

PREHISTORIC TRANSFERS OF PORTABLE ITEMS DURING THE LAPITA HORIZON IN REMOTE OCEANIA: A REVIEW

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ABSTRACT

In Remote Oceania, east of the Solomon Islands chain, sites with Lapita pottery form a horizon of probable colonising populations. Most were linked by occasional transfers over varying distances of portable items (pottery, adzes, chert and obsidian/volcanic glass flake tools, objects of marine shell, other objects in stone including those for ovens). The extent of this evidence to date is assembled and assessed. From that island group by island group review, it is concluded that in this region Lapita exchange consisted of a loosely linked series of complex multi-modal intra and inter-island systems, rather than a single, extensive, elaborate integrated network.

THEORETICAL BACKGROUND

Documentation for diversity in prehistoric transfers among portable items associated with assemblages containing Lapita ceramics is slowly being accumulated. These imports underpin claims for an extensive and complex set of exchange systems operating during that time horizon. Recent general statements which interpret this situation, however, cover a wide range of viewpoints (Green 1987; Kirch 1990; Terrell 1989; White 1993). One of the more extreme positions (which Pawley and Ross 1993:447 speculate may perhaps have been made tongue-in-cheek) is that advanced by Terrell (1989:625) in which he asserts that "Lapita, to repeat, was a trade ware in Melanesia". The context of the assertion is Terrell's observation that items of material culture which we speak about so freely as part of the Lapita cultural com-

plex, such as pottery, obsidian, stone and (possibly) shell, were in fact all elements of prehistoric trade.

Although Terrell excluded the Fijian and Polynesian regions from these claims, finding it reasonable in that context to talk about a "Lapita people", Clark (1993) has suggested extending the "Lapita as a trade ware" concept into Western Polynesia as well. Thus he (1993:326) canvasses the possibility of a non-Lapita occupation of Samoa reflected by "a widespread Plain Ware [ceramic] tradition and associated culture(s)." If so, he argues, the Mulifanua site was in fact not occupied by "Lapita people", as the small percentage of decorated Lapita sherds in that site would in this interpretation represent nothing more than the presence of a trade ware (presumably from Fiji or Tonga - although Clark does not suggest a source).

White (1993:158) wonders, in keeping with ethnographic models of traditional traders in the Melanesian region, if sites yielding "quantities of Lapita pottery were centres of distribution networks." Based on the evidence of obsidian, however, he finds it remains to be determined how that item was distributed - whether through one large-scale network that linked Lapita potters, or through a series of such networks, or through some other mechanism such as small-scale, hand-to-hand trade.

Kirch (1990:119), in the most recent and detailed review of exchange within the Lapita complex, raises three critical points. The background to the first point is that in some regions where sites with Lapita ceramics in their assemblages have been investigated, the archaeologists involved have employed a range of techniques to explore, in some detail, imports and their sources. Often, too, such exercises have benefitted from being conducted within regions with fairly simple geologies, so that the "exotic" nature of items are more transparent. Kirch (1990:119) cites my work on the importation of various commodities to the Reef/Santa Cruz Lapita sites as pro-

viding the most complete picture so far of Lapita exchange, to make his first point, that "we must be cautious of generalizing this model to the entire Lapita complex over both space and time." In a recent paper (Green ms - written at the same time as Kirch's but to date only presented in seminars) I re-examined the Reef/Santa Cruz evidence in detail. A rather similar conclusion was drawn that this case does indeed represent an unusual (and perhaps unique) outcome. This involves the "very-long-distance" part of what was in this region a multi-mode and complex system involving a whole range of materials (and not just the obsidian or pottery which tend to feature in most discussions). There are three other cases where such detailed examinations of multiple imports have so far been pursued with a similar degree of vigour. One is Best's (1984) study of the items in the Lapita and other sites of the Fijian Lau group island of Lakeba, another is that of Kirch and Yen (1982; see also Kirch 1986) for all periods in Tikopia, and a third is Kirch *et al's* (1991:156-9) still-in-progress analyses of exotic materials from the Lapita sites of the Mussau group project.

Kirch's second point is that Reef/Santa Cruz

long-distance exchange relationships with Lapita communities in near Oceania...may have been quite different from relationships between communities in the Bismarck Archipelago itself, where genetic, linguistic, and cultural complexity was substantially greater (Kirch 1990:119).

