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B. Foss Leach***

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# **SAYING SO DOESN'T MAKE IT SO**

**PAPERS IN HONOUR OF B. FOSS LEACH**

**Edited by  
Douglas G. Sutton**

**New Zealand Archaeological Association  
Monograph 17**

# The Mangaasi Pottery and the Mangaasi Site

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## INTRODUCTION

### MICROSCOPY OF GIANTS

Foss Leach, while committed to exploring the prehistory of his own country, has a perceptive view of its position in a broader Pacific and Southeast Asian context, as he revealed while developing teaching courses in his first years as a lecturer at the University of Otago by, for example, his successful efforts to provide for student access to then out-of-print materials such as Burrow's (1938/1970) monograph on Western Polynesia.

The post-graduate seminars in Oceanic Prehistory organized by Foss and Helen Leach were participated in enthusiastically; excavations throughout Polynesia and Melanesia were reviewed in detail, their interpretations were dissected and their implications broadly canvassed. It was impossible not to be involved in Pacific prehistory. At this time, Foss's main field research focus was in the Wairarapa; in the late 1970s he took the opportunity to work in the Island Pacific, especially on Polynesian outliers in Melanesia and Micronesia.

Concurrently, Foss was involving his students in archaeometric projects of one type or another and a background in natural and physico-chemical sciences was invaluable. For some, this came into play in the Wairarapa research in the careful recovery and systematic documentation of skeletal remains from the Makotukutuku sites; others took up Foss's interest in environmental parameters, in the application of objective methods to the characterization of source materials such as obsidians and cherts or to other sources of archaeological evidence. Whatever the field, Foss shared critical interest and proved to be a fathomless font of ideas, knowledge of methods, source of inspiration and well of energy. In the Pacific, inevitably his interests led him to the problems and the wealth of that remarkable plastic, pottery, which is a major component of Western Pacific assemblages (e.g., Intoh and Leach 1986).

This paper deals with at least two of Foss's interests, the Western Pacific and the dating of one of its major ceramic traditions.

But there are two giants in this digression (Merton 1965): Garanger has provided us with another set of broad shoulders from which we can see further into the prehistory of the western Pacific than ever before.

The thesis by José Garanger published for the Société des Océanistes in 1972 remains the most seminal work on the prehistory of that group of islands then known as the New Hebrides archipelago, the modern nation of Vanuatu. His report details the results of field

research conducted between 1964 and 1967, describing extensive surveys of several islands and the results of as many major excavations throughout the Central Islands. His work remains a central node as well as a point of departure for any discussions of the archaeology of the area—it can be revisited many times for the data to be excavated there. Indeed, the detail with which Garanger has reported the results of his research permits a finely-focussed evaluation of his interpretation of his results.

This paper attempts to provide a critical assessment of one aspect of his work in the Central Islands, one which was essential to the work about to be commenced in the Banks Islands in 1974 (Ward 1979). Consider one straddling two giants while balancing a microscope and searching sherds for ancient truths; if that image does not adversely affect your equilibrium, read on.

## THE CENTRAL ISLANDS

The Central Islands of the New Hebrides Archipelago are essentially igneous extrusions resulting from the meeting of the Pacific and Indo-Australian plates overlain in parts by Recent reefs and alluviums. They are not entirely “islands of ashes and coral” as one French writer would have it, but they are typically high islands of the Western Pacific tropics. Several groups form a chain of volcanic and coral islands stretching from the Torres and Banks Islands in the north to Aneityum, Matthew and Hunter in the south.

The climate may be typified as being hot and wet in the summer (November to March) with alternating calms and violent storms, followed by a season of southeasterly trade winds (April to October). Traditionally, the Melanesian inhabitants are horticulturalists, arboriculturalists and fishers of inshore waters. Initial settlement appears to have taken place about three thousand years ago; there are probably much more recently derived Polynesian ‘outliers’ in several places in the archipelago. Apart from intensive garden systems in some areas (Spriggs 1981) and some monumental architecture, the major surface archaeological manifestations are shell tools and ornaments and a variety of ceramics.

## EFATE

The island of Efate is located near the centre of the chain; including the small islands off its northwestern coast, it has an area of less than 1000 square kilometres. The interior, rising to 650 metres above sea level, is rugged and heavily wooded and is now uninhabited. Ash and others (1978) described Efate as essentially volcanic, being composed of Pliocene and Pleistocene basalts, tuffs, lavas and other igneous rocks, Pleistocene and Holocene reefs and alluvium; hot springs are still active in parts of the island; a Recent raised fringing reef is now five metres above sea level around much of the Island’s coastline. Deposits of clay suitable for potting are located in the northwest of the island.

Efate is well known as the location of Port Vila, the political centre of modern Vanuatu and a popular tourist destination. Efate is almost as well known archaeologically as a result of the extensive research by José Garanger (1972/1982) who focussed his archaeological attention on Efate and other “Central Islands of the New Hebrides”. Garanger conducted major excavations at the site of Mangaasi in the northwest of Efate and applied this name to the pottery decorated with “linear incision and applied relief” which he found there and elsewhere in the Central Islands (1972: 49–57).

In the Central Islands, one of Garanger's main concerns was the problem of identifying the prehistoric sequence and particularly the identification and chronology of the incision and applied relief ware which he recovered in large quantities from both site surfaces and from excavations in that area. Because his work must be central to any discussion of the prehistory of the archipelago, it was necessary to focus more closely upon some of his main conclusions.

