Post-Lapita ceramic change in Fiji

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Introduction

No ceramic sequence in the Pacific has been as closely examined for evidence of stylistic change and external influences as Fiji's. Such scrutiny stems from long-observed differences between the physical characteristics and social structures of 'Melanesian' Fiji and 'Polynesian' people who inhabit islands to the east of Fiji, and a search for historical explanations for the differences, which in due course began to incorporate archaeological data (Hunt 1986; Clark 2003). The data, methods and theories used to interpret the Fiji ceramic sequence are a litmus test for understanding prehistoric culture contact, and have implications for interpreting archaeological sequences elsewhere in the Pacific.

Binford (1972:119) noted that population contact and replacement is a frequent, but often incorrect, explanation when an expectation of gradual change in the prehistoric record is not met. This is evident in Fiji where differences between material-culture sets have been interpreted as contact/arrival of people from beyond Fiji, particularly from Vanuatu and New Caledonia. One major deficiency of such an assumption is that it is self-sufficient and does not require supporting evidence from rigorous testing of presumed 'intrusive' material-culture sets against the material culture from the putative place of origin, which is a logical corollary of the explanation. Second, the magnitude of sequence change and the similarity/dissimilarity of 'foreign' assemblages to earlier cultural material is seldom quantified in a rigorous manner.

As a result, claims of cultural arrival and intrusion frequently have a diffusionist character in which isolated cultural traits in the prehistoric record are combined with those from ethnology to form an overly simplistic and extravagant explanation of culture change through hypothetical migration and culture contact. In the Pacific, both migration and interaction among island groups certainly took place in the past, but hypotheses that invoke such movements – if they

are to have a status above assertion – need first, to be tethered to secure evidence for inter-archipelago contact, and second, that evidence needs to be placed in a theory of culture contact that specifies why some culture traits were changed by contact while others were not, and why intra-archipelago development should be definitively ruled out.

Reliable evidence for prehistoric migration/contact includes geochemical sourcing of archaeological materials from different island groups, traces of language intrusion in historical linguistics (e.g. Schmidt 2003), independent traditions of culture contact in island societies, biological data for long-distance movement such as from osteology, ancient DNA and isotope studies, and clear stylistic similarities between local and foreign ceramic assemblages rather than selective use of a few traits/attributes to posit long-distance contact. If evidence for prehistoric contact is absent/minimal then it is reasonable to consider hypotheses that feature endogenous mechanisms of culture change (see below). The scale and scope of culture change from inter-archipelago mobility should also be defined, as should whether prehistoric contact modified material culture, language, biological systems, settlement patterns and architecture.

Pre-contact population estimates for Fiji range from a high of 300,000 (Hunt in Derrick 1974:48) to a more likely size of 150,000 (Wilkes 1985; Williams 1985:102), and while population size in the post-Lapita era is not known the local population was large enough to have spread inland (Chapter 4; Field et al. 2009) indicating that favourable coastal locations were already occupied. Was the magnitude of post-Lapita population movement between Vanuatu/New Caledonia and Fiji sufficient to shift the established ‘Lapita’ Fijian phenotype to a more ‘Melanesian’ form, implying that similar movements also altered the Lapita populations of Vanuatu and New Caledonia, and if migration-contact from the west was significant, is there linguistic or other evidence for it in Fiji and other parts of the West Pacific?

In archaeological theory, the attribution of sequence inflection to an external cause neglects the possibility of dynamic culture change stemming from internal archipelago developments such as subsistence activities, demography, interaction networks, social hierarchy and organisation, and the transformation of terrestrial and maritime landscapes as a result of anthropogenic activity and climate change. Invoking an external influence for prehistoric cultural change as the result of climate change or exogenous culture contact has the potential, therefore, to unduly simplify Pacific prehistory, most particularly by diminishing the complexity and importance of local processes to the evolution of human social systems.