Terrell (1989:625) too raises a related theme in his observation that

we cannot seriously maintain that trade objects during 'the Lapita period' only passed to and fro between Lapita kinsmen or that the exchange of goods in ancient Melanesia honoured the boundaries of an ethnically exclusive Lapita 'colonizing or exchange system'

What both authors, with their focus on modern Near Oceania and the Lapita sites of the Bismarck Archipelago, are alluding to are the expected differences with Lapita sites in Remote Oceania. There (in contrast to Terrell's position which restricts such notions only to Fiji and Polynesia), well-supported claims have been made that Lapita communities do in fact represent the founding colonising inhabitants (Spriggs 1984, 1991). Green (in press), in developing this theme further, has in fact gone so far as to claim these initial settlers of the Remote Oceanic region consist of a proto-Eastern Oceanic speaking set of communities of biologically closely related pre-

Polynesian populations possessing some material culture version of a Western (and then Eastern) form of the Lapita cultural complex. In short, in contrast to Terrell or Clark, I would see the sites of the Lapita complex in Remote Oceania (including those exhibiting largely plain ware ceramic assemblages possessing few or no sherds decorated in the Lapita design style - cf. Green 1992) as representing a 'people' throughout that large and previously uninhabited zone.

If this interpretation continues to be supported for those sites, it seems quite legitimate to speak of prehistoric transfers of portable items between sites of that zone as initially occurring among kinsmen and communities of what Terrell (above) rather disparagingly called an "ethnically exclusive" Lapita "colonizing or exchange system" (cf. Green 1978, 1979, 1987:247). Therefore, the Lapita colonising model (Green 1982) in the recent literature has been restricted to the Remote Oceania zone (Green 1991), and another model developed for Near Oceania, one which recognises the likelihood of exchanges between a range of agricultural and non-agricultural communities in that zone, where human habitation existed for millennia before the advent of a Lapita horizon. In Near Oceania in my view, Lapita ceramics as a trade item in non-Lapita site assemblages is an expected (and probably already documented) outcome; in contrast such is not the case in Remote Oceania. This review, therefore, covers only Remote Oceania, recognising that the evidence for prehistoric transfers during the Lapita horizon in that zone may be less applicable for the quite different situation in Near Oceania. This, of course, provides firm support for the first point made above, that the well-studied Reef/Santa Cruz case should never be (or have been) taken as typical for Lapita in general.

The third point made by Kirch (1990:119) is that

we must not assume that Lapita exchange was temporally static over the millennium or more that the complex can be distinctively recognized in terms of its persistent ceramic tradition.

In the review which follows, this point will be made repeatedly, and is already well attested in the Reef/ Santa Cruz and Lakeba cases (Green 1987:247; Best 1984:628 and Figure 9.15), and has been shown to probably apply in the Mussau region as well (Kirch 1990:128-9). It is also a predicted consequence for the generalised Allen (1984:442-5 and Figure 2) model developed for the Papuan region.

A REVIEW OF EVIDENCE FOR PREHISTORIC TRANSFERS BY ISLAND GROUPS

Hunt and Graves (1990), in their examination of methodological issues of exchange in Oceanic prehistory, indicate that two distinct problems, one technical, the other methodological, require solutions if we are to advance to the level of explanation. The first problem (following Earle 1982:3) is to identify those commodities being moved through characterisation of their composition. This in some cases permits determination of their likely source and their spatial patterning. It permits a partial reconstruction of the organisation and modes of transfer of hard goods involved in the prehistoric exchange system.

The second problem addresses how we can develop adequate models which offer explanations for the partially reconstructed systems that have a degree of plausibility. On the first front our techniques and the quality of our data are continually improving; the problem is getting all archaeologists who recover evidence from Oceanic sites to systematically apply them to their data, whether for the Lapita or any other time horizon. On the second front we are a long way from solutions, although at last some tentative and archaeologically testable models are being developed, different from the ethnographically well-known Melanesian case studies of such systems. Still, we can be reasonably certain of one thing; it will not do to make "Lapita an expanded version of ethnographically documented Melanesian 'specialised trading systems' such as the *kula* or *hiri*" (Kirch 1990:118; Ambrose 1976; see also Green 1987:246). This review, therefore, sticks largely to the first problem of identification of the commodities moved, as a necessary step to addressing the second problem of their explanation.