On the northwestern coast of Efate, the largest of the Central Islands, is the site of the prehistoric settlement of Mangaasi which gave its name to the major ceramic ware found throughout the archipelago. From site surfaces on the plains of this coast, Garanger collected more than 13,000 potsherds. Mangaasi pottery was found at further sites on Efate and the adjacent islands; from a series of stratigraphically mixed sites on the island of Lelepa, off the western coast of Efate, Garanger recovered nearly 10,000 potsherds, all but two were of the Mangaasi type (1972: 44, Figures 69–74).

### THE MANGAASI POTTERY

More than 40 percent of the surface-collected sherds were decorated and these provided material for an extended analysis of the styles and motifs of decoration typical of manifestations of this "Mangaasi Tradition" (Garanger 1972: 47–48; Figures 87–96).

#### DECORATION

Mangaasi ware is characterized by a reddish pottery apparently fired at low temperatures after being formed into simple spheroid or ovoid vessels. Generally only the upper half of the body exterior is decorated, by lines drawn on to the soft surface paste and by extra strips and pieces of clay pressed into the vessel's soft exterior surface: hence "incised linear and applied relief decoration". The decorative motifs consist of a variety of design elements: geometric figures were made by continuous rectilinear incisions; discontinuous rectilinear incision was used to fill geometric spaces, to form chevrons and leaf-like or feathery designs; shallow or deep punctiform incisions, applied bands with incised or imprinted surfaces, and incised strip designs filled by perpendicular and oblique incised lines and by punctations are all common (1972: 47–48). Curvilinear incised motifs are very rarely found and these other discontinuous applied relief motifs tend to be confined to earlier strata: an applied ribbon pinched into a triangular section and used to border geometric designs, nubbins or nipples ("les tetons"), small bands and circles arranged in lines or superimposed on applied bands and, finally, wavy or undulating surfaces ("les ondules") made by modelling the clay (Garanger 1971: 53). The outside surface, carefully smoothed, is reddish in colour, an effect apparently achieved by application of a red pigment after firing.

#### EARLY AND LATE VARIANTS

In the excavations at EF-17, no change in the incidence of slipping was noticed vertically through the deposit and little change in vessel shape happened. Decorated sherds accounted for about 40 percent of the excavated assemblage. Motifs were as those described from the site surface collections on Efate's western coast and were combined in a variety of ways to decorate vessel walls. A change was noted in decoration from the bottom to the top of the site and Garanger defined two sub-traditions of Mangaasi Ware on this basis: "Early

Mangaasi", characterized by more carefully decorated vessels, discontinuous applied relief, pinched bands and feathery decorations, by a variety of holding or suspension devices and unique small bowls and "goblets"; and a "Late Mangaasi", typified by more careless incision, a higher frequency of punctate decoration and a lesser range of motifs. The implication is that there was some devolution in the quality of decoration.

## MANUFACTURE

This pottery (1972: 51 ff.; Figures 109–143) appears to have been manufactured at least in the area of the Mangaasi site (EF-17: Figures 6, 96 and 98 show the localities of the Mangaasi excavations). This is evidenced by deformed sherds broken at firing and unbaked pellets of clay. An *in situ* deposit of clay similar in appearance was found on the flank of a plateau overlooking the Mangaasi site. Sand containing volcanic particles and shell fragments appears as a temper. About the manufacturing technique, Garanger observed:

The vessels appear to have been made by coiling and without the use, frequent in Oceania, of a paddle and anvil. (1972: 52)<sup>1</sup>

It should be noted that this description does not necessarily imply the mutually exclusive nature of both techniques—as thought by Key (1973: 67) and Schurig (1930) to apply in Oceania—since both techniques may be used by the potter on the same vessel, the former being a building process and the latter a shaping process (see Shepard 1965: 54–60).

## VESSEL FORM

Early vessel form is that of simple spheroid or ovoid pots with a constricted orifice. The Lelepa sites provided material for an analysis of rim types which shows (1972: Figures 75–79) that simple incurving rims with a pointed lip predominated. There are several classes, however, that indicate an out-turning rim, most of which rims possess a flattened shelf. A small proportion of some incurving, out-turning and shelves classes display lip decoration (1972: Figure 79).

## CHRONOLOGY

Garanger's excavations at the Mangaasi site, EF-17, provided the basis for the conclusion that:

The site was occupied for the first time towards 600 BC and by a pottery-making community. [And that pottery manufacture] continued to be practised at Mangaasi until towards 1700 AD ... without notable evolution in the shape of the vessels ... and their decoration. (1972: 57–58)

In summary, the first occupants of Mangaasi came to live near the shore towards the sixth century BC, at a time when the sea lapped the south of the site EF-17 ... The last swamping of the site, at the end of the middle period (towards 1200 AD, if this was one of the results of the Kuwae cataclysm ...) did not involve change at Mangaasi except for a quantitative and qualitative impoverishment in the manufacture of pottery which ceased toward 1700 AD ... (1972: 58)

More generally, he concluded that Mangaasi pottery

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<sup>1</sup>Translations by K. M. and G. K. Ward have been used in passages quoted from Garanger's reports (cf. Garanger 1982).