The hypothesis that culture change in Fiji is due to population contact/migration in the post-Lapita period (ca. 2500–1000 BP) also diverts attention away from the significant issue of Lapita colonisation, especially the degree of variability among migrating groups. For example, were there minor or major cultural, biological and linguistic differences between the migrant streams which colonised Tonga–Samoa and those which settled in Fiji, which over 3000 years, resulted in the classification of ‘Melanesian Fiji’ and its separation from ‘Polynesian Tonga–Samoa’? There is currently no definitive answer to this question, but it is important to outline the plausible alternatives, particularly the possibility that contemporary differences between the populations of Fiji and West Polynesia developed over three millennia of predominantly local development, rather than from a few centuries of inter-archipelago contact with island groups to the west of Fiji in the post-Lapita period, an explanation which is not supported by current archaeological data.

Historical development

The influential geocultural divisions of Melanesia and Polynesia were first instituted and hierarchically arranged on a socio-evolutionary scale by Dumont d’Urville in 1827, with

Polynesians at the top, Melanesians at the bottom and Micronesians in the middle (Clark 2003). Early ethnographers and anthropologists such as Horatio Hale, Abraham Fornander, Thomas Williams, Arthur Hocart and Alfred Kroeber developed historical sequences to account for the cultural separation of Melanesia from Polynesia that featured intrusive population waves arriving in the Pacific, rather than hypotheses featuring *in situ* culture change. Archaeologists employed the population-wave paradigm derived from anthropology and ethnology as a framework to interpret the emergent prehistoric record, with Edward Gifford (1951:189) commenting that the presence of ceramics at Navatu and Vuda in Fiji ‘ruled out any likelihood that the first settlers at these two sites were Polynesians’. Solheim (1952a, b), Palmer (1974), Green (1972) and Golson (1974), among others, also found evidence in comparisons of prehistoric ceramics for population movements from Melanesia and Southeast Asia to Fiji.

The use by archaeologists of ceramic traits to examine past population movements in the Pacific was rapidly vindicated in the case of the Lapita culture, which was identified from the Bismarck Archipelago all the way to Tonga and Samoa from the similarity of dentate-stamped designs on pot sherds (Golson 1961). The presence of an early-Lapita ceramic culture with a distribution that spanned Dumont d’Urville’s ethnological zones suggested that the cultural and biological separation of Melanesia from Polynesia had occurred in the post-Lapita period from a population movement from western Melanesia. This ‘Melanesian’ population extended to Fiji, but did not reach or affect the Polynesian archipelagos of Tonga and Samoa (Garanger 1971; Green 1972; Golson 1974). Since Fiji formed the eastern boundary of a Melanesian population movement, it was logical to examine the post-Lapita archaeological record for evidence of cultural arrival and replacement, especially from possible stratigraphic discontinuities in the pottery sequence and a comparison of Fijian ceramics with ceramics in island groups to the west. As a result, the recording and comparison of Fijian pottery has involved unusually detailed attribute recording and statistical analysis to identify points of dramatic change in ceramics that might represent the arrival of a new group or evidence of cultural contact (Frost 1970; Birks 1973; Best 1984; Hunt 1986; Crosby 1988; Clark 2000a). In recent years, questions of migration and culture change have broadened, with the application of transmission theory to ceramics (Clark and Murray 2006; Cochrane 2008) and the compositional study of prehistoric materials, particularly ceramic temper and fabric, to examine the timing and extent of intra-archipelago and inter-archipelago contacts (Best 1984, 2002; Green 1996; Clark 2000a, b; Cochrane and Neff 2006; Dickinson 2006).

Central questions about the affinities and meaning of change in the Fijian ceramic sequence remain, despite enhanced methodological sophistication in quantifying prehistoric interaction from sourcing archaeological materials. In this chapter, ceramic data from selected sites is used to examine the central issue of culture change in the post-Lapita period of Fiji. The EPF ceramic assemblages are described in Chapter 11 (see also Clark 2000a). The interpretation of Lapita ceramics in Fiji, including the possibility of an early division between west Fiji and east Fiji, has implications for understanding the colonisation pattern and diversity of Lapita groups entering Fiji (Burley and Dickinson 2001; Clark and Anderson 2001; Best 2002), an issue which cannot be examined using the EPF collections alone, and the topic is examined elsewhere (Chapter 16; Clark and Anderson 2001; Clark and Murray 2006; Clark and Bedford 2008).