Davidson (1978:386-7) was the last to attempt an overview of the evidence for exchange between communities in Western Polynesia and Fiji. Her conclusion was that the evidence was "already sufficient for us to infer regular communication and interchange of *ideas* throughout the region", but that "archaeological transfer of durable goods is so far amazingly slight at all periods." Although she favoured a situation where the level of contact throughout the sequence was relatively even, in the same year Kirch (1978) offered the alternative view for West Polynesia, that the early period represented a complex exchange network, which was abandoned as settlements became more isolated and self-sufficient. Best (1984:631) found his Lakeba sequence began with the most extensive evidence of exchange of any within the 3000 year sequence. In contrast, at the end of the Lapita period a marked reduction followed in the

number and amount of imported materials present in the Lapita derived period of expanded rims and burnished and polished (but largely undecorated) pots. In fact this more detailed and extensive evidence for one locality and sequence in Fiji strongly implies that while external contacts at some level occurred throughout the 3000 year sequence, these certainly fluctuated from period to period, in marked contrast to Davidson's assessment of "sameness" for the situation in that area.

Since Davidson's review of the data from West Polynesia, new evidence has come to hand, although it is dispersed throughout the more recent literature, and not easily summarised. In Samoa, we now know that at the Mulifanua site one Lapita adze was local, and the other probably imported from Tonga (Leach and Green 1989; Best *et al.* 1992:58). There is also a unique-to-Samoa plano-convex adze in a green metamorphic rock from a surface context in Western Samoa, of the early Lapita period and type, which derives from rocks found in northeast Viti Levu in Fiji (Green *et al.* 1988; Best n.d.). Western Samoan adzes of several types associated with the Lapita derived plain ware pottery, as well as from later contexts, are from quarries c.100 km away in Tutuila, American Samoa (Best *et al.* 1992). The same applies to adzes and adze flakes in similar temporal contexts from the Manu'a group c.100 km to the east (Best *et al.* 1992:66; Weisler 1993:179-83).

Turning to obsidian (volcanic glass really), it is now certain that such cores and flakes in Western Samoan sites have a Samoan (and not Tongan/Tafahi) source (Sheppard *et al.* 1989). Geochemically this source is very probably a volcanic plug on Tutuila (Clark and Wright n.d.). Only a limited number of such flakes have been found, largely in late plain ware ceramic sites in Western Samoa (Green 1974), and in a few sites of similar age in American Samoa (Best *et al.* 1989:35; Clark 1993:325), but they occur in abundance in the ceramically rich early plain ware layer of the Aoa site, presumably located not far from its once exposed source on Tutuila. Apparently, obsidian flakes of this type did not occur in the early and later plain ware period sites of the Manu'a group (Kirch 1993:165), although an obsidian core of reddish brown colour with black spots and banding was recovered from that context and is likely a long distance import to Ofu.

In Western Samoa, chert, again largely restricted to late plain ware pottery contexts, was not identified initially as an import but was assigned to a local silicified coral origin (Green 1974:269). It is, in my view (see also Kirch 1976:58), now more likely that this identification was incorrect and it was an import, probably like that of the chert from Niuatoputapu in the Tongan group, which

cannot yet be attributed to a known source (Sheppard n.d.).

Pottery in early and late ceramic contexts in Western Samoa remains in large part sourced to those localities in which it is recovered, as Dickinson (1974a, 1976a) observed based on temper analyses of sherds from sites at Vailele, Sasoa'a and Mulifanua. This includes decorated sherds from Mulifanua, despite Clark's speculations to the contrary. A restudy of the Mulifanua Ferry Berth assemblage definitely confirms that the temper in nearly all the sherds is of local origin, with only one piece being from a Fijian source (Petchey 1995:75-89). The clay in the latter piece also implies a Fijian source, different from the quite varied clays found in the Ferry Berth sherds (Petchey 1995:143-5). The temper in pottery from similarly early and late ceramic contexts in the To'aga site of the Manu'a group again exhibits characteristics best interpreted as a locality-specific variant of the generally similar suite of Samoan temper types, all of them indigenous (Dickinson 1993:155-6). The same applies to the clay, which is from a local colluvial source on Ofu (Hunt and Erkelens 1993:146). Only some red-slipped ware, and perhaps other pottery made of clay distinctive from the locally known colluvial sources on Ofu, may reflect imports to that island (Kirch and Hunt 1993:243; Hunt and Erkelens 1993:146). Thus, while interchange of some pottery between localities within Samoa is a possibility, long distance exchanges outside the group are only minimally present in evidence.

