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Stuart Bedford, Christophe Sand and David Burley (eds), *Fifty Years in the
Field: Essays in Honour and Celebration of Richard Shutler Jr's
Archaeological Career***



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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

BIG POTS ON A SMALL LOU ISLAND

Wal Ambrose

Large size pots sometimes emerge out of the extrapolations of vessels from the fragmentary sherds so common in the first recorded Lapita sites, but some of the most imposing pottery vessels are reported as complete pots from New Caledonia (Sand 1999). At 60cm in diameter they are as capacious as some contemporary village pottery from Papua New Guinea. Included in recently made large pottery vessels are those for ceremonial display, cooking, and storage of foodstuff such as sago, with one container from the East Sepik being 100cm high (May and Tuckson 1982:243). In the middle Sepik other large low-form pottery containers are used as braziers for indoor cooking (Kaufmann 1975: Plate 90). Whether for ceremony, cooking, or storage, larger size pottery has evidently had a long history in the region since it first appeared with the Lapita wares. It is therefore useful to have five complete commodious post-Lapita clay vessels from Lou Island (Figure 1) in the Manus Islands dated to the early first millennium A.D.

This paper describes three large intact pots nested together and resting on a ground surface formerly buried beneath a massive volcanic ash deposit on Lou Island. Another two well preserved pots from the south coast of Lou Island may possibly be related to the same event although their distinctive flat inverted rims are not represented in other dated collections. Apart from being sealed intact as a result of one of at least three possible volcanic eruptions, the association of the two pots with an identifiable tephra remains unclear.

LOU ISLAND TEPHRA

Lou Island is composed of multiple volcanic deposits erupted from twelve centres over several thousand years (Pain 1981). The island is now in a dormant phase, the last eruption occurring in 1953 with the emergence of pumice, ash and lava one kilometre off the southern coast to form the 500m diameter Tuluman Island. The first clear evidence of a catastrophic event for human occupation on Lou Island is the Baun tephra that blanketed the landscape, obscuring any signs of earlier occupation that must have been present, given that there is unequivocal evidence for obsidian exploitation for at least 5000 years. Obsidian with a Lou Island chemical signature is known from Lapita sites as distant as Vanuatu (Ambrose 1975; Fredericksen 1997) clearly pre-dating the Baun tephra. The best date for the Baun tephra is still unclear except that it is bracketed between the earlier Lapita period obsidian exploitation on the island and a later large explosive eruption dated to around 2100 years ago. It is not surprising that the earlier evidence is obscured. A geological survey by Johnson and Smith (1974) points to an episodic increase in the island's area with each later eruption of pumice and ash. Although the size of Lou Island was probably smaller before the Baun tephra eruption, on the other hand aerial photography of the sea off the eastern end of the island shows a submerged volcanic centre of unknown age, again underlining the unstable nature of the Lou Island landscape.

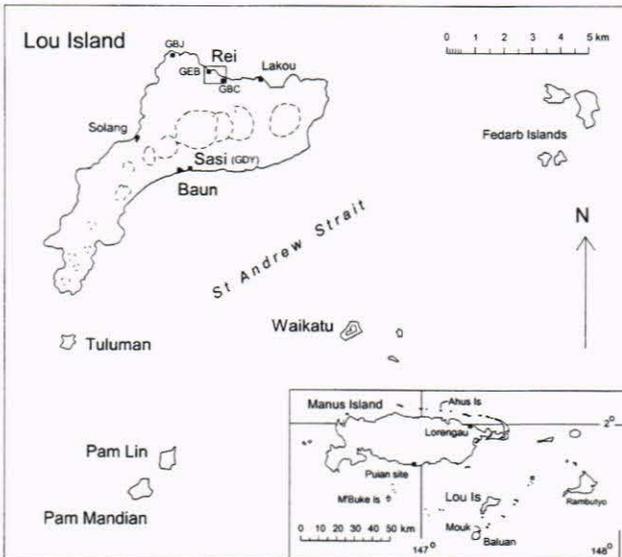


FIGURE 1. Map of Manus showing the location of sites there and on Lou Island mentioned in the text.



FIGURE 2. Two pots recovered by Baun villagers from the foot of their eroding beach front cliff. The village area has been greatly reduced in area over the last fifty years by the encroaching shoreline that is also responsible for exposing the tephra beds at the Sasi site (GDY). The height of each pot is, left 31cm, right 29cm with inset enlargement of the rim.

South coast sequence

The cliff line at the Sasi site near Baun Village is rapidly eroding due to the slow submergence of the south coast seabed possibly following the recent (1953-7) eruption of Tulumani Island about a kilometre offshore. Clear evidence for subsidence is present on nearby Waikatu Island in St Andrew Strait where a tree stump, dated (ANU 3015) to 240 ± 50 b.p., calibrated range 324-0 B.P., is now below the low water mark (all dates here have been calibrated using Calib. 4.2). On one visit in 1985 to the Baun Village area there were over twenty coconut trees that had fallen from the receding cliff on to a 100m stretch of the beach. The freshly exposed cliff face revealed a clear sequence of four major tephra. The earliest Baun tephra is overlain by the Sasi deposits, followed by the younger Pisik tephra with its weathered surface in turn overlain by the latest Rei Tephra.