Post-Lapita contact between Vanuatu and Fiji

Points of significant stylistic change in the Fijian ceramic sequence have been viewed as the result of a migration from Vanuatu to Fiji, primarily because of the identification of Vanuatu obsidian on Lakeba Island in east Fiji dating to ca. 1700 BP, but also because of the perceived

stylistic similarities of Fijian pottery to ceramics found in Vanuatu (Wahome 1998; Best 2002:31; Spriggs 2003; Burley 2005; Cochrane 2008). A postulated Vanuatu migration to Fiji in the post-Lapita period is critical to the interpretation of the Fiji sequence as it supports an intrusionist explanation for the greater amount of biological, cultural and linguistic variation seen in West Pacific populations, which contrasts with the comparative biological and linguistic homogeneity of Polynesian groups in the East Pacific.

Recent work involving the reanalysis of obsidian flakes from several Lakeba sites in east Fiji that were sourced to Vanuatu (Best 1984:434) reveals that the obsidian does not originate from Vanuatu as previously thought. Geochemical analysis of 12 pieces of the 'Vanuatu' obsidian with LA-ICP-MC and MC-ICP-MS indicates the material most likely derives from a source in the Fiji–Tonga region, and it does not originate from any of the major obsidian sources in the West and Central Pacific (Reepmeyer and Clark 2009). This finding removes the only piece of physical evidence for contact between Vanuatu and Fiji in the post-colonisation era (ca. 2500–1000 cal. BP).

The absence of physical evidence for a connection between Fiji and Vanuatu in the post-Lapita period raises questions about the ceramic methods, evidence and models used to infer prehistoric migration and interaction within and beyond Fiji. For example, while a substantial migration to Fiji could reasonably be expected to result in the transmission of a large part of a Vanuatu ceramic complex – as shown by the similarity between ceramic assemblages found at migrant source and destination – the effects of inter-archipelago interaction, trade and exchange on a pottery assemblage is more complicated, as these might result in only the partial transmission of the ceramic repertoire. In the following sections, the evidence and methods used to hypothesise a Vanuatu–Fiji connection from the ceramic sequence of Fiji are critically reviewed, and data suggesting that changes in the ceramic sequence of Fiji originate primarily from socio-economic events within the archipelago is presented.

In Pacific ethnology and archaeology there is a long tradition of using individual ceramic traits/attributes to postulate a 'Melanesian' movement to Fiji that transformed the composition and culture of the founding population (see Clark 2000a; Bedford and Clark 2001; Bedford 2006). From such work, it was possible to postulate a widespread post-Lapita interaction network that connected Fiji with island groups to the west such as Vanuatu, New Caledonia and the Solomon Islands (Galipaud 1996; Spriggs 1997:161–162; Wahome 1997, 1998).

As knowledge has improved about prehistoric ceramics from Island Melanesia, particularly Vanuatu, the perceived similarities between Fijian pottery and that of other island groups to the west have diminished substantially. In the 1970s, Garanger (1971:62) said that the pottery of Fiji was 'exactly the same as the pottery of Mangaasi [in Vanuatu]', whereas in the more recent work of Best (2002:30) the stylistic similarities are reduced to three techniques (asymmetric incising, finger pinching and rim notching), and the source of these traits lies in the poorly known ceramic assemblages of northern Vanuatu. However, despite Best's (2002) claim, recent investigations by Bedford and Spriggs (2008) in northern Vanuatu indicate that Vanuatu ceramics are not related to the post-Lapita assemblages from Fiji. In addition, Sheppard and Walter (2006) have also failed to identify a widespread incised and applied ceramic tradition in pottery assemblages in the western Solomons.

West Pacific ceramic connections with Fiji

Archaeologists working in Fiji have elaborated a post-Lapita connection with Vanuatu from detailed ceramic investigations. The studies of Burley (2005) and Cochrane (2008) are reviewed because they involve new data and approaches that constitute the strongest case for prehistoric

culture contact and interaction across the 850 km water gap separating Fiji from Vanuatu in the post-colonisation era.