Obsidian (volcanic glass) transport in the Tongan island group was again locally focused. Pieces from the Tafahi Island and Niuatoputapu sources occur in some abundance in the Lapita sites of Niuatoputapu (Kirch 1988:215), but only two pieces (unsourced but presumably from Tafahi) occurred in the early Lapita period of Tongatapu (Poulsen 1987:214). Two of the five pieces in early Lapita contexts from Lakeba in Fiji are also reasonably sourced to Tafahi; one probably is, and one might be (Best 1984:431-3). Thus, as in Samoa, only an early and fairly localised reciprocity in this material is attested for Tonga, with longer distance exchanges to Lakeba (400 km) and Tongatapu in Tonga (400 km) occurring only in rare instances. Elsewhere exotic obsidian items apparently do not occur in the Lapita and Lapita related sites of Fiji, 'Uvea and Futuna despite sources in Samoa and Tonga. The exception is the Lapita site of Naigani, a small island off the northeastern coast of Viti Levu in Fiji. Here two flakes have been shown to be imports from Talasea (Best 1987), probably from a colonising voyage emanating from Lapita communities in the Reef/Santa Cruz island group (Kay 1984; Best n.d.), who

in turn imported this obsidian in quantity from another 2000 km to the west (Green 1987).

In the Lapita sites of Niuatoputapu, chert was the clearest material to provide evidence for long distance exchange. It was associated almost exclusively with the earliest dentate-stamped ceramics (Kirch 1988:254). Kirch's claim for one possible source in Futuna has not been supported by further analytical work undertaken by Peter Sheppard (n.d.), who compared it to Futunan and other Oceanic cherts, without finding comparable material. The possibilities of Fiji and 'Eua remain (Kirch 1988:213-4). In contrast Kirch (1988:254) states that "we can rule out the importation of pottery to Niuatoputapu...All of the sherds petrographically examined were locally manufactured", (see also Dickinson 1988:276, who shows that known Fijian and Samoan tempers are distinctly different to those from Niuatoputapu, but does allow that some of the calcareous or calcareous ferro-magnesian tempers of uncertain origin might have come from elsewhere in Tonga).

Finally Kirch (1988:255) develops the argument that the portable shell artefacts of the early site in Niuatoputapu, interpreted as exchange valuables, are imports, perhaps from sites with evidence of shell manufacture in Fiji. He combines this with the chert imports (and a suggestion that it may also apply to other stone materials such as adzes), plus the evidence for the export of obsidian, to sketch a tentative model of Niuatoputapu's position within an early Eastern Lapita exchange network. By the following plain ware ceramic phase, he infers from the absence of similar evidence that the "network had either collapsed entirely or, at least, changed significantly in terms of the materials being imported" (ibid.).

Some evidence for local importing in the Lifuka Lapita sites of the Ha'apai group is mentioned by Dye (1987:97,111,131) involving artefacts in materials such as volcanic and siliceous rocks. The latter are either from Nomuka or 'Eua, and the former from the nearby (75 km) volcanic islands of Kao and Tofua (Dye 1987:61-63,97). He (1987:135) also reports an adze in a blue-green rock exotic to Tonga, which I suspect is another of those from Viti Levu in Fiji. Most of the Lapita ceramics are, as usual, of local manufacture using clays fluxed with local placer tempers derived from the volcanic ashes from nearby islands (Dye 1987:246; Dye and Dickinson 1995) which cover these raised coral limestone islands. Still, two sites produced five sherds with an exotic feldspathic temper and hornblende crystals whose source is probably the Lau group in Fiji, amongst the large majority of more local origin. Perhaps with Burley's (in press) more wide ranging programme in this part of the Tongan

group, the problem of exchange will in due course be addressed more fully.

Turning lastly in the Tongan region to early, middle and late Lapita sites on Tongatapu, the situation remains much as sketched by Poulsen (1987) and summarised by Davidson (1978). Stone artefacts on this raised coral island are, of course, all imported, most of them probably directly from the nearby island of 'Eua as well as some from the volcanic islands of the Ha'apai group about 200 km distant. These include stone adzes, beads, grinders, cutters, 'bowling' discs, a file, hammerstones, red ochre, and the two obsidian flakes discussed above.

The stone adzes are made mainly from 'Eua sources, but two may be sourced to Kao and Tofua in the Ha'apai group (Poulsen 1987:163), and two are of hawaiite almost certainly exotic to the Tongan group. Green (1974:143) favoured a Polynesian island source, 'Uvea or Samoa, for them rather than the other possibilities of Vanuatu or the Loyalty Islands (White 1987:280). Poulsen (1987:177), drawing on the strong late period ceramic relationships between Tongatapu and Futuna, has suggested the 'Uvean region as a likely source. Elemental analyses of three hawaiite adzes from Tongatapu (the two noted above derived from the late ceramic period, and one other from a more recent non-ceramic context), indicate that the more recent adze is likely from a Tutuila, probably Tatagamatau, source (Best *et al.* 1992:60 and Table 1), but the two late ceramic period ones are compositionally quite different to any known Tutuila Samoan source (Best *et al.* 1992:55 and Table 1, cluster 17), lending further support to an inferred 'Uvean origin. There is also an adze of a distinctive green colour, compositionally an altered dacitic welded tuff, which it is suggested may have come from 'Eua (Poulsen 1987:163). I suspect it may derive from a source on northeastern Viti Levu in Fiji instead (Best n.d.).

