

5 *Borrowed plants in Fiji and Polynesia: some linguistic evidence*

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1 Introduction¹

In this paper I will discuss and exemplify ways that linguistics can contribute to the study of prehistory, with particular emphasis on the study of plant names borrowed prehistorically into Fiji and Polynesia. In so doing I hope to show that there is clear linguistic evidence for the introduction of many useful plants in prehistoric times, and that non-linguistic evidence also lends weight to the claim that Pacific islanders were far more mobile than has generally been believed. I also hope that this paper will go some way to demonstrating that the most valuable service provided to the study of prehistory by historical linguistics is not reconstruction per se, but the detection of borrowings that is made possible by reconstruction.

2.1 The value of reconstructed plant names

I was at the University of Hawaii during the 1970s when a number of scholars of Micronesian languages were enthusiastically compiling a Proto Micronesian word list. During

¹ Some parts of this paper are based on Geraghty (1995), which was a slightly revised version of a paper presented at the 'Linking Our Sea of Islands' conference, Department of History, University of Auckland, January 1995. I am extremely grateful to the many Fijians, far too numerous to mention, who shared their knowledge with me in the preparation of this paper, and to Professor Randolph Thaman of the University of the South Pacific, who was as ever unstintingly generous with not only his knowledge but also his library!

the course of this enormous undertaking, some irreverent wag discovered that it was possible to reconstruct a Proto Micronesian word for 'motorcar', with regular reflexes in all the relevant daughter languages (e.g. Pohnpei *sidōsa*, Woleai *sitōsa*),² even though it is patently obvious that the word is a twentieth-century loan from Japanese.

This is, I believe, a salutary lesson. It tells us to be wary of reading too much into reconstructions: just because you can reconstruct a Proto Polynesian form for a plant, it does not necessarily mean that the Proto Polynesians had that plant. Other disciplines may be able to tell us that a plant existed at a particular time and place, but linguistics usually cannot. It can only tell us, under certain conditions, what the name of that plant might have been.

To take a very simple example, the Polynesian names for the coconut (*Cocos nucifera*) point unequivocally to a Proto Polynesian reconstruction **niu*. However, if the coconut had been introduced to Polynesia a couple of hundred years ago by speakers of a language, say from Central America, in which the coconut was called *niu* or something similar, the names of the coconut in the languages of Polynesia would very likely have been exactly the same as they actually are. We are pretty sure that this did not happen, but our confidence is based on our extralinguistic knowledge of botany, archaeology, cultural associations, etc. On linguistic grounds alone, there is no way to determine whether the coconut was introduced by Proto Polynesian-speaking Lapita people three thousand years ago, or by peripatetic plant pushers from Panama one day before the first instance of a Polynesian uttering the word *niu* was recorded.³

Of course, I selected the word *niu* as an example because it contains only one consonant, and a very stable one at that. Certain other sounds are more unstable, and so likely to provide more information about the history of words containing them and the plants they refer to. Because some sounds are more likely to change than others, it is a matter of chance as to whether linguistics can identify a particular plant name as a borrowing or not. As Biggs demonstrated in his classic paper on borrowing in Rotuman (1965, reprinted in this volume), there are certain Rotuman correspondences with Polynesian languages that indicate clearly that a word containing them must be a loan from Polynesian; but there are other correspondences

² Unless otherwise stated, the sources for linguistic data are as follows: All Fijian and Proto Central Pacific from my own notes; Proto North Vanuatu [PNV], Clark (1997); Proto Austronesian [PAN] and Proto Malayo-Polynesian [PMP], Zorc (1995); Proto Polynesian [PPn], Biggs (n.d.); Arosi, Fox (1978); East Futuna (Futuna), Moysse-Faurie (1993); East Uvea, Rensch (1984); Kiribati, Sabatier (1971); Mae, Clark (n.d.); Nakanai, Chowning & Goodenough (n.d.); Niue, Sperlich (1997); Nukuoro, Carroll & Soulik (1973); Palauan, McManus (1977); Pingilapese, Good & Welley (1989); Pohnpei, Reh & Sohl (1979); Rarotongan, Buse & Taringa (1995); Rennell, Elbert (1975); Rotuman, Churchward (1940); Samoan, Milner (1966); Tahitian, Lemaître (1986); Tikopia, Firth (1985); Tongan, Churchward (1959); Tuvalu, Besnier (1981); West Uvea, Hollyman (1987); Woleai, Sohn & Tawerilmang (1976). For Tongan data, I use the older Tongan orthography of <g>, rather than <ng>, to represent /ŋ/.

³ I am also ignoring here, for the sake of illustration, the fact that *niu* has many cognates outside Polynesia.

that are non-diagnostic or equivocal, and if a word happens to contain only such non-diagnostic correspondences, there is no way to determine whether or not it is a loan word.⁴

Having sounded this note of caution, I hasten to reassure the reader that I do not propose to write a paper based exclusively on linguistic evidence. I intend to draw conclusions about the movement of some plants in the prehistoric Pacific using all sorts of data, linguistic and non-linguistic. In the interests of finiteness, I am restricting this review to some plants introduced into Fiji and Polynesia. The introduction of plants from Polynesia (and Fiji) into other parts of the Pacific is also a fascinating topic, but a detailed study will not be possible in this paper.⁵

The conclusions of this paper will be in stark contrast to Whistler (1995), who almost completely ignores borrowing as a mechanism in plant naming, partly because of his lack of understanding of the linguistic method involved, and partly because of his belief that all prehistoric Polynesians, with the partial exception of Tonga and Samoa, evolved in complete isolation. We already know from Tupaia and other navigators encountered by Spanish and British explorers in the eighteenth century that Tahitians at that time were familiar with all the islands of triangle Polynesia (except the extremities of Hawaii, Mangareva, Rapanui and New Zealand) as well as Fiji and Rotuma (Dening 1962:103, 135). Moreover the Ra'iatean navigator Tupaia indicated that his father had even greater knowledge (Beaglehole 1968:157; Dening 1962:105). Tongans told Cook of islands they knew as far as Kiribati, and we can infer from linguistic and other evidence that Tongans, or other western Polynesians, travelled to and from places as far away as Vanuatu, Pohnpei (Geraghty 1994a), the Solomon Islands and the Carolines.⁶ This study will present evidence from the study of plant names to reinforce the picture of a great deal of intentional voyaging in the prehistoric Pacific.

⁴ A good example is Rotuman *kava* 'kava, *Piper methysticum*', which could be a direct reflex of PCP (Proto Central Pacific) **qawa* (there is no clear evidence as to whether the PCP was **kawa* or **qawa*), or a loan from a Polynesian form such as Tongan *kava*. Other terms associated with the kava plant (e.g. *kafa* 'kava stem', which is the planting material) appear to be a frustrating mixture of early loans, non-loans, and equivocal forms.

⁵ Particularly numerous are those introduced from Polynesia to Rotuma. Biggs (1965, reprinted in this volume) has already noted *futi* 'banana (*Musa* spp.)', *ʔifi* 'Tahitian chestnut (*Inocarpus fagiferus*)', *tarkura* 'taro variety', *moskoi* 'perfume tree (*Cananga odorata*)', and *toa* (*Casuarina equisetifolia*). To these we can add *asi* 'sandalwood (*Santalum* sp.)', *mori* (*Citrus* spp.), *firimoto* 'wild cherry tree (*Flacourtia rukam*)', *fesi* 'hardwood (*Intsia bijuga*)', and many more. Probably of a similar order is the number of plants introduced to Kiribati from Polynesian sources, such as *aronga* (*Acalypha*), *bero* (*Ficus tinctoria*), *rauti* (*Cordyline fruticosa*), and *renga* 'turmeric (*Curcuma longa*)'. See also Geraghty (1994a) for linguistic evidence of other long-distance Polynesian plant introductions, such as sweet yam (*Dioscorea esculenta*) in New Caledonia, kava (*Piper methysticum*) and turmeric (*Curcuma longa*) in Pohnpei, and sugarcane (*Saccharum officinarum*) in Mokil.

⁶ I now believe that on Anderson's list of islands known to the Tongans (Geraghty 1994a:234), 41 Kologobeele [Lokopile] and 42 Kollokolahee [Lokolahi] refer to places in or near Guadalcanal, possibly the islands of Guadalcanal and Florida; and that 44 Mallajee [Malajiʔi] and 45 Mallalahee [Malalahi] refer to Malaita and an adjacent smaller island. There are also numerous Polynesian loan words in Solomon Islands languages, e.g. Lau *fōrua* 'outrigger canoe' (faulua), Arosi *atua* 'ghost' ('atua), and in Micronesia as far as the Carolines.

I shall now crave the indulgence of linguists reading this paper while I explain some basic concepts in historical linguistics for the benefit of non-linguists.

2.2 Reconstruction⁷

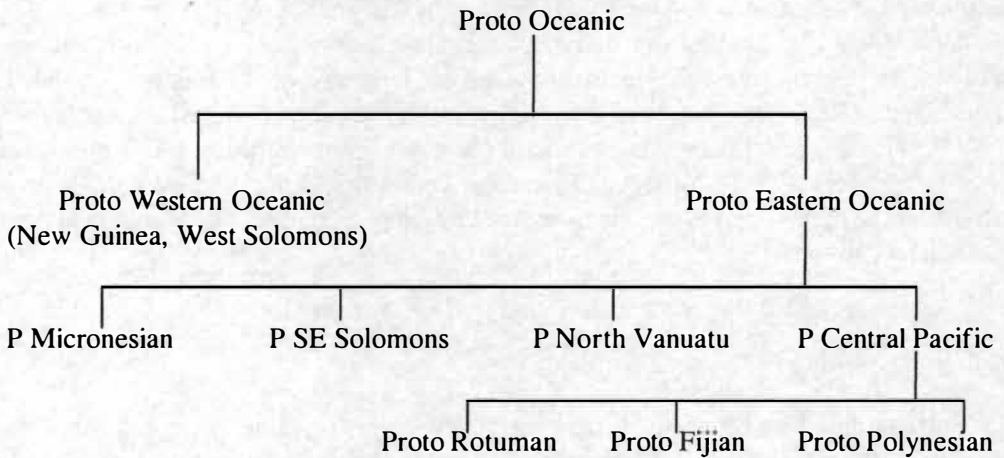
Historical linguistics is the study of how languages change over time. The fact that languages change is in itself neither particularly remarkable nor useful. What is interesting is that language change is not entirely random, a fact that has been established by noting the changes that have occurred, and those that have not, in languages with a long written history.