Investigations at the Sigatoka Sand Dunes in south Viti Levu by Burley (2005) identified a sharp break within post-Lapita Level 2 ceramics, with the oldest assemblage labelled 'Fijian Plainware' because of its perceived affinities to late-Lapita pottery at the dune (Birks 1973). Above the Fijian Plainwares there was a more recent 'Navatu phase' assemblage thought to have been influenced by contact with Vanuatu.

The two assemblages were described as stylistically distinct, although radiocarbon dates indicate they were separated from one another by only a century or two (see Chapter 7). The Fijian Plainware ceramics contained subglobular jars with everted to slightly inverted flattened rims, cups and bowls, with the main decorative techniques comprising parallel rib and cross-hatch paddle impression, punctate, notched lip (single and alternate side). Navatu ceramics consisted of thin-walled globular jars with a flaring everted rim, along with jar forms similar to those in the Fijian Plainwares (Burley 2005:Table 2), cups, bowls and flat-based 'salt' trays. The Navatu assemblage was marked with tool impressions (end, side, fingernail) and incisions that did not occur in the Fijian Plainwares, although other techniques were common to both groups, like punctation, parallel-rib impression, and lip notching (single and alternate side).

The extent of the Plainware/Navatu ceramic 'break' described by Burley (2005) and the perceived relationship of Plainware ceramics to the late-Lapita pottery at Sigatoka is difficult to evaluate from the published data. Vessel-form identifications suggest that Plainware and Navatu assemblages share 60% of vessel forms and 46% of decorative applications (Burley 2005:Table 2 and Table 3), indicating a connection between the two ceramic groups, rather than rapid replacement of Plainware pottery by Vanuatu-influenced Navatu assemblages. An example is cross-hatch paddle impression, which was not reported from the smaller Navatu-phase assemblage excavated by Burley (Burley 2005:Table 3), yet is reported in the text as being a component of Navatu-phase assemblages (Burley 2005:Figure 5C, 336).

Given the presence of paddle-impressed and punctate-marked ceramics to the west of Fiji, Burley (2005:339, 342) argues for an intrusion of ceramic influences from central Melanesia (Vanuatu–New Caledonia). The intrusive ceramic traits occurred earlier on Lakeba Island, where the 'Vanuatu' obsidian was found, suggesting the Lau Group was influenced by contact with the 'Melanesian' west first, followed by the spread of exotic Navatu-phase ceramic techniques from east Fiji to west Fiji 200 years later. Not only are the dating of the obsidian and the 'exotic' ceramic stylistic traits at Lakeba uncertain (Bedford and Clark 2001), but the obsidian does not originate from northern Vanuatu (Reepmeyer and Clark 2009), and the hypothesis relies fundamentally on a questionable assumption that the stylistic differences between Fijian Plainware and Navatu-phase ceramics were the result of prehistoric contact with Vanuatu.

Whereas previous researchers have used numerical taxonomy to investigate and evaluate change in Fijian ceramics, Cochrane (2008) uses transmission theory to evaluate the relative likelihood of cultural transmission between Fiji and Vanuatu. Ceramics from the Yasawa Islands in west Fiji were described using units (classes) designed to track homologous similarity (similarity that is the result of shared ancestry) and these classes were compared with those obtained on published Vanuatu rim cross-sections (Bedford and Clark 2001; Bedford 2006). Ceramic dimensions and modes (cf. classes and attributes in numerical taxonomy) of shouldered rim sherds used in the study were rim curvature (8 modes), angle (3 modes), symmetry (7 modes), thickness (3 modes) and first temper abundance (5 modes). Cladistic analysis identified potential phylogenetic transmission patterns by using temporally defined ceramic classes (early and late prehistoric) which had the most members. Equally parsimonious phylogenetic trees

generated ceramic classes that suggested possible cultural transmission between Fiji and Vanuatu before and after 2100 BP.