More generally, he concluded that Mangaasi pottery

... is the most constant characteristic of the ceramic periods, perhaps being present for about 2000 years in the region studied. (1972: 122; a similar statement appears on p. 127)<sup>2</sup>

An earlier observation, however, was that:

It seems probable that the ceramic art, present from the earliest time of the occupation of the site, had been abandoned by the period of the burials [found in the uppermost layer], that is, toward the year 1720 AD ... (1972: 52)

and in the concluding section:

... the ceramic tradition *seems* to be maintained up to the end of the sixteenth century. (1972: 127; emphasis added)

Here, also, Garanger noted that

... pottery had disappeared toward 1200 AD at Makura and Tongoa [but] toward 1700 AD in the north of Efate. (1972: 121)<sup>3</sup>

While he was arguing, essentially, that the use of pottery was maintained for a greater period on Efate than in the Shepherd Islands to the north, it is, nevertheless, the duration as well as character of this ceramic "tradition" that appears as one of Garanger's strong conclusions (1972: 109 ff.) and as such it merits more than a cursory examination. The considerable detail of the reports provided by him allows this to be attempted here.

## THE MANGAASI SITE AND CERAMIC CHRONOLOGY

### EXCAVATION

The Mangaasi site (EF-17) was excavated during Garanger's second expedition to the Central Islands in 1967 and 1968. The excavation site was located in a coconut plantation on the northwestern coast of Efate. Some 124 square metres were opened and the occupation deposit excavated to depths of approximately one and one half metres (1972: Figure 99). Four main strata were observed. Five burials were uncovered, along with numerous shell ornaments and tools. Several hearths were present and potsherds were found throughout the deposit. The stratigraphy was complicated by the burials of Layer I which were intrusive into Layer II, and by water-deposited sediments which formed much of Layer II.

### CHRONOLOGY OF THE MANGAASI SITE

Garanger interpreted the Mangaasi Site, EF-17, as providing a stratified sequence, showing both development of, and conservatism within, the linear incised and applied relief ware of the Central Islands over a considerable time. Interpretation of the stratigraphy of this site was made difficult by several sea-level changes in the past but he interpreted the Mangaasi

<sup>2</sup>While Garanger appears to be referring to the span "600bc to 1700ad", it is possible that this claim was based on the range, using two standard errors, of the radiocarbon determinations obtained, that is, from the eighth century bc to the twelfth century ad, rather than a generalization of the picture "to the middle of the first millennium bc (600bc) to the middle of the second millennium ad (1720ad)".

<sup>3</sup>See other references on pages 57, 109, 121, 122, 127, 128 and Figures 99, 102, 109, 303; the absence of a firm chronometric date for the end of the "Mangaasi tradition" is remarked upon on page 123.

ceramics to be derived from three main cultural levels. These he dated from the seventh century BC; sherds became rare after the end of the first millennium AD but still appeared in an upper level containing burials and estimated to date to after the period of contact with Europeans ("1720 ± 85 ad") from a bone collagen sample. (1972: 49; Figures 99–102)<sup>4</sup>

Accepting the accuracy of the radiocarbon determinations involved (GX-0963 and GX-0964: Appendix 1) there appears to be no reason to question the dating of the earliest level to some time within the period of the sixth or seventh centuries BC (1sd; 0.84) or, more surely, to within the eighth to fifth centuries BC (2sd; 0.94) and hence the time of the first appearance of the ceramics at Mangaasi. Reference to the section diagram (1972: Figure 99), however, indicates that these samples derive from part way through the layer and that the initial date of the sequence could be earlier than this.

Determination of the time of the last appearance of the ceramics is more problematic. Garanger writes that it is probable that the ceramic art had been abandoned by the time of the burials found in the uppermost level (1972: 52) but a considerable proportion of sherds is shown as present in this level (1972: Figure 109) and subsequently these are described as deriving from one of the three major ceramic levels.<sup>5</sup> This would indicate that sherds appearing in the uppermost layer are seen to have been deposited before it was disturbed by grave-digging some time within the last 430 years. Clearly, a *terminus ante quem* is suggested here for the deposition of these sherds but not necessarily an actual date. Moreover, rather than being dated to "1700 AD", the end of the Mangaasi Ware could have been several centuries earlier. The next lower dated stratum is Layer IIa, a sterile beach sand (1972: Figures 99, 101–102). Garanger notes that it contained pumice similar in hand-specimen to that in the volcanic eruptions deposited by the "Kuwae Cataclysm" at Tongoa, and he estimated it to date to about 1200 AD (1972: 49), two centuries earlier than the Kuwae eruption which is said to have occurred about "1400 AD" (1972: 82, 95–97).<sup>6</sup> If this hypothesis of similarity is verified, the top of Layer III at EF-17 will date to before "1200 AD", since the layer containing pumice (that is, Layer IIa) in part lies directly above Layer III. Thus while Layer III might be dated from before "600 BC" (actually to within the eighth to fifth centuries BC) to around "1200 AD", Layer I can be dated only to between "1200" and "1700 AD" (actually late thirteenth/late fifteenth centuries up until the present day).

The matter is not concluded so simply, however, for if this dating is accepted it leaves no time for the development of the marine sediments covering an extensive section of the site (those denoted Layers IIb to IIc in Figures 99–102). This geological process probably required considerable time; it would seem more logical to conclude that, while Layer IIa might be dated to "1200 AD", the occupation represented in Layer III must have been concluded some centuries, if not the greater part of a millennium, earlier.