When this knowledge is then applied to languages which have no written history, or very little, as is the case with most Pacific languages, it is possible to *reconstruct* a hypothetical older language, a 'parent' language from which contemporary languages are descended. In much of the Pacific, this task is made considerably easier by the fact that there are many related languages, and together they provide a good body of evidence as to the form and structure of the language they are all descended from. Thus, in the Central Pacific region, by comparing the languages of Fiji, Rotuma, and Polynesia, and applying what we know of how language change works, we can reconstruct with a fair degree of certainty many words and other aspects of the language that was spoken by the ancestors of the Fijians, the Rotumans, and the Polynesians—the 'Lapita' people who are believed to have been the first settlers of Fiji some 3000 years ago. This reconstructed language is known as *Proto Central Pacific* (PCP).

2.3 Shared innovations and subgrouping

As in any family of languages, the extent of relatedness between members of the Austronesian language family varies, and is not always a function of geographical distance. Tongan, for instance, has more in common with Hawaiian, thousands of miles away, than it has with Fijian, its next-door neighbour. Linguists generally explain such apparent discrepancies by hypothesising that the languages that appear to have more in common are descended relatively recently from a common ancestor; in other words, they belong to the same subgroup of the language family. So Tongan and Hawaiian belong to the same subgroup of Austronesian, in this case Polynesian, while Fijian belongs to a different, though closely related, subgroup; and both of these subgroups are members of a higher-order subgroup. Note that one talks of 'higher' and 'lower' -order subgroups, as there are no named hierarchical orders as in Linnaean classification. A simplified and incomplete representation of the subgrouping relationships among most Pacific languages is as follows:

⁷ The following discussion of general principles is based in part on Geraghty (1994b).



Most linguists agree on the broad outlines of the above, though there has been doubt as to whether South-east Solomons belongs to the Eastern Oceanic subgroup, and indeed as to whether there is sufficient evidence at all for such a thing as an Eastern Oceanic subgroup. The languages of Southern Vanuatu and Southern Oceania (New Caledonia and the Loyalty Islands) are also clearly related among themselves and to other Pacific languages, but whether they are a subgroup of Eastern Oceanic has yet to be determined (for a recent appraisal see Lynch 1997:227–229).

Subgrouping is based mostly on the evidence of *shared innovations*—changes which the languages have in common and which are most economically explained as having been single changes in a common ancestral language. It has been emphasised that language change is not haphazard, but neither is it rigidly uniform. Within certain limits, there is arbitrariness to all language change. So if two languages have undergone the same change, that is evidence that those languages are related. The more changes they appear to have undergone in common, the less likely it is that the changes are independent of each other, and the more likely it is that the languages shared a period of common development. Of course, some changes are inherently more likely than others, and this weighting is taken into consideration in subgrouping. For example, the fact that the change of /s/ to /h/ has occurred in both Tongan and Nadrogā Fijian is, by itself, of little significance, since that particular sound change is relatively common in Pacific languages, and indeed in the languages of the world.

2.4 Reconstruction and prehistory

One way in which linguistic reconstruction has been used to draw inferences about the past is known as the *Wörter und Sachen* (German for ‘words and things’) method. This is based on the assumption mentioned at the beginning of this paper—that if a protolanguage had a word, then the speakers of that language must have been familiar with the referent of that word. While this is in itself fairly unassailable logic, the problem with this method lies largely with the status of the reconstructions themselves. As we have seen with Micronesian motor cars, it

is possible to reconstruct apparently ancient words that are not really ancient at all. Crowley (1994:87) has also pointed out that **tusi* meaning 'book' can be reconstructed for Proto Polynesian. Similarly, with regard to the parent language of the family to which Pacific languages belong, Proto Austronesian, Mahdi (1994) has shown that while words for 'iron', 'gold', 'silver' and other metals and useful plants can be reconstructed, it is highly unlikely that the speakers of Proto Austronesian had any knowledge of them—they were all introduced well after the break-up of Proto Austronesian. It is important, then, that this method be applied with great caution.

2.5 Subgrouping

Subgrouping can be useful in reconstructing prehistory since it makes the claim that languages separated from each other in a particular chronological order. For example, it is implicit in the above family-tree diagram that, while the languages of Oceania all have a common origin, the split between Western and Eastern Oceanic languages took place before the split between, say, Proto North Vanuatu and Proto Central Pacific, and that the ancestral Polynesian and Fijian (and Rotuman) languages then evolved together for a time, as Proto Central Pacific, before evolving separately. If, therefore, a word is found in, say, Eastern Oceanic and in Rotuman, then that word must also have been part of the lexicon of Proto Central Pacific, even though there is no evidence for it in Fijian or Polynesian languages. As far as I know, there is no linguistic term specifically for a word with this kind of distribution, so I would suggest 'retained lexeme' as an appropriate term.

A particularly striking retained lexeme in the Pacific is the word for the megapode, a flightless bird which buries its eggs in the sand to hatch, hence also known as the 'incubator bird'. Clark (1982:126) noted that the name for the megapode in Tonga, *malau*, is related to the names for similar birds in Vanuatu, Solomon Islands and New Guinea. Clark argued that, according to the family tree of languages above, we must reconstruct *malau* as the word for 'megapode' in Proto Oceanic; and, because there must have been an unbroken transmission of the word *malau* from Proto Oceanic to Proto Polynesian, the word must also have been part of the Proto Central Pacific language, which is believed to have been spoken in Fiji. Yet there are no megapodes in Fiji. If the linguistic subgrouping is correct, then during the Lapita period, when Proto Central Pacific was spoken, megapodes must have been present in Fiji. Shortly after Clark's observation, the archaeologist Simon Best unearthed the remains of at least two different species of megapode in Fiji, both of which became extinct soon after initial human settlement (Clunie 1984:140).

A similar example concerns the Proto Central Pacific reconstruction **lulu* 'owl'. In those Eastern Polynesian languages which are spoken where there are no owls (that is, all except Hawaiian and New Zealand Māori), the term has come to refer to a sea bird, usually the booby (*Sula* sp.). However, in New Zealand Māori, which is an Eastern Polynesian language, the referent is again the owl. While it is possible that the name for 'booby' was transferred back to the owl, and even remotely possible that owls once existed in Central Eastern Polynesia, another explanation is that there has been some Western Polynesian input into the Māori language, as has been argued by Langdon (1988a:286–287), in which case there would seem

to have been direct contact of some sort, say between Tonga and New Zealand. It is also possible that the Eastern Polynesians who colonised New Zealand were familiar with owls, and their name, from voyaging to Western Polynesia.

In a similar vein, the Hawaiian word *naio*, for the tree *Myoporum*, corresponds exactly to *ngaio*, its name in the Austral Islands, Cook Islands, and New Zealand. However the genus is absent not only in the Marquesas, whose languages subgroup with Hawaiian within Eastern Polynesian, but also in the Society Islands, where part of the Hawaiian lexicon is believed to have originated (Whistler 1995:51). The mystery of this retained lexeme however dissipates when we realise that the prehistoric Polynesians' world was far from confined to their own island group. As already noted, Tahitians in Cook's time were familiar with the Austral Islands and the Cook Islands, not to mention far more distant places such as Fiji and Rotuma. The Marquesans also have legends of voyages to and from Rarotonga to procure red feathers (Langridge & Terrell 1988:11–31) and to convey breadfruit (Handy 1930). It is hardly surprising that such well-travelled people should be familiar with useful plants—in Hawaii *Myoporum* was used as sandalwood and in house construction (Degener 1930:267–268), while in Rarotonga the flowers are used to scent coconut oil—in neighbouring island groups.

Linguistic reconstruction can also help identify 'homelands'. Archaeologists once believed that Tonga was the first part of Polynesia to be settled from Fiji, hence the Polynesian homeland, and that Samoa was subsequently settled from Tonga. Although to my knowledge no linguist challenged this view at the time, it could have been queried on linguistic grounds because there are related Samoan and Fijian words for things that are not present in Tonga and, unlike megapodes, unlikely to have been extirpated by human predation, such as *mako* (Samoan *ma²o*) 'kind of forest tree (*Trichospermum richii*)', *soaqa* (Samoan *soaʔa*) 'mountain plantain (*Musa troglodytarum*)', and *balolo* (Samoan *palolo*), 'palolo sea-worm (*Eunice viridis*)'. The discovery of early Lapita potsherds in Samoa has rendered this view obsolete (Pawley 1996:389), and it is now believed that all of Western Polynesia was settled at about the same time, and that there was a long period of continuing contact with Fiji after initial settlement.

2.6 Lexical replacement

We have been discussing until now continuity of words, and how studying such continuity can contribute to reconstruction of the prehistoric Pacific. We now turn to discontinuity. Continuity is the norm: words tend to remain the same (though their phonetic shape may be altered by sound change). Discontinuity is what happens when words do not remain the same, or when new words arise when there were none before.

Certain linguists (adherents of 'glottochronology') believe that there is a fairly constant rate of lexical replacement in all languages, at least in basic vocabulary. What is undeniable is that replacement does sometimes take place, although the motivation is seldom obvious (as will be discussed in the next paragraph), and the replacing form is usually a simple or compound word from the same language with a similar or related meaning. An example of replacement by a word with a similar meaning is PCP **vetaʔu* '*Calophyllum inophyllum*', a common large beach tree, which has been replaced in some Polynesian languages by *tamanu*, a reflex of PCP

the extreme that these fish were ever absent from Tongan waters, the question arises as to why the Tongans replaced a perfectly good native word with an exotic intruder. I believe it is connected with the fact that Fijian *soki* 'pitfall spike', from which *sokisoki* is derived, was borrowed into Tongan, along with many other warfare-related words, and that *sokisoki* was also borrowed by association.