A Fiji source is also likely for the sandstone file (cf. Poulsen 1987:211). Pieces of siliceous rock (not further described or quantified) are also mentioned (Poulsen 1987:214), which might be of 'Eua, Nomuka, Futuna or Fijian origin. Spennemann's (1989) more recent investigations add little to this particular line of inquiry for the Lapita sites of Tongatapu. Although he adequately summarises the previous Tongan evidence (Spennemann 1989:158-61, 216), the one new item is another Lapita adze of green-coloured rock from a surface context on Tongatapu, which very likely again derives from a source on Viti Levu in Fiji.

Because of its quantity and the rich local sources of good potting clay derived from the volcanic ashes that covered this island, local manufacture is considered the

most probable of several possibilities for much of the pottery recovered on Tongatapu (Poulsen 1987:135). The majority of the tempering material for it was, until recently, thought to have been imported (Dickinson 1974b). However, as in the raised coral limestone islands of the Ha'apai group, a placer origin for the temper from sorting of the volcanic ashes is now postulated (Dye and Dickinson 1995). Certainly some importation of pots from other islands within the Tongan group is not precluded by the present evidence, and in fact is very likely, but in only one instance is a distant source indicated, except in relation to some much more recent non-Lapita sherds. The one more distant sourced example from the late ceramic period in Tongatapu is a gabbro-tempered sherd probably from Fiji (Key 1987:274; Spennemann 1989:216). An example with fine feldspars and large hornblende crystals, (Key 1987:274) assigned to 'Eua (Poulsen 1987:315), may also be an exotic from Fiji (see Dye 1987:231).

The well studied Lakeba, Lau group, Fiji case has already been mentioned above, and stands out as an example of an initial multi-mode, complex system involving a whole range of materials, including in the earliest period rare examples of a large riverine shellfish valued both for its flesh and shell, probably from Viti Levu (Best 1984:628-32, 641). In this case, circa 35% of the Period 1 ceramics are imported from five different temper sources, a marked contrast so far to anything encountered elsewhere in the Fijian-West Polynesian area. Other imports at this time include most adzes and flakes and some grindstones. During the second plain ware/expanded rim period, "the evidence for trade or exchange is small in relation to the previous period" (Best 1984:Figure 9:15), correlating with a spread of settlement inland (Best 1984:642 and Figure 8.1).

The difference between this well studied case and that for various Lapita sites on Viti Levu (and its nearby islands) is marked. In Natunuku, Yanuca and Sigatoka very little in the way of imported portable artefacts has been reported (Hunt 1980:200; Davidson *et al.* 1990). Perhaps a few of the adzes from Yanuca (Hunt 1980:144) or Sigatoka (Birks 1973:49) are of non-local origin, but the likelihood is that most derive from nearby alluvial deposits that draw on sources in the complex geology inland of these sites. On Naigani Island the adzes are mainly of a green rock, identified as a meta-sediment, from a green schist facies on the adjacent Viti Levu coast (Best n.d.), a distinctive type of adze material also seemingly distributed to Samoa and Tonga. Other stone materials, including the siliceous lithics, are all very

probably local or within the immediate region of the different sites.

Although most of the pottery from these sites is also of local origin (Dickinson 1971, 1980) some of it indicates the operation of occasional exchanges between localities. Thus sherds from two of the decorated pots at Yanuca match those of the indigenous Natunuku temper from the north coast of Viti Levu (Dickinson 1980), while at Natunuku a few sherds contain tempers similar to those of the Lapita levels at Sigatoka on the south coast of Viti Levu (Dickinson 1971).

