure 4h),
3. everted forms with interior and exterior lip bevels (n=3; 17.6%) (Figure 4e, f),
4. everted forms with interior lip bevels (n=1; 5.9%) (Figure 4g)

Five decorative techniques appear on body sherds (Figure 5a-h, l):

1. rectilinear incision (n=12; 50.0%) (Figure 5f-h),
2. dentate stamping (n=4; 16.7%) (Figure 5a-c),
3. punctation/fingernail impression (n=4; 16.7%) (not shown)
4. curvilinear incision (n=3; 12.5%) (Figure 5d-e),
5. incised appliqué (n=1; 4.2%) (Figure 5l)

Rectilinear and curvilinear incision are different expressions of classic Lapita incision. The few sherds which exhibit more than one technique are classed in relation to the technique which covers the greatest surface area. Only three rims exhibit decoration other than lip notching, which occurs on one Class 3 sherd as well as all Class 1 forms. One Class 1 rim is punctated/fingernail impressed, one Class 3 rim (Figure 4h) exhibits interior and exterior curvilinear incision and the single Class 4 rim (Figure 4g) is dentate stamped.

The thin-section petrology of four Lapita sherds from Tuam was examined as part of a larger sourcing study primarily concerned with recent non-Lapita trade wares. The results indicate that at least three different petrological groups are present. One, with substantial amounts of shell and appreciable quantities of pyroxene, plagioclase and volcanic rock fragments, accounts for two sherds. One of the other sherds contains no shell but small amounts of the other constituents just noted. The remaining sherd has no plagioclase or pyroxene, but small amounts of shell, volcanic rock fragments and ferruginised clasts. None of these groups matches modern clay samples from Tuam or potters' clay mixes from 11 historic or contemporary pottery manufacturing centres between Madang and Sialum on the north coast of New Guinea. Of the choices available for analysis, however, they most closely resemble the shelly clays used by Astrolabe Bay potters near Madang. This does not mean the Lapita sherds are from Madang, or even that the Lapita and Madang samples are particularly similar. It just reflects the fact that the shelly Lapita pastes look more like the shelly Madang pastes than they do the other samples available for comparison, all of which exhibit few if any shell particles.

The original KLK report (Lilley 1986) stated that Lapita occurred from Layers 2-4 in all three excavations, with the greatest concentration in Pit II Layer 4. In an assessment of that report, Kirch (then Burke Museum, University of Washington, pers. comm. 1986) observed that some of the sherds classified as Lapita "do not...fit into the known [stylistic] range of Lapita ceramics". There are close stylistic similarities between the notched rim forms of the two wares (see below), but the overall stylistic differences to which Kirch alluded were obvious during the original analysis of the material. The problem was discussed with senior colleagues during the preparation of the report. Owing to constraints on time and resources and pending the further investigation reported in the present paper, it was decided to classify the material as Lapita on the grounds of its stratigraphic association with that ware, the abovementioned similarity of some rim forms, and the material's very obvious stylistic and petrological differences with Sio and Type X pottery.

Re-examination of all KLK pottery found that 29 of the rim and decorated body sherds which were originally classified as Lapita were indeed misclassified. This matter is taken up below. It can be noted here, however, that reclassification reduces to 11 (27%) the number of Lapita rim and decorated sherds dispersed through the three upper layers of the three main excavations. This means Lapita occurs in the layers above the original beach sand of Layer 4 in only trace concentrations (about six sherds/m^3). Together with the chronostratigraphic evidence, the disposition of the pottery leaves little doubt that Layer 4 contains the only *in situ* Lapita remains in the KLK site.

