

The lexicon of Proto Oceanic

*The culture and environment of ancestral
Oceanic society*

1 Material culture

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The culture and environment of ancestral
Oceanic society

1 Material culture

edited by
Malcolm Ross, Andrew Pawley
and Meredith Osmond



Pacific Linguistics
Research School of Pacific and Asian Studies
The Australian National University
Canberra

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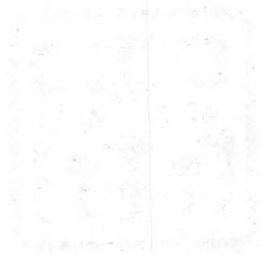
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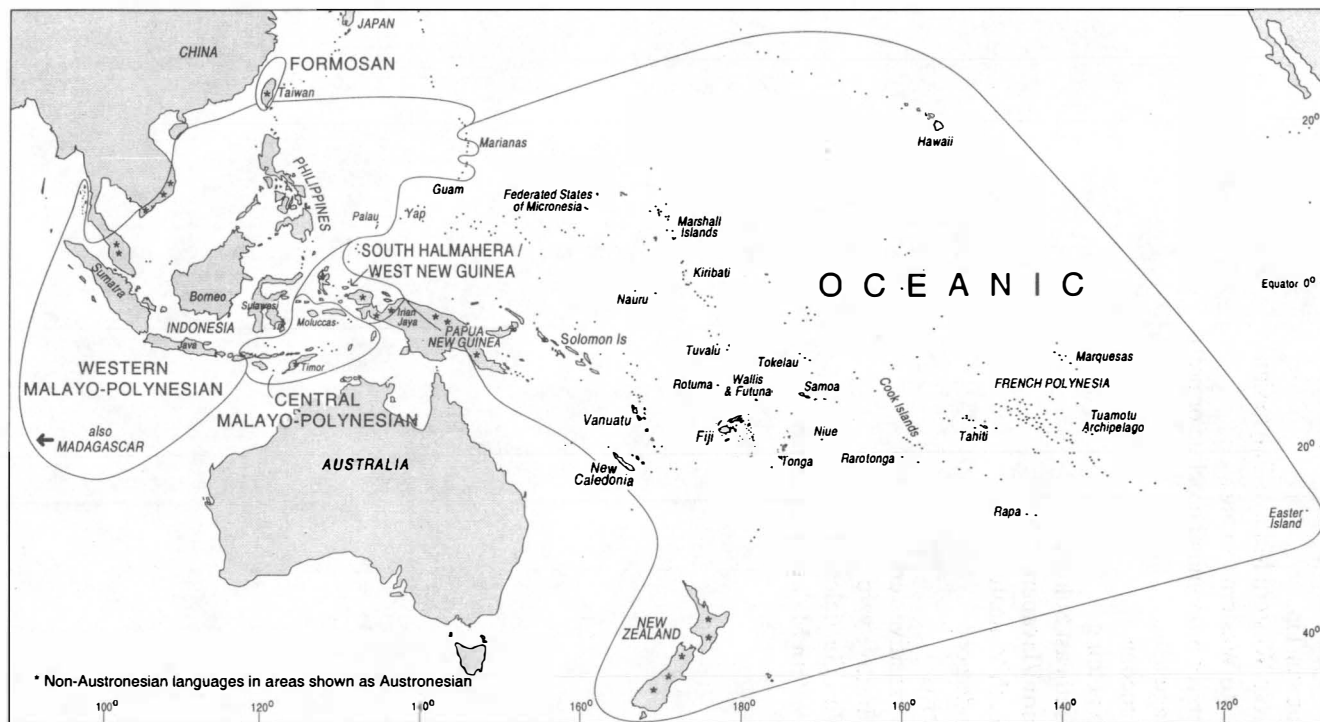
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Malcolm Ross drew the maps. Except where otherwise indicated, the illustrations are by Philippa Ross. The diagram from Oliver in Chapter 3 is reproduced with permission from Dr Douglas L. Oliver.

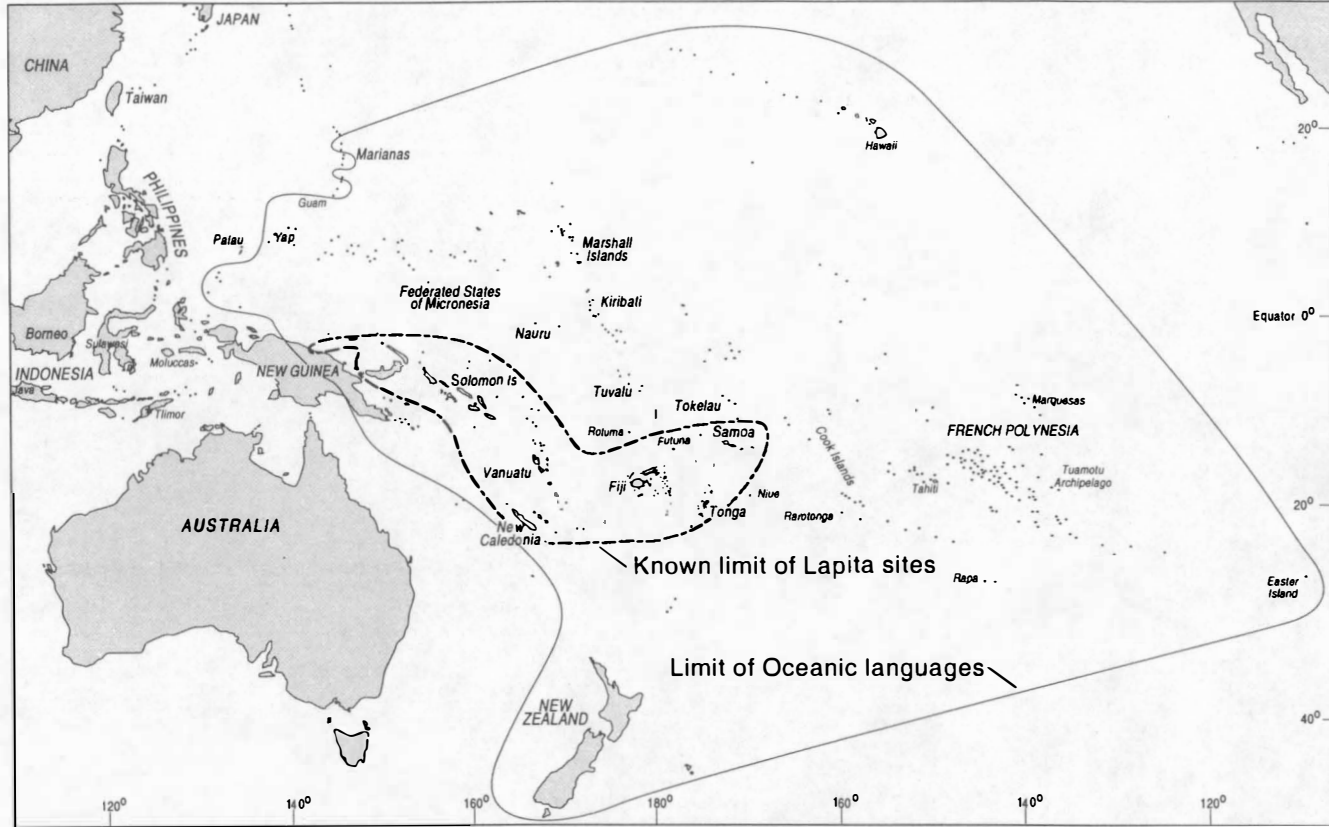
Abbreviations

A	actor
ACD	Blust, Robert A., 1995. <i>Austronesian Comparative Dictionary</i> . Computer files. University of Hawaii, Honolulu.
Adm	Admiralties
ADJ	adjective
ADV	adverb
APPL	applicative
ART	article
CMP	Central Malayo-Polynesian
CONST	construction marker
esp.	especially
Fij	Fijian
Fma	Formosa
IJ	Irian Jaya (= West New Guinea, i.e. non-Oceanic)
INS	instrument
k.o.	kind of
Mic	Nuclear Micronesian
MM	Meso-Melanesian
NOM	nominaliser
N	noun
NCal	New Caledonia
NCV	North/Central Vanuatu
NNG	North New Guinea
NOM	nominaliser
O:	object pronominal enclitic or suffix
OBJ	object
PAn	Proto Austronesian
PASS	passive
PCEMP	Proto Central/Eastern Malayo-Polynesian
PCP	Proto Central Pacific
PEMP	Proto Eastern Malayo-Polynesian
PEOc	Proto Eastern Oceanic
PL	plural

PMP	Proto Malayo-Polynesian
Pn	Polynesian
PNGOc	Proto New Guinea Oceanic
POc	Proto Oceanic
PPn	Proto Polynesian
PT	Papuan Tip
PWMP	Proto Western Malayo-Polynesian
PWOc	Proto Western Oceanic
S:	subject pronominal proclitic or prefix
SG	singular
s.o.	someone
s.t.	something
SES	Southeast Solomonian
SJ	Sarmi/Jayapura
SV	South Vanuatu
U	undergoer
V	verb
VI	intransitive verb
VT	transitive verb
W.Guad.	West Guadalcanal
WMP	Western Malayo-Polynesian



Map 1: The Austronesian phylum and major language groups



Map 2: Geographic limits of historically known Oceanic speakers and of presently documented Lapita sites (after Kirch 1997:17, 54)

1 Introduction

MALCOLM ROSS, ANDREW PAWLEY AND MEREDITH OSMOND

1 Aims

This is the first of a set of five volumes bringing together the results of recent work on the lexicon of the Proto Oceanic (POc) language.¹ Volume 1 deals with material culture, volume 2 with the physical world including landscape and conceptions of location, meteorology, astronomy and time, volume 3 with flora and fauna, volume 4 with terminologies centring on human beings, including the body and basic human conditions and activities, and social organisation, and volume 5 with grammatical (closed) categories including adjectives, pronouns, and number. Volume 5, as it is planned at the time of writing, will also include an index to the POc and other reconstructions presented in the whole work, as well as an English-to-POc finderlist and a list of all languages cited, together with their subgroups.

Proto Oceanic is the immediate ancestor of the Oceanic subgroup of the Austronesian language family (see Map 1). This subgroup consists of all the Austronesian languages of Melanesia east of 136°E, together with those of Polynesia and (with two exceptions) those of Micronesia—more than 450 languages in all.² Extensive arguments for the existence of Oceanic as a clearly demarcated branch of Austronesian were first put forward by Otto Dempwolff in the 1920s (cf. Ch. 2, §2.4) and the validity of the subgroup is now recognised by virtually all scholars working in Austronesian historical linguistics.

The development and break-up of the POc language and speech community were stages in a truly remarkable chapter in human prehistory—the colonisation by Austronesian speakers of the Indo-Pacific region in the period after about 3000 BC. The outcome was the largest of the world's well-established language families and (until the expansion of Indo-European after Columbus) the most widespread. The Austronesian family comprises around 1,000 distinct languages. Its eastern and western outliers, Madagascar and Easter Island, are two-thirds of a world apart, and its northernmost extensions, Hawaii and Taiwan, are separated by 70

¹ The project has been jointly directed by Andrew Pawley and Malcolm Ross, with research assistance from Meredith Osmond, in the Department of Linguistics, Research School of Pacific and Asian Studies at the Australian National University.