I have been unable to discover much evidence for importing into the Lapita sites of Futuna and 'Uvea, although the extensive use of chert in early contexts in Futuna is well documented (Frimigacci 1990:47), as is its export to Anuta, Tonga and probably Samoa (see above and Frimigacci 1990:49). In his discussion of Futuna's external relations, Frimigacci (1990:49-50) notes that adzes from all sites (except a Micronesian type one in shell from a later period) are in basalt and presumably local. The same applies to the Lapita period pottery, which exhibits three kinds of indigenous tempers (Dickinson 1976b; Sand 1990:126; Kirch 1981:134). Exotics apply only to some sherds of later periods from Fiji (Frimigacci 1990:50). A local temper of a quite different sort to Futuna occurs in the late Lapita ceramics of 'Uvea (Dickinson 1976b:66). In the literature I have checked, no items exotic to 'Uvea appear to be mentioned for Lapita or Lapita related assemblages.

Two earlier overviews of New Caledonian prehistory hardly make mention of trade or exchange (Frimigacci and Maitre 1981; Green and Mitchell 1983); only in a more recent one (Sand and Ouetcho 1991) is the topic briefly addressed. Still, in the view of Sand and Ouetcho (1991:47), exchange in the Lapita cultural complex of New Caledonia is no different to that of the rest of the southeast Pacific. Evidence for imports from a distance beyond the territory involve one obsidian flake from the Ile des Pins site of Vatcha sourced to Talasea, and another, probably from the same source, in Konè site 13A. Working through the first six Lapita sherds examined petrographically (Curtis 1956:104-6), I spotted one outlier example from the Vatcha site that contained a rhyolitic pumice and common amounts of pyroxene and amphibole grains which would fall into Dickinson and Shutler's (1971:196-7) Andesitic Arc Temper group. In 1976 (Green 1978:11) I noted its possible exotic origin, and suggested a New Hebridean (Vanuatu) source, but now think one in the Loyalties where Lapita sites have recently been found is just as likely.

Within New Caledonia itself, Sand and Ouetcho (1991:47) suggest that the Lapita populations exchanged both Lapita pottery and fragments of rocks such as rock-crystal or chert over several hundred kilometres. In their view certain villages of this period would appear to specialise in making ornaments such as bracelets in *Tri-dacna* or adzes, and exchanging them for other products. The best examples of these general statements are demonstrated by recent pottery composition studies of Lapita sherds undertaken by Galipaud (1990), where many of the sherds exhibit both coral sand and quartz sand tempers that probably represent local production for Lapita sites in New Caledonia. Others, however possess spinel minerals associated with ultramafic formations found only in certain localities along the northern west coast, and in a large cohesive area along the southeast coast. Still other sherds exhibit rare glaucophane minerals whose source is restricted to a narrow belt on the north-east end of the island (Galipaud 1990: Figure 3). This evidence leads Galipaud (1990:140) to hypothesise that Lapita potters (as in Lakeba) were collecting clay and temper from different sources, and that ceramic production probably occurred in specialised centres from which pots were traded around the island group. Yet some local manufacture always seems to be in evidence in most New Caledonian Lapita sites as well, including Vatcha (Frimigacci 1970:35, 1974:40), where it is indicated by the local coralline sand tempers.

Turning to the siliceous flakes and cores in many Lapita sites, and the disjunct distribution of a special type (phtanite) of this material in the Eocene flysches and limestones of New Caledonia, local and more distant exchanges between Lapita sites within New Caledonia are again indicated, including the Vatcha site on the Ile des Pins (Sand and Ouetcho 1992:8). An adze and other items in rocks from New Caledonia have also been found in that site, and may be interpreted as short distance (60+ km) imports.

Lapita sites are so far rare in Vanuatu (Galipaud 1992:107), despite extensive surveys throughout the archipelago. Thus it is only for the Malo Island sites that one can usefully comment on possible exchange relations. Hedrick (n.d.:232-3) summarises these under two general classes of imports: long distance goods of extra-areal origin, and regional goods of inter-areal affinity. The first set of items include the obsidian flakes sourced to Talasea and Lou, the volcanic glass and chert from the Banks, or in the latter case the southern Solomons, plus two pottery sherds attributable to New Caledonia (Dickinson 1971:244 - note that the chrome-spinel in these sherds and Galipaud's more recent findings now

strongly point to certain localities in New Caledonia). The second set of items consists of cooking stones, stone adzes and adze blanks, and the bulk of the pottery. Malo's simple geology of a coralline-capped volcanic tilt block means a substantial amount of the material recovered is in fact imported, as must be the case in some Tongan and Main Reef Island situations.