Type Y

As indicated above, the sherds originally classified as Lapita include nine rims and 20 decorated body sherds which are in fact a different ware which I call Type Y. There are two classes of Type Y rims. The first includes seven sherds which have inwardly-rolled lips and are from flat platters or perhaps jars or bowls with wide, flat everted rims (Figure 4 c, d). The other class includes two rims which closely resemble everted, lip-notched Lapita Class 1 forms in shape. Like all the body sherds, all Type Y rims are hard and grey. The rolled forms are plain, while the body sherds and one of the other rims exhibit rectilinear incision unlike that usually seen on Lapita (Figure 5 i-k). The petrological characteristics of one sherd from each of the two rim classes were examined in the aforementioned study. Their compositions are very similar, and it is likely they are from the same as yet unidentified source. Appreciable quantities of amphibole distinguish them unambiguously from all of the 132 other sherds analysed, Lapita and non-Lapita, as well as from Tuam clay and the 11 potters' mixes mentioned earlier. More comprehensive description of this ware must await the discovery of a larger sample of less comminuted material, as the sample currently available allows nothing more to be said about vessel forms, methods of manufacture and the like.

Specht (1991:191 "Group 4c", 192 Fig. 2g) may have one piece of Type Y in his collections from Kreslo, between Arawe and Kandrian in southwest New Britain. The Kreslo find is problematical, as the site is submerged by the sea and, while most of the pottery there is clearly Lapita, some, possibly including the sherd in question, "currently have no known Lapita relationships" and Specht "can offer no external comparisons" (Specht 1991:197). Summerhayes (then School of Archaeology, La Trobe University, pers. comm. 1995) believes there might be some Type Y amongst the Lapita collections from Pililo in Arawe and Garua Island off Talasea on the north coast of New Britain. He (pers. comm. 1995) has also suggested on geological grounds that the source of the material could well be on the north coast of New Britain. Note in relation to later discussion that Type Y is not like Terrell's Sumalo ware from the Sepik coast, six examples of which I have seen in hand specimen.

Because in the original KLK report I classified Type Y as Lapita, and argued that all Lapita belonged in Layer 4, I proposed that all the excavated Type Y pottery except the single sherd found in Layer 4 was upwardly-displaced to Layers 3 and 2 with the other pieces of "real" Lapita found there. Detailed consideration of the stratigraphic position of the reclassified material shows that only about 3% of Type Y is from Layer 4, while 62% is from Layer 3 and 35% from Layer 2 (Table 2). The single sherd in Layer 4 is from the uppermost 10cm of that stratum, which in view of the above distribution pattern strongly suggests that it has been downwardly-displaced from Layer 3. Whether the small quantity (10) in Layer 2 has been upwardly-displaced from Layer 3 is another matter. All but one such piece is from Pit I, where about 78% of it is concentrated in the lowermost 15cm of Layer 2. This could indicate either localized upward displacement from Layer 3 into the lower part of Layer 2. Alternatively, it could reflect continued deposition of Type Y in that part of the site during the earlier part of the period represented by Layer 2 and subsequent displacement further upward still of the remaining three sherds found in that excavation. One of these three sherds is from the uppermost 5cm of Layer 2, or between about 5-10cm below the ground surface, and is almost certainly not in primary depositional context. At this stage there is no direct evidence to tip the balance of probabilities one way or the other regarding the disposition of Type Y in Layer 2, but in the following discussion I expand upon the broader question of the ware's dating and some of the wider implications of its existence.

FIGURE 5. Decorated KLK Lapita and Type Y body sherds: a-c dentate stamped Lapita; d, e curvilinear-incised Lapita; f-h linear-incised Lapita; I incised-appliqué Lapita; i-k Type Y.

TYPE Y AND POST-LAPITA HISTORY IN THE WEST NEW BRITAIN-VITIAZ-NORTH NEW GUINEA REGION

The most parsimonious explanation of the foregoing evidence is that Type Y is a post-Lapita product of as yet undetermined stylistic affinity and geographical source which was deposited at Sau in Layer 3 and the lower part of Layer 2 in the period between 1700 and 850 cal B.P.. At that time, small quantities of Type X and early Sio pottery from the New Guinea mainland were also deposited at KLK. This would mean that Type Y was a fourth ware circulating through the earliest Vitiaz exchange network that is directly ancestral to the ethnographic system. The others were the Type X and early Sio wares found in Siassi, and those two wares and, from about 1000-1300 B.P., the early Madang pottery found at Sio itself (Lilley 1986, 1988a).