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<sup>4</sup>Garanger used uncalibrated determinations directly translated in bc/ad values throughout his report. In Appendix 1 all radiocarbon estimates are provided in more familiar bp form and calibrated using the most recently available tables.

<sup>5</sup>That is, "*Niveau supérieur*" (1972: Figures 122 ff.) = "*niveau I*" (1972: Figures 109–111) = Layers I and IIa (1972: Figures 99–101 and 109). See Appendix 2.

<sup>6</sup>Present best estimates place the pyroclastics at about the late fourteenth century AD (late thirteenth to late fifteenth centuries AD): B-742 and Espirat: Appendix 1.



## STRATIGRAPHIC CONTEXTS OF THE CERAMICS

If it be accepted that the ceramics of the upper layer ("horizon I") are placed better within the range "1200–1700 AD" (and it must be recalled that the dating of IIa to "1200 AD" is somewhat speculative) one is faced with the problem of whether or not the sherds are derived securely from these strata. The text is not clear on this matter: "... potsherds were abundant" in Layer III but

few [very rare] sherds came to light in Layers I and IIa. Sherds were much more plentiful in Layers IIb, IIc, IID and III. (1972: 49)

On the other hand, the figures show that a considerable proportion of sherds were found in Layer I. If it is read that a significant number of sherds were in Layer I, and the analyses are conducted as if this was so (1972: Figures 109, 110 *et seq.*), then it is reasonable to ask how they arrived there. Garanger appears to accept that they were in primary position, while noting the disturbed nature of the stratigraphy (1972: 49), but given the character of the stratigraphic disturbances, an alternative interpretation might be considered.

Garanger indicated (1972: 49; Figure 101) that more than one instance of land subsidence took place at Mangaasi. It would appear that Layer III was affected by this disturbance, he suggests, even concluding the occupation there (at "1200 AD"), but possibly some time after the abandonment of the habitations evinced by what remains of Layer III. In either of these cases, any indication of later deposits must have been lost by marine action as will have been an unidentifiable volume of Layer III itself. Subsequently, and clearly over some time, gravelly sediments derived from the immediate coastal environment built up successively to cover much of the remains of Layer III. Layers IIb, IIc and IID thus contain coral rubble, pumice and sand of variable coarseness along with potsherds which, it seems reasonable to conclude (following Garanger's reconstruction of the sedimentation history—1972: Figure 101), derive from a previous occupation deposit.

As this likely source, only Layer III qualifies. This complex was sealed subsequently by the light grey-brown sand of Layer IIa; but not completely so, for, as Garanger notes, Layers I and II were "... soils continually disturbed by cultivation" and, consequently, since no precise occupation layer was observed, the excavation was conducted according to artificial stratigraphy by 100 and 200 mm spits (1972: 49, 52, Figure 109). While the outline of the strata was able to be delineated later (1972: Figure 99), it would have been more difficult by this method of excavation to identify individual sherds as having been relocated due to ancient disturbances in these occupation soils. Again, since part of Layer III is higher than part of Layer I (1972: Figure 99b), it is possible that material from the exposed surface of Layer III could have been washed into the Matrix of Layer I during the latter's formation.

## ALTERNATIVE FORMULATION

Because of these critical factors, it seems reasonable to give consideration to an alternative interpretation of the sequence at Mangaasi. It is possible to hypothesize that the pottery at EF-17 derived entirely from the lowest level, Layer III, and was redeposited adventitiously in both the several marine sediments forming Layer II and the second occupation level, Layer I.

From this hypothesis, the following propositions can be drawn. Firstly, that sherds recovered from Layers I through to IID will be smaller, showing a higher degree of comminution and edge abrasion due to both water wear and soil abrasion (cf. Groube 1971: 306).

Secondly, that one would expect there to be only as much difference—in factors such as decoration and vessel form—between the two groups (that is Layer III *versus* non-Layer III material) as there is within groups if the sherds were eroded ‘non-selectively’. Thirdly, that sherds from individual vessels will be found scattered throughout the strata and, inversely, the proportion of whole pots and matchable sherds will be greater in Layer III than any within the other strata. Positive indications that these conditions were in operation would provide suggestive (but not conclusive) evidence that the sherds were not in primary position but had been relocated by either natural forces or subsequent cultural events such as gardening.

## EVALUATION FROM CENTRAL ISLANDS SITE EVIDENCE

### EVIDENCE FROM THE MANGAASI SITE

Garanger’s Figures 111 to 143 provide information relevant to these concerns. He shows in Figure 111 that overall similarities exist in the patterns of distribution of the percentage of each decorative motif within each of three somewhat arbitrarily defined levels (Appendix 2)<sup>7</sup>:

- Level 1 = Layers I and IIa (but “Layer I only” elsewhere);
- Level 2 = upper part of Layer III plus part of Layer II (mainly IIb);
- Level 3 = lower part of Layer III plus part of Layer II (including parts of Layer IIb, c and d). (1972: 52<sup>8</sup> and Figure 109)

In the upper levels, categories numbered 9 to 11 are absent altogether (as is Category 11 from Levels 2 and 3) but this result might have been predicted knowing that very small percentages of these categories were present in the two lower levels and that the absolute number of sherds was considerably smaller in Level 1.