The Kiki phase, represented by largely plain ware related Lapita ceramic assemblages on Tikopia, again exhibits a multi-mode and complex exchange system involving a whole range of materials. The pottery during this period, however, is all local. These imports have been discussed in detail for all three periods of the Tikopian sequence by Kirch (1986; see also Kirch and Yen 1982:338-41). Only details from the Kiki phase (ca. 900-100 BC) need concern us in this review. As shown in Kirch's (1986:40 and Figure 4.2) illustration, rhyolitic obsidian, metavolcanic adzes, chalcedony, chert and volcanic glass are the principal items involved at that time, yet he judges this phase to have been the interval when "Tikopia would have been the least influenced by external communities." Although he refrains from deciding which of several kinds of social inter-relationships are represented, I would opt for his alternative which sees them as minimally connected to Lapita communities in the Reef/Santa Cruz region and that exchange network. In this respect, Sheppard's (n.d.) study of some of the early chert from Tikopia suggest they have the same sources as those in the Santa Cruz Lapita sites.

Other Lapita related assemblages from Anuta and from Lakao in the Duff group also contain a few exotic imports. In Lakao these include four pieces of obsidian (volcanic glass) sourced to Vanua Lava in the Banks Islands and two to an unknown source (Leach 1985:120), while in Anuta a sherd with a possible exotic temper and a nodule and flake of chert which may have come from Futuna have been found (Kirch and Yen 1982:344). The sourcing of the chert and obsidian from Tikopia and the chert from Anuta require further more definitive analyses. The use of coralline cherts as exports from Lakao in the Duff group to the Reef/Santa Cruz Lapita sites should be noted in this context (Sheppard 1993 n.d.) as offering another and previously unconsidered source of that material.

Because they are much better known and more fully described in the Lapita literature, I will not repeat the details on the Reef/Santa Cruz imports or a full analysis of its exchange system. The principal components of the system and its multi-mode range of imports are easily set out:

Direct access (46-56 km) importing of many oven stones and of a little clay and temper for pots is attested from Santa Cruz Island and Tinakula into the Reefs.

Local reciprocity (46-100 km) of already manufactured pots from Santa Cruz Island to the Reefs in quantity (0.4 tonne in a site with an area of about 1000 sq m) and some chert from Lakao in the Duff Islands is also suggested by the evidence.

One stop reciprocity (275-380 km) from the west is indicated for most adzes imported as entire or nearly finished objects, for a few pots imported as finished products and for major amounts of chert imported as raw material; the same applies to minor amounts of an inferior grade of volcanic glass imported from the Banks Islands to the east.

Down-the-line exchange (1500 to more than 2000 km) is implied by small amounts of muscovite-garnet-schist (glitter) and metamorphosed sandstone, by one piece of obsidian from a Fergusson source, by small amounts from a Lou source, and by very much larger amounts from a single Talasea sub-source, again all sources being to the west. Galipaud (pers. comm.) has raised the possibility of the muscovite-garnet-schist deriving from the northeast part of the main island of New Caledonia.

To these hard goods one other deliberate import, a rat, may be added. Although the Polynesian rat may have been either an intended or non-intended item of transport throughout Remote Oceania including the Reef/Santa Cruz region (Roberts 1991), the occurrence of *Rattus praetor* in the Lapita middens of the Reef/Santa Cruz area (B. Marshall pers. comm.) is probably intentional and likely connected to its occurrence later in the Tikopian sequence (Flannery *et al.* 1988:93). The source of this rat would be the main islands of the Southeast Solomons more than 370 km away.

CONCLUSIONS

This review answers a number of questions and supports certain positions discussed in the background section to the paper. The first is that the differences apparent in the regional review make clear that the model developed for Reef/Santa Cruz should not be extended to the Lapita complex everywhere in Remote Oceania, much less to the entire Lapita horizon in both space and time. In Remote Oceania the Reef/Santa Cruz type of system, with high quantities of some items from far to the west (the very long distance component), would stand out. Only a pale reflection of it exists in Tikopia and Malo, and there

the items are more likely acquired by way of the Reef/Santa Cruz Lapita communities than they are by more direct means through going much further afield. By the time one gets to Fiji or New Caledonia only a couple of flakes each of Talasea obsidian remain from that very long distance component, and again probably owe their immediate origin to exports from the Reef/Santa Cruz or Vanuatu Lapita sites. Thus one would, I think, invoke 'down-the-line' exchange and not direct access or simple reciprocity as the most likely means for acquisition of these imports in all these examples.

Once the very long distance 'down-the-line' exchanges are removed from the Reef/ Santa Cruz model, however, its remaining components seem to serve reasonably well for a number of cases. Thus the evidence is growing that the exchange systems operating at this time were complex, multi-modal and involved a common range of materials (pots, adzes, chert, obsidian, volcanic glass, various stone artefacts, shell items, oven stones, etc.) from varying distances.