That Type Y has not (yet) been identified on the New Guinea mainland may be seen as an impediment to this proposal, but we are dealing with a dynamic situation in which several central characteristics of the earliest post-Lapita network differ from those of later trading systems in the region. Perhaps most pertinent here is the absence of early Madang pottery from Siassi despite the presence there of other early mainland ceramics from manufacturing centres at which imported Madang pottery has been found in deposits relating to the same early phase of activity (Lilley 1986, 1988a). In other words, there is no reason to expect that all the different kinds of pottery involved in the larger Vitiaz interaction network at any one time always moved across the Strait as they did in the ethnographic period. Type Y may have circulated only on the Bismarcks

side of the network in the way early Madang ware appears to have stayed on the New Guinea mainland side.

In this connection, it can be observed that the ethnographic system encompassed the manufacture and transportation of only two forms of pottery, trade wares from Sio and Madang. If Type Y was involved in the first post-Lapita system that I have defined, it means there was a 50% reduction through time in the number of post-Lapita pottery industries involved in the long-distance maritime trading networks of the Vitiaz Strait region. This development is similar to that documented by Irwin (1985) at Mailu on the Papuan south coast.

Alternatively, some or all of the Type Y at KLK may be associated with the problematical ANU 4619 date. As noted, this determination overlaps with no other dates from Layers 2 or 3 (or any other part of the site) at two standard deviations, and I suspect it dates naturally or humanly-deposited "old shell". However, the date may also mean that some if not all of the Type Y in the site was deposited as early as 2100-2500 cal B.P. (Table 1). When any such deposition ceased cannot be determined from this single determination, owing to the uncertainties surrounding the presence of Type Y in KLK Layer 2, but it would place its beginnings early in the post-Lapita hiatus in deposition and long-distance interaction in Siassi that I have proposed elsewhere (Lilley 1986:468-470, 1988a).

If this were the case, Type Y in Siassi overlaps chronologically with late Lapita in Arawe (Specht and Gosden 1997; Summerhayes 2000, 2001). This finding would accommodate the possibility that Specht's discovery at Kreslo (and perhaps also the material from Pililo that Summerhayes mentioned) is also Type Y which also overlaps in time with late Lapita. Note that only Type Y is implicated here, not the other two wares at KLK argued to be *in situ* in Layers 2 and 3 and, in the first hypothesis raised above, temporally and culturally associated with Type Y. This is because neither Type Y nor a date overlapping with ANU 4619 were found at any other site I excavated. This raises at least a suspicion that the occurrence of both at KLK reflects more than a coincidental relationship between the two. This in turn would mean that Type Y is stratigraphically associated with Type X and Sio wares owing to some subtle form of postdepositional mixing rather than contemporaneity of deposition. Moreover, the only other places where Type Y might have been found – Kreslo and Arawe – are sites dominated by Lapita, which hints at a possible relationship between the two wares.

Unfortunately, the Siassi data are not sufficiently robust to settle this question unequivocally, but its resolution is of obvious interest to those attempting to map mid- to late Holocene patterns of change in the archaeological record of Near Oceania. Elsewhere (Lilley 1999, 2000, in press) I have argued at length that my own and other people's evidence from the West New Britain-Vitiaz Strait-north New Guinea region suggests that there was a long hiatus in activity in the region after Lapita, following which people moved east to west from New Britain through Siassi and along the New Guinea coast to the Sepik and slightly beyond. I tied this movement to the expansion of the Austronesian languages of Ross's (1988) North New Guinea Cluster, which in turn I tentatively linked to volcanism on the Willaumez Peninsula on New Britain's north coast.

An important element in the foregoing scenario was Terrell and Welsch's (1997:559-561) date of about 1250 cal B.P. for the Sumalo ware from the Sepik coast. The small amount of Sumalo ware that I have seen firsthand is completely unlike Type X, Type Y or Sio pottery. Yet this late date, overlaps with dates of about 1000-1300 B.P. for early Madang pottery excavated at Sio[1], and very broad stylistic similarities between Sumalo and Madang wares prompted me in the foregoing works to argue against Terrell and Welsch's (1997:565) proposal "that Sumalo ware signals the arrival of pottery-making people from somewhere west of Aitape, not from the Vitiaz Strait".