The earliest clear archaeological evidence for occupation is found at the eroding Baun Village coastline on a shallowly weathered surface developed on the Baun tephra. The site name Sasi follows that given by the site's owner, or Site GDY in the Papua New Guinea site register. The occupation horizon was originally dated on charcoal to a calibrated weighted average of 2095 ± 55 B.P. (Ambrose 1988) and recently confirmed with the addition of another charcoal determination of 2080 ± 130 cal.B.P. (Wk 8544). The final average age of the five calibrated charcoal dates, including calibration curve sigma and added variance (ANU 2155, 3014, 5398, 5399 and WK 8544), gives 2090 ± 45 B.P.

The buried soil at the Sasi site contains distinctive style pottery given the appropriate name Sasi ware. The site also contains distinctive triangular section obsidian points (Antcliff 1988; Fredericksen 1997), animal and fish bone, shellfish and part of a human jaw, and a small tabular piece of bronze. Wahome (1997) refers to the "Late Lapita" association of the Sasi pottery, while Wickler (2001:179) reports the presence of distinctive Sasi style obsidian points at the Buka DAF site. These double sided, ventral surface flaked, triangular points, are dated by association with "Late Lapita" sherds at about 500 B.C.. There are some doubts on chronological grounds about the claim of the Sasi ware as "Late Lapita" as well as the association of the Buka DAF pottery with the Sasi points. The reef flat collection at DAF is effectively a surface site collection so the association of "Late Lapita" sherds and Sasi obsidian points may be adventitious. Nowhere else have formal flaked tools of the Sasi style been found with any Lapita association. The doubtful temporal and stylistic association of so called "Late Lapita" Sasi wares has been most convincingly shown by Bedford's analysis of other Late Lapita pottery from more clearly defined sequences from Vanuatu (Bedford 2000:182). His analysis also questions the evidence for any hypothetical association of the later Manus wares with any aspect of the "Mangaasi" wares of Vanuatu.

The up to 3m thick Sasi ash and pumice in turn provided a new weathered occupation surface dated on charcoal from beneath the later Pisik air-fall tephra at the Sasi site to 1970 ± 110 b.p. (ANU 4878) calibrated to 1924,

1907 and 1903 B.P.. This indicates that there were less than two centuries between the occupation of the soil at the Baun ash surface, its destruction by the Sasi tephra and pyroclastics, the subsequent reoccupation on the new surface and the later devastation of that occupation beneath the Pisik tephra. Then about a century later the latest eruption covered the landscape with the Rei pumice and ash. In each cycle soil development seems to have been quickly restored. The soil at the surface of each volcanic episode does not necessarily indicate a prolonged interval between the ashfall and the development of a vegetated surface. This is shown by rapid weathering and soil formation under tropical conditions with shrubs and grass established within 15 years of the emergence of nearby Tuluman Island from the sea during in 1953 to 1957 (Johnson and Smith 1974:336), with casuarina and coconut growing by 1974.

The series of eruptions, soil forming periods and rapid reoccupations, attests to the volcanic hazards of the island but also the subsequent fertility that has made it a desirable location to the present day. There were other undated later eruptions to the south of those registered at the Sasi site with lava and ash that had a more limited local effect (Pain 1981) compared with the four earlier explosive events of the last 2000 years.

TWO SOUTH COAST POTS

The exposed section of buried soils on the tephra beds at the Sasi site dips to the west along the cliff line. At the beach in front of the presently eroding Baun Village the Sasi tephra appears to descend below the current beach level and it is in this general area that two pots were found. In the sloping tephra series at beach level a lateral misplacement of a find spot would make a difference to its ascribed age. As well an ephemeral drainage gully truncates the beach section between the Sasi ash bed series and the western beach exposures so that identification of the ash series there is not secure. The two complete but damaged pots (Figure 2) were recovered by the villagers who were able to describe the area to me as a place near where the weathered surface of the Pisik tephra appears to descend below present beach level, and is sealed by the overlying Rei tephra. As far as possible, given that the location was indicated by secondary informants some months after the pots were recovered, it appears that they may have been sealed in place by either the Rei or Pisik tephra, but without direct dating of the pots or the tephra at the precise location, their age of burial could not be verified. The progress of smaller eruptions in the vicinity of Baun Village, and at some period between the Sasi and post Rei ash events, and accompanying fluvial deposits, could obscure the possible tephra origin of the two pots even further. The unusual restricted inverted flat rim form of the two pots may reflect the flat everted rim sherds from the earlier Sasi site but