² The listing in Tryon ed. (1995) contains 466 Oceanic languages, many of which are subdivisible into dialects.

degrees of latitude from its southernmost outpost, Stewart Island in New Zealand.

It is likely that the divergence of Oceanic from its nearest relatives, which are the Austronesian languages spoken around Cenderawasih Bay and in South Halmahera (Blust 1978a), began when Austronesian speakers from the Cenderawasih Bay area moved eastwards along the north coast of New Guinea or into the Bismarck Archipelago. There is a strong school of opinion that associates the subsequent break-up of POc with the rapid colonisation of Island Melanesia and the central Pacific by bearers of the Lapita culture between about 1500 and 1000 BC (see Map 2).³

The present project aims to bring together a large corpus of lexical reconstructions for POc, together with supporting cognate sets, organised according to semantic fields and using a standard orthography for POc. The symposium entitled *Austronesian terminologies: continuity and change* held at the Australian National University in October 1990 showed that there was considerable interest among scholars in such a project (the proceedings were published as Pawley & Ross 1994).

We hope that this thesaurus will be a useful resource for culture historians, archaeologists and others interested in the prehistory of the Pacific region.⁴ The comparative lexical material should also be a rich source of data for various kinds of purely linguistic research, e.g. on semantic change and subgrouping in the more than 400 daughter languages.

2 The relation of the current project to previous work

Reconstructions of POc phonology and lexicon began with Dempwolff's pioneering work in the 1920s and 1930s. Dempwolff's dictionary of reconstructions attributed to 'PAN' (Dempwolff 1938)—but equivalent in modern terms to 'PMP'—contains some 600 reconstructions with reflexes in Oceanic languages.

Since the 1950s, POc and other early Oceanic interstage languages have been the subject of a considerable body of research. However, relatively few new reconstructions safely attributable to POc were added to Dempwolff's material until the 1970s. In 1969 George Grace made available as a working paper a compilation of reconstructions from various sources amounting to some 700 distinct items, attributed either to POc or to early Oceanic interstages. These materials were presented in a new orthography for POc, based largely on Biggs' (1965) orthography for an interstage he called Proto Eastern Oceanic. Updated compilations of Oceanic cognate sets were produced at the University of Hawaii in the period 1977–1983 as part of a project directed by Grace and Pawley. These compilations and the supporting data are problematic in various respects and we have made only limited use of them.

³ For accounts of this colonisation from archaeological and linguistic viewpoints respectively, see Bellwood (1978, 1987), Green (1979), Kirch (1997), Kirch and Hunt (1988), Pawley and Ross (1995), and Spriggs (1995). Pawley and Green (1984), Pawley and Ross (1993), and Ross (1995b) provide accounts of various aspects of the spread of Austronesian speakers into the Pacific in the wider context of the Austronesian dispersal as a whole.

⁴ The proper relationship between the three disciplines in doing prehistory is a controversial matter. In Ch. 3, §1, Green and Pawley discuss (and adopt) the approach of the culture historian in drawing on diverse lines of evidence. In Ch. 7, §1, Pawley and Pawley discuss the important distinction between the comparative typological method of historical reconstruction, drawing on ethnographic evidence, and the genetic comparative method used by historical linguists.

Comparative lexical studies have been carried out for several lower-order subgroups of Oceanic: for Proto Polynesian by Biggs (resulting in Walsh and Biggs (1966), Biggs et al. (1970) and subsequent versions of the POLLEX file, including Biggs (1993), the version we have referred to in our work); for Proto Micronesian by scholars at the University of Hawaii (Bender et al. 1983); for Proto North/Central Vanuatu by Clark (1994); for Proto Southern Vanuatu by Lynch (1978b, 1996b); for New Caledonia by Ozanne-Rivierre (1992), Haudricourt and Ozanne-Rivierre (1982) and Geraghty (1989); for Proto Southeast Solomonic by Levy (1980, n.d.) and Lichtenberk (1988); for Proto Central Pacific by Hockett (1976) and Geraghty (1983, 1986, 1994 and 1996, together with a number of unpublished papers); for Proto Eastern Oceanic by Biggs (1965), Cashmore (1969), Levy and Smith (1970), and Geraghty (1990); and for Proto Central Papuan by Pawley (1975), Lynch (1978a, 1980), and (Ross 1994a).

Robert Blust of the University of Hawaii has, in a series of papers (1970, 1980b, 1983–84a, 1986, 1989) published extensive, alphabetically ordered, lexical reconstructions (with supporting cognate sets) for interstages earlier than POc, especially for Proto Austronesian, Proto Malayo-Polynesian and Proto Eastern Malayo-Polynesian. He has also written several papers investigating specific semantic fields (Blust 1980a, 1982, 1987, 1994). At the time of writing, Blust is in the process of compiling his *Austronesian Comparative Dictionary* (ACD) on disk at the University of Hawaii. The version to which we refer dates from 1995.

Several papers systematically investigate particular semantic domains in the lexicon of POc, e.g. Milke (1958), French-Wright (1983), Pawley (1982), Pawley and Green (1985), Lichtenberk (1986), Walter (1989), and the various papers in Pawley and Ross (1994). Ross (1988) contains a substantial number of new POc lexical reconstructions, as well as proposed modifications to the reconstructed POc sound system and the orthography.

These earlier works have provided valuable points of reference, both inside and outside the Oceanic group, and we are indebted particularly to Biggs (1993), Clark (1994) and Blust (ACD). However, previous Oceanic lexical studies were limited both by large gaps in the data, with a distinct bias in favour of 'Eastern Oceanic' languages, and by the technical problems of collating large quantities of data. Although most languages in Melanesia remain poorly described, there are now many more dictionaries and extended word lists, particularly for Papua New Guinea, than there were ten years ago. And developments in computing hardware and software now permit much faster and more precise handling of data than was possible even five years ago. A list of sources and a summary of the Project's collation procedures is found in Appendix 1.

As the present project proceeded, we came to realise that the form in which preliminary publications were presented—namely as essays, each discussing a particular terminology at some length—would also be the best form for the presentation of our final synthesis. A discursive treatment of individual terminologies, as opposed, say, to a dictionary-type listing of reconstructions with supporting cognate sets, makes it easier to relate the linguistic comparisons to relevant issues of culture history, language change, and methodology. Hence each of the present volumes is a collection of essays, each paper presenting the reconstruction of a POc terminology. Some of these have been published or presented elsewhere, but are printed here in revised form. Sections dealing with theoretical considerations common to all the papers have been edited out and these matters are instead dealt with once, in this Introduction. Different contributors followed somewhat different conventions in their initial publications, and these have been edited to conform with the conventions outlined above. In some cases we have updated the earlier versions in the light of subsequent research, and, where appropriate, have inserted cross-references between contributions. Authorship is in some cases something

of a problem, as a number of people have had a hand in collating the data, doing the reconstructions, and (re)writing for publication here. In most papers, however, one person did the research which determined the structure of the terminology, and that person appears as the first or only author, and where another or others had a substantial part in putting together the paper itself, they appear as the second and further authors. Meredith Osmond, the project's research assistant, played an important role in collating the cognate sets of most papers, and all contributions have undergone a rather greater degree of editorial adjustment by all three editors than would otherwise be normal in a composite volume.

3 Reconstructing the lexicon

The lexical reconstructions presented in these volumes are arrived at using the standard methods of comparative linguistics, which require as preliminaries a theory of subgrouping (§3.2) and the working out of systematic sound correspondences among cognate vocabulary in contemporary languages (§3.3). As well as cognate sets clearly attributable to Proto Oceanic, we have included some cognate sets which at this stage are attributable to various interstage languages, particularly Proto Western and Proto Eastern Oceanic (but see below for definitions). We have set out to pay more careful attention to reconstructing the semantics of Proto Oceanic forms than has generally been done in earlier work, treating words not as isolates but as parts of terminologies.

3.1 Terminological reconstruction

Our method of doing 'terminological reconstruction' is as follows. First, the terminologies of present-day speakers of Oceanic languages are used as the basis for constructing a hypothesis about the semantic structure of a corresponding POC terminology, taking account of (i) ethnographic evidence, i.e. descriptions of the lifestyles of Oceanic communities and (ii) the geographical and physical resources of particular regions of Oceania. For example, by comparing terms in several languages for parts of an outrigger canoe, or for growth stages of a coconut, one can see which concepts recur and so are likely to have been present in POC. Secondly, a search is made for cognate sets from which forms can be reconstructed to match each meaning in this hypothesised terminology. The search is not restricted to members of the Oceanic subgroup; if a term found in an Oceanic language proves to have external (non-Oceanic) cognates, the POC antiquity of that term will be confirmed and additional evidence concerning its meaning will be provided. Thirdly, the hypothesised terminology is re-examined to see if it needs modification in the light of the reconstructions. There are cases, highlighted in the various contributions to these volumes, where we were able to reconstruct a term where we did not expect to do so and conversely, often more significantly, where we were unable to reconstruct a term where we had believed we should be able to. In each case, we have discussed the reasons why our expectations were not met and what this may mean for Oceanic culture history.

Blust (1987:81) distinguishes between conventional 'semantic reconstruction', which asks, "What was the probable meaning of protomorpheme X?", and Dyen and Aberle's (1974) 'lexical reconstruction', where one asks, "What was the protomorpheme which probably meant 'X'?" At first sight, it might appear that terminological reconstruction is a version of lexical reconstruction. However, there are sharp differences. Lexical reconstruction applies a

formal procedure: likely protomeanings are selected from among the glosses of words in available cognate sets, then an algorithm is applied to determine which meaning should be attributed to each set. This procedure may have unsatisfactory results, as Blust points out. Several reconstructions may end up with the same meaning; or no meaning may be reconstructed for a form because none of the glosses of its reflexes is its protomeaning.

Terminological reconstruction is instead similar to the semantic reconstruction approach. In terminological reconstruction the meanings of protomorphemes are not determined in advance. Instead, cognate sets are collected and their meanings are compared with regard to:

- their specific denotations, where these are known;
- the geographic and genetic distribution of these denotations (i.e. are the glosses from which the protogloss is reconstructed well distributed?);
- any derivational relationships to other reconstructions;
- their place within a working hypothesis of the relevant POc terminology (e.g., are terms complementary —‘bow’ implies ‘arrow’; ‘seine net’ implies ‘floats’ and ‘weights’? Are there different levels of classification—generic, specific, and so on?).

For example, it proved possible to reconstruct the following POc terms for tying with cords (Ch. 9, §10):

POc **buku* ‘tie (a knot); fasten’

POc **p^wita* ‘tie by encircling’

POc **paqu(s)*, **paqus-i-* ‘bind, lash; construct (canoe +) by lashing together’

POc **pisi* ‘bind up, tie up, wind round, wrap’

POc **kiti* ‘tie, bind’

In each of the supporting cognate sets from contemporary languages there are a number of items whose glosses in the dictionaries or word lists are too vague to tell the analyst anything about the specific denotation of the item, and in the case of **kiti* this prevents the assignment of a more specific meaning. The verb **buku* can be identified as the generic term for tying a knot because of its derivational relationship (by zero derivation) with a noun whose denotation is clearly generic, **buku* ‘node (as in bamboo or sugarcane); joint; knuckle; knot in wood, string or rope’ (Ch. 4, §3.2). Reconstruction of the meaning of **p^wita* as ‘tie by encircling’ is supported by the meanings of the Lukep, Takia and Longgu reflexes, respectively ‘tie by encircling’, ‘tie on (as grass-skirt)’, and ‘trap an animal’s leg; tie s.t. around ankle or wrist’: Lukep and Takia are North New Guinea languages, whilst Longgu is Southeast Solomonic. Reconstruction of the meaning of **paqu(s)*, **paqus-i-* as ‘bind, lash; construct (canoe +) by tying together’ is supported by the meanings of the Takia, Kiribati and Samoan reflexes, respectively ‘tie, bind; construct (a canoe)’, ‘construct (canoe, house)’, and ‘make, construct (wooden objects, canoes +)’: Takia is a North New Guinea language, Kiribati is Micronesian, and Samoan is Polynesian. The meaning of **pisi* is similarly reconstructed by reference to the meanings of its Mono-Alu, Mota, Port Sandwich, Nguna and Fijian reflexes.