Better supporting evidence comes from the fact that pieces of “apparently one pot” were recovered from several layers—about 36 percent ( $N = 61$ ) from five squares in Layer III and over 64 percent spread over another five squares in Layers IIb to IIc, situated downhill from the original Layer III location (1972: Figure 109).

While it is true that many sherds are figured in an excellent series of photographs of the material from EF-17, it is more difficult to use these data to evaluate the conflicting hypotheses; for, while nearly 500 out of approximately 17,000 sherds are illustrated here, this is less than 3 percent of that total and clearly too small a number to be used to derive more than a superficial indication. Also, they are grouped by Garanger according to the three levels mentioned above. Thus, Levels 2 and 3 must contain what are probably *in situ* sherds together with definitely redeposited sherds.

Nevertheless, it is possible to salvage something from these data for the present purposes. Clearly, Level 3 will have a lower proportion of disturbed material so that the third of the propositions (above) can be evaluated to some degree. For sherds defined as deriving from Level 3, approximately 35 percent ( $N = ca 296$ ) could be matched with one or more adjacent sherds against only 20 percent ( $N = ca 240$ ) from Levels 1 and 2 combined.<sup>9</sup> Further, a total of seven vessels from Level 3 are shown which were able to be reconstructed

<sup>7</sup>Careful inspection of the detailed Figure 109 reveals that the correlation of excavation Layers (“horizons”) and analytical Levels (“niveaux”) is complex (see Appendix 2).

<sup>8</sup>Note apparent misprint of “III” for “I” or “I and IIa” in line 11 of page 52.

<sup>9</sup>A difference highly significant in statistical terms: Chi-square = 10.5 (0.001 >  $p$  > 0.01).

partly or fully, against only three from Level 2 (1972: Figures 139–143). It is difficult, however, to gauge degree of wear from the photographs. Clearly, any further evaluation of the hypothesis would have to be made with access to the original collection. These results at least do indicate a tendency in the data toward confirmation of the alternative hypothesis that Layer III was the only source of the potsherds recovered at this site.

To be more confident of these ascriptions, a more direct method of dating the excavated material, such as thermoluminescence, would have to be applied to pottery from all levels the determination of whose age is called into question here.

#### EVIDENCE FROM OTHER SITES IN THE CENTRAL ISLANDS

In the absence of excavation evidence from a possibly less disturbed site near EF-17 at Mangaasi, the alternative hypotheses can be evaluated by references to other sequences in the Central Islands containing significant proportions of Mangaasi Ware, especially those excavated by Garanger on Makura and Tongoa.

##### *Makura*

On Makura, at MA-11, the largest of several sites excavated (32 m<sup>2</sup>), more than half of the Mangaasi Ware derived from Level III; from charcoal from a hearth in the lowermost part of Level III there is a radiocarbon estimate dating it to the eighth to sixth centuries BC (Appendix 1: GX-0223). In the stratigraphy above Level III were found several beach sands and sandy soil strata containing littoral debris including two layers designated as Level II which contain a smaller number of incised and applied relief decorated sherds. This level is dated by comparison with the stratigraphy found in a sondage (MA-41) at the other end of the Lapua coastal plain to the ninth to thirteenth century AD (Appendix 1: B-774). Only in this Level II are found examples of a completely different ceramic ware—the pottery with internal incisions, Aknau Ware (1972: 80–82; Figures 215–217). While, in the area of the excavation depicted, Level II is separated from Level III by approximately 400 mm of archaeologically sterile sediments (Horizons D1 and D2; 1972: Figures 215 and 216), it is not impossible that the small proportion of Mangaasi decorated pottery (ca 15%) found together with the Aknau Ware and undecorated sherds was derived from lower strata by the activities of the later occupants.

##### *Tongoa*

For the Tongoa sites, the picture is more complex. There are five sites mentioned which contain Mangaasi-type ceramics: TO-11, TO-23, TO-24, TO-26 and TO-27. The first is at Euta, the remainder at Mangarisu on the eastern coast of Tongoa. Chronometric dates for this group are not plentiful; at TO-11, two samples of wood charcoal taken from the same hearth cut from the lower of the two archaeological levels found beneath a series of eruption-deposited strata gave estimates dating it to the mid-first millennium BC (Appendix 1: WSU-220 and GX-0222); at TO-23, the lowest level, containing Mangaasi Ware, is placed by two radiocarbon determinations to within the eighth to fourth centuries BC (Appendix 1: GX-1267 and B-740) and a layer above this to the fourth to first centuries BC (Appendix 1: B-741).

The only date, however, for the upper sections of one of the excavated deposits is one “dating the last level of the ceramics” at TO-23 to the tenth to thirteenth centuries AD

(Appendix 1: GX-1268). After this there appears to be a period of about three centuries in which no ceramics were recovered before the evidence of the "Kuwae volcanics" and a "post-eruptive phase" (1972: 95 ff., Figure 263).

The Euta Site, TO-11, contained but two archaeological strata. From these, some 164 sherds were recovered; apart from 21 sherds decorated with the internal incisions characteristic of Aknau Ware in Level I, about 14 sherds (12.8%,  $N = 115$ ) in the undated Level I and 3 (6.1%,  $N = 49$ ) in Level II (mid-first millennium BC: Appendix 1) were decorated with a mixture of Late and Early Mangaasi styles (1972: 86).