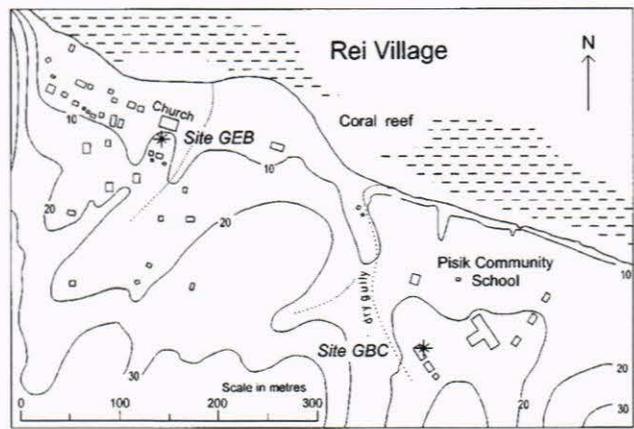


FIGURE 3. Map compiled from a 1974 aerial photo of Rei Village with archaeological excavation sites GEB and GBC indicated by asterisks. Contour lines are at 10m intervals.

seem to be unrelated to any later period pottery between the Pisik and Rei tephras. They have some parallel with earlier Lapita basin forms with inverted rims, but as bowls they are a rather distinct pair. The lack of similar vessels, and the difficulty in assigning a stratigraphic position for their location, leaves the dating of the two south coast pots unclear, but their good preservation is consistent with that of other intact vessels preserved beneath ashfall deposits.

THREE PLUS THREE NORTH COAST POTS

On the north side of Lou Island the volcanic sequence with similar massive pumice and ash deposits occurs but the early Baun deposit is less obvious, it being heavier at the southern and eastern sides of the island. The north side is notable for the obsidian breccia source exploited from mines that penetrate tephra to a depth of up to 16m at the historically located Umleang Village (site GBJ) (Fullagar and Torrence 1991). The soil buried beneath the Rei tephra at Rei Village has produced a collection of triangular obsidian points similar to, but more completely flaked compared with those from the Sasi site on the south coast produced around 400 years earlier. On the other hand there is a distinct change in pottery decoration over the same period from the Sasi to the later Puian wares at the Rei site (Ambrose 1991). Lou Island, being mainly composed of relatively unweathered rhyolitic ash and pumice, lacks clay deposits suited to pottery making. The differences in pottery decoration and form evident in the Lou wares are therefore an expression of ceramic changes occurring elsewhere in the archipelago, or different connections to pottery makers, while in contrast the obsidian points clearly reflect local continuity.

At Rei Village and the Pisik Community School (Figure 3) the buried soil beneath the Rei tephra provided

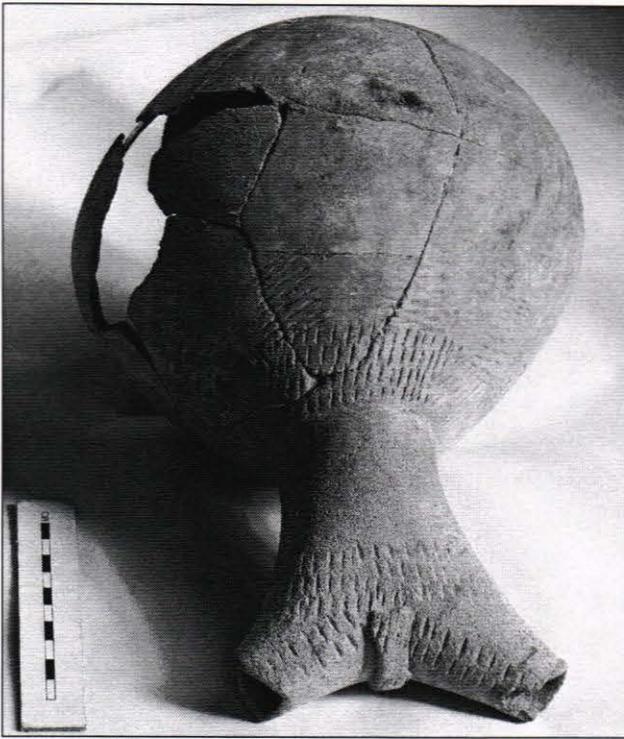


FIGURE 4. One of the two double spouted flasks recovered near the GEB site by Emsin Sone following erosion or roadmaking operations. The total height of the flask is 27cm, and is similar to another collected by R. Mitton at 30cm. The fabric of the vessels is light coloured with a finer texture compared with cooking pots from the same area.



FIGURE 5. The three girls who recovered the three pots from beneath the roof line of their dormitory. The pots were replaced in the ground as they were originally found for the purpose of this photograph.

four charcoal collections, up to 400m apart, giving calibrated ages with a 95% probability of 1640 ± 40 B.P. (ANU 2018, 2193, 2194, 4979). Excavation of the buried surface near Emsin Sone's house (site GEB), produced evidence of an obsidian workshop site with discarded broken triangular section points, and some fragmentary thin-walled plainware pottery. A second excavation, at the Seventh Day Adventist PisiK Community School (site GBC), reflected more domestic arrangements with three large intact cooking pots found beneath the Rei ash by the dormitory students. The obsidian collection from the Emsin site (GEB) has been described in detail previously (Antcliff 1988), while Fredericksen (1994) has compared obsidian artefacts from both the GEB and GBC sites.