Often, however, the contributors of these chapters have been less fortunate in the information available to them. For example, Osmond (Ch. 8, §9) reconstructs six POc terms broadly glossed as ‘spear’. Multiple terms for implements within one language imply that these items were used extensively and possibly in specialised ways. Can we throw light on these specialised ways? Unfortunately, some of the word lists and dictionaries available give minimal glosses—‘spear’ or ‘net’. What we need to know is: what is the level of reference? Is it a term for all spears, or perhaps all pointed projectiles including arrows and darts? Or does it refer to

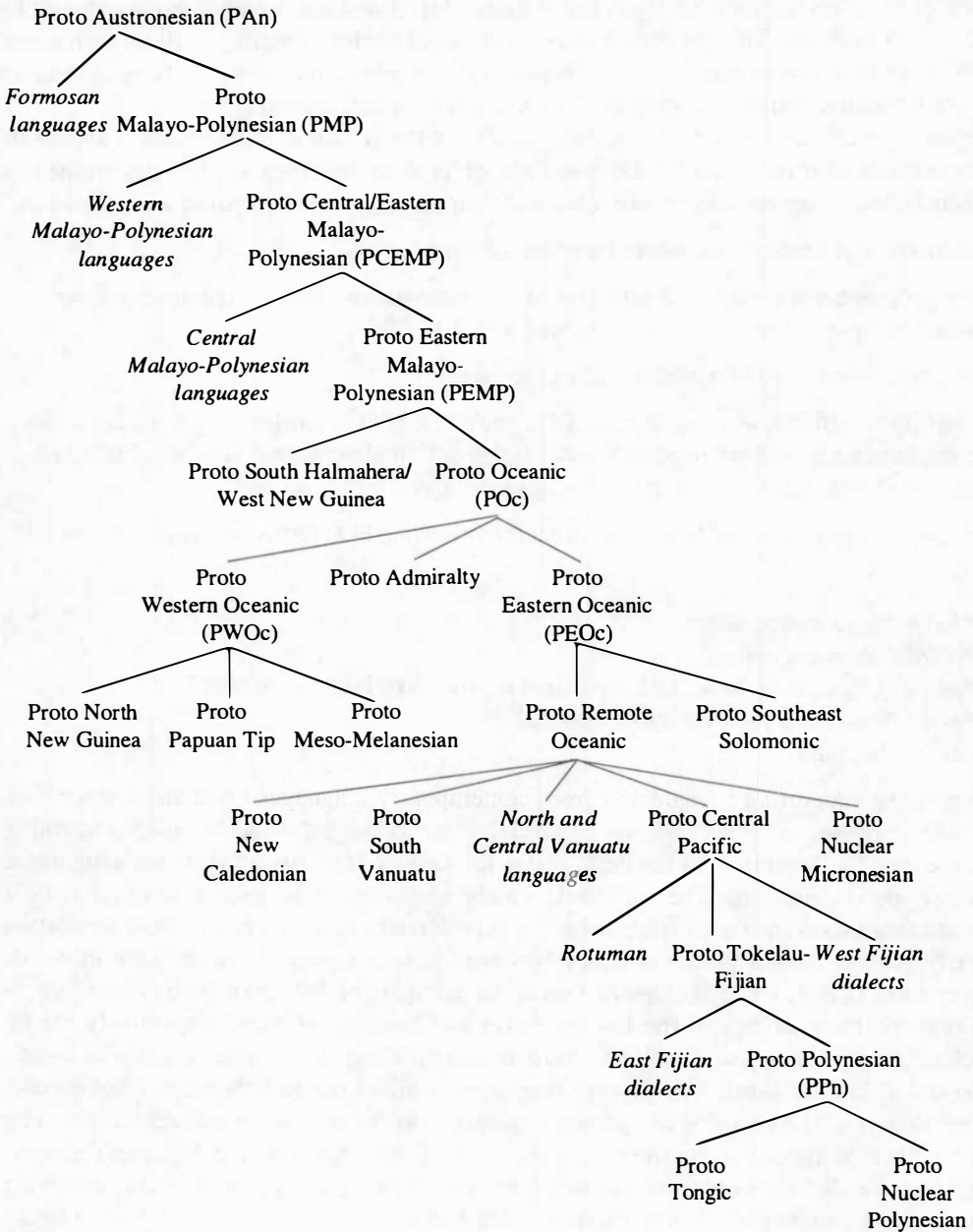


Figure 1: Schematic diagram of the diversification of Austronesian languages (see the text with regard to its interpretation)

Note: Italics are used to indicate a group of languages or a language which have no exclusively shared common ancestor. Thus *Formosan languages* indicates a collection of languages descended (along with Proto Malayo-Polynesian) from Proto Austronesian. It is assumed that there was no 'Proto Formosan'.

a particular kind of spear? Is it noun or verb or both? If a noun, does it refer to both the instrument and the activity? Most word lists are frustratingly short on detail. For this kind of detail, ethnographies have proved a more fruitful source of information than many word lists.

Another problem is inherent in the dangers of sampling from over 450 languages. The greater the number of languages, the greater are the possible variations in meaning of any given term, and the greater the chances of two languages making the same semantic leaps quite independently. Does our (sometimes quite limited) cognate set provide us with a clear unambiguous gloss, or have we picked up an accidental bias, a secondary or distantly related meaning? Did etymon *x* refer to fishhook or the material from which the fishhook was made? Did etymon *y* refer to the slingshot or to the action of turning round and round?

3.2 Subgrouping and reconstruction

The strength of a lexical reconstruction rests crucially on the distribution of the supporting cognate sets across subgroups. The *distribution* of cognate forms and agreements in their meanings is much more important than the *number* of cognates. It is enough to make a secure reconstruction if a cognate set occurs in just two languages in a family, with agreement in meaning, provided that the two languages belong to different first-order subgroups and provided that there is no reason to suspect that the resemblances are due to borrowing or chance. The PMP term **apij* ‘twins’ is reflected in several Western Malayo-Polynesian languages (e.g. Batak *apid* ‘twins, double (fused) banana’) but in only a single Oceanic language (Roviana *avisi* ‘twins of the same sex’). Because Roviana belongs to a different first-order branch of Malayo-Polynesian from the Western Malayo-Polynesian witnesses and because there is virtually no chance that the agreement is due to borrowing or chance similarity, this distribution is enough to justify the reconstruction of PMP and POc **apij* ‘twins’.

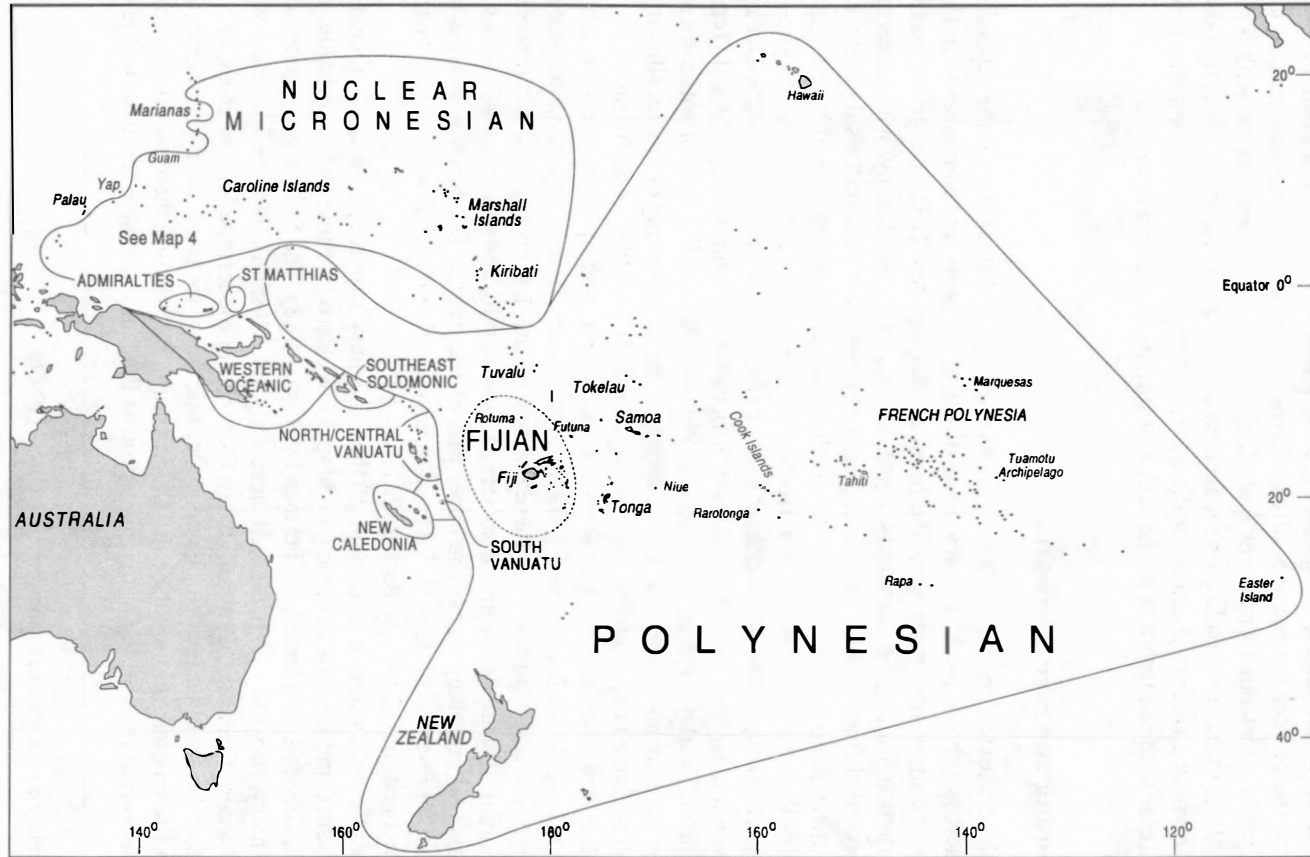
Although the subgrouping of Austronesian languages and questions about which protolanguage was spoken where remain somewhat controversial, it is impossible to proceed without making some assumptions about these matters. Figure 1 is an approximate rendering of our subgrouping assumptions, and also serves as a key to abbreviations of names of language groups and protolanguages. The upper part of the tree (as far down as POc) is due to Blust, originally presented in Blust (1977) and repeated with additional supporting evidence in subsequent publications (Blust 1978a, 1982, 1983–84b, 1993).⁵

Within Oceanic we assume a minimum of three primary subgroups: Western Oceanic, Admiralties (Adm), and Eastern Oceanic (see Map 3). Western Oceanic and Admiralties are reasonably well founded, and have been defined by Ross (1988). The St Matthias group, also a possible primary subgroup (represented here only by Mussau), is here included with Admiralties.⁶ Eastern Oceanic (‘Central/Eastern Oceanic’ in the terminology of Ross 1994b) includes all other Oceanic languages.⁷ Eastern Oceanic does not meet normal subgrouping criteria (i.e. no shared innovations define the whole group), but treating them as a unit ensures a rigorous criterion for recognising a reconstruction as POc: it must have reflexes in at least

⁵ For a commentary on Austronesian subgrouping, see Ross (1995b).