At the Mangarisu site, TO-23, a total of 877 sherds were recovered from throughout the deposit—more than 55 percent from Level II; Mangaasi Ware was present in all three occupation levels. In the lowermost (Level III), it was found associated with "discontinuous applied relief pottery" (in the proportion of 53:12 of the level assemblage,  $N = ca\ 177$ ; 1972: Figure 235); in the uppermost (Level I) with Aknau Ware (55:13,  $N = ca\ 219$ ); but in Level II the only decorated pottery recovered was Mangaasi Ware (*ca* 177 of *ca* 491 sherds in this level). The decorative elements defining the Applied Relief pottery are similar to those found in Mangaasi Ware so that it is not impossible that the former is a facies of the latter. Aknau and Mangaasi Wares again appear together in the upper level but unlike TO-11, Mangaasi decorated sherds are in a greater proportion at TO-23. In all three levels, undecorated sherds comprised more than 60 percent of the assemblages.

Levels III and II were dated to the mid first millennium and late first millennium BC respectively (Appendix 1); the uppermost level in which Mangaasi Ware was found in Aknau Ware was dated to the early second millennium AD (Appendix 1). This conjunction might, again, represent contemporaneity of the two wares in this layer, or an adventitious mixture of sherds in a disturbed deposit. This appears less likely from the section illustrated (1972: Figure 234) where the two lower archaeological levels are separated from the uppermost by a relatively thick layer of sterile sediments (Layer 4c). This section, however, is taken from one end of the excavated area (row 11 in Figure 231) and it is not clear whether this sterile layer extended undisturbed over the whole of the 21 square metres excavated (1972: 87).

Some sherds from TO-24 are illustrated (1972: 269) but little more is reported about pottery from the sondages or of the date of this site (1972: 87). Similarly, TO-26 contained one occupation level in Layer 4 (1972: Figure 238) and some 113 sherds. Four were decorated with incised lines, 2 with applied bands and facets and 33 with internal incisions; no date for this deposit is available (1972: 88).

TO-27 was excavated in four 200 mm spits and found to be mixed thoroughly, since pottery with internal incisions (Aknau Ware) was found almost as frequently as externally-incised ceramics at each of the "levels" (1972: 88 and Figures 239–240). Again, no chronometric data are available.

Thus only at one site at Tongoa (TO-23) was Mangaasi Ware found in a level dated to the current millennium (Level I: tenth to thirteen centuries AD), where approximately 55 sherds decorated in the Mangaasi style and comprising one quarter of the level assemblage were recovered. At other sites, upper levels containing Mangaasi Ware are undated but the majority of the evidence so far available tends to support its restriction to the earlier levels generally dated to more than two millennia ago.

## REGIONAL PARALLELS

Garanger sought support for his interpretation of the Mangaasi ceramic sequence by reference to parallels beyond the New Hebrides. The duration here of a ceramic tradition

... is not an exceptional phenomenon ... [Lapita pottery] apparently was present at Tongatapu from initial occupation and was maintained, alone, until the arrival of Europeans, that is, for more than 2000 years. (1972: 122)

However, this support is no longer available if Groube's arguments for the reinterpretation of the Tongan sequence are accepted. (Groube 1971; Poulsen 1987)<sup>10</sup> Moreover, at the present time no further examples are available for Oceania of little-changing ceramic sequences of comparable duration.

## CONCLUSION

In his seminal work on the Central New Hebrides, Garanger has argued that the "Mangaasi Tradition" extended from the first half of the first millennium BC to the thirteenth century AD and up to the beginning of the eighteenth century. The interpretation of the evidence on which this claim is based has been questioned here; an alternative formulation has been advanced and evaluated in terms of the available stratigraphic and chronological evidence.

This formulation accounts satisfactorily for the evidence from the type site (EF-17) and, it is argued, is supported by the large part of the internal or external evidence so far available. It must be remarked, however, that many ceramic-bearing strata remain undated, only a limited number of age determinations being available from the many more excavated sites and sondages reported to contain Mangaasi Ware.

In consideration of the alternative interpretation of the Mangaasi site advanced and the relative paucity of evidence for any Mangaasi-type ceramics securely dated to within the last two millennia, the claim that this "ceramic tradition" extends over possibly two thousand years in the Central New Hebrides must be seen as less than convincing until more definitive evidence is forthcoming. This might be obtained by direct dating of sherds from excavation contexts or by excavation of a site on the Mangaasi coast near EF-17 showing less disturbance from natural and cultural activities; again, those sites containing Mangaasi Ware found in the Banks Islands might provide further evidence with which to evaluate the conflicting hypotheses.

In wider terms, the Mangaasi ceramic sequence, restricted to a period beginning about the middle of the first millennium BC and perhaps some centuries of the next, does not appear so unlikely and unusual in the context of Pacific prehistory.

## NOTE: THE SINAPUPU PHASE OF TIKOPIA

Since this paper originally was prepared, the results of the research by Kirch and Yen (1982) on Tikopia, the Polynesian 'outlier' to the north of the archipelago, have been published. They provide evidence of a ceramic tradition of considerable duration on the island.