Although the island has no permanently running streams the tephra around Rei Village, and most of the other landforms of the island, have been extensively eroded with steeply sloping channels and dry gullies. This erosion has exposed sections from earlier stratigraphic units in the village area and this has led to the chance discovery of other intact pottery vessels. Two well preserved double spouted flasks, with heights of 30cm and body diameters of 20cm were recovered. One was recovered by Emsin Sone from an exposed ash section near his house (Figure 4), and another, from road making operations behind Rei Village. A third wide almost elliptical mouthed cooking pot, with a height of 30 - 34 cm, was found in the village area. This and one of the double spouted flasks are reported and illustrated by Mitton (1979). Although no precise find spot has been identified for these three separate finds, it appears that they are all associated with the pre-Rei ash soil surface. This view is supported by the open mouth pot that is practically identical, in its shape, size and rim decoration, to one of the three well dated nested pots described below. Kennedy (1982) and Bellwood (1997:238) have noted the similarity of the Rei Village double spouted vessels to poorly dated ones from Borneo, although the Rei flasks are some centuries younger than the age attributed by Bellwood to the Borneo examples.

PISIK SCHOOL SITE (GBC)

Three intact cooking pots of an unrestricted open form were found nested together, mouth down, outside the girls' dormitory with the base of the largest vessel directly beneath the roof drip line. The dormitory was constructed on a ridge that had been flattened to accommodate the wartime Nissan style building so that a portion of the Rei ash overburden had been removed. Given that the Rei tephra is up to three metres deep in the Rei Village area, it appears that the ridge was lowered by at least two metres to accommodate the structure. The truncated deposit therefore brought the buried pots close to the modern

surface. Over time wash from the corrugated iron roof scoured a shallow channel at the drip line until eventually the base of the largest pot was exposed. Girls from the dormitory dug the pots from their burial place leaving open the excavated hole (Figure 5). The pots were stored in the Headmaster's office where they were a source of great interest to the students. At some stage during their removal and storage sections of the decorated rims on the two largest pots were lost, possibly as souvenirs. On their air transport to Canberra for study they suffered some further damage but all were later repaired and the missing sections restored (Figure 6). This collection of pots (Figure 7), with their internal surfaces sealed for nearly 1700 years by the overlying ash seemed an ideal group to submit for residue analysis. Accordingly a small 3-4cm sherd from each pot was set aside for food residue analysis but although the specimens were prepared no useful identification was made. Figure 8 shows the results of diameter extrapolation from small sections of the rim of the smallest pot to indicate the degree of asymmetry and its effect on extrapolating rim diameters from a small rim section of a hand made pot. In fact the wide mouth pot recovered by Mitton (1979), and in the Papua New Guinea Museum collection, seems to be purposely made with a non-circular rim having minimum - maximum diameters of about 30 - 35cm.

Large Lou Island pots used for cooking continued until recently as shown in one of the unpublished photographs of the twenty six taken by Alfred Bühler's during his 1932 visit to Lou Island, but not included in the publication of his collections (Ohnemus 1998). The large restricted mouth spherical pot in his photograph catalogue No. 1441 taken in Lakou Village, Lou Island, shows it tilted to one side on hearth stones so that the cooking is done on one side and part of the base. In this orientation it could presumably function as a shallower dish, although among other traditional utensils used on Manus were shallow basins mainly for frying or baking sago. The three Pisk School pots, having flaring open mouths, would not be suited to this purpose and were designed for use in an upright position.

The temporal context of three nested pots places them within the group of Puian ware (Ambrose 1991) characterised by shell impressed, fingernail raised, and applied decoration with everted rolled rims constructed with a coarse textured ware. However the three pots have only a limited range of this otherwise extensive Puian decorative treatment and in particular lack the distinctive everted rolled rims and shell impressed designs of Puian ware. Wahome's analysis (1999:50) of excavated pottery from the site shows that rolled rims are absent from the soil surface deposit that supported the nested pots, but comprise more than 50% of rim morphology in layers