Where all these wares originated remains a mystery, however. Even without the gap in activity that I propose, there is no obvious stylistic connection between the wares in question and any of the varied post-Lapita wares from elsewhere in Melanesia discussed by Bedford and Clark (2001 and references), which emanate from Lapita traditions without any occupational discontinuities of the sort that I have discerned in Siassi and northwest New Britain (see also White (1996) for related patterns of continuity and discontinuity in obsidian distribution). I (Lilley 1999, 2000) have speculated that there may be a connection between the sudden, contemporaneous appearance of various Vitiaz wares and developments to the south, in the region of the Massim and the southeastern tip of Papua, but as yet I have no firm evidence to back the idea.

The need to determine where Type Y fits in the regional sequence became the subject of renewed effort on my part owing to news from Terrell in late 2001 that continuing laboratory analysis of material from his and Welsch's 1996 excavations has revealed the presence of an "early Sumalo" ware (pers. comm. 2001, with express permission to cite in this paper). The ware is not yet chronometrically dated but on stratigraphic grounds is estimated to be around 1500

1. Egloff (1975) got (uncalibrated) dates of only about 550 B.P. for Madang pottery around Madang itself, but there is an uncalibrated date of 1000 B.P. from Arop for a "clay B/style group IV" sherd that I think is probably Madang ware (Egloff and Specht 1982).

years old. Terrell (pers. comm. 2001) states that early Sumalo "includes not only 'classically' big-toothed comb-scored Sumalo ware as discussed briefly in Terrell & Welsch 1997, but also vessels with zoned incised, fine-toothed wavy-scored & banded diagonal shell-edge punctation in motifs that we judge to be directly comparable to Lapita designs". On that basis, he tentatively proposes that Sumalo and perhaps generically similar Madang wares are direct "descendants" (my term) of Lapita pottery. Terrell (pers. comm.) hypothesises that Sumalo and Madang wares were (and in the latter case, still are) manufactured by the descendants of people who made pots decorated in Lapita-like ways who had moved west from New Britain into the Vitiaz Strait-north New Guinea area *before* Lapita disappeared stylistically, that is, before 2000 or even 2500 B.P., and continued making pottery in a broadly "Lapita style" for another 500-1000 years. In short, he wonders whether the 1000 year gap I have proposed in the regional sequence might only be an evidential gap, not a real one.

If Type Y dates to around 2300 B.P., it would fit the bill as a Lapita-like "Lapita-descendant" ware in the Vitiaz region. At this stage, however, I find the alternative argument that it dates to only about 1700 B.P. much more compelling. There are no other candidates for an immediately post-Lapita Lapita-like ware anywhere in the West New Britain-Vitiaz Strait-north New Guinea coastal region. Terrell and Welsch (1997:564) have argued that Sumalo pottery and now by implication also that from Madang "far more closely resembles undecorated Lapita wares and the early red-slip industries of eastern Indonesia and southern [Papua] than anything [else] thus far discovered in the Vitiaz Straits region". I agree, and am encouraged to see they now favour a Melanesian rather than Southeast Asian origin for the wares. As I've argued before, though, I think it likely that *all* post-Lapita pottery in the West New Britain-Vitiaz Strait-north New Guinea coastal region has a southern Papuan origin. Moreover, in the absence of ceramic candidates of the right date to fill the proposed gap in the sequence, I remain to be convinced that such influences came very early in the post-Lapita period rather than about 1700 B.P..

CONCLUSION

In this paper I have presented a revised interpretation of the KLK site on Tuam Island in Siassi, and discussed the implications of this new information for our understanding of Lapita and post-Lapita history in northwest Melanesia. Working out where Type Y is from and where it fits in the West New Britain-Vitiaz Strait-north New Guinea sequence is important to the scholarly debates now focused on the region. The work being done by Terrell, Swadling and others in the Sepik, by Summerhayes building on Gosden's work in Arawe and by Specht, Torrence and their colleagues around Talasea has brought the West New Britain-Vitiaz Strait-north New Guinea coastal region into archaeological focus as never before. This rejuvenated interest in northwest Melanesia suggests that it is now time to bring to the fore ideas that may have been mentioned before in passing but never fully articulated, as well as to explore entirely new possibilities regarding past patterns of human behaviour in the region.

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