The Sinapupu Phase is characterized by the presence of imported Mangaasi-style ceramics thought to have derived from the northern islands of Vanuatu; it was dated to between 100 BC and AD 1200 (Kirch and Yen 1982; Kirch 1982: 71). This is seen as support for the temporal span of the Mangaasi ceramics claimed by Garanger.

<sup>10</sup>Groube's paper was published after Garanger's MS had been completed in December 1970.

In making this claim, however, the problems identified here with the dating of the Mangaasi site and the other sites with Mangaasi ceramics in the Central Islands have not been addressed. While it is clear that Mangaasi Ware was made for a significant period from the middle of the first millennium BC in the Central Islands, it is not necessary to conclude that, because similar ceramics are found to the north of the archipelago at the beginning of the second millennium AD, Mangaasi Ware was still being made/used in the Central Islands at or after that time; certainly there is no support from Tikopia for its longevity in the Central Islands until "1700 AD" or up until the time of contact with Europeans.

The problems raised here have not been resolved and the ambiguities will not be satisfactorily erased by reference to sequences several hundred kilometres to the north, regardless of how secure they are. The time-spans of the Central Islands and Tikopia sequences are not directly comparable, the former apparently commencing several centuries prior to the first dating of the latter; it should not be seen as totally improbable that the former could have ended a comparable time ("some centuries into the next" millennium) earlier than the Tikopian Sinapupu Phase. Certainly, the critique does not depend upon any appeal to revisionary interpretations made elsewhere in the Pacific but upon the detailed analysis of the problems in the evidence provided abundantly by Garanger.

The cautious conclusion above, that the evidence is less than convincing for the duration of the Mangaasi Ware in the Central Islands, does not seem unreasonable in the bright but distant light emanating from Tikopia. Certainly, more evidence from the Central Islands and from the large islands of the north of Vanuatu will be essential in resolving any conflicting interpretations in the important matter of the prehistoric sequences in the Western Pacific.

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#### APPENDIX 1

##### DATING OF CENTRAL ISLAND SITES WITH MANGAASI CERAMICS

In the following list, information for each date is given according to the following categories:

Site number; layer, ceramic association; material of sample; laboratory number; result (ad/bc) quoted by Garanger (1972); reference (Garanger 1972); calculated age estimate (bp) (see note 1); calibrated age range (BP: 1sd and AD/BC: 2sd) (see note 2); probability; gloss "within . . .".

##### EFATE

###### *Eruiti*

EF-30; 650 mm; Lapita and Mangaasi; wood; GX-1145;  $350 \pm 95$ bc; p. 30 and fig. 13;  $2300 \pm 100$ ; 2353–2149; BC 570–90; 0.92; sixth to first centuries BC.

###### *Mele*

EF-21; 1200 mm; none (burials); bone; GX-1264; "standard"; p. 13.

EF-21; 1600 mm; none (burials); charcoal; B-739;  $1650 \pm 80$ ad; p. 13;  $300 \pm 100$ ; 470–0; AD 1440–1700; 0.67; fifteenth to seventeenth centuries AD.

BF-21; 1900 mm; none (burials); charcoal; GX-1226;  $1625 \pm 110$ ad; p. 13;  $330 \pm 110$ ; 500–0; AD 1430–1700; 0.73; fifteenth to seventeenth centuries AD.

EF-21; 1900 mm; none (burials); bone; GX-1265; "standard"; p. 13.

If B-739 and GX-1226 are combined, better to represent the same event, the results are:  $285 \pm 75$ bp, calibrated as 462–287BP; AD 1442–1692; 0.82; fifteenth to seventeenth centuries AD.

#### *Mangaasi*

EF-17; burial; Mangaasi; bone collagen; GX-1144;  $1720 \pm 85$ ad; pp. 49–50 and fig. 99;  $230 \pm 100$ ; 310–0; AD 1610–1955; 0.85; last four centuries AD.

EF-17; III; Mangaasi; charcoal; GX-0963;  $495 \pm 80$ bc; pp. 49–50 and fig. 99;  $2450 \pm 100$ ; 2719–2349; BC 800–360; 0.99; eighth to fourth centuries BC.

EF-17; III; Mangaasi; charcoal; GX-0964;  $645 \pm 95$ bc; pp. 49–50 and fig. 99;  $2600 \pm 100$ ; 2773–2489; BC 900–410; 1.00; ninth to fourth centuries BC.

Combining GX-0963 and GX-0964:  $2495 \pm 71$ bp; calibrated as 2743–2378BP; BC 796–456; 0.93; eighth to fifth centuries BC.

#### *Lelepa (Feles Cave)*

EF-106-1; 1500 mm; none (engravings); wood charcoal; GX-12632 [sic];  $910 \pm 85$ ad; pp. 38 ff;  $1040 \pm 100$ ; 1050–793; AD 800–1230; 1.00; eighth to thirteenth century AD.

#### RETOKA

##### *Retoka*

EF-11; burial; none; bone collagen; GX-1144;  $1265 \pm 140$ ad; p. 77;  $690 \pm 140$ ; 710–540; AD 1030–1500; 1.00; eleventh to fifteenth centuries AD.

EF-11; hearth; none; wood charcoal; GX-1143; "standard"; p. 77.