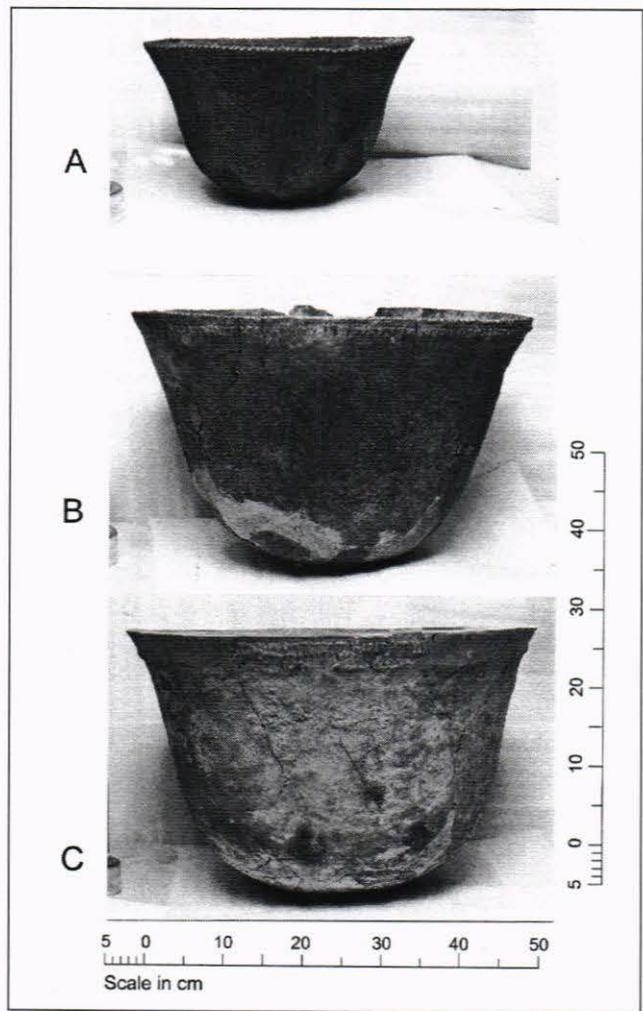


FIGURE 6 A, B, C. Photographs of the reconstructed pots from the Pisk School site.

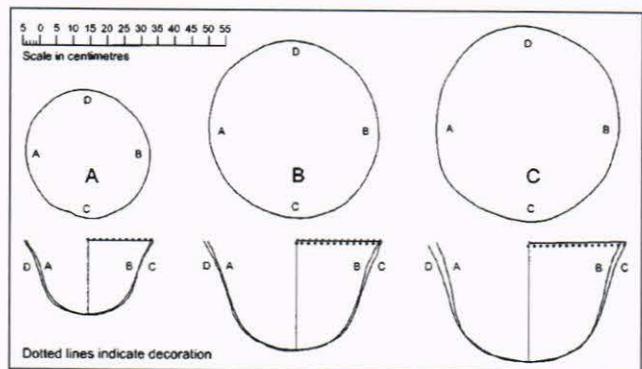


FIGURE 7. Line diagrams of the shape of each vessel with two profiles drawn at right angles (A-B, and C-D) for each pot and indicating the degree of symmetry the potters achieved with their paddle and anvil hand made wares. The placement of decorative elements is indicated by the dotted line and illustrated in photographs of Figure 9.

below the intact pots. The lower layers at the site contain archaeological material including pottery, obsidian, hearth stones, beach pebbles and charcoal mixed with ash and pumice. From this the deposit is clearly not a primary tephra but composed of reworked material. The dating of the lower deposits is incomplete but by including typical Puian elements its age should be close to that of the Puian site, that in turn is close to the age of Rei ash.

POT CONSTRUCTION

All three pots were made by paddle and anvil technique with some broken edges exposing a layered construction where additional clay was applied to thicken the wall. The inner surfaces show broad repetitive hollows probably from a pebble anvil while the outer surfaces are plain without any evidence of textured or ornamented paddles. Wall thickness varies between 3-6mm for the smallest pot (A) to 4-9mm for the mid size pot and 5-8mm for the largest (C). The filler mix for all three vessels appears to be coarse unsorted angular fragments with red oxide grains, not present in the silica rich rhyolite environment of Lou Island. This texture gives the impression of raw material from a primary weathered source without

secondary winnowing and rounding of the coarse particles that could be expected for example from a stream sedimentary deposit. The pot clay differs from the finer textured light coloured ware at GEB and indicates a different activity area between the two similar age sites. The approximate weights of the three pots from smallest to largest are A 1.8, B 4.6, C 7.0kg. While pot A is complete the weights of pots B and C are based on reconstructed