There are other examples of unnecessary borrowing occurring as part of a complex of semantically related terms. For example, on linguistic grounds Eastern Fijian *puaka/vuaka* 'pig' is almost certainly a borrowing from Polynesian *puaka*. Yet there is no archaeological evidence for the absence of pigs in Fiji's prehistory (except perhaps at the very beginning), and neither of the two other widespread words, *qō* (from PEO **boRo*) and *vorē*, is a Polynesian loan. The reason for the borrowing in most of Eastern Fiji may be that a new pig culture was introduced from Polynesia, involving perhaps new methods of pig rearing, new varieties of domesticated pig, very high esteem of pork for ceremonies and consumption (as is the case in Tonga), and so on.

As noted above, borrowed words are most commonly 'necessary' borrowings—that is, words that are needed as labels for new things. However, when a neologism is needed, borrowing is by no means the only means of word creation, and other devices are often used, such as compounding, reduplication and semantic extension of existing words. A nice example in Fiji is *Physalis peruviana* (cape gooseberry), a common weed of wasteland and fallow gardens. It bears small tomato-like fruits which are said to be poisonous when green, but when ripe are yellow and quite sweet. While still green, the fruits are enclosed in a lantern-like case which 'explodes' when struck against a convenient hard surface, for which purpose children find their foreheads ideal.

The plant appears to be of American origin, hence the specific name *peruviana*, but it is not known when or how it arrived in Fiji. The earliest record I am aware of is in Cargill's (1836–40) dictionary of Lakeba Fijian, which defines *tukitukiyadre* as a kind of grass, and gives its Rewa equivalent as *tekilakiyadre*. Both of these names are still in use in these areas, and refer to the way children play with them, meaning something like 'striking the forehead'. Other names with approximately the same meaning are *videvideyadre* from Matuku, *toboiyadre* from Nairai, *topoiyadre* from Taveuni, *botebotelakiyadre* and *cobocoboiyadre* from Vanualevu. The explosion of the fruit, without reference to the forehead, is the basis for another widespread name, *cevucevū*, meaning 'bursting' or 'exploding', used in Gau, Ovalau, and much of eastern and northern Vitilevu. The name *botoboto*, used in northeastern Vanualevu, has the same meaning, as has the Kadavu and Beqa name *cabolo*. In the Nadroga area, names include *meamalahounatō*, *meamocanatō* and *meaboronamanu*, all of which mean 'the chicken's *boro*', where 'boro' is the name of a related plant (*Solanum* sp.) with edible leaves. It is a fairly common device to refer to a new plant by the name of a familiar plant, but with a suffix indicating it is consumed by birds or animals. Another name based on *boro* is *tinaniboro*, meaning 'mother of *boro*', presumably because it tends to be larger, used in Nakelo and Ono (Kadavu). Only one name for this introduced plant is a borrowing: *kosipeli/kosiveli*, used in much of the Rewa–Bau–Verata area of south-east Vitilevu, from the English '(cape) gooseberry'. The Tongan name, *kuusi*, has the same origin. Because *kosipeli* is also the Fijian for 'gospel', in a fine example of how tenuous the association may be when new names are coined, the name *tisaipele*, meaning 'disciple' is also found in odd parts of

Eastern Fiji. It should be noted in passing that this plant, which has been in Fiji for probably less than 200 years, has more distinct names than any other—at last count 36, and sure to rise.⁸ It is also remarkable that, while it is well known and highly regarded as a medicinal plant, not one of its names reflects its medicinal properties, while the majority of its names refer to a property—exploding on children’s foreheads—that is mentioned nowhere in the botanical literature.

2.8 Detecting borrowings

Fascinating though all aspects of word coining may be, it is necessary borrowing that is our main concern here. Probably the most important contribution of linguistics to prehistory is in identifying words that were borrowed, from which it may be inferred that their referents were transferred knowingly from one culture to another. I believe it is more important than pure reconstruction because its conclusions are usually more secure—a spurious loan word is far rarer than a spurious reconstruction. A classic study of borrowing in the Central Pacific area is Biggs (1965, reprinted in this volume), in which it was demonstrated that Rotuman has experienced extensive borrowing from at least two Polynesian languages.

Once a pair of words in related languages are observed to be phonetically and semantically identical or similar, the question arises as to whether this is due to direct inheritance from a common protolanguage, or to borrowing (also called ‘indirect inheritance’) after the break-up of the protolanguage. Borrowing can be detected in many different ways, but all boil down to one major determinant, which I will call ‘embeddedness’: the strongest argument that a word was borrowed from language A to language B is that the words sound the same and mean the same, and the putative source word is more strongly embedded in language A than the putative borrowing is in language B. For example, when Biggs (1965) argued that Rotuman *tarkur* ‘taro variety’ is a borrowing from Polynesian *talokula*, with the same meaning, the grounds for doing so were that they sound similar, mean the same (or thereabouts), and the Polynesian term is more strongly embedded, morphologically and etymologically, in its own language than is the Rotuman. In other words, the Polynesian word has a clear etymology and morphology within its own language—you can see where it came from and what it is made up of—whereas the Rotuman word has neither. If however the Polynesian and the Rotuman words are found to be equally well embedded in their respective languages, then the conclusion is that the words are genetically related, and neither is a borrowing.

This linguistic concept of embeddedness is similar to that of ‘cultural embeddedness’ which is frequently evoked in arguments for cultural diffusion. For instance, since the sweet potato is never offered in Fijian ceremonies and is never used as a clan totem (whereas yams, taro and plantains are), it can be said to be poorly embedded in Fijian culture, so possibly a relatively recent introduction to Fiji.

I will now discuss and exemplify three types of linguistic embeddedness: phonological, etymological, and morphological.

⁸ It is possible, however, that some of these names refer to the very similar *Physalis angulata* (wild cape gooseberry).

2.9 Phonological embeddedness

While it is true that loan words generally conform to the phonology of the borrowing language, it can happen, usually in situations where there is extensive bilingualism and copious borrowing, that a whole new phoneme, or sequence of phonemes, is borrowed. In contemporary English, for example, nasal vowels of French origin are often heard in words such as 'restaurant', 'rapprochement', 'chagrin', and 'soupçon'. These nasal vowels mark these words as of foreign origin. The same is true, though less obviously so, of the phoneme /ʒ/, as in 'pleasure' and 'beige'. Such phonemes may stand out as being poorly embedded in the phonological system of the language in various ways, such as their relative infrequency and, sometimes, unusual combinatory characteristics, such as the fact that /ʒ/ never occurs word-initially.

Turning to the Pacific, the Standard Fijian phonemes /f/, /j/ and /p/ are also relatively infrequent, and can be shown to occur only in loan words. The same is true of a number of the phonemes in Polynesian outlier languages that have been borrowed from their Melanesian neighbours (Clark 1994:113), and Tongan /s/ and the sequences /vo/ and /vu/—in directly inherited words, earlier *s has changed to /h/, and /vo/ and /vu/ did not occur earlier, because Tongan /v/ reflects Proto Central Pacific *w, which only occurred before non-back vowels. For Samoan, the phoneme /k/ is only found in loan words. This is not to claim, however, that all low-frequency phonemes are the result of borrowing: Rotuman /j/, for example, is relatively rare, but found almost exclusively in inherited vocabulary. In fact it directly reflects PCP *j unchanged, Rotuman being the only Central Pacific language to do so, *j having merged (largely) with /s/ in Fijian and /t/ in Polynesian (Geraghty 1986).

An example of great cultural interest in the Fiji–West Polynesia area is the Fijian word for 'kava bowl', *tānoa*, which is clearly related to Tongan *tānoʻa* with the same meaning. As I pointed out in Geraghty (1983:74–85), initial /t/ in Eastern Fijian common nouns became prenasalised (i.e. changed to /d/). The fact that this particular Eastern Fijian common noun did not undergo this change, since it is *tānoa* not *dānoa*, suggests that it is a borrowing, and Tongan *tānoʻa* is an obvious candidate for donor. So it appears that this artifact, the centrepiece of contemporary Fijian ritual, was introduced from Tonga, a conclusion supported by non-linguistic evidence (Clunie 1986:80).

2.10 Etymological embeddedness

The etymology of a word is its historical origin. It is an indication of the embeddedness of a word if it can be shown to have originated from a word in the same language. An example of this is Fijian *lokaloka* 'kind of yam', which has a plausible etymology in Fijian *lokaloka* 'purple', since its salient characteristic is its purple flesh. Since this etymological origin is not found in Futunan, we conclude that Futunan *lokaloka* 'kind of purple yam' is a borrowing from Fijian.

2.11 Morphological embeddedness

The morphology of a word is the way it can be analysed as comprising different meaningful parts, such as a base, prefixes, suffixes, and elements of a compound. As a general rule, if an identical or similar word is found in two languages, but is morphologically analysable (that is, can be broken up into meaningful parts) in only one, then the word originated in that language in which it is morphologically analysable, and was borrowed into the other.

To illustrate this principle in the Central Pacific, I will discuss sailing technology in Fiji and Western Polynesia. Clunie (1986:14–15) has claimed that the innovative sailing technique of ‘shunting’ (tacking by moving the sail from one end of the canoe to the other), and the concomitant modifications to the rig, spread to Fiji from Tonga, Uvea, and Kiribati. Although a detailed analysis of the relevant terminology has yet to be done, there is at least some linguistic evidence that does not support this theory.

Shunting, in all but the smallest canoes, requires an extra piece of wood set diagonally from near the end of the hull to the edge of the lee platform, which is used as a walkway for the person who is moving the sail, and also helps guide the sail past the central platform. In Samoa, this piece is called *vavata* (Haddon & Hornell 1975, I:243, vowel length not indicated in source), in Fijian *ivāvādā*. These terms are clearly related, but only in Fijian is the word morphologically analysable, as the base *dā* ‘tread, step on’, with the ‘causative’ prefix *vā-*, here meaning something like ‘facilitate’, and the instrumental prefix *i-*. The meaning of *ivāvādā* is therefore something like ‘instrument to facilitate stepping’. In Samoan, *vavata* has no analysable meaning, so it is most likely that the term was coined in Fiji, and borrowed into Samoa.