#### MAKURA

##### *Lapua*

MA-11; E2; Mangaasi; wood charcoal; GX-0223;  $590 \pm 100$ ad; p. 80 and figs. 215–216;  $1360 \pm 100$ ; 1320–1170; AD 530–900; 0.97; sixth to eighth centuries AD.

##### *Tavia*

MA-34; 800 mm; none; wood charcoal; B-743;  $1690 \pm 80$ ad; p. 80;  $260 \pm 100$ ; 431-0; AD 1480–1890; 0.89; fifteenth to nineteenth centuries AD.

##### *Mwalakota*

MA-41; C1; Aknau; wood charcoal; B-744;  $940 \pm 100$ ad; p. 82 and fig. 216;  $1010 \pm 100$ ; 980–780; AD 870–1260; 1.00; ninth to thirteenth centuries AD.

#### TONGOA

##### *Euta*

TO-11; below ash; none; ?burnt wood; WSU-219;  $770 \pm 200$ bc; p. 95 and fig. 263; (rejected).

TO-11; II; Aknau and Early Mangaasi; wood charcoal; WSU-220;  $350 \pm 200$ bc; p. 95 and fig. 263;  $2300 \pm 200$ ; 2706–2049; BC 810–AD 110; 1.00; eighth century BC to first century AD.

TO-11; II; Aknau and Early Mangaasi; wood charcoal, same hearth; GX-0222;  $400 \pm 85$ bc; p. 95 and fig. 263;  $2350 \pm 100$ ; 2435–2207; BC 770–180; 1.00; eighth to second century BC.

Combining WSU-220 and GX-0220:  $2310 \pm 90$ bp; calibrated as 2357–2207BP; BC 605–172; 0.86 sixth to second centuries BC.

##### *Aknau*

TO-22; 150 mm below ash; Aknau; ?burnt wood; GX-0221;  $905 \pm 145$ bc; p. 95 and fig. 263; (rejected).

##### *Mangarisu (Lamalake)*

TO-23; I; Aknau and Mangaasi; ?wood charcoal; GX-1268;  $1025 \pm 95$ ad; p. 87 and fig. 234, 263;  $930 \pm 100$ ; 930-700; AD 960–80; 1.00; tenth to thirteenth centuries AD.

TO-23; II; Mangaasi; ?wood charcoal; B-741;  $230 \pm 120$ bc; p. 87 and fig. 234, 263;  $2180 \pm 100$ ; 2319–2039; BC 400–AD 30; 1.00; fourth century BC to first century AD.

TO-23; III; Mangaasi; ?wood charcoal; GX-1267;  $440 \pm 95$ bc; p. 87 and fig. 234, 263;  $2390 \pm 100$ ; 2704–2329; BC 780–340; 0.88; eighth to fourth centuries BC.

TO-23; III; Mangaasi; ?wood charcoal; B-740;  $510 \pm 80$ bc; p. 87 and fig. 234, 263;  $2460 \pm 100$ ; 2729–2349; BC 810–370; 1.00; eighth to fourth centuries BC.

Combining GX-1267 and B-740:  $2395 \pm 71$ bp; calibrated as 2705–2345BP; BC 768–386; 1.00; eighth to fourth centuries BC.

*Panita*

TO-51; burial; none; bone collagen; GX-0291;  $1475 \pm 85$ ad; p. 94 and fig. 263;  $475 \pm 100$ ; 550–337; AD 1370–1650; 0.89; fourteenth to seventeenth centuries AD.

TO-51; burial; none; carbon; ?;  $1215 \pm 190$ ad; p. 94; (rejected).

**SHEPHERD ISLANDS**

*Mweriu*

Kuwa eruption pyroclastics; none; burnt wood; B-742;  $1320 \pm 80$ ad; p. 94 and fig. 263;  $630 \pm 100$ ; 670–530; AD 1220–1480; 1.00; thirteenth to fifteenth centuries AD.

Kuwa eruption pyroclastics; none; burnt wood; NZ date obtained by J. Espirat;  $1460 \pm 37$ ad; p. 94 and fig. 263;  $490 \pm 100$ ; 549–463; AD 1370–1640; 0.85; fourteenth to seventeenth centuries AD.

Combining B-742 and Espirat's data:  $530 \pm 71$ bp; calibrated as 634–513BP; AD 1284–1473; 1.00; late thirteenth to late fifteenth centuries AD.

Notes:

- 1) Calculated from data provided by Garanger (1972); a minimum standard error of  $\pm 100$  radiocarbon years is used.
- 2) Age ranges and probabilities have been calculated according to the calibrations of Stuiver and Pearson (1986) and Pearson and Stuiver (1986) using the programs prepared by Reimer (Stuiver and Reimer 1986). Note that 30 radiocarbon years have been subtracted from the age estimates as calculated from Garanger's data in order to account for Southern Hemisphere differences (Stuiver and Pearson 1986: 808) before calibration was made.

**APPENDIX 2**

**EF-17: TRANSLATION OF EXCAVATION LAYERS INTO ANALYTICAL LEVELS**

	Southwest	Central	Northeast
Level 1	Layers I and IIa	Layers I and IIa	Increasingly only Layer I
Level 2	Only upper part of IIb	All of IIb some IIc and II d plus upper III	Only upper part of Layer III
Level 3	Lower part of IIb, with IIc, II d and III	Some IIc and II d, plus lower Layer III	Only lower part of Layer III

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