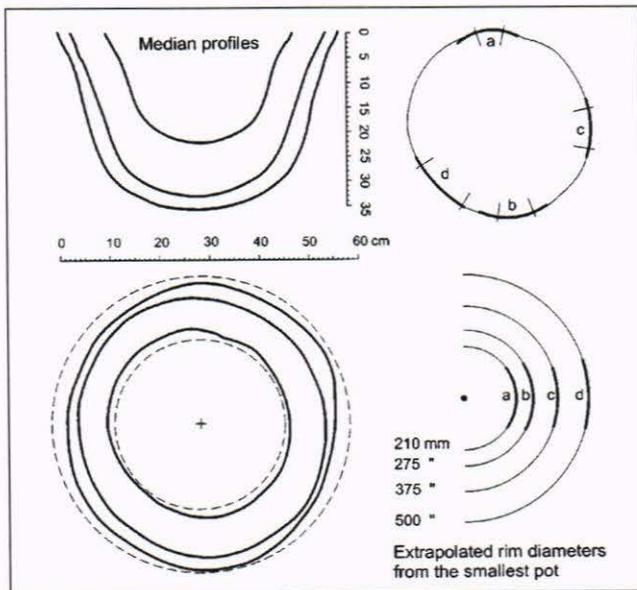


FIGURE 8. The practice of estimating vessel size by extrapolating from the short rim sherds is useful if the original vessel is built in a regular geometric form, but the error can be large if the original shape was irregular. In the case of these pots it can be seen that any short rim section could be extrapolated to a regular circular form, but the implied diameter could be misleading. This is shown by the two dotted circles superimposed on the three rims, and notional extrapolations of rim diameters from the smallest pot A.

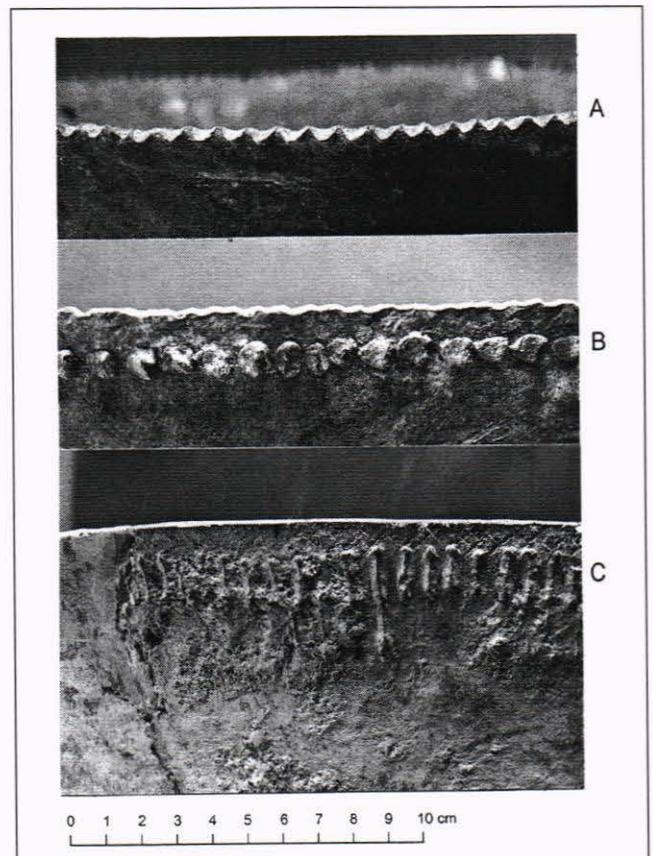


FIGURE 9 A, B, C. Pot A has decoration restricted to the lip in the form of regular impressed notches with an interval between impressions of about 8mm. Pot B also has impressed rim notching with less regular intervals of about 7 to 11mm. Between 5 to 15mm below the rim is a band of applied buttons that have been pinched to produce a frieze with a crest height up to 5mm on each button. Pot C has a plain flat lip. The decoration below the lip is in two bands with the top 8 to 12mm wide band being shell-impressed cross hatching. Below is an applied band of triangular section vertical strips at a repeating interval of about 6mm. The applied vertical strips vary between 8 to 18mm in length. A second discontinuous band of four or so repeating strips is placed beneath the continuous band. Each set of four or so strips is separated from the next set by about 30mm. However as at least 80% of the rim in pot C is missing it is not possible for the decoration to be fully described.

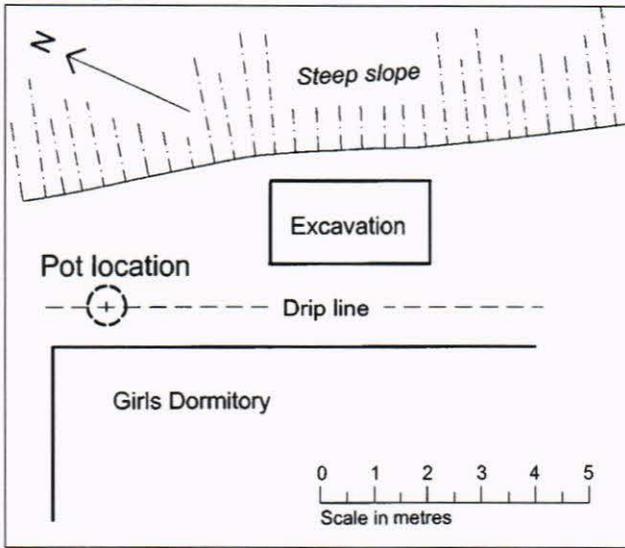


FIGURE 10. Location of the 1.5 x 3.0m excavation area in relation to the dormitory and the find spot of the three pots.

vessels but should be close to their original weights. The broken edges of all the Pisik School pots show zonation between lighter oxidised surfaces and a reduced dark grey to black core indicating low firing temperature and short exposure time in the fire.