While transmission theory has several advantages over the *post hoc* evaluation of culture change in numerical taxonomy, the quality of the ceramic data (dimension and modes) is a major concern, as is the assertion that the ceramic dimensions measure homologous similarity due to prehistoric contact, rather than deriving from the ancestral ceramic assemblages introduced during the Lapita colonisation of Fiji and Vanuatu. In regard to the latter point, the inclusion of 'First temper abundance' is unlikely to track homologous similarity because the availability of different tempers is conditioned by local geological and environmental conditions, as well as by landscape change due to sea-level variation and anthropogenic impacts on the environment, rather than cultural preference for a type of temper sand. In Palau, the earliest ceramics were tempered with calcareous and volcanic sands, which were no longer readily available on Babeldaob after anthropogenic upland erosion, island subsidence and the ensuing expansion of mangroves over 80% of the coastline. As an alternative to increasingly scarce beach sand tempers (Clark 2005) potters instead turned to 'grog' (prefired clay).

Both 'early' and 'late' ceramic clades in the phylogenetic hierarchy contained Yasawa and Vanuatu ceramic classes representing 'transmission within a combined Vanuatu-Yasawa population' (Cochrane 2008:142). The three ceramic classes (12321, 22121, 12121) comprising five dimension modes suggested culture contact between Vanuatu and Fiji in the early prehistoric period, from the presence of vessels with an expanded rim, a rim angle between 70° and 90°, and calcium carbonate temper. The ceramic classes differ in their rim angle (as defined by Cochrane 2008) and thickness. Although ceramic transmission analysis is a promising avenue for investigating prehistoric migration and culture contact, the small number of generic ceramic dimensions/modes and the exclusion of crucial vessel size and decoration information in Cochrane's study mean that the results are not by themselves accurate enough to infer inter-archipelago voyaging between Vanuatu and Fiji, particularly now that the 'Vanuatu' obsidian from Lakeba has been reassessed as deriving from the Fiji-Tonga region (Reepmeyer and Clark 2009), and ceramic assemblages from several parts of Vanuatu have been explicitly described as being unlike the post-Lapita pottery of Fiji (Bedford 2006; Bedford and Spriggs 2008).

Ceramic diversification and vessel trajectories

Several observers have argued for a dramatic change in the ceramic sequence of the post-Lapita period of Fiji, with researchers divided over the timing and significance of stylistic change and whether change stems from internal or external events. In a multi-dimensional scaling analysis (MDS) of fixed and continuous attributes from jar rims from Ugaga, Karobo, Navatu and Sigatoka, the late-Lapita rims clustered together, while post-Lapita rim forms dating to ca. 1800–1000 BP had the greatest amount of stylistic variability (Clark 2000a:179–181, Figures 37a–b, 38a–b, 43). The main issue is whether a) this variability results from the replacement of Fijian Plainware assemblages with Navatu-phase ceramics, as suggested by Burley (2005), and b) Navatu-phase pottery can be demonstrated to be similar to prehistoric ceramics from Vanuatu. These two associations underpin the case for a sharp division between Lapita-derived Fiji Plainwares and the foreign-influenced Navatu-phase ceramics proposed by Burley (2005), and the case for ongoing Vanuatu–Fiji interaction put forward by Cochrane (2008).

Rim-sherd attributes are commonly used in empirical studies of pottery assemblages, but such comparisons can be problematic because the attributes derive from small portions of vessels and observations of vessel morphology may not be accurate. An alternative is to use observations from whole vessels, which have been determined from partial or complete parts

of a prehistoric vessel. Overall, vessel morphology is likely to be culturally constrained when ceramics are made by household production or household industry modes (Rice 1987:184), which have been proposed in Fiji from physiochemical analyses showing local production (Clark 2000a:214). Under these production conditions, ceramics adhere to accepted forms as they are manufactured primarily by, and for, the local community, although in some instances pottery-making communities also export 'domestic' vessels to non-pottery making groups. An example of pottery with constrained vessel proportions is a sample of 59 utilitarian containers made for domestic use by the pottery-producing community on Mailu in island New Guinea, recorded by Irwin (1985), which have coefficients of variation for vessel height and maximum body diameter of 12–13% ($R^2=0.657$).