The same conclusion, incidentally, is warranted on phonological grounds, because Samoan /v/ does not correspond regularly to Fijian /v/. If the term had been directly inherited, then the Samoan form would show /f/ rather than /v/, or the Fijian /w/ rather than /v/; if it were a borrowing from Samoan to Fijian, the Fijian would show /t/ rather than /d/. So the Samoan word must be a loan from Fijian, on both morphological and phonological grounds. Interestingly, the forms *dā* and *vā-* are geographically restricted within Fiji, and point to the term having originated in western Fiji (which includes the Yasawa Islands) or north-eastern Vitilevu.

It is also noteworthy that the Tongan word for the step on which the mast rests, which is so designed that the mast can lean towards either end of the canoe, as is required in shunting, is also a loan from Fijian, *vugakoto*. This term is not morphologically analysable in either language,⁹ but phonological evidence (the presence of /vu/ in Tongan) points to it being a loan from Fijian to Tongan.

It is also an indication of the embeddedness of a word in a particular language if it forms part of the morphology of other words and expressions in that language. For example, the Fijian word *uvi* ‘yam’ is found in reduplications (*uviuvi* ‘kind of grass with yam-like roots and

⁹ It is just possible that it is a compound of *vuga* ‘k.o. tree (*Metrosideros* sp.)’ and *koto* ‘lie down’. The problems with this analysis are that, while *vuga* is a useful timber tree, it is not normally used in canoe construction, and there is no immediately obvious reason for the second element. Other possible explanations are that *vuga* is a reflex of PCP **vuga-* ‘upper surface, top’, which is otherwise lost in Fijian, or that the first element is *vu-* meaning ‘base’.

growth'), compounds (*wāuvi* 'vine resembling yam'), and proverbial expressions (*kana uvi katakata* 'eating hot yams', meaning speaking fast and unintelligibly), whereas the word for 'sweet potato', *kumala*, is never reduplicated, is not used in any proverbial expressions, and is found in only one compound, *wākumala* (*Ipomoea aquatica*), the referent of which is known to be a fairly recent introduction to Fiji.

Finally, languages often have syntactic classes which are impossible, or relatively difficult, for an intruder to break into, so to speak. For example, as far as I am aware, no loan word has become an English strong verb, all borrowed verbs entering the weak conjugation: the past tense of *guide* is *guided*, not **gid* (as in *hide/hid*, *slide/slid*), and that of *seize* is not **soze* (as in *freeze/froze*). Similarly for Fijian, I know of no borrowed noun that has become suffix-possessed, and only a handful of borrowed verbs that have a transitive suffix other than *-taka*. Rotuman and most Polynesian languages also typically have 'default' verbal suffixes that are applied to borrowings.

2.12 Etymological borrowing

When the sound correspondences between two closely related languages are relatively straightforward and well understood by their speakers, words may be borrowed 'etymologically', that is applying the sound changes that the speakers are familiar with. An example is Samoan *sāmala* 'hammer', which was borrowed from Tongan *hāmala* or Tahitian *hāmara* (from English *hammer*) by Samoans (or perhaps introduced by Tongans or Tahitians) who were aware that Tongan and Tahitian /h/ corresponds regularly to Samoan /s/.

The major problem that arises from etymological borrowing is that loan words appear to be phonologically embedded within the borrowing language, so become linguistically invisible as loans. They appear to be directly inherited, not loaned, in a similar way to the 'spurious reconstructions' already alluded to. This must therefore be taken into account, especially in areas such as Tonga–Samoa where such conditions are known or likely to have existed from time to time. For example, while it is true that Tongan *lagakali* and Samoan *lagaʔali* (*Aglaia* sp.) correspond correctly, and both appear to be phonologically embedded, and point to a PPN **lagakali*, the possibility of etymological borrowing means that we may in fact be dealing with a relatively recent introduction. Similarly, since archaeologists tell us that during the first thousand years of occupation of Fiji–West Polynesia, the whole area was culturally uniform, or very nearly so, it is highly likely that the language was also relatively uniform during this time (Pawley 1996), or that, if separate languages had developed, there was a great deal of bilingualism. Under these circumstances, it is unlikely that any borrowing during this period would be phonologically detectable.

On the other hand, the fact that etymological borrowing is subject to certain historical circumstances can be of use in dating loans. While it is true that during historical times Fijian /v/ has been borrowed regularly as Tongan /v/, and Fijian /s/ as Tongan /s/, it is possible that at an earlier date, when Tongans and Fijians were more often bilingual and so more aware of regular correspondences between their languages, Fijian /v/ was borrowed as /f/ and /s/ as /h/ (or /s/ that subsequently became /h/). Hence it is linguistically possible that Tongan *fahu* '(man's) sister's son' is a loan from Fijian *vasu*, as is suggested by distributional and other

evidence (Burrows 1938:152), but it must have been loaned earlier than the eighteenth century, when it would have been borrowed into Tongan as *vasu* rather than *fahu*.

Tongan *nafunafua* '(skin) rough and cracked from excessive kava drinking' (from Fijian *dravudravua* 'grey, ash-like') is another example of an etymological loan—in this case not entirely so, because although Fijian /v/ is realised as /f/, /dr/ is not realised as its etymological counterpart. In contrast with this is Tongan *navunavua* '(hair) limy, not properly washed after treatment with lime', from the same source, with the normal loan phonology found in the eighteenth and nineteenth centuries. This could be interpreted as indicating that excessive kava drinking was introduced from Fiji before treating the hair with lime, though there are other possible interpretations of the data.

3.1 Sound correspondences in Central Pacific

Since most of the data we will be dealing with are from Central Pacific languages, the main regular consonant correspondences of Fijian, Rotuman, Tongan, Futunan and Samoan are presented in Table 1 (for more details, see Geraghty 1986, 1996). PCP *l, *m, *n and *g [ŋ] are not shown since they continue unchanged in all four languages. There are some minor changes in the vowels, but they need not concern us here.

Table 1: Major Central Pacific consonant correspondences

PCP	v	b	t	d	dr	r	k	q	ʔ	w	c	s	y	#-a
Fiji	v	b	t ¹⁰	d	dr	r	k	q	∅	w	c	s	c	y
Rotuma	h	p	f	t	t	r	ʔ	k	∅	v	s	s	r/∅	g
Tonga	f	p	t/s ¹¹	t/s ¹¹	∅,l	∅,l	k	k	ʔ	v	h	h	∅	∅
Futuna	f	p	t	t	l	l	k	k	ʔ	v	∅	s	∅	∅
Samoa	f	p	t	t	l	l	ʔ	ʔ	∅	v	∅	s	∅	∅

This list of correspondences was arrived at using basic vocabulary, and so provides a baseline from which to determine loan words: if a name violates these correspondences (i.e. is not well embedded), a likely explanation is that it was borrowed. Most of these regular correspondences are illustrated in the plant names listed in Table 2.

¹⁰ The 'Fiji' here (and in Table 2) is something akin to Proto Fijian. In Standard Fijian, as in many other Eastern Fijian communalects, the changes *t* > *d*, *r* > *dr* and *c* > *s* have occurred initially in common nouns (Geraghty 1983:74–95), so for example the earlier **talo* 'taro' became *dalo* in parts of Eastern Fiji, **togo* 'mangrove' > *dogo*, etc.

¹¹ PCP **t* and **d* are reflected as /s/ before /i/ in Tongan.

Table 2: Some directly inherited PCP plant names

PCP	Fiji	Rotuma	Tonga	Samoa
aka (<i>Pueraria trilobata</i>)	yaka	gaʔa	aka	aʔa
buabua (<i>Guettarda speciosa</i>)	buabua		puopua	puapua
caca (<i>Codiaeum variegatum</i>)	caca	sasa		
damanu (<i>Calophyllum vitiense</i>)	damanu		tamanu	tamanu
doi (<i>Alphitonia zizyphoides</i>)	doi		toi	toi
drala (<i>Vitex trifolia</i>)	drala	tala	lala	lala
gia (<i>Pemphis acidula</i>)	gigia	giagia	gigie	gia
koka (<i>Bischofia javanica</i>)	koka		koka	ʔoʔa
leqi (<i>Xylocarpus granatum</i>)	leqi	lekileki	lekileki	leʔileʔi
mulo (<i>Thespesia populnea</i>)	mulomulo	mula	milo	milo
niu (<i>Cocos nucifera</i>)	niu	niu	niu	niu
qalaka (<i>Planchonella costata</i>)	qalaka		kalaka	ʔalaʔa
talo (<i>Colocasia esculenta</i>)	talo		talo	talo
togo (<i>Bruguiera gymnorrhiza</i>)	togo	fogo	togo	togo
tuva (<i>Derris trifoliata</i>)	tuva	fuha		
vadra (<i>Pandanus tectorius</i>)	vadra	hata	fā	fala
vau (<i>Hibiscus tiliaceus</i>)	vau	hau	fau	fau
vetaʔu (<i>Calophyllum inophyllum</i>)	vetau	hefau	fetaʔu	fetau
vudi (<i>Musa AAB</i>)	vudi		fusi	
vue (<i>Ipomoea spp</i>)	vue		fue	fue
vutu (<i>Barringtonia asiatica</i>)	vutu	hufu	futu	futu
yago (<i>Curcuma longa</i>)	cago	raga	ago	ago
ʔayawa (<i>Ficus prolixa</i>)	yacawa	äeva	ʔovava	aoa
ʔuvi (<i>Dioscorea alata</i>)	uvi	ʔuhi	ʔufi	ufi

Note that the plants in Table 2 are mostly either self-propagating, and so would have been present on Pacific islands, natural conditions permitting, before human settlement, or introduced by the earliest settlers. Some may have been introduced more recently, but there is no such indication in their linguistic form: as noted above, only certain phonemes exhibit different reflexes when borrowed, so detecting borrowings between closely related languages phonologically is a matter of chance, depending on what particular sounds constitute the plant name. If a name contains only one consonant, and that consonant is a highly stable one, as is the case with *niu* 'coconut', then there is usually no phonological means of determining whether or not that name is a borrowing. It is also unlikely, as noted above, that a name introduced from Fiji to Polynesia, or vice versa, in the first thousand years or so of human settlement in the Central Pacific would be phonologically detectable; so the inclusion of a plant

name in the following list of linguistically visible borrowings indicates that the plant was introduced after approximately two thousand years ago. This stricture does not, of course, apply to borrowings from outside the Central Pacific languages, such as Melanesian loans in Fiji and Micronesian loans in Polynesia.