Decoration

Lip and external surface rim decoration differs in each vessel. The smallest (A) has repeating impressed lip notching and is otherwise plain (Figure 9a). Pot (B) has lip notching and a finger pinched raised frieze about 15mm below the rim (Figure 9b). Pot (C) has external shell impressed cross-hatching on the rim to lip junction, and a repeating series of applied vertical triangular section strips (Figure 9c). The largest pot C that protected the other two has patches of fine volcanic ash up to 3mm thick adhering to its outer surface and partly obscuring the applied decoration. Although much of the rim on pot C has been lost there is sufficient to see that a discontinuous second

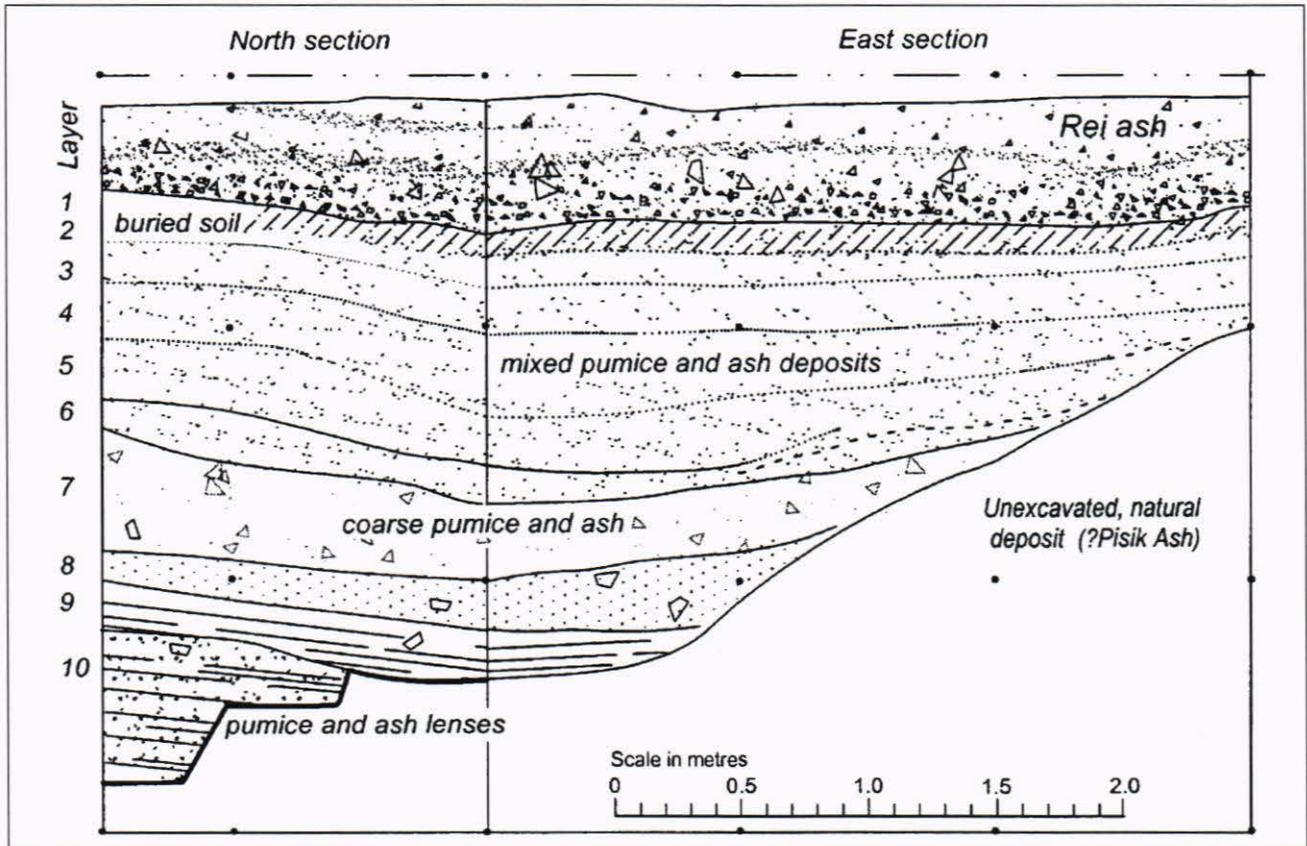


FIGURE 11. Diagram of the north and east wall sections of the excavation. The deposit overlying Layer 1 is the Rei ash in primary position. The soil bearing the three pots is Layer 1 while underlying layers contain a range of cultural material including Puian ware pottery and obsidian flakes down to Layer 9. Layer 10 appears to be a weathered surface of the Pisik ash. The east section shows that the underlying Pisik ash slopes down to the north but the overlying deposits have raised the ground level to a horizontal plane below the Rei ash. The timing of this earth raising and the Rei ash has not been dated except that the presence of Puian ware indicates that the interval may have been only a few years.

set of five or so similar triangular section strips were applied at intervals below the continuous repeating applied strip series.