⁶ On the position of Mussau, see Ross (1988:315–316, 331).

⁷ The term ‘Eastern Oceanic’ has been used in different ways by various authors. Ours is more inclusive than most, resembling more closely the ‘Central/Eastern Oceanic’ set up by Lynch and Tryon (1983). The published version of the latter (1985), presents a less inclusive version of Central/Eastern Oceanic.



Map 3: Higher-order subgroups of Oceanic languages used in this work for the purposes of reconstruction

two of the subgroups that are generally regarded as primary, or possibly primary, branches of Oceanic.⁸ Both here and at the interstages described below, no reconstruction is made if there are grounds to infer borrowing from one subgroup to another.⁹ Occasionally, we make use of data from Yapese, which may also be a single-member primary subgroup of Oceanic (Ross 1996a), but we have not treated it as a subgroup for the purpose of reconstruction (i.e. reflexes of an etymon in Yapese and in just one of the three primary subgroups listed above would not be enough to justify a reconstruction).

The Western Oceanic languages seem to be the outcome of the gradual and complex diversification of an old dialect network. It could be argued that these languages have no exclusively shared protolanguage other than POc (this is the approach of Ross 1994b), but there are enough innovations in the lexicon and elsewhere to suggest that the original Western Oceanic dialect network was quite compact, and we treat it here as a unitary protolanguage, Proto Western Oceanic.

Western Oceanic in turn consists of the North New Guinea (NNG), Papuan Tip (PT) and Meso-Melanesian (MM) clusters and the Sarmi/Jayapura (SJ) group (see Map 4). The last-named may belong to the NNG cluster, but this is uncertain (Ross 1996b). It is possible that the NNG and PT clusters form a super-cluster, New Guinea Oceanic, and so etyma which occur only in NNG and PT languages are attributed to a putative Proto New Guinea Oceanic (PNGOc), and etyma found in either NNG or PT (or both) and also in MM are labelled Proto Western Oceanic (PWoc).

The Admiralties subgroup is treated as having no internal subgrouping. The Eastern Oceanic subgroup is assumed to consist of Southeast Solomonic (SES), North/Central Vanuatu (NCV), South Vanuatu (SV), New Caledonia (NCal), Nuclear Micronesian (Mic), and Central Pacific (divided for convenience into Fijian [Fij] and Polynesian [Pnl]) (see Map 3). Reflexes in any two of these groups are enough to justify reconstruction of a Proto Eastern Oceanic (PEOc) etymon.¹⁰

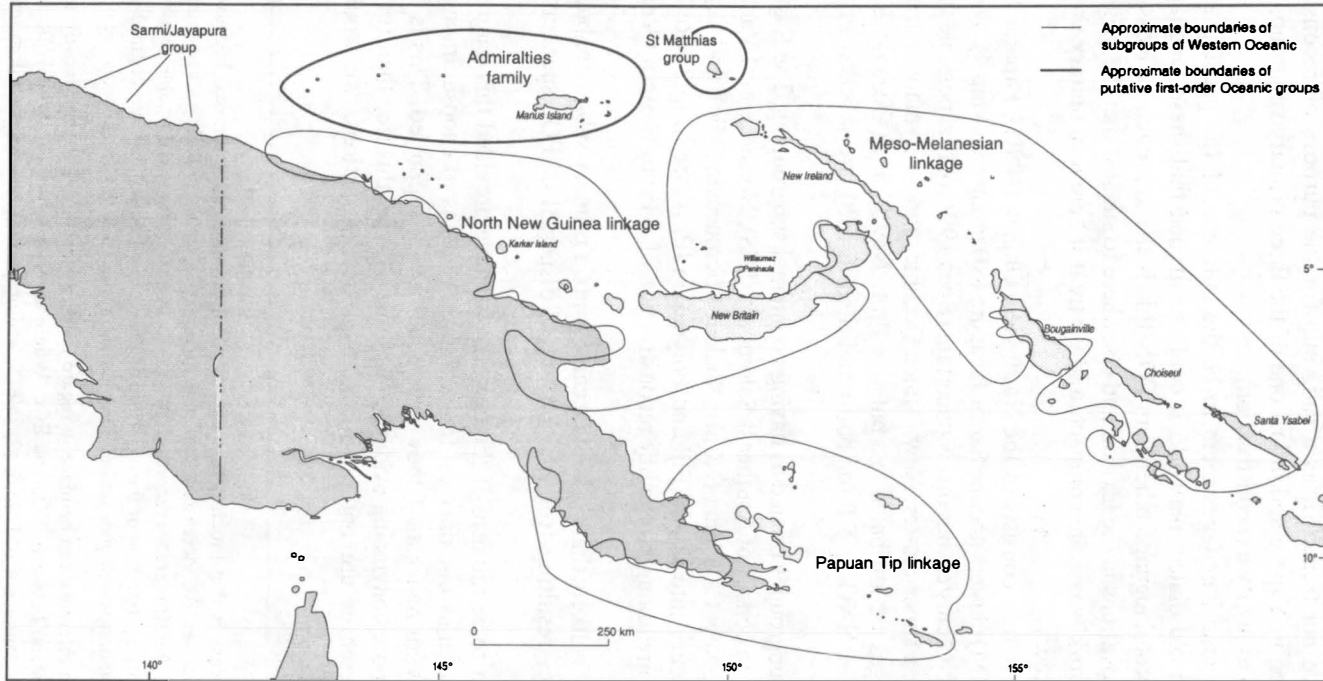
As noted above, it is likely that Eastern Oceanic is not a primary subgroup, but a collection of primary subgroups resulting from the very rapid dispersal of POc speakers (Pawley & Ross 1995).

We ask the reader to be mindful of the fact that we have provided this diagram as an aid to presentation: as soon as one draws a tree diagram, one has to choose among alternative hypotheses and draw all nodes as if they were equally well supported. This is far from the case. One can find more convincing evidence for some parts of this tree than for others, and, although these differences are not important to our reconstructions, we would not wish

⁸ A result of this process is that much of the data available to us remains unused because it cannot be attributed to a cognate set. An increase in available dictionaries would probably allow more cognate sets to be identified and, therefore, more reconstructions to be made, but it is reasonable to assume that there would always be a large proportion of the available data which would not fall into cognate sets because of the vocabulary innovation which goes on in all languages, although at varying speeds.

⁹ Cases where such an inference can be made in regard to primary subgroups occur mostly at the boundary (in the Solomon Islands) between Woc and Eoc. Where an etymon occurs (1) in Woc and only in the Southeast Solomonic languages of Eoc or (2) in Eoc and only in the Northwest Solomonic languages of Woc, borrowing is likely (and is often reflected in unexpected sound correspondences).

¹⁰ This subgrouping may well prove to be somewhat inaccurate, especially with regard to North/Central Vanuatu (see Lynch (1995)), but will not invalidate any reconstructions made here. The 'Fijian' grouping is used only for presentational purposes, and is not assumed to be a discrete subgroup within Central Pacific.



Map 4: Groups of Oceanic languages in north-west Melanesia: the Admiralties and St Matthias groups and the subgroups of Western Oceanic

Figure 1 to be taken as a definitive representation of our current assumptions about Oceanic subgrouping.

Languages from which data are cited in this volume are listed in Appendix 2 in their subgroups, together with an index allowing the reader to find the subgroup to which a given language belongs.

3.3 Sound correspondences

As we noted above, reconstruction depends on working out the systematic sound correspondences among cognate vocabulary in contemporary languages and on having a working hypothesis about how the sounds of Proto Oceanic have changed and are reflected in modern Oceanic languages. Working out sound correspondences even for twenty languages is a large task, and so we have relied heavily on our own previous work and the work of others. The sound correspondences we have used are those given by Ross (1988) for Western Oceanic and Admiralties; by Levy (1979, 1980) and Lichtenberk (1988) for Cristobal-Malaitan, by Pawley (1972) and Tryon and Hackman (1983) for Southeast Solomonic; by Tryon (1976) and Clark (1994) for North/Central Vanuatu; by Lynch (1978b, 1996b) for South Vanuatu; by Geraghty (1989) and Ozanne-Rivierre (1992) for New Caledonia; by Jackson (1986) and Ross (1996a) for Nuclear Micronesian; by Geraghty (1986) for Central Pacific; by Biggs (1978) for Polynesian; by Ross (1996a) for Yapese; and by Ross (1996b) for Irian Jaya.

For non-Oceanic languages we have referred to sound correspondences given by Tsuchida (1976) for Formosa; by Zorc (1977, 1986) and Reid (1982) for the Philippines; by Adelaar (1992) and Nothofer (1975) for Malay and Javanese; by Sneddon (1984) for Sulawesi; by Collins (1983) for Central Maluku; and by Blust (1978a) for South Halmahera and Irian Jaya.

We are well aware that regular sound correspondences can be interfered with in various ways: by phonetic conditioning that the analyst has not identified (see, e.g., Blust 1996), by borrowing (for an extreme Oceanic case, see Grace 1996), or, as recent research suggests, by the frequency of an item's use (Bybee 1994). We have tried at least to note, and sometimes to account for, irregularities in cognate sets.

3.4 Proto Oceanic phonology

Work based on the sound correspondences of both Oceanic and non-Oceanic languages has resulted in the following reconstructed paradigm of POC phonemes:

p^w	<i>p</i>	<i>t</i>	<i>c</i>	<i>k</i>	<i>q</i>
b^w	<i>b</i>	<i>d</i>	<i>j</i>	<i>g</i>	
		<i>s</i>			
m^w	<i>m</i>	<i>n</i>	<i>ñ</i>	<i>ŋ</i>	
		<i>r</i>			<i>R</i>
		<i>dr</i>			
		<i>l</i>			
<i>w</i>			<i>y</i>		

<i>i</i>	<i>u</i>
<i>e</i>	<i>o</i>
<i>a</i>	

The orthography used here and in the POc reconstructions in this work is from Ross (1988), with the addition of **p*^w. POc phonology is discussed in greater detail in Chapter 2, §2.

4 Conventions

4.1 Chapter format

Each of the contributions to the present volumes (except Chapter 2 of this volume) concerns a particular Proto Oceanic ‘terminology’. Generally, each contribution begins with an introduction to the issues raised by the reconstruction of its particular terminology, and the bulk of each contribution consists of reconstructed etyma with supporting data and a commentary on matters of meaning and form. In the interests of space, we have not given the history of the reconstructions themselves, as this would often require commentary on the modifications made by others and by us, and on why we have made them. Where a reconstruction is not new, we have tried to give its earliest source, but this is difficult when earlier reconstructions differ in form and meaning from ours, so the decision as to whether a particular reconstruction is ‘new’ is rather subjective.