3.2 Melanesian loans in Fiji

Terminalia catappa

As pointed out in Geraghty (1983:85) and (1990:74, 90), Fijian *tāvola* is an irregular reflex of PEO **tavoRa* (the expected form being **tavoā*), and the *l/l* reflex of **R* (rather than */r/*) suggests that the word was loaned from the Solomons, though I have so far been unable to find a Solomon Island source, most of the evidence for **tavoRa* being from Vanuatu. Even more perplexing is the fact that there is a well-established PCP reconstruction for this plant with useful timber and almond-like nuts, **talice*, with regular reflexes in Polynesia and Rotuma, as well as parts of both Western and Eastern Fiji.¹² One possible explanation is that the name was introduced with a superior variety of the species, such as one of the large-kernelled cultivars with distinctive tastes resulting from intense selection on certain smaller islands (Evans 1996:22), and eventually replaced **talice* as the 'generic' name for the species over most of Fiji. Another possibility is that **talice* was originally applied to *Terminalia littoralis*, which has an even smaller kernel, and is now known by such names as *tāvola ni yalewakalou* 'tavola of the female spirit' and *jivilakwa* 'tavola with little flesh', in which case *Terminalia catappa* must have been a relatively recent introduction from the Solomon Islands. Rotuman *tavola* 'kind of tree' may be from the same source, directly or via Fiji.

Dracontomelon vitiense

It is possible to reconstruct a PCP **tawara(ʔ)u* for this fruit tree, with reflexes Fijian *tawarau* (metathesised¹³ in Standard Fijian as *tarawau*), Rotuman *favrau*, Mae *tavarau* and West Futuna *taverau* (Wheatley 1992:37). Although Smith (1985:455) indicates its presence in Tonga and Samoa, it is not listed in either Yuncker (1959) or Yuncker (1945), nor is it found in the relevant dictionaries.

The form **tawara(ʔ)u* can be analysed as **tawa* (*Pometia pinnata*) (the fruit of which it resembles) plus **ra(ʔ)u*, which is clearly related to PNV (Proto North Vanuatu) **ra(ʔ)u* (*Dracontomelon vitiense*), itself a reflex of PMP (Proto Malayo-Polynesian) **daqu* (*Dracontomelon dao*) (a very similar species) (Blust 1986), or PAn (Proto Austronesian) **daqu* (*Dracontomelon edule*).

That the PCP form is such a compound, rather than simply **ra(ʔ)u*, suggests that the plant was introduced after the original settlers of the Central Pacific had lost the memory of

¹² The form found in Tongan and Niuean, however, *telie*, is not regular, appearing to be a loan from a Nuclear Polynesian language such as Futunan, Uvean or Samoan.

¹³ Metathesis is the switching of sounds, in this case of */w/* and */r/*, and is a fairly common, if sporadic, change in the world's languages.

Dracontomelon, and was classified as a subtaxon of *Pometia*. Also indicative of relatively recent introduction is the fact that most of the Eastern Fijian reflexes, like the Tongan loan word *tānoa* ‘kava bowl’ mentioned above, have not conformed to Eastern Fijian apical prenasalisation, the only exceptions (*dawarau* and *darawau*) being found in parts of northeast Vitilevu. A further indication of a relatively recent western origin for *Dracontomelon* is the Fijian expression ‘*tei tarawau*’ (to plant *tarawau*) as a euphemism for death, as was recorded by Hazlewood (1850) and Seemann (1862:322). In traditional Fijian belief, the souls of the dead go to the west, so this expression could reflect a memory of the origin of *tarawau* in a place far to the west.

On the other hand, the form has been in Fiji long enough for it to be embedded in *tarawaukeirakakā*, literally ‘the parrot’s *tarawau*’, and similar compounds, used extensively through eastern Vitilevu and Vanualevu for the tree *Disoxylum* (PCP **maxota*), which bears an inedible fruit of similar size and shape to the *Dracontomelon*; and for it to be phonologically embedded in Rotuman, as *favrau*.

Spondias dulcis

In Geraghty (1990:76), I reconstructed PCP **uRi* as the name for this fruit plant (this was slightly in error, as will be explained below). The widespread Western Fijian name *maoli* (Geraghty 1990:91) shows a number of irregularities, one of which (/l/ from **R*) suggests it may have originated in the Solomon Islands. However, a suitable Solomon Island source for this loan has yet to be located.

Antiaris toxicaria

Perhaps worth noting in this section is a tree for which there is only non-linguistic evidence of introduction from Vanuatu or the Solomon Islands to Fiji and Western Polynesia. This is the upas tree, *Antiaris toxicaria* (Seemann 1862:334; Smith 1981:200; Clunie 1985:35–37), the latex of which was used to poison arrows. Its Fijian name recorded by Seemann, *mavu ni toga*, suggests that it may have been introduced to Fiji from Tonga, but it may be that *Tonga* was in this case a general term for any overseas place of origin. In another source, the name *mavu ni Toge* is recorded, possibly again by Seemann (Clunie 1985:36), raising the possibility that the ascribed place of origin is not Tonga, but Togē, a village near Ba in northwest Vitilevu. The plant has not been reported from Fiji since 1875, nor from Tonga or Uvea since 1852 (Whistler 1991:47).

3.3 Fijian loans in Tongan

Since the following Fijian loans appear to have progressed no further than Tonga, it is reasonable to assume that they are mostly relatively recent—occurring within the past 200 years.

Solanum melongena

The eggplant was probably a late nineteenth century introduction to Fiji (Smith 1991:13–14), brought by Indian indentured labourers who began arriving in Fiji in 1879. The Hindi name *baigan* was Fijianised as *baigani*, which in turn became Tongan *paigani*.

Bambusa vulgaris

This extremely useful type of bamboo was first recorded in Fiji in the late nineteenth century (Smith 1979:295–296), and has since spread rapidly in Fiji. One of its Fijian names is *bitunivālagi* (bamboo from overseas), in contrast to *bitu* for the indigenous bamboo (*Schizostachyum glaucifolium*). Although there is no unequivocal linguistic evidence for borrowing, I include Tongan *pitu* ‘yellow bamboo (*Bambusa vulgaris*)’ (Whistler 1995:56) here as a loan from Fijian because of the distributional evidence, and because in Futuna the same species is called *kofe fiti* (‘Fijian bamboo’).

Alpinia sp

The Fijian name *cēvuga* refers to the ornamental ginger plant *Alpinia vitiensis* (Smith 1979:209–211) and some closely related species. Tongan *tēvuga* is a ‘kind of plant, similar to the *teuila* [white flower, strong scent], but having reddish stalk, leaves and flowers’, which suggests *Alpinia purpuratum*, but Yuncker (1959:85) identifies it as the white-flowered *Hedychium coronarium* of the same family. Whatever the case, this must be a loan from Fijian on two phonological grounds: were it directly inherited, the Tongan initial would be **h*, and the sequence /vu/ only occurs in loan words.

Dioscorea alata cultivar

Fijian *dakulevu* and Tongan *takulevu* both refer to varieties of yam, for neither of which there is much further information. The Tongan must be viewed as a loan from Fijian because of the /vu/ sequence, and possibly also because the Fijian may be analysable as *daku-levu* ‘big back’.

Saccharum edule

Fiji is at the eastern extreme of the natural range of this seasonal food plant closely related to the sugar cane (Smith 1979:370–371), and the most widespread Fijian name is *duruka*. There is nothing in the Tongan name *tuluka* that marks it as necessarily a borrowing, but it is not found in Yuncker (1959), and Churchward (1959) states it to be a recent introduction.

Aglaiia saltatorum

Tongan *lagakalialeva* ‘species of lagakali plant’ (Collocott 1925) is clearly loaned from Fijian *lagakaliyalewa* (*Aglaiia* sp.), probably a variety of *Aglaiia saltatorum*, on morphological grounds. The Fijian can be analysed as ‘female *lagakali*’.

Cinnamomum and Cryptocarya spp.

Fijian *macou* refers to a number of species of *Cinnamomum* and *Cryptocarya* (Lauraceae) with aromatic bark used to scent coconut oil (Smith 1981:120–133). Tongan *motou* (*Cinnamomum pedaticervium*) (which probably refers also to other related species) is clearly a loan from Fijian on phonological grounds—were it cognate, **mohou* would be expected. The change of the first vowel (assimilation) is regular.

Polyalthia laddiana

I am grateful to Randolph Thaman (pers. comm.) for this identification of *mocelolo* ‘kind of fragrant tree’—much sung about but little seen. Tongan *motelolo* ‘kind of tree with odoriferous fruit’ must be loaned from Fijian, on the same grounds as *tēvuga* and *motou*.

Musa AAB cultivar

Fijian *mudramudra* ‘kind of plantain’ is clearly the source for Tongan *munomuna* ‘kind of plantain’, the regular Tongan reflex of Fijian /dr/ being /Ø/ or /l/.

Dendrocnide harveyii

The presence of the sequence /sa/ in the Tongan name for this nettle tree, *salato*, marks it as a loan, though it could be from either Fijian or Samoan, both of which have *salato* with the same meaning. The apparently unnecessary loaning of this name may be connected with its relative rarity in Tonga, since it is mostly confined to the island of ‘Eua.

Dioscorea nummularia

Tongan *sivoli* ‘kind of yam’ is marked as a loan from Fijian *tivoli* by the sequence /vo/.

Euphorbia fidjiana?