For Fiji, 'jars' from Sigatoka Level 1 ($n=45$) and Level 2 ($n=11$) published in Birks (1973) were scanned and resized in Adobe Illustrator to the tabulated vessel size. Two additional vessels from the Level 2 deposit at Sigatoka (Burley 2005:Figure 5d and Figure 6a), and reconstructed 'jars' from Vanuatu ($n=25$) dating from the first two millennia of occupation were scanned and resized (Bedford 2006), and four estimated vessel dimensions were recorded (exterior diameter, internal diameter, vessel height, maximum body width). The dimensions of whole vessels can be used to illustrate the morphological pattern of Fijian jar forms at different points in time, and the vessel dimensions can be compared with Vanuatu vessels to determine whether Fijian jars have similar vessel proportions, consistent with ceramic transmission.

In Figure 134, vessel height (cm) is plotted against a vessel-width index made by multiplying aperture diameter (cm) by the maximum body diameter (cm)/100. The plot separates Sigatoka late-Lapita jars, which are characterised by a subglobular body and a vessel height smaller than maximum body diameter. There is a very strong correlation ($R^2=0.917$) between vessel height and maximum body diameter, demonstrating that late Lapita potters at Sigatoka produced jars with highly consistent vessel proportions, despite substantial variability in container size.

In comparison, Fijian Plainware and Navatu-phase ceramics from Level 2 are significantly more variable, especially in their aperture dimensions, and are distinguished from Sigatoka Level 1 jars by their greater vessel height and volume. The R^2 value for maximum body diameter against vessel height for these vessels is 0.637, similar to domestic pots from Mailu. One Navatu vessel (Birks Vessel No. 237) has a subglobular body and similar vessel dimensions to some Level 1 jars, highlighting the variability among post-Lapita vessels.

It is clear that vessel proportions do not demonstrate a close relationship between Fijian Plainware jars and Sigatoka jars of late-Lapita age. Fijian Plainware vessel proportions are most like those of Navatu-phase ceramics, which supports the idea of some continuity between the two Sigatoka Level 2 assemblages, rather than ceramic replacement of Fijian Plainwares by Navatu-phase ceramics. This was also seen in the number of shared vessel forms and continuity in the main types of decoration (Burley 2005:Tables 2 and 3). Fijian Plainwares demonstrate a tendency towards a small aperture size relative to vessel height, which nonetheless is a trait also present in some Navatu-phase jars, and possibly relates to a functional change, as a small vessel aperture reduces evaporation when cooking (Rice 1987:241).

The dimensions of 25 reconstructed Vanuatu jars are plotted with the Sigatoka vessels in Figure 135. Compared with Sigatoka jars, those from Vanuatu are most like Sigatoka late-Lapita jars in their vessel proportions, but are less subglobular in having a slightly greater vessel height. The Vanuatu vessels are also distinct in their proportions from the Plainware and Navatu jars of Sigatoka Level 2, which have a greater vessel height. However, one Vanuatu vessel (6.18a) has some similarity to three Plainware/Navatu vessels (205, 217, 233) while a Navatu vessel (237) plots close to two Vanuatu vessels (6.17 318(2) and 6.2a).

Figure 134. Late-Lapita and post-Lapita jar proportions. Triangles=Sigatoka Level 1 Birks (1973) vessels 120, 70, 10, 27, 26, 99, 29, 117, 23, 121, 92, 37, 122, 67, 66, 113, 72, 61, 90, 95, 25, 38, 4, 48, 88, 68, 40, 21, 57, 112, 86, 69, 87, 89, 94, 6, 50, 103, 71, 79, 91, 101, 111, 141, 82). Crosses=Sigatoka Level 2 Navatu phase Birks (1973) vessels 239, 237, 217, 276, 233, 233, 221, Burley (2005:vessel Figure 5b). Circles=Sigatoka Level 2 Fijian Plainware, Birks (1973) vessels 205, 271, 277, and Burley (2005) vessel shown in Figure 6a. Note the separation between Sigatoka Level 1 jars and Sigatoka Level 2 jars, and overlap in vessel proportions between Fijian Plainwares and Navatu phase jars, highlighting continuity in vessel form.