In general, the contributions to these volumes are concerned with items reconstructable in POc, PWOc, PEOc and occasionally PNGOc. Etyma for PWOc, PNGOc and PEOc are reconstructed because these may well also be POc etyma for which known reflexes are not well distributed. The contributors to this volume vary in the degree to which they reconstruct etyma for interstages further down the tree. Reconstructions for lower-order interstages are decreasingly likely to reflect POc etyma and may be the results of cultural change as Oceanic speakers moved further out into the Pacific.

Except for the authors of Chapter 7, contributors have not sought to make fresh reconstructions at interstages superordinate to POc. What they have done, however, is to cite other scholars’ reconstructions for higher-order interstages, as these represent a summary of the non-Oceanic evidence in support of a given POc reconstruction. Occasionally, non-Oceanic evidence has been found to support a POc reconstruction where no reconstruction at a higher-level interstage has previously been made. In this case a new higher-order reconstruction is made, and the non-Oceanic evidence is given in a footnote. Chapter 2 is a brief technical introduction to those aspects of POc which are relevant to the reconstruction of POc words. It is mainly intended for readers with linguistic training.

Whilst we have tried to use the internal organisation of the lexicons of Oceanic languages themselves as a guide in setting the boundaries of each terminology, we have inevitably taken decisions which differ from those that others might have made. There are, obviously, overlaps and connections between various semantic domains and therefore between the contributions here. We have done our best to provide cross-references, but we have sometimes duplicated information rather than ask the reader repeatedly to look elsewhere in the book. Indexes at the end of each volume and in the final volume are intended to make it easier to use the volumes collectively as a work of reference.

4.2 Data

The sources of our data are listed in Appendix 1.

For most reconstructed etyma, only a representative sample of reflexes is given. We have endeavoured to ensure, however, that in each case this sample not only is geographically and genetically representative, but also provides evidence to justify the shape of the reconstruction. Where only a few reflexes are known to us, this is usually noted.

Because our supporting data are drawn from such a wide range of languages, the convention is adopted of prefixing each language name with the abbreviation for the group of languages to which the language belongs, so that the distribution of a cognate set is more immediately obvious. These groups are genetic except, perhaps, North/Central Vanuatu (abbreviated 'NCV') and Fijian (abbreviated 'Fij:').¹¹ We have sought to be consistent in always listing these groups in the same order, but contributors vary in the ordering of languages within groups.

Although there are accepted or standard orthographies for a number of the languages from which data are cited here, all data are transcribed into a standard orthography (see Ross 1988:3–4) in order to facilitate comparison. Except for inflexional morphemes, non-cognate portions of reflexes, i.e. derivational morphemes and non-cognate parts of compounds, are shown in parentheses (...). Where an inflexional morpheme is an affix or clitic and can readily be omitted, its omission is indicated by a hyphen at the beginning or end of the base. This applies particularly to possessor suffixes on directly possessed nouns (Ch. 2, §3.2). Where an inflexional morpheme cannot readily be omitted, then it is separated from its base by a hyphen. This may happen because of complicated morphophonemics or because the morpheme is always present, like the adjectival *-n* in some NNG and Admiralties languages and prefixed reflexes of the POc article **na* in scattered languages. When a reflex is itself polymorphemic (i.e. the morphemes reflect morphemes present in the reconstructed etymon) or contains a reduplication, the morphemes or reduplicates are also separated by a hyphen.

4.3 Conventions used in representing reconstructions

POc reconstructions, and also PWOC, PEOc and PNGOC reconstructions, are given in the orthography of §3.4. For reconstructions at higher-order interstages the orthographies are those used by Blust in his various publications and the ACD. Reconstructions at lower-order interstages are given in the standard orthography adopted for data (§4.2). Geraghty's (1986) PCP orthography, for example, is based on Standard Fijian spelling, and is converted into our standard orthography in the same way as Fijian. Biggs' PPn reconstructions are in any case written in an orthography identical to our standard.

Bracketing and segmentation conventions in protoforms are:

- (*x*) it cannot be determined whether *x* was present
- (*x,y*) either *x* or *y* was present
- [*x*] the item is reconstructable in two forms, one with and one without *x*

¹¹ An argument that North/Central Vanuatu does not constitute a genetic subgroup is made by Lynch (1995) and summarised in Lynch, Ross and Crowley (forthcoming, Ch. 5). The argument that Fijian does not constitute a genetic subgroup was made by Geraghty (1983) and is incorporated into Figure 1, where 'Fijian' comprises Rotuman, the East Fijian dialects, and West Fijian (also a dialect network).

- [x,y] the item is reconstructable in two forms, one with *x* and one with *y*
x-y *x* and *y* are separate morphemes
x- *x* takes an enclitic or a suffix
 <*x*> *x* is an infix

It happens fairly often that the final consonant in a higher-order reconstructed etymon (e.g. **-R* in PMP **kamaliR* 'men's house') is not evidenced in any Oceanic reflex. Often POc final consonants are regularly lost in all the languages from which reflexes are drawn, and we therefore have no evidence as to whether or not the final consonant was retained in the POc etymon in question. In such a case, since we know that final consonants were usually retained in POc, the consonant is reconstructed in brackets (e.g. POc **kamali(R)*).

When historical linguists compile cognate sets, they commonly retain the glosses given in the sources from which the items are taken. However, again in the interests of comparison, we have often reworded (and sometimes abbreviated) the glosses of our sources. Where the latter were in a language other than English, we have translated them. In the interests of space and legibility, and because data often have multiple sources, we have given the source of a reflex only when it is not included in the listing in Appendix 1. We have adopted the convention of providing no gloss beside the items in a cognate set whose gloss is identical to that of the POc (or other lower-order) reconstruction at the head of the set, i.e. the reconstruction which they reflect.

Where glosses have been standardised, they are given according to the conventions described by Geraghty (1983:8–11), although our abbreviations differ from his. Briefly, a noun modifying a gloss is enclosed in brackets. If it refers to a subject or possessor, it precedes the gloss; if to an object, it follows the gloss. A plus sign after the noun indicates that it is a member of a set (e.g. the gloss '(basket +) old' indicates that a set of items of which 'basket' is a member, probably inanimates, may function as subject of the stative verb glossed as 'old'). Where necessary, we use '(V)', '(VI)', or '(VT)' to indicate that a gloss is a verb, intransitive verb or transitive verb, '(N)' to indicate that it is a noun. In glosses we use the conventional abbreviations 'k.o.' (as in 'k.o. yam') for 'kind of', 's.o.' for 'someone', and 's.t.' for 'something'.

In putting together cognate sets, we have quite often found apparent reflexes which do not quite 'fit' the set: either they display a phonological irregularity or their meaning is just a little too different from the rest of the set for us to assume cognacy. Rather than eliminate them, our authors often include them below the cognate set under the rubric 'cf. also'.

We have mostly not indicated the POc word class to which a reconstruction belongs, as this is often unclear. POc word classes and factors affecting their identification are discussed in Chapter 2, as are issues concerning the derivational morphology which can be reconstructed for POc.

2 Proto Oceanic phonology and morphology

MALCOLM ROSS

1 Introduction

This chapter is intended largely for historical linguists who have an interest in the reconstruction of POc phonology and grammar. The non-linguist reader who chooses to skip it will miss little that diminishes understanding of the chapters which follow.

2 Phonology

2.1 Phonemes

Work based on the sound correspondences (Ch. 1, §3.3) of both Oceanic and non-Oceanic languages has resulted in the following reconstructed paradigms of POc consonants and vowels:

*p ^w	*p	*t	*c	*k	*q
*b ^w	*b	*d	*j	*g	
		*s			
*m ^w	*m	*n	*ñ	*ŋ	
		*r			*R
		*dr			
		*l			
*w			*y		
	*i		*u		
	*e		*o		
		*a			

The paradigm reconstructed by Dempwolff (1937) has been modified in various ways by

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Haudricourt (1951), Milke (1968), Grace (1969), Wolff (1974), Blust (1978b) and Ross (1988, 1989b, 1996d). The paradigm and orthography here are from Ross (1988), with the addition of *p^w.

The reconstruction of *p^w was first proposed (with little commentary) by Blust (1984), and used in reconstructions by Ross (1994a, 1996d). The POC consonant inventory reconstructed by Ross (1988:93–94), as well as its orthographically somewhat different predecessor reconstructed by Grace (1969; see §2.4), included the pairs *p and *b, *t and *d, and *k and *g,¹ but only the single velarised bilabial *b^w (Grace's *ŋp); so the conclusion that *p^w is also required by the data is not surprising. However, the reflexes of *p^w have not been worked out as fully as those of other POC consonants (they are generally missing from the sources listed in Chapter 1, §3.3), and unexplained inconsistencies remain among the small number of widely reflected items in which it is reconstructed. Reflexes which signal its presence are:

- a) velarised bilabials (usually p^w) in contexts where they do not reflect *b^w;
see *p^waraq, *p^wararaq 'thunder', *p^watik 'potato yam, aerial yam, *Dioscorea bulbifera*', *kup^w)ena 'fishing net';
- b) apparent fortis reflexes of *p in Western Oceanic and SES languages in environments where a lenis reflex is usually found;
see *p^(w)ilak 'lightning', *p^waraq, *p^wararaq 'thunder', *p^watik 'potato yam, aerial yam, *Dioscorea bulbifera*', *p^wita 'snare; to snare', *p^(w)aRaRa 'handle';
- c) apparent reflexes of *b or *b^w in Polynesian or Nuclear Micronesian (and occasionally other) languages;
see *lap^(w)a(r,R) 'lightning, phosphorescence', *p^waraq, *p^wararaq 'thunder', *kup^w)ena 'fishing net', *p^(w)aRaRa 'handle'.

In some cases we reconstruct *p^(w) as we are unsure whether the protophoneme was *p^w or whether we are confronted by one of several other phenomena, including (i) borrowing, (ii) Western Oceanic and SES fortis reflexes of *p, or (iii) velarisation before a rounded vowel in certain languages. As Blust (1981) remarks with regard to POC *b^w and *m^w, velarisation generally does not occur in non-Oceanic languages and sometimes occurs in POC etyma where non-Oceanic cognates give us no reason to expect it.

Although the reconstructed paradigm is fairly secure, questions remain about the phonetics of some segments. The phonemes *p^w, *b^w and *m^w are known in the literature as 'labio-velars'; this orthography reflects their pronunciation in the majority of Oceanic languages in which they remain distinct, but there is evidence to suggest that they may have had the double articulations [k̠p̠], [g̠b̠] and [ŋ̠m̠] that 'labio-velar' suggests, since some languages (e.g. Mwotlap) have these realisations, whilst others (on Malaita and in Fiji) have velar reflexes. Among the apicals, it is possible that *t was dental, the others alveolar, as in a number of west Indonesian languages (Ozanne-Rivierre 1992) and in Banoni (MM, NW Solomonic). The voiced obstruents in the second row were also prenasalised. Probably the phoneme *r was an alveolar trill, whilst *dr was a prenasalised alveolar trill, reflected thus in languages in the Admiralties and Fiji. The phoneme *c is assumed to have been a voiceless palatal obstruent, because this is the articulation one would predict on the basis of non-Oceanic cognates and of

¹ These pairs are derived from PMP pairs of which the first member was an obstruent, the second a nasal + obstruent sequence, and so, viewed diachronically, the POC pairs *r and *dr, *s and *j, and *c and *j (sic) belong here too.

its position in the paradigm. However, it is distinctively reflected only in some Admiralties languages, where its reflexes are mostly alveolar liquids ([l], [r]) or glottals ([ʔ], [h]). Elsewhere it has merged with *s. The phoneme *j is more widely reflected, as [tʃ], [dʒ] or [d], and was more evidently a voiced palatal obstruent. Of the two postvelars (see Ross 1988:31–32), *q was probably a glottal stop, but its uvular stop reflexes in some languages give room for doubt, whilst *R was probably a uvular trill, easily lost or merged with *r or *l in daughter languages.