Next, it is readily apparent that these systems were not static, but fairly dynamic, and change may be expected from one period to the next within any regional sequence. While there is a degree of support for contraction or decline of the various Lapita complex systems at the late end of a number of the regional sequences, or in the immediately subsequent periods in that region, as in the Reef/Santa Cruz, Malo, Lakeba, Tongan and perhaps Samoan examples, there is also evidence of expansion in the system in the Tikopian example and for a later period (IVa) in Lakeba. Expansion also occurred in the distribution of adzes within the last 1000 years from Tutuila quarries in American Samoa (Best *et al.* 1992:Figure 9). What this does suggest is that a generalised version of the model developed by Allen for the Papua coast may apply only to certain regions; in others fluctuations or occasional expansionary trends will also have to be allowed.

Another point has also become obvious - that we do not have a single integrated exchange system operating throughout Remote Oceania at the time of the Lapita horizon. Instead, we have a series of such systems, only loosely linked to one another by different imports or exports. Moreover, there is a major break in those systems, so that imports and exports only rarely made it either way across the long water gap between Vanuatu and New Caledonia on the one hand, and the Fijian group and Futuna on the other. Thus the well established boundary between Eastern and Western Lapita continues to have much merit as per an argument made in Green (1978). Davidson's (1978:388) statement that "there is little evidence for a Lapita trade network in the region [meaning

Fiji, Tonga and Samoa]" is in a general sense, correct. However, in the sense that some might interpret it, there is now good evidence for Lapita exchange systems operating within each of these regions, all of them with some ties to adjacent regions. Evidence for imports in Fijian and Western Polynesian Lapita sites is no longer uncommon. That situation has changed since Davidson's earlier assessment.

I find few indications in the data that sites with quantities of Lapita pottery were also centres of distribution networks, as might be expected if one were to draw on analogies with traditional ethnographic systems known from Melanesia. Instead those archaeological systems with the greatest amount of well developed evidence for importing seem to relate to environmental circumstances (an impoverished geological setting) and the vigour with which some investigators have pursued these issues. This suggests that there are a number of instances where more about exchange could be learned through further analyses of items already to hand, if the questions were posed with the theme of exporting or importing to the fore. Too many of the observations on this topic, which have been pulled together here, were only made in passing in the literature. We can no longer afford that unfocused approach. Moreover, the techniques for sourcing are now well developed for a range of items (pottery, adzes, chert, obsidian, volcanic glass) common in many Lapita sites.

As for obsidian exchange in Remote Oceania, what we see is some long distance, probably 'down-the-line' importing for social reasons (see Green 1987; Sheppard and Green 1991:101; Sheppard 1993:135) in the Reef/Santa Cruz region, quickly tailing off thereafter. Exchange systems in the closely related material focused on the volcanic glass sources of the Banks Islands of Vanuatu, the Tafahi and Niuauputapu sources of Tonga, and the Tutuila sources of Samoa during the Lapita horizon were all very small-scale direct access or local reciprocity affairs, with only occasional linkages to islands some distance away (400 to 450 km). Thus we can reject one of White's choices (one large-scale network that linked Lapita potters) for the other of a series of networks, which seemingly at times involved only small-scale, hand-to-hand trade. Here there would seem to be a major contrast with the transport of items from the Lou, Mopir and Talasea obsidian sources in Near Oceania, lending further support to Kirch's (and Terrell's) second point about major differences to be expected in exchange within the Near Oceanic zone and that of Remote Oceania.

Finally there seems little need to take up at any length Terrell's rather unqualified claim (extended by Clark) that Lapita was trade ware in Melanesia (or Western Polynesia). Green (1992:17) summarises the situation more accurately in his general statement (contra Terrell) that

certainly some pots in nearly all Lapita sites prove to be exotic, perhaps more in sites where local clay sources were more limited than in others. But a great deal of Lapita pottery was in fact locally produced, and items in Lapita site assemblages transferred from afar are usually readily identified as in the Reef/Santa Cruz or Lakeba examples. To me the problems do not seem as great as Terrell supposes.

This review, I hope, further affirms those observations.

ACKNOWLEDGEMENTS

For assistance in compiling the bibliography, useful editorial comment, and two different bouts of word processing, one for a conference draft and one for the final version, I would like to thank Dorothy Brown. Valerie J. Green amended some of the more tortured prose and helped me to clarify successive versions, as did comments from those who heard its presentation at the IPPA Conference or a seminar at the Australian National University.

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