The great advantage of dealing with reconstructed vessel forms is that we can directly compare Fijian and Vanuatu vessels of similar proportions to see whether they are similar in other aspects, such as rim form, angle and decoration. The vessels plotting closest to Vanuatu 6.18a and Fiji 237 are shown at the same scale in Figure 136, along with details of decoration and surface markings on each. There is no convincing example of vessel similarity from inspection of lip and rim form and the type of decoration, although a larger comparison of reconstructed vessel forms could reveal stronger vessel analogues.

Nonetheless, the analysis of vessel proportions does indicate a significant break between the late-Lapita assemblages of Sigatoka dating to 2650 cal. BP and the later Fijian Plainware/Navatu-phase assemblages produced at 1300–1500 cal. BP. Since the stylistic ‘break’ between the Level 1 and Level 2 ceramics covers around 1000 years, there may well be pottery assemblages that when eventually described will form transitional assemblages between the late-Lapita and the post-Lapita ceramics (see Hunt 1986). It is also apparent that the vessel proportion analysis has upheld Burley’s observation of increased stylistic diversity within post-Lapita assemblages relative to late-Lapita pottery. This has been ascribed to post-Lapita influence and contact with Vanuatu, but in fact New Caledonia has decorative traits such as parallel and cross-hatch paddle

Figure 135. Fijian late-Lapita and post-Lapita jar proportions compared to reconstructed Vanuatu jars illustrated in Bedford (2006). Triangles=Sigatoka Level 1 jars, Crosses=Sigatoka Level 2 Navatu phase jars, Circles=Sigatoka Level 2 Fijian Plainware jars, Stars=Vanuatu jars.

Figure 136. Comparison of Vanuatu vessel 6.18a with three Sigatoka Level 2 jars (top row) and Sigatoka Level 2 vessel 237 with Vanuatu vessels (see Figure 135). The Fijian jars are distinct in decoration and morphology from the Vanuatu jars.

impression, along with cord marking, that are also found in Fiji. The mistaken attribution of the post-Lapita obsidian from Lakeba as deriving from Vanuatu has been the main reason why the task of establishing the ceramic similarities between New Caledonian and Fiji has received less attention than a presumed Fij–Vanuatu connection, and this is a topic that remains to be properly explored (see Clark 2000a:240–241; Bedford 2006:181–182).

Mid-sequence ceramic change

If the evidence for external influences on the Fijian ceramic sequence is not convincing, as I have argued, then we are still left with the question about the cause of stylistic diversity and the meaning of ceramic change in the Fiji Islands in the post-Lapita period. Ceramic collections from many parts of Fiji have traits similar to those of the Sigatoka Level 2 assemblages described by Birks (1973) and Burley (2005). These include several types of paddle impression, tool impression, finger pinching and incision, along with distinctive vessel forms like the flat-based tray that Burley (2005:333) suggests was used in salt production. One important post-Lapita vessel is the double-spouted vessel (Figure 137), which has been found on Viti Levu (Sigatoka, Navatu, Vuda, Karobo), Beqa Island (Ugaga Island), Taveuni (Navolivoli) and Cikobia (CIK-021). The widespread distribution of this unique vessel form through much of the Fiji Group argues for a degree of post-Lapita intra-archipelago connectivity (Clark and Sorovi-Vunidilo 1999). At the same time, there is also significant variability at the intra-assemblage level, as demonstrated by the vessel proportions of Sigatoka Level 2 jars. What does this contradictory picture of stylistic association say about social interaction?