A noteworthy feature of the reconstructed consonant paradigm is that the only phonemic contrast between stops and fricatives is the one between *t/*d and *s, but, on the basis of widespread reflexes, it is likely that *[ɸ, β] and *[x, ɣ] occurred as allophones of *p and *k (and *[z] of *s). It is also possible that a voiced flap was an intervocalic allophone of *t.

2.2 Phonotactics

POc words were made up of (C)V syllables, with the option of a word-final consonant. These word-final consonants are lost in the majority of Oceanic languages, but retained in a scattering of Western Oceanic languages, in Mussau, and in some cases in South Vanuatu and New Caledonian languages. Quite often, we know that the PMP form had a final consonant, but no reflex occurs in any of the Oceanic languages which reflect final consonants, and so we have no means of knowing whether that consonant occurred in POc or not. In such cases the final consonant is shown in parentheses in the reconstructed POc form: e.g. PMP *kamaliR ‘men’s house’ but POc *kamali(R) (Ch. 3, §3.3). Similarly, where a suffixed form preserves a root-final consonant but the unsuffixed root loses it, the unsuffixed form is reconstructed with a parenthesised final consonant, e.g. POc *kinit-i- (VT) ‘pinch (s.t./s.o.)’ but *kini(t) (VI) ‘pinch’. It appears that PMP word-final consonants were quite consistently retained in POc, but to my knowledge no one has demonstrated that this is so.

PMP permitted CVC syllables both word-finally and word-internally, as in *gappag ‘stammer’. One of the innovations which defines POc is the loss of the final consonant of a word-medial syllable, as in POc *kaka(p). The most common context for this innovation is reduplicated forms like *gappag (Blust 1977), but it also occurred elsewhere; for example, PMP *beRŋi ‘night’ became POc *boŋi.

The prenasalised consonants *bʷ, *b, *d, *j, *g, *dr and the glides *w, *y did not occur word-finally. The consonant *d seems to have occurred only intervocalically: if it did occur word-initially, these occurrences were extremely rare.

POc vowel sequences have, to my knowledge, never been systematically investigated, but they seem not to have been particularly common. A check of several geographically and genetically well distributed languages which are otherwise phonologically conservative² reveals a consistency which probably reflects the POc pattern, namely that each vowel in a sequence is the nucleus of a separate syllable. Although some Oceanic languages contrast long vowels with short or contrast a sequence of two identical vowels with a single vowel, this kind of contrast is not reconstructed for POc, where only sequences of unlike vowels were permitted. POc *e is derived from PMP word-final *-ay (§2.4), and this historical origin apparently

² The languages and sources are: Loniū (Admiralties, Hamel 1994:7–8), Manam (WOc, NNG, Lichtenberk 1983:21–32), Tawala (WOc, PT, Ezard 1997), Nakanai (WOc, MM, Johnston 1980:247–248), Kwaio (EOc, SES, Keesing 1985:8–9), Longgu (EOc, SES, Hill 1992), Nguna (EOc, NCV, Schütz 1969:11–12), Boumaa Fijian (EOc, Fij, Dixon 1988:15–16).

precludes its occurrence in POc vowel sequences except in a few probable borrowings and some derived forms. However, it is probable that all sequences of **i*, **a*, **o* and **u* occurred. Well attested, for example, are **waiR* 'fresh water', **raun* 'leaf', **maosak* 'ready to be eaten (because ripe or cooked)', **bou* 'main bearers supporting raised floor or roof structure, centre post supporting ridgepole', **panua* 'inhabited territory; community together with its land and things on it', **qio(r, R)* 'spear, arrow'. It is probable, incidentally, that the falling sequences **ua* and **ia* were not distinct from **uwa* and **iya*.

2.3 Stress

POc stress also remains uninvestigated, but phonologically conservative languages generally agree in displaying primary stress on the penultimate syllable and secondary stress on every second syllable preceding the penultimate, and this was probably the basic POc pattern.

2.4 Phonological innovations and Proto Oceanic orthographies

Oceanic languages reflect a set of shared innovations relative to PMP, and it was on the basis of some of these that Dempwolff (1937) first recognised Oceanic as a major Austronesian subgroup. A number of these innovations occurred among the consonants, as we see when we tabulate the correspondences between the reconstructed consonant paradigms of PMP and POc (for discussion of the PMP consonant paradigm, see Ross 1992 or 1995b). Table 1 kills two birds with one stone, also showing the two current POc orthographies. The first was established by Grace (1969) and has been used with a number of variants (separated by a slash) shown below. The second is the one generally used in this chapter, introduced by Ross (1988).

The terms 'oral grade' and 'nasal grade' were used by Grace (1969) and have become conventional among Oceanic linguists to refer to the outcomes of (c) below. Grace's orthography roughly represents the pre-POc situation. The innovations which occurred over the pre-POc period were mergers and splits, the introduction of new phonemes, and one deletion, as follows:

- a) The PMP voiced/voiceless pairs **p*, **b* and **k*, **g* merged respectively as early pre-POc **p* and **k*. Ozanne-Rivierre (1992) suggests that the corresponding **t*, **d* merger was hindered by their mismatch in point of articulation (dental vs alveolar).
- b) The PMP pairs **s*, **Z* and **d*, **r* merged respectively as pre-POc **s* and **d* (phonetically probably [r], since Eastern Malayo-Polynesian cognates are liquids).
- c) PMP and a number of its descendants had word-medial homorganic nasal + obstruent sequences (not in Table 1). Some instances of the pre-POc word-initial obstruents **p*, **t*, **k*, **d/r*, **s* and **j* also acquired a preceding homorganic nasal (the occurrence of this process is unpredictable and its causes largely unknown; cf. §3.1.3). These sequences became the unitary early pre-POc phonemes **mp*, **nt*, **ŋk*, **nd/nr* and **nj*, subsequently the POc prenasalised voiced obstruents **b*, **d*, **g*, **dr*, and **j* (PMP nasal + **s* and nasal + **j* merged as pre-POc **nj*, POc **j*). It is possible that pre-POc **nt*, POc **d* never occurred word-initially.

Table 1: The phoneme systems of PMP and POc

PMP		<i>p, b</i>	—	<i>t</i>	<i>d, r</i>	<i>s, z, Z</i>	<i>j</i>	<i>k, g</i>				
POc	oral grade	<i>p</i>	<i>pw</i>	<i>t</i>	<i>d/r</i>	<i>s</i>	<i>j</i>	<i>k</i>				
Grace etc	nasal grade	<i>mp</i>	<i>ɲp/mpw</i>	<i>nt</i>	<i>nd/nr</i>		<i>ɲj</i>	<i>ɲk</i>				
POc	oral grade	<i>p</i>	<i>p^w</i>	<i>t</i>	<i>r</i>	<i>s</i>	<i>c</i>	<i>k</i>				
Ross	nasal grade	<i>b</i>	<i>b^w</i>	<i>d</i>	<i>dr</i>		<i>j</i>	<i>g</i>				
PMP		<i>m</i>	—	<i>n</i>	<i>n̄</i>	<i>ɲ</i>	<i>w</i>	<i>y</i>	<i>l</i>	<i>q</i>	<i>h</i>	<i>R</i>
POc Grace		<i>m</i>	<i>ɲm/mw</i>	<i>n</i>	<i>n̄</i>	<i>ɲ</i>	<i>w</i>	<i>y</i>	<i>l</i>	<i>q</i>	∅	<i>R</i>
POc Ross		<i>m</i>	<i>m^w</i>	<i>n</i>	<i>n̄</i>	<i>ɲ</i>	<i>w</i>	<i>y</i>	<i>l</i>	<i>q</i>	∅	<i>R</i>
PMP		<i>i, -uy(-)</i>	<i>e, -aw</i>	<i>-ay</i>	<i>a</i>	<i>u</i>						
POc Grace etc.		<i>i</i>	<i>o</i>	<i>e</i>	<i>a</i>	<i>u</i>						
POc Ross		<i>i</i>	<i>o</i>	<i>e</i>	<i>a</i>	<i>u</i>						

- d) The labio-velars **p^w*, **b^w* and **m^w* entered the language. Most of the items containing a labio-velar lack non-Oceanic cognates, and some, at least, must have been borrowed into POc from neighbouring Papuan languages. For example, it can be argued that **m^wapo(q)* ‘taro’ was borrowed by POc speakers as they acquired more sophisticated taro-growing techniques from Papuan speakers (Ross 1996d). A few of these items were inherited into POc, and the labio-velar was the reflex of a labial occurring next to a round vowel. However, it is not clear in these items that the labio-velar actually occurred in POc (Blust 1981). Thus a number of Oceanic languages reflect **tam^wata* ‘man, husband’, derived from **tau* ‘body, person’ + **mataq* ‘unripe, immature, young’, but we cannot be sure whether this or **taumata(q)* was the POc form.
- e) PMP **h* was lost in POc.
- f) PMP **e*, phonetically [ə], became POc **o*, and the PMP word-final diphthongs **-uy(-)*,³ **-aw* and **-ay* were simplified to POc **-i*, **-o* and **-e* respectively, the first two thereby merging with plain vowels.

The combined effect of (a) and (c) is that each of the PMP pairs **p*, **b* and **k*, **g* first merged and then split. As a result, for example, PMP **p* became either POc **p* or POc **b*, and the same was true of PMP **b*, giving the kind of crossover seen in the initial consonants of these examples:

PMP <i>*panas</i>	‘hot, warm’	POc <i>*panas</i>
PMP <i>*punay</i>	‘wild pigeon’	POc <i>*bune</i>

³ The notation **-uy(-)* reflects the fact that there is one known case where the change to **i* occurred word-medially: PMP **kamuihu* (independent 2PL pronoun) > **kamuyu* > POc **kamiu*.

PMP <i>*baqeRuh</i>	'new'	POc <i>*paqoRu</i>	
PMP <i>*beRek</i>	'pig'	POc <i>*boRok</i>	'domestic pig'.

Similarly, either PMP **k* or PMP **g* could become either POc **k* or POc **g*. For example,

PMP <i>*kuDen</i>	'cooking pot'	POc <i>*kuron</i>	
PMP <i>*kabut</i>	'mist'	POc <i>*gabu</i>	
PMP <i>*gaggap</i>	'stammer'	POc <i>*kaka(p)</i>	
PMP <i>*gemgem</i>	'make a fist'	POc <i>*gugu(m)</i>	'grasp in fist, clench fist'. ⁴

3 Word classes

The remarks below on POc word classes and derivational morphology are rather brief, largely because these remain somewhat poorly explored areas. More detail is provided by Lynch, Ross and Crowley (forthcoming), but there is a great deal about POc morphosyntax that we do not know and which is perhaps irretrievable. The major publication on POc grammar is Pawley (1973).⁵

Ideally, the reconstruction of a Proto Oceanic etymon should include not only its form and meaning, but also its word class membership. POc had just two open lexeme classes: nouns and verbs. POc was a head-marking language, and each valent (dependent) noun phrase was cross-referenced on its head noun or verb by a clitic or suffix. Both nouns and verbs fell into two subclasses on the basis of valency.