Tongan *totofisi* (Collocott 1925) ‘plant with dark purplish leaves, very potent in witchcraft’ is not a loan from Fijian, but its name means ‘Fijian *toto* (*Cerebra manghas*)’. The description suggests *Euphorbia fidjiana*, a member of the same family as *Cerebra*.

Cyrtosperma chamissonis

The Tongan name for this kind of swamp taro, *via* (Whistler 1995:52), is clearly a loan from Fijian *via*, which is used for both *Cyrtosperma* and *Alocasia* (the Tongan cognate would be **fia*). According to Pond (n.d.:77), it grows only on the island of Niuaotupapu. See discussion below with reference to *pulaka*, the more widespread Polynesian name for *Cyrtosperma*.

Metrosideros collina

On two phonological grounds, the presence of /vu/, and /v/ rather than /f/, Tongan *vuga* must be a loan from Fijian *vuga*. Both refer to *Metrosideros collina*, which is now extinct in Tonga (Whistler 1991:55).

Unidentified vine

Fijian *wāvatu* (literally ‘stone vine’) refers to a number of strong vines used in the construction of houses, fish fences, fish traps etc., including *Agatea*, *Rourea*, *Connarus*, *Jasminum*, and *Faradaya*. Tongan *vavatu* ‘kind of vine used in fish traps’ must be viewed as a loan from Fijian because of the medial /v/ (rather than *f) and because only the Fijian is analysable, as *wā* ‘vine’ plus *vatu* ‘stone’.

3.4 Fijian loans in Futuna

As with the loans in Tongan, these are most likely to be fairly recent.

Callophyllum inophyllum

Linguistically, Futunan *tilo* could be either an inherited form cognate with Fijian *dilo*, or a borrowing of it, since the form is equivocal. However, given the distribution of *tilo* in Polynesia (confined to Futuna) and the fact that there is a widespread Polynesian name for this tree, **feta ŋu*, a reflex of PCP **veta ŋu* with the same meaning, the most economical hypothesis is that the Futunan is a loan from Fijian.

Aglaia saltatorum

Fijian *lagakaliuto* is a variety of (or possibly closely related species to) *Aglaia saltatorum*, with larger than normal fruit. It is composed of *lagakali* plus *uto* ‘breadfruit’. The *uto* in Futunan *lagakaliuto* ‘*Aglaia saltatorum*’ has no meaning in Futunan, so the word appears to be a loan from Fijian. Compare a Samoan name for a variety of the same taxon *lagaʻali ŋulu* (Pratt 1878), where *ŋulu* is Samoan for ‘breadfruit’.

Dioscorea alata var. or *Dioscorea rotundata*

Fijian *vurai* is a variety of *uvi* (yam) which matures in six months (rather than the usual nine or so), has a distinctive pumpkin-like shape, and firm white flesh. In many respects it answers to the description of *Dioscorea rotundata* (Weightman 1989:72), though this species has not previously been reported in the literature for Fiji (except for a very brief mention in Harwood 1938:9), and indeed was only introduced to Vanuatu in historical times, its home being West Africa. Although acknowledged to be a modern introduction in some parts of Fiji, it seems to have been present since at least recent prehistoric times, its point of origin being the district of Votua, on the coast near Ba in northwest Vitilevu. There a story is told of it being the gift of a leprous stranger in gratitude for his being looked after by the people of Votua, which he told them they would find growing on his grave. The name *vurai* is said to be abbreviated from *vuraibulu* meaning ‘emerged from the underworld’.

The *vurai* was recorded as early as 1836–40, when the Methodist missionary David Cargill included it, defined simply as a ‘sort of yam’, in his Lakeba (Lau) dictionary. In 1849, another Methodist missionary, James Calvert, wrote thus on Wednesday 21 March: ‘I set off about noon towards Bulu [chiefly village of Ba]. The sun was painfully strong. The road was very good, being dry. I passed a flat of yams I suppose 1¼ mile[s] long. It was the largest quantity

of yams planted together I had seen. They looked exceedingly well. I was delighted with the sight. The name of the yam is *Vurai*—It is peculiar to Ba—& will be ready to dig in two months. In four months after that they will have ready their ordinary regular yams of Fejee. In four months after that their *kawai* [*Dioscorea esculenta*]*—*which they now live upon. The *vurai* yams are set on the same spot for several successive years—which is not the case with yam-setting in Fejee generally’.

Futunan *vulai* ‘kind of yam’ (Burrows 1936) is clearly a loan word from Fijian *vurai* on phonological grounds, the expected cognate being **fulai*.

3.5 Fijian loans in Western Polynesia

The following plant names of Fiji origin are found more generally in Western Polynesia. It is a reflection of Fiji’s external relations of recent centuries that it has loaned words exclusively to Tonga and Futuna, but not, as far as I have been able to ascertain, to Uvea or Samoa.

Dioscorea alata cultivars:

Fijian *lokaloka* ‘kind of yam with purple flesh’ is considered to be the source for Tongan *lokoloka* ‘kind of purple yam’, East Uvea *lokaloka* ‘kind of yam’, Futuna *lokaloka* ‘kind of purple yam’, and also Rotuman *roakroka* ‘kind of yam with red flesh’, on etymological grounds, *lokaloka* being also the Fijian word for ‘purple’. A variety of this yam (or perhaps simply an unusually shaped specimen), *lokolokamagavalu*, is mentioned in a Tongan legend as being found in Pulotu, the home of the souls of departed chiefs (Gifford 1924:153), a mythical place which I believe to be based on Matuku in Fiji (Geraghty 1993).

Fijian *tabu(w)ani* may be the source for Tongan *tapuane* and Futuna *tāpuani*, all varieties of yam for which no further details are available. It is just possible that it is a loan from Polynesia to Fiji, since the correspondence of Fijian /b/ to Polynesian /p/, though not found in nineteenth-century loans, may have occurred earlier. On the other hand, the word may be morphologically analysable in Fijian, since *tabu-* is a common prefix meaning ‘not, un-’, and *wani* means ‘tied’.

Fijian, Tongan, Uvea and Futuna all show *voli* as a variety of yam. The sequence /vo/ marks this word as of Fijian origin.

Hibiscus (Abelmoschus) manihot

This very nutritious green vegetable is *bele* in Fijian, *pele* in Tongan, Samoan, and Niue. It has a plausible etymology only in Fijian, *bele* meaning ‘soft leaf’.

Centella asiatica

This small herb with medicinal properties is known as *totodro* throughout Fiji, and its Polynesian names are: Tongan *tono*, Niue *tono*, Uvea *tono*, Samoan *togo*. The apparent Samoan change to /g/ is a recent product of n/g confusion, Pratt (1878) having recorded *tono*

in the nineteenth century. The correspondence of Fijian /dr/ to Polynesian /n/ is a clear sign of a loan from Fiji.

Entada phaseoloides

This very useful vine—it provides medicine, a supply of fresh water, a means of hauling logs, skipping ropes, scare lines for fishing, etc.—is best known in Fiji as *wālai*, but is also called *wāicibi*, on account of its equally useful seeds, which are known as *icibi* (*wā* means ‘vine’). Futuna *vātipi*, with the same meaning, must be judged to be a loan from Fijian on both phonological and morphological grounds, as also Tongan *sipi* on phonological grounds, though it would seem to be an ‘unnecessary’ one, the vine occurring naturally as far east as the Cook Islands. Tongan and Futunan *vālai* also look like loans from Fijian *wālai*, and Yuncker (1959:131) and Whistler (1995:56) both identify Tongan *vālai* as *Entada*, but its definition in Collocott as ‘a creeping plant used in basket manufacture and for lashings’ (it can be so used, but other uses are more important), and in Futunan as ‘grosse liane peu résistante’ would appear to cast some doubt on this identification.

3.6 Fijian loans elsewhere in Polynesia

Cananga odorata

This is a kind of perfumed flower tree, also with a useful timber, sometimes known as ylang-ylang. Its natural range extends maybe as far east as the Solomons (Smith 1981:37–38). In Fijian it is known as *makosoi* and *mokosoi*. Its Polynesian names include Tongan and Uvean *mohokoi*, Futuna *mosokoi*, Samoan *mosoʔoi*, Niue *motooi*, Tahitian *motoʔi*, and Rarotongan *mataʔoi* or *motoʔoi*. The Fijian *mokosoi* and the Tongan and Samoan forms correspond perfectly (allowing for metathesis), which means that there is no phonological evidence for borrowing; but it must be recalled that sometimes borrowing is phonologically undetectable. Niue *motooi* and Rarotonga *motoʔoi* are both however irregular, and can only be explained as loans from either Samoan or Tahitian. Tahitian *motoʔi* shows two phonological irregularities: /t/ corresponding to /s/ in the other languages (one would expect Tahitian /h/ in an ‘inherited’ word), and the apparent loss of the last /o/. Borrowing can account for both of these irregularities. Tahitian changes *s to /h/, so has no /s/, and regularly borrows /s/ as /t/. Furthermore, a recent sound-change in Tahitian has been to copy vowels from the left to the right of glottal sounds, i.e. /h/ and /ʔ/ (glottal stop), so that a word such as /taʔi/ ‘cry’ has come to be pronounced [taʔai] (Ward 1993:39). Thus a word heard as [mosoʔoi] would be interpreted phonemically as /motoʔi/, as if the third /o/ were merely a copy of the second. If we refer to the historical record, we find indeed that Pétard (1986:162) states that the tree was an eighteenth-century introduction to Eastern Polynesia.¹⁴

¹⁴ Robert Langdon (pers. comm.) informed me that there is documentary evidence for the introduction being as recent as the mid nineteenth century, and it is indeed absent from Davies’ usually fairly comprehensive dictionary of 1851.