According to Lyman and O'Brian (2000), the richness of decorative types or styles is often correlated with social dynamics, especially the frequency of group interaction or intergroup transmission. As Davis (in Conkey 1992:12) puts it: '... if we interpret stylistic similarity as

Figure 137. Fijian double-spouted vessels. A=Natunuku, B=Navatu, C=Natunuku, D=Sigatoka, E=Navatu.

indicating social interaction among the producers of artefacts, then we must simultaneously interpret it as also indicating a “social boundary” – for where similarity decreases, by hypothesis we are seeing less social interaction.’ Increasing stylistic diversity between groups can come about because potters are increasing isolated, causing decorative styles and vessel proportions to evolve in independent directions. The known post-Lapita assemblages of Fiji, however, do not appear to be sufficiently independent of one another to argue for significant ceramic divergence as the result of social isolation (Best 1984). If ceramic divergence was a feature of the post-Lapita period then we should see significant differences between geographically distant assemblages, but this has not been proposed in any ceramic study, with researchers able to describe pottery assemblages from throughout Fiji using a common terminology (Frost 1970; Best 1984; Crosby 1988; Rechtman 1992; J. Clark and Cole 1997; Hunt et al. 1999; Clark 2000a).

An alternative proposed by Neiman (1995) is that within-assemblage ceramic diversity scales with the effective population size and the innovation rate. The innovation rate is controlled by the number of intergroup transmissions, with high stylistic diversity representing high levels of intergroup contact. Fiji is a large and dispersed archipelago and it is probable that some potting communities were more isolated than others and developed semi-localised pottery styles, and also that population increase contributed to increasing intra-assemblage diversity. However, there are sufficient similarities among post-Lapita ceramic assemblages to suggest that rates of interaction were sufficient for a distinctive Fijian ceramic complex to develop over much of the archipelago during the post-Lapita period, even though coastal potting groups may have had higher rates of intergroup contact compared with inland communities and potting groups on distant islands like those of southern Lau, which might have been relatively isolated from stylistic developments on the main islands. Along with the effect of population increase on the innovation rate, the extension of social and trade networks in post-Lapita times may well have enhanced stylistic diversity by increasing the frequency and intensity of intergroup contact as well as introducing stylistic variability from contact with communities whose ceramics had become partially ‘localised’. Population increase is frequently accompanied by human dispersal to new environments, and during post-Lapita times palaeoecological and archaeological evidence demonstrates an increasing focus on the settlement of interior landscapes (Chapters 4 and 16). Such movements involved new adaptations, particularly economic emphasis on horticulture and new social configurations relating to land use, and trade and exchange networks with coastal groups. These social and economic changes, which remain to be investigated in detail, likely stimulated change in material culture, including the size, shape and decoration of ceramic containers.

In their panmictic characteristics, the post-Lapita ceramics of Fiji stand in contrast to the more regionalised ceramic assemblages known from New Caledonia and Vanuatu (Sand 1996, 1999; Bedford 2006; Bedford and Spriggs 2008). Environmental variability among the Fiji Islands may be a significant driver of archipelago interaction as it may have been advantageous for populations on the numerous small to medium-sized islands to have strong social and economic relationships with groups on the large islands of Viti Levu, Vanua Levu, Kadavu and Taveuni – a situation that would have encouraged the spread of stylistic traits. Webster (1975) suggested that juxtaposed zones of differing productive and demographic potential were important for the emergence of social complexity, of which the development of archipelago networks in the post-Lapita period of Fiji might be one manifestation. In contrast, the Grande Terre of New Caledonia and island-rich archipelago of Vanuatu (12 islands with a land area greater than 300 sq. m compared with Fiji which has three islands) have a potentially more even distribution of archipelagic resources that could have led to lower rates of inter-group contact, leading

to greater stylistic independence and ceramic divergence. We require much more empirical data and new models to examine in detail the relationship between island geography, resource distribution and culture patterning, but one starting point would be to investigate whether archipelagic variability in language and material-culture diversity correlates with environmental and topographic variation. Although exogenous explanations for ceramic change in Fiji cannot be entirely ruled out given current knowledge of the prehistoric sequence, they now receive less archaeological support than at any time in the past (Sheppard and Walter 2006; Reepmeyer and Clark 2009), and models featuring culture change as the result of internal archipelago processes (e.g. Rechtman 1992; Field 2004, 2005) must also be considered.

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