3.1 Verbs⁶

POc verbs had a valency of either one or two, that is, they were either intransitive or transitive. There were probably no trivalent/ditransitive verbs, i.e., verbs whose role structures required or allowed three noun phrases without case marking, but we cannot be certain about this, as some modern languages do have trivalent verbs (Manam, Hoava).

Verbs apparently took a proclitic cross-referencing their subject and, if transitive, an enclitic cross-referencing their object (in many daughter languages these are a prefix and a suffix), e.g. POc **i-kiniti-au* 'he pinched me' (cf. Manam *i-?int-a*).⁷ To judge from descriptions

⁴ PMP etyma with an unambiguous initial **g-* are rare, and this example shows a mismatch between the vowels of PMP and POc (see Ch. 9, §7).

⁵ Pawley's (1972) reconstruction of PEOc grammar is also relevant to POc reconstruction, particularly as it is not clear that EOc was a discrete interstage, and features reconstructed for PEOc may consequently be attributable to POc.

⁶ In order to reconstruct the POc verbal system, I have consulted grammars which (a) are sufficiently detailed and (b) describe languages which seem phonologically and morphologically quite conservative. There are not many of these: I have consulted descriptions of Manam (WOc, NNG) (Lichtenberk 1983), Hoava (WOc, MM) (Davis 1997), Kwaio (Keesing 1985) and Longgu (Hill 1992) (both EOc, SES), Ambae (Catriona Hyslop, pers.comm.) and Malo (Jauncey 1997) (both EOc, NCV) and Boumaa Fijian (EOc, Fij) (Dixon 1988). The criterion of morphological conservatism is the sharing of morphosyntactic features across different Oceanic subgroups. Unfortunately, we have no grammar of an Admiralties language which is sufficiently detailed.

⁷ It is not clear how complete the POc clitic sets were. Evidence is strong that an object enclitic occurred only

of verbs in modern Oceanic languages (e.g. Dixon 1988:201–202), a majority of POc verb roots had both intransitive and transitive (or causative) alternants. In at least one language, Hoava (Woc, MM), all verbs in the corpus have transitive and intransitive alternants (Davis 1997).

3.1.1 Verb classes

We can reconstruct three major classes of POc intransitive verb on the basis of semantic and morphological criteria, as shown in Table 2.

Table 2: Classes of intransitive verb in Proto Oceanic

	1 inherently stative or inherently dynamic?	2 intransitive subject	3 forms a transitive?	4 forms a causative?
A verbs	dynamic ⁸	A	yes	yes
U verbs	neither	U	yes	yes
U-stative verbs	stative	U	no	yes

As Table 2 shows, the only criterion which distinguishes all three classes from each other is a semantic one: is the intransitive verb inherently dynamic, inherently stative, or inherently neither (column 1)? However, I follow Oceanist convention by using labels which refer to the macrorole of the intransitive subject: A for actor, U for undergoer (column 2), even though this leads to the partially redundant ‘U-stative’ label where ‘stative’ would do.⁹

Fijian preserves the classification in Table 2 quite clearly, although individual verb forms in modern Fijian are not always in the same classes as the POc etyma they reflect. Intransitive verbs with an actor subject, i.e. A verbs, are necessarily dynamic (Table 2, columns 1 and 2). The subject of the intransitive is also the subject of the corresponding transitive, as the Boumaa Fijian clauses in (1) illustrate:

- (1) a. *Au rabe.*
S:1 S kick ‘I’m kicking.’

if the object was singular or third person non-singular. If it was first or second person non-singular, the object was probably an independent pronoun (Evans 1995). Something similar may have been true of subject proclitics.

⁸ I use the term ‘dynamic’ (rather than ‘active’) in contrast with ‘stative’ simply because ‘active’ also contrasts in a quite different sense with ‘passive’.

⁹ The terms ‘actor’ and ‘undergoer’ are from Foley and van Valin (1984). Dixon (1988) uses A and O. Arms (1974a), Foley (1976) and others use A (actor/agent) and P (patient), but this labelling is infelicitous in today’s terms as it confuses macrorole (A, U) and role (agent, patient, experiencer, theme etc.). The distinctions between the three classes were first demonstrated systematically by Pawley (1973:126–140) with data from Motu (PT), Roviana (MM), Kwara’ae (SES), Arosi (SES), and Bauan Fijian. The seminal work on Fijian A and U verbs is Arms (1974a). Biggs (1974) addresses parallel issues in Polynesian, Foley (1976) in Malayo-Polynesian. Boumaa Fijian examples in this section are from Dixon (1988:204, 231).

- b. *Au rabe-t-a a polo.*
 S:1S kick-TR-O:3S ART ball 'I'm kicking the ball.'

Intransitive verbs with an undergoer subject, on the other hand, fall into two classes, U and U-stative. With U verbs the subject of the intransitive is the *object* of the corresponding transitive:

- (2) a. *E gagi a dovu.*
 S:3S crush ART sugarcane 'The sugarcane is being crushed.'
 b. *Au gagi-a a dovu.*
 S:1S crush-O:3S ART sugarcane 'I'm crushing the sugarcane.'

U verbs and U-statives differ from each other in two respects. First, unlike U verbs, U-statives have no corresponding transitive (but do have a corresponding causative, as described below). Second, U-statives like *loaloa* 'be black' in (3) are inherently stative, whereas U verbs like *gagi* in (4) are inherently neither dynamic nor stative. With appropriate aspect marking and context, the clause in (4) may be given either a dynamic ('the sugarcane is being crushed') or a stative ('the sugarcane is [already] crushed') interpretation.

- (3) *E loaloa a ?olii yai.*
 S:3S be.black ART dog this 'This dog is black.'
 (4) *E gagi a dovu.*
 S:3S crush ART sugarcane 'The sugarcane is crushed.'

The dividing line between U and U-stative is a thin one. In some, probably many, Oceanic languages, including Fijian, appropriate aspect marking can force a dynamic interpretation of an U-stative (e.g. of 'black' as 'become black'). There does, however, seem to be a semantic difference between the two classes: intransitive U verbs imply some unmentioned agent or instrument, whereas U-statives do not.

There is a tendency both in the reconstruction of POc (Pawley 1973)¹⁰ and in descriptions of modern Oceanic languages to regard all intransitives with an U subject as stative. In some modern languages this seems to be correct, but in others, and apparently in POc, they are/were distributed between the classes I have labelled U and U-stative.¹¹

Although it is not difficult to identify the three verb classes in many modern Oceanic languages, it can often be difficult to determine which class a given POc verb belonged to. The reasons for this are: (i) languages which retain the three classes do not always agree on the class to which the reflexes of a given POc verb belong; (ii) in some languages (e.g. Kwaio) more than others (e.g. Longgu), a verb may belong to more than one class, and indeed some verbs may have belonged to two classes in POc; (iii) particularly in north-west Melanesia

¹⁰ Pawley (1973:128) has A-class statives and B-class statives, corresponding respectively to my U-stative and U classes. His Intradirectives are members of my A class, which also includes the intransitive alternants of his Spontaneous Transitives and Deliberate Transitives. The differences among the subclasses of A intransitives are not morphological but lie in the exact semantic roles of their subjects and of the objects of their transitive alternants.

¹¹ Thus, this example from Hoava is labelled "stative" by Davis (1997) but the verb appears to be an U verb, at least in this usage (*sa leboto* is the subject of intransitive *tuke*):

Tuke sa leboto.
 be.thrown.away ART:SG bushknife
 'The bushknife was thrown away.'

there are languages which have entirely lost the stative class (e.g. Takia) and/or the neutral class (e.g. Takia, Tawala, Mangap-Mbula), replacing all statives and some neutral verbs by adjectives or adjectival nouns (Ross 1998) and transferring other neutral verbs to the dynamic class.

3.1.2 Derivational morphology of verbs

POc transitivity morphology was rather different from that of its Fijian reflexes above. POc verb roots were mostly disyllabic and, in line with POc phonotactics (§2.2), either consonant-final or vowel-final, that is, (C)V(C)VC or (C)V(C)V. In most cases, the canonic shape of the root alone determined its transitivity morphology. The transitive of a consonant-final root was formed by adding the suffix **-i-* between the root and the object enclitic. This suffix is known in the Oceanic literature as the '(close) transitive suffix' and was the same regardless of whether the root was A or U:

(5)	intransitive		corresponding transitive	
A verbs	<i>*kinit</i> ¹²	'pinch'	<i>*kinit-i-</i>	'pinch (s.o/s.t.)' (Ch. 9, §6.3)
	<i>*inum</i>	'drink'	<i>*inum-i-</i>	'drink (s.t.)'
U verbs	<i>*p^wosa(k)</i>	'crack open'	<i>*p^wosak-i-</i>	'crack (s.t.) open' (Ch. 9, §5.2)
	<i>*loŋoR</i>	'be audible'	<i>*loŋoR-i-</i>	'hear, listen to'

With a vowel-final root like **wase-* 'share (s.t.) out' or **kati-* 'husk (s.t.) with teeth', no transitive suffix occurred and the object enclitic was added directly to the root (Evans 1997). The one possible exception to this are roots ending in **-a*, where the suffix **-i-* probably occurred between the root and the object enclitic, at least when the enclitic itself began with **a* (**au* O:1S, **a* O:3S). Note that the final **-i-* of a disyllabic base like **kati* was also present when the verb was used intransitively. Hence it was not a transitive suffix in POc, although in some cases it was derived from an earlier suffix. With vowel-final roots, as with consonant-final, there was no formal difference between A and U roots:

(6)	intransitive		corresponding transitive	
A verbs	<i>*kati</i>	'husk with teeth'	<i>*kati-</i>	'husk (s.t.) with teeth' (Ch. 9, §3.7)
	<i>*muri</i>	'follow'	<i>*muri-</i>	'follow (s.t./s.o.)'
	<i>*soka</i>	'pierce, stab'	<i>*soka-i-</i>	'pierce, stab (s.t./s.o.)' (Ch. 9, §4.1)
U verbs	<i>*wase</i>	'be shared out'	<i>*wase-</i>	'share (s.t.) out'
	<i>*poli</i>	'be bought'	<i>*poli-</i>	'buy (s.t.)'

Below are some examples of POc intransitive/transitive verb pairs with their Boumaa Fijian reflexes. The POc transitive includes the third person object enclitic **a*:

(7)	POc		Boumaa Fijian
	<i>*inum</i>	'drink'	<i>unu</i>
	<i>*inum-i-a</i>	'drink it'	<i>unu-m-a</i>

¹² Note that **kinit* is reconstructed with final **-t* but **p^wosa(k)* with parenthesised **-k* simply because we have a reflex of **kinit* in a language which retains POc final consonants, but none for **p^wosa(k)*. Following the convention outlined in §2.2, final **(-k)* is inferred from reflexes of transitive **p^wosak-i-*.