As for the origin of the tree within the Central Pacific area, morphological analysis points to Fiji. The word *makosoi* can be analysed as *mako* + *soi*, where *mako* means ‘*Cyathocalyx* sp.’, a forest tree belonging to the same botanical family (Annonaceae) as *Cananga odorata*. There are a number of native species of *Cyathocalyx* named *makosoi* (Smith 1981:24–25) which could have given their name to *Cananga*. Alternatively, the name could have been coined for *Cananga* and then passed on to the related *Cyathocalyx* species. One meaning of *soi* is ‘cut’, referring perhaps to the fact that the flower of the *makosoi*, culturally its most important part, is divided into long thin strands. Support for this analysis is afforded by the Cakaudrove (Eastern Fiji) name for the five-leaved yam *Dioscorea pentaphylla*, *iviso*, which appears to be derived from an earlier **uvisoi*, composed of *uvi* ‘yam’ plus *soi* ‘cut’, appropriate because the leaf, unusually for a yam, is not whole but divided into five or seven long thin leaflets.¹⁵

Spondias dulcis

As noted above, PEO **uRi* has been reconstructed for this fruit tree (Geraghty 1990:76), but a widespread Western Fijian name for it (*maoli*) appears to have been loaned from a Solomon Island language. I now realise that this reconstruction should be **ʔuRi*, an initial glottal stop being required on the evidence of Nakanai (New Britain) *huri* and Proto North Vanuatu **ʔuRi-si* (my own reconstruction). Careful scrutiny of the Polynesian and Rotuman names shows irregular developments. PEO **mauRi* ‘left-handed’ is reflected in PCP as **mauī* (lengthening possibly regular), which becomes Fijian *mawī* and PPn **mauī*. Given this pattern, one would expect PEO **ʔuRi* to yield Fijian *wī*, as it indeed does, but the anticipated PPn ***ʔuī* is not found. This suggests that the Polynesian forms (Tongan *vī*, Samoan *vī*, Tahitian *vī* etc.) were loaned from Fijian. The same may also be true of Rotuman *vī* (*Spondias dulcis*), and perhaps also Pingilapese *wī* ‘kind of tree with fruit resembling the star fruit’, though this could be a description of *Barringtonia asiatica*, which is *wī* in Pohnpei—depending on whether the resemblance is in taste or in shape.

3.7 Micronesian loans in Polynesia

Artocarpus altilis

Much has been written on the importance of the breadfruit in certain Pacific islands, and the circumstances of its introduction to Polynesia (e.g. Ishikawa 1987; Langdon 1989; Marck n.d.; Ragone 1991). I have also drawn attention to the large number of names for breadfruit that can be theoretically reconstructed to Proto Eastern Oceanic level, including **kulu*, **maRi*, **baReko* and **betav* (Geraghty 1990:89). Two of these can also be ‘reconstructed’ for Proto

¹⁵ However, the apparent Polynesian cognate of this form, PPn **soi*, refers not to *Dioscorea pentaphylla* but to *Dioscorea bulbifera*, which is closely related but does not share the distinctive leaf structure. This raises the possibility that *soi* here means ‘peel’ (as it also does in Fijian), since the bulbils and roots of *Dioscorea bulbifera* are peeled before being washed or cooked for consumption. It is for this reason that *Dioscorea bulbifera* is known in Western Fiji as *saracivi*, from *sarau* (*Dioscorea esculenta*) and *civi* ‘peel’.

Polynesian, **kulu* and **mei*, a circumstance that usually means that at least one of them is spurious. My reading is that **mei* is indeed a loan word, and **kulu* may be one too.

As noted in Geraghty (1990), agreements in Micronesia and Southern Vanuatu point to PEO **maRi* (which may well be spurious as to time depth). The Polynesian reflexes of this item all show an irregular development in the first vowel, to **mei*. A possible source for this form is Pingilapese *mei*, which shares the raising of the first vowel. As pointed out by Langdon (1989:309–311), it is striking that *mei* is found only in Tonga, Futuna, Tuvalu and some outliers in Western Polynesia, and only in the Marquesas and Mangareva in the East, suggesting the introduction of breadfruit (or perhaps superior varieties and/or associated cultural items) from Tonga to the Marquesas, an idea strongly supported by the Marquesan word for fermented breadfruit, *mā*, which is almost certainly a loan from Tonga.

The other PPn reconstruction for breadfruit, **kulu*, is more widely distributed both within and without Polynesia, and looks in many respects like a bona fide PPn word. However, a note of caution is in order. While it is tempting to say that PPn **kulu* is an impeccable reflex of PCP **kulu*, we should bear in mind that we as yet understand little of the development of vowels in Proto Polynesian. Since /u/ often fronts to /i/ (e.g. **bulu* > **pili* ‘stick, adhere’, **kuli* > **kili* ‘skin’, **mulo* > **milo* (*Thespesia populnea*), **ʔulo* > **ʔilo* ‘maggot’, **vulo* > **fīlo* ‘twist’, **turu* > **turi* ‘knee’), it would be well to have a better understanding of the conditions governing this fronting before stating that **kulu* is a perfectly regular development.¹⁶

Cyrtosperma chamissonis

As already noted, this large swamp taro is known in Tongan as *via*, a name loaned from Fijian. Elsewhere in Polynesia, the name is derivable from **pulaka* (Futuna,¹⁷ Uvea, Tuvalu *pulaka*, Samoa *pulaʔa*, Rarotonga *pūraka*); *pulaka* is also used in some islands of Lau in eastern Fiji. As pointed out in Geraghty (1990:57, 89), this form is an irregular development with respect to PEO **buRaka*, the expected Polynesian reflex being ***puaka*, and is most likely to be a loan from a Micronesian language, such as Woleai *bulaga*. It is irregular also in Micronesian languages, and seems to have been borrowed from Nakanai *bureka* ‘kind of elephant-ear taro’ or Palau *brak* ‘giant swamp taro’, or a related form.¹⁸ The similarity of

¹⁶ This fronting appears to have continued after the breakup of Proto Polynesian; cf. PPn **hui* ‘bone’ > PNP **iwi*, PPn **kui* ‘blind’ > PNP **kiwi*.

¹⁷ The first record of *Cyrtosperma* in Polynesia was made by le Maire in 1616, whose Futunan vocabulary included *pulaka* glossed as ‘cheese’ (Kern 1948:222, 231; Pond n.d.:104–105). The cooked root does indeed resemble cheese in colour and texture. In Tahiti, where it is a modern introduction, it is called *maʔota* (Pétard 1986:100; Whistler 1995:52). I do not know the etymology of this name, but it looks rather like a reflex (irregular) of PPn **maʔota* (*Dysoxylum* sp.), a tree famous for its strong smell. Seemann (1865:303–304) claims that the *Alocasia* plant omits a nauseous smell, and that *Cyrtosperma* is in every respect a similar species; but no other sources comment on its smell, nor has anyone yet complained about the ones in my garden.

¹⁸ Some Micronesian terms for the *Alocasia* swamp taro, such as Woleai *file*, also show irregularities suggesting that they are relatively recent loans (Geraghty 1990:89).

names across the Pacific, incidentally, was first pointed out by Barrau (1963:3, 6), who was however not aware that the sound correspondences point to a post-aboriginal introduction.¹⁹

In Fiji, there is some traditional support for its being introduced. A legend from Noco, part of the Rewa river delta, which is the only part of Fiji where it is (or rather has been) a staple food, ascribes its origin to the nearby island of Beqa. A simplified version of this legend is published in Reed and Hames (1967:220–221). For both mangrove delta and atoll environments, *Cyrtosperma* would have been a godsend, since unlike most other staples it tolerates saline groundwater (Parry 1977:13).

3.8 From out of the East?

Much has also been written about the possible prehistoric introduction of plants from the American continent, such as *Solanum repandum* to the Marquesas and westward as far as Fiji (Whistler 1991:49), *Gossypium barbadense* (cotton) to the Marquesas and Society Islands (Langdon 1982), *Manihot esculenta* (manioc, tapioca) to Rapanui (Easter Island) (Langdon 1988b), *Sapindus saponaria* (soapberry) to Rapanui and other islands of central Eastern Polynesia (Langdon 1996), and *Lageraria siceraria* (gourd) to all of Eastern Polynesia (Whistler 1900; Burtenshaw 1999).

Only one plant of American origin is claimed to have a name that is also of American origin: *Ipomoea batatas* (sweet potato, *kumala*, *kumara* etc.). As far as I am able to judge with no knowledge of American languages, the arguments seem to be convincing, including the suggestion by Rensch (1991) that there is evidence for at least two separate introductions, the common Eastern Polynesian name *kumara* deriving from Peru and/or Ecuador, and the Hawaiian name *ʻūala* from northern Colombia.

3.9 From out of the West?

Intsia bijuga

This famous tree of Fiji–West Polynesia has a very durable timber. In Southern Lau, where most of Fiji’s traditional carpenters reside, *vesi* is the most highly esteemed of all timbers, the name of which inspires ‘an image of all that is fine, strong and permanent. It is stated to be the ‘best’ wood, for, although *cau* [*Casuarina equisetifolia*] is known to be tougher and *bau* [*Planchonella pyrulifera*] to grow larger, *vesi* is regarded as the carpenter’s wood *par excellence*. Its straight grain, strength, durability and resistance to cracking make it a pleasure to work and although it occurs in other parts of Fiji, none seems to compare with the quality of the island *vesi* from Kabara and Vulaga in Lau’ (Hooper 1982:53).

¹⁹ Rotuma and Kiribati also have identical names for *Cyrtosperma*: *papai*. If we accept a Micronesian route for *Cyrtosperma* to the Central Pacific, it is more likely that the Rotuman is a loan from Kiribati than vice versa.

Its name has been reconstructed as PCP **vesi*, based on Fijian *vesi*, Tongan *fehi*, East Futuna *vesi*,²⁰ East Uvea *fehi*, and Tikopia *fesi* (unidentified tree, but the description is compatible). I know of no cognates in Oceania, but a plausible cognate is found in Western Austronesia: Buli (Halmahera) *besi*, Sea Dayak *besi*, Malay *besi* etc., all meaning 'iron' (for more related forms, see Mahdi 1994:175–176 and Tryon 1995 3:363–364). Since Western Austronesian /e/ regularly corresponds to Central Pacific /o/, not /e/, *vesi* appears to have been borrowed, though when, how, why and from which particular language is impossible to say. It is noteworthy that there are, to my knowledge, no cognates of this form between Western Austronesia and Fiji. The Samoan name is *ifilele*, which is believed to apply also to *Pongamia* (R. Thaman pers. comm.). Since this means 'flying ifi' (where ifi refers to *Inocarpus edulis*, the Tahitian chestnut), it would indeed be appropriate for *Pongamia*, since its seeds are very light and are blown about in the wind, which suggests that the name was originally applied to *Pongamia* and later transferred to the similar *Intsia bijuga*.