GBC EXCAVATION

In order to examine the buried surface that held the pots an excavation was conducted 4.5m south of their location. A 3.0 x 1.5m plot was excavated to a depth of 2.8m (Figure 10). Unlike the deposit underlying the buried soil at the GEB site 400m away, that was developed on an earlier relatively undisturbed tephra, the deposit beneath the Pisik School GBC site was mixed volcanic ash and pumice containing pottery, obsidian, fire stones and charcoal to a depth of about 2.2m (Figure 11). The mixed deposit appears to dip to the northeast on an underlying Pisik ash surface and possibly represents earth dumping to form the flattened area that eventually housed the pots. A series of post holes was present in the top levels of the deposit and may mark the edge of the dip in the underlying deposits to the northeast. One of these carried a charcoal remnant (ANU 4878) that was used to date the occupation at 1720 ± 100 b.p. or 1867-1410 cal. B.P. (Figure 12). There are no dates for the underlying deposit but given that its Puian ware elements are well represented it should be about the same age as the dated collection at the Puian River mouth site on the Manus mainland. The date for charred galip nut fragments (ANU 6981) from the Puian site was 1690 ± 100 b.p which calibrated to 1816-1349 B.P.. The two dates for ANU 4878 and 6981 are statistically the same at 95% and give an average of 1690 ± 70 B.P.. This age error does not rule out the possibility that the Puian style ware could be earlier than the Rei ash at 1640 ± 40 B.P., but it does indicate a short interval between the Puian ware associated with the earth moving at GBC and the burial of a structure and the three pots by the Rei eruption. Therefore, the deposit immediately beneath the three pots while containing sherds of distinctive Puian ware should be close to the calibrated age of the Rei ash dated from four charcoal determinations at 1640 ± 40 B.P..

CONCLUDING REMARKS

One characteristic of the Manus wares is the rapid elaboration of stylistic differences over the period since the introduction of Lapita pottery in the archipelago. Whereas Lapita decorative motifs extend over several hundred years in other parts of the Bismarck Archipelago, no such stylistic longevity is apparent in the Manus collections. There is an apparent lack of continuity from the very limited Lapita period wares from Manus (McEldowney and Ballard 1991) to the later collections recorded from other sites in the archipelago.

Pottery manufacture continued in Manus until the late 20th century with products that were different but bore

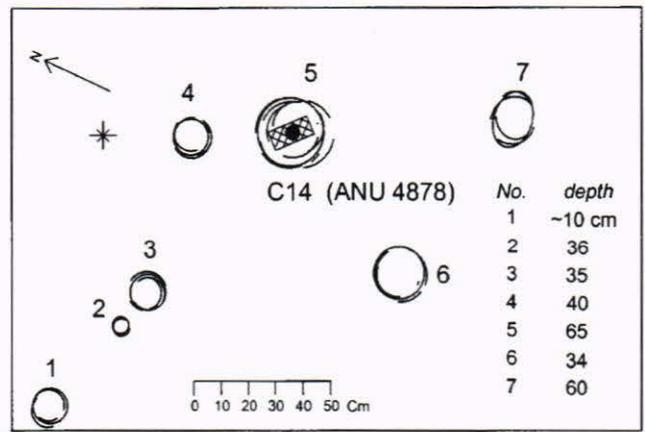


FIGURE 12. Map of posthole disturbances found in Layers 1-3. The pattern of posthole linearity spanning the top three layers indicates that they are likely to be short term deposits supporting a transitory structure.

resemblances to the earlier wares. This is particularly so in the case of the light coloured double mouth containers manufactured on the tiny coralline Ahus Island and made from clay mined at the stream mouth of the adjacent mainland off the northern coast of Manus. At the same time 20th century pottery manufactured on basaltic M'buke Island off the southern coast was typically constricted open bowls with a darker oxidised appearance, although other earlier but undated sherds from the island show greater stylistic elaboration. The two variants of coarse cooking ware and lighter containers (for water) were a tradition that persisted for at least 2000 years. It appears that Lou Island, without clay, was a recipient of pottery from different sources for this extended period while no doubt its large natural stock of obsidian entered into the exchange in many directions, since it is the most ubiquitous archaeological evidence to be found in Manus. More large intact pots from an earlier period may eventually add to the impressive collection that has now been uncovered. The elusive Lapita pottery is probably buried beneath some voluminous tephra deposit on Lou Island so there still remains a great deal of research to be done or some further fortuitous event to expand our knowledge in relation to the long tradition of pottery use in the Admiralty Islands.

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Manuo, kindly released the pots for restoration and study. Holly McEldowney and Jane Ambrose helped in the excavation of the Pisik site. Emsin Sone of Rei Village made his double spouted pot available for study. I am grateful to all these people and for the support I received from other friends in Rei and Baun Villages.

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