The *vesi* tree is found throughout the rugged interior of certain limestone islands of Southern Lau, and in coastal areas in many other parts of Fiji (Smith 1985:132–134). In most respects it appears to be well integrated into the local culture, being used as a totem and found in many place names, and it is also linguistically well embedded. So it is not a tree one would suspect of being recently introduced. There are, however, certain other facts that suggest that it may have been introduced at a relatively remote date. In Rotuma, its name *fesi* is clearly a Polynesian loan. In only one of the outlier languages, Tikopia, is a name related to *vesi* found. In the others, as far as I have been able to determine, the name for this tree is borrowed from Melanesian languages (Emae and Mele *kimau* from Tongariki *nakimau* or *nakumau* (Gowers 1976; Wheatley 1992)), or is a compound (Rennell *isi?atua*, from *isi* (*Inocarpus edulis*) 'Tahitian chestnut' plus *?atua* 'spirit, god'), or is of obscure origin (West Uvea *kai*). This suggests that *vesi* was not known to the Polynesians who settled most of the outliers.

Further suggestive linguistic evidence is provided by the fate of the oldest reconstruction for *Azelia bijuga*, Proto Malayo-Polynesian **qipil*. If this tree were found all the way from Indonesia to Western Polynesia, as it is now, when the first settlers arrived, one would normally expect the name to survive. However, the furthest east this name survives is in Roviana, in the Western Solomon Islands, where the name is *ivili*. While it is true that lexical replacement is always possible, the fact that the name **qipil* shifted to a similar species (*Inocarpus edulis*, Tahitian chestnut) in the Central Pacific (as indeed it did in parts of Papua New Guinea) is at least suggestive of loss of the referent.²¹

²⁰ The initial /v/ rather than /f/ would normally indicate a loan from Fijian, but here it is equivocal, since **f* > *v* is a regular development before /s/ in Futunan (e.g. **fusu* > *vusu* 'punch', **fasi* > *vasi* 'split'). The same change appears to have occurred in the northern outlier languages of Sikaiana, Luangiua, and Takū, an observation which presents a challenge to current thinking that they are most closely related to Tuvalu (Clark 1994:111).

²¹ In Geraghty (1990:75), I reconstructed PEO **toRa* as the name for *Intsia bijuga*, based on forms with that meaning in Palauan and Vanuatu, as well as Rotuman *foa* 'coconut grater', Fijian *toa* 'heartwood' and PPN **toa* '*Casuarina equisetifolia*, ironwood'. I now believe that 'heartwood' is a more likely meaning for this reconstruction.

In Kabara, where it grows more prolifically than anywhere else in Fiji, it is said to have been introduced by the founding ancestor of the present inhabitants from Oloi, a place near the contemporary villages of Cautatā and Vatoa in Tailevu, Vitilevu (Hocart 1929:210). According to Mariner (Martin 1817:359), it was introduced to Tonga from Fiji, and Seemann (1865) believed it was not native to Fiji, but an aboriginal introduction.

Morinda citrifolia

In Geraghty (1993), I argued that red parrot feathers (*kula*) were an important commodity in early Fiji–West Polynesia trade, and that war over the control of this trade led to a major population movement, perhaps around 1000 BP, from eastern Fiji to most parts of Polynesia (excluding Rapanui), introducing the name *togafiti* meaning ‘ruler’ or ‘landowner’, and the concept of Pulu or Fanuakula as an ancestral land. The name for these red parrot feathers appears to have been **kura*, the full range of meaning being something like: ‘red, (skin) light brown; kind of red-feathered bird; ornamental red feathers’. I proposed that this derived from POC (Proto Oceanic) **kurat* ‘Indian mulberry’ (*Morinda citrifolia*), the connection being that the roots of this tree produce a red dye. In Fiji and Polynesia, its reflexes often also carry many of the connotations of ‘gold’, being associated with wealth and power. I noted however that there was another POC reconstruction for the same tree, **ñoñum*, and speculated that perhaps **ñoñum* was the name of the plant, and **kurat* the name of the dye produced from it.

This speculation is now supported by evidence from Mahdi (1994:192–193), who noted that a number of non-Austronesian languages of North Halmahera in East Indonesia show forms such as Ternate *guraci* ‘turmeric’ (*Curcuma longa*), Tidore *kuraci* ‘yellow’, and Tidore *guraci* ‘gold’, which are the source of loans in certain South Halmaheran languages, such as Buli *guraci* ‘gold’. The formal correspondence of these forms with **kurat* is perfect. Mahdi adds that the Ternate/Tidore region of North Halmahera was the centre of the ancient spice trade, being until just a few centuries ago the only place in the world where cloves grew, and that North Halmaheran loans (including the word for ‘king’) are also found in Austronesian languages around the Gulf of Papua, indicating that ‘North Halmaherans also played an active role in maritime trade in and from East Indonesia over relatively large distances at various, and perhaps also unexpectedly early times’. Given the wealth and power of the North Halmaherans, and that fact that South Halmaherans borrowed from them the word *guraci* ‘gold’, it seems quite possible that the same word was also loaned into languages in their New Guinea sphere of influence, and provided the source for the word **kurat* that then replaced reflexes of **ñoñum* as the word for *Morinda citrifolia* as far east as Fiji and Rotuma.

Broussonetia papyrifera

The paper mulberry plant, from which the best bark cloth is made, has been the subject of some discussion, particularly regarding its origin, Langdon (1989:313–317) claiming that it was introduced directly to Polynesia from Southeast Asia between 1000 and 1500 years ago. In my view, the linguistic evidence is equivocal. I cannot agree with Langdon’s claim (1989:313–314) that a multiplicity of names in Western Polynesia necessarily reflects its relatively late introduction into the area. Neither can I agree with Matthews (1996:117–118) that ‘linguistic evidence indicates that the prehistoric speakers of Proto Polynesian made tapa’.

This appears to be another instance of too much faith being put in reconstructions: as with

motorcars in Micronesia, so with tapa in Polynesia. The fact that reconstructions can be made is in itself no guarantee of antiquity. Until more data becomes available and a more detailed study can be made, the question remains open.

3.10 A non-borrowing?: *Piper methysticum*

Regarding the introduction of kava, Crowley (1994:94) argues as follows: 'The fact that Fijian does not share a cognate with the languages of Northern and Central Vanuatu suggests that perhaps kava also spread to Fiji after the initial settlement of these islands from Vanuatu'. This tentative statement has been seized on by Visser (1994:313) and turned to something far more assertive: 'The linguistic evidence does not support a very early introduction of kava in Fiji'. As noted above, while lexical retention is the norm, replacement is a not uncommon occurrence, so even if Fijian **ʔaqona* (which can be analysed as meaning 'intoxicating thing') did replace Vanuatu **maloku*, this says nothing at all about the date of introduction to Fiji. In any case, the Proto Eastern Oceanic name appears to have been **(kq)awa* (PPn **kawa*, Arosi *ʔawaʔawa*), so that both the Vanuatu and Fijian names are innovative, and neither tells us anything about the date of introduction of the plant. Since Polynesia retains the PEO name, the most likely scenario is that it was introduced with the first settlers of Fiji–Polynesia, who spoke Proto Central Pacific, and subsequently changed in Fijian to **ʔaqona*; though it is, as noted above, linguistically impossible to distinguish between a PCP word and one introduced in the first thousand years or so of occupation.

On the other hand, it does seem that PCP and PPn **kawa* meant 'fish-poison', cf. Nadroga (Western Fiji) *kawa* 'fish-poison tree (*Euphorbia?*)', Lautoka (Western Fiji) *kawa* 'fish-poison vine (*Derris* sp.)', Tongan *kavahaha* 'kind of leguminous creeper used as a fish poison', Nukuoro *kavaausu* 'fish-poison tree (*Barringtonia asiatica*)', West Uvea *kava* (*Derris trifoliata*), and PPn **kawa-susu* 'a shrub (*Tephrosia* sp.) used to poison fish'. This raises the possibility that the name **kawa* for *Piper methysticum* originated as a semantic extension in the Central Pacific region, in which case we must view as borrowings not only the Arosi (Solomons) *ʔawaʔawa* (in line, perhaps, with the Polynesian loan words cited above in footnote 6), but also the similar names found in the Admiralty Islands and New Guinea, as has indeed been proposed by Crowley (1994:95–100).

A final cryptic note: in 1616, Schouten recorded the Niuatoputapu name for kava as 'acona' (misprinted as 'acoua'), which clearly represents *akona*, corresponding to Fijian *yaqona* (Pond nd:74–75). Phonologically, this could be either a loan or an inherited word. I have no idea why *akona* should have been used rather than the expected *kava*, but duly record the fact for future consideration.

4 Conclusion

I hope I have shown that there is linguistic evidence for intentional human transportation of many plants in Fiji and Polynesia, sometimes over considerable distances, in prehistoric times. Bearing in mind that I have not conducted a systematic search, deliberately setting aside

introductions from Polynesia and almost totally neglecting the outliers,²² and that many loan words are linguistically invisible, plant introductions may well have been far more extensive than is suggested by the evidence in this paper.

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²² A systematic study of plant names in the outliers could be extremely useful in determining what plants were present in Western Polynesia when the outliers were settled. Although lexical replacement does occur, the chances of it occurring independently in different outlier languages are of course slim, so the more outlier languages fail to reflect a particular PPn ‘reconstruction’, the more likely it is that that reconstruction is spurious. A case in point is *fesi (*Intsia bijuga*), discussed above. There are many other likely candidates, such as *lagakali (*Aglaia* sp.), *seasea (*Syzygium corynocarpum*), *koli (*Syzygium neurocalyx*) and *mapa (*Diospyros* sp.).

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