<i>*loŋoR</i>	'be audible'	<i>roŋo</i>	
<i>*loŋoR-i-a</i>	'hear it'	<i>roŋo-ð-a</i>	
<i>*taŋis</i>	'weep'	<i>taŋi</i>	
<i>*taŋis-i-a</i>	'weep for it'	<i>taŋi-ð-a</i>	
<i>*soka</i>	'stab'	<i>ðoʔa</i>	'throw a spear'
<i>*soka-i-a</i>	'stab it'	<i>ðoʔa-a</i>	'throw a spear at'
<i>*kati</i>	'husk with teeth'	<i>ʔati</i>	'bite'
<i>*kati-a</i>	'husk it with teeth'	<i>ʔati-a</i>	'bite it'
<i>*wase</i>	'be shared out'	<i>wase</i>	
<i>*wase-a</i>	'share it out'	<i>wase-a</i>	

The reader will notice that formal restructuring has occurred in Fijian. The POc final consonant is lost from consonant-final intransitives. This leads to a resegmentation of the transitive, such that the intransitive form is treated as the root in Fijian, the POc final consonant becomes the transitive marker, and the POc transitive suffix **-i-* is lost. Because the POc consonant is no longer part of the Fijian root but an allomorph of the transitive suffix, the etymological consonant is sometimes replaced by another or a consonant has been inserted where none is expected (Arms 1974b).¹³ This is the case with *roŋo-ð-a* 'hear it' above, where the normal Fijian reflex of POc **R* is zero or occasionally *r*, but never *ð*.

Fijian-like restructuring has occurred in many Oceanic languages because of the loss of the POc final consonant. In most of these languages (and in some Fijian dialects), **-i-* has not been lost, with the result that a language has a set of transitive suffixes with the form *-Ci-*, as in Longgu.

(8) POc		Longgu
<i>*inum</i>	'drink'	<i>inu</i>
<i>*inum-i-a</i>	'drink it'	<i>inu-vi-a</i>
<i>*taŋis</i>	'weep'	<i>aŋi</i>
<i>*taŋis-i-a</i>	'weep for it'	<i>aŋi-si-a</i>

The consonant of the *-Ci-* suffix is known as the 'thematic consonant'. Transitive verbs in our data corpus are often cited with a reflex of POc **a* 0:3S. Where this can readily be omitted because it permutes with other object enclitics, its absence is marked with a hyphen. Where it is not synchronically separable, it is parenthesised in accord with the conventions of Chapter 1, §4.2.

Above, I wrote that transitivising morphology is determined in most cases by the canonic shape of the root. There are some exceptions to this generalisation, and one set of these is discussed by Blust (1977). These consist of forms like those in (9), descended from a PAN or PMP reduplicated monosyllabic root. The intransitive POc form in each case reflects the earlier form with regular loss of the final consonant of the first syllable (§2.2). The transitive form reflects a single monosyllabic root plus an **-i-* which by POc times was no longer

¹³ A special case of non-etymological consonant insertion occurs with (A) verbs of motion and posture, where the transitive form takes a location as its object. For example, Longgu *eno* 'lie down' (< POc **qeno*) vs *eno-vi-* 'lie on', *dio* 'fall' (< POc **sipo* 'descend') vs *dio-ŋi-* 'fall on'; Boumaa *laʔo* 'go' (< POc **lako*) vs *laʔo-vi-* 'go for'. To date I have found such cases only in EOc languages and do not reconstruct this feature for POc.

separable, so that the transitive forms were similar in their behaviour to the transitive forms of vowel-final roots like **kati-* 'husk with teeth'.

	Proto Oceanic		
	intransitive	transitive	Ch. 9 ¹⁴
PAn <i>*tektek</i> 'hack off'	<i>*toto(k)</i>	<i>*toki-</i>	3.2
PMP <i>*(c,s)uk(c,s)uk</i> 'skewer'	<i>*(su)su(k)</i>	<i>*suki-</i>	4.1
PAn <i>*tuqtuq</i> 'hammer, pound'	<i>*tutuk</i>	<i>*tuki-</i>	5.1
PMP <i>*pakpak</i> 'clap, slap'	<i>*baba(k)</i>	<i>*baki-</i>	5.1
PAn <i>*buCbuC</i> 'pluck out'	<i>*pupu(t)</i>	<i>*puti-</i>	6.1
PMP <i>*pespes</i> 'squeeze, press out'	<i>*popo(s)</i>	<i>*posi-</i>	7

We also find 'deponent' cases in POc where a PAn/PMP reduplicated monosyllable and a POc transitive monosyllable + **-i-* form are reconstructable, but no intransitive form. This is perhaps a reflection of the fact that in many cases the formal relationship between reflexes of the intransitive and transitive forms, especially after loss of the final consonant from the intransitive, has become so opaque that the pairing of all but the most frequently used forms has been lost.

We have seen that a majority of non-stative POc verb roots had both intransitive and transitive (or causative) alternants, and that the transitive is usually derived from the intransitive. There seem to have been a few POc verb roots, however, which were intrinsically transitive and from which either an A or an U intransitive could be formed.

An A intransitive was formed by reduplicating the disyllabic (transitive) root. One such verb was apparently POc **kani-* 'eat (s.t.)', whose corresponding intransitive was **kani-kani*. Hence we find Malo (NCV) *hani-* 'eat (s.t.)' vs *han-hani* 'eat' and Motu (PT) *ani-* vs *ani-ani*. A Boumaa Fijian example is *?usi-* 'wipe (s.t.) with a cloth' vs *?usi-?usi* 'wipe hands after washing them at the end of a meal'.¹⁵

An U or U-stative intransitive was apparently formed by prefixing the anti-causative prefix **ma-* to the transitive root, reflected, e.g., in Malo *ma-duru* 'be split' from *duru* 'split (s.t.)' and *ma-mbila* 'be shattered' from *bila* 'shatter (s.t.)', and in Arosi *ma-hita* 'be split, broken' from *hita* 'split, hit, strike (s.t.)'. Like these examples, most modern reflexes of **ma-* derive U-statives from transitives, but we have already noted a tendency for U intransitives to become statives. There is, however, a scattering of languages in the North New Guinea and Papuan Tip clusters where *ma-* derives A verbs. Since these are languages in which U intransitives have been reinterpreted as A intransitives, I take it that these A verbs reflect earlier U verbs. For example, from Sio *liji*, Misima *liji-n* 'pour (s.t.) out' we can reconstruct transitive POc **liji* 'pour (s.t.) out', and from Sio *ma-liji*, Misima *ma-liji-n* '(liquid) run away' we can reconstruct the POc U verb **ma-liji* 'be poured out'.

Thus there were five morphological relationships between intransitive and transitive forms in POc, illustrated in (10), the first two being the most widely represented:

¹⁴ These reconstructions are drawn from Ch. 9. Glosses are abbreviated or omitted here for the sake of clarity, and cross-references are to the full presentations in Ch. 9.

¹⁵ Possible counterevidence is provided by Longgu, where reduplication forms both A and U intransitives: *ale-a* 'bite him' vs *ale-ale* 'bite', but *?ave-a* 'bend it' vs *?ave-?ave* 'be bent'. But comparative evidence suggests that *?ave* was originally an U verb ('be bent') from which *?ave-a* was derived, and that *?ave-?ave* is the result of pattern extension.

(10) Class	intransitive		transitive
both	<i>*kinit</i>	'pinch'	<i>*kinit-i-</i> 'pinch (s.o/s.t.)'
both	<i>*kati</i>	'husk with teeth'	<i>*kati-</i> 'husk (s.t.) with teeth'
both	<i>*toto(k)</i>	'cut, chop'	<i>*toki-</i> 'cut, chop (s.t.)'
A verb	<i>*kani-kani</i>	'eat'	<i>*kani-</i> 'eat (s.t.)'
U verb	<i>*ma-liji</i>	'be poured out'	<i>*liji</i> 'pour (s.t.) out'.

As the foregoing examples show, in the reconstructions a transitive verb is marked with a final hyphen. If an intransitive/transitive pair is reconstructed, it will be shown as, e.g., **kinit*, **kinit-i-* 'pinch'. Where a vowel-final verb like **wase* 'distribute' is reconstructed, consistency would require us to show this as **wase[-]*, that is, as reconstructable with and without a following object enclitic. This convention is followed in Chapter 9, but not in other chapters; it is in any case often very difficult to determine whether a vowel-final root was used both transitively and intransitively in POC.¹⁶ Where a pair of verbs is reconstructed without and with **-i-*, the supporting cognate sets are usually combined. Occasionally, where the cognate sets supporting the intransitive and transitive forms are of considerable size, they are given as separate lists.

One final point must be made with regard to POC **-i-*. I have adopted the usual convention of calling it a transitive suffix. However, in a number of modern languages (e.g. Hoava, Davis 1997), in circumstances where the verb is immediately followed by a modifier, the 'suffix' (if any) and the object enclitic follow the whole verb-modifier complex, suggesting that **-i-* may have been a transitive enclitic rather than a suffix. However, this has no bearing on lexical reconstruction.

Implicit in the discussion above are two slightly unusual features of transitivity in POC and many daughter languages. One is the division of non-stative intransitives into A and U verbs. The other is the use of the A intransitive alternant of verbs which are semantically transitive. If the object of, say, POC **inum* 'drink' or **kati* 'husk with teeth' was not mentioned, the intransitive form was evidently used.

Two other morphemes were productive in the derivation of POC verbs: the causativiser **pa-* or **paka-* and the applicative **-aki* or **-akini*. As these occur less often in our reconstructions than the transitivity and detransitivising morphemes discussed above, they are described only briefly here.

Although transitives could not be formed from U-stative roots, causatives could be formed from roots of all three classes. The POC prefix deriving causatives was **pa-* or **paka-* (both forms are reconstructable, and the difference between them needs more research). A causative formed with this prefix was a transitive verb whose subject was always the causer and whose object was the same as the subject of the corresponding intransitive verb (Table 2, column 2). Thus an U-stative verb like POC **ponuq* 'be full' could be causativised (= transitivised) with **pa[ka]-* to give **pa[ka]-ponuq-i-* 'cause (s.t.) to be full, make (s.t.) full' (object=U).¹⁷ An U verb like **wase* 'be shared out' gave **pa[ka]-wase-* 'cause (s.t.) to be shared out' (object=U), and an A verb like **inum* 'drink' gave **pa[ka]-inum-i-* 'cause (s.o.) to drink' (object=A).

¹⁶ It could be said that consistency requires us to put a hyphen before every verb to mark the presence of the subject proclitic, but we find this redundant since in this regard every verb behaves in the same way.

¹⁷ The fact that U-stative roots could only be transitivised with **pa[ka]-* was one of the features of this verb class recognised by Pawley (Pawley 1973:128–129) and used to distinguish it from what I have here called the U class.

Presumably the liquid which was drunk was expressed by an oblique phrase, but this needs more research. The presence or absence of **-i-* in causative verbs was again determined by whether the root ended in a consonant or a vowel.

The applicative **-aki* or **-akini*, reconstructed by Pawley (1973) as the 'remote transitive' suffix, is attached to an A or U root to form a transitive verb. In its canonic usage, the object of this verb is a referent which would appear as an oblique with the corresponding direct transitive. For example:

(11)	POc		Boumaa Fijian
	<i>*taŋis</i>	'weep'	<i>taŋi</i>
	<i>*taŋis-i-a</i>	'weep for it'	<i>taŋi-ð-a</i>
	<i>*taŋis-akini-a</i>	'weep about it'	<i>taŋi-ðaʔin-a</i>
	<i>*soka</i>	'stab, spear'	<i>ðoʔa</i>
	<i>*soka-i-a</i>	'stab, spear it'	<i>ðoʔa-</i>
	<i>*soka-(C)-akini-a</i>	'stab, spear with it'	<i>ðoʔa-taʔin-a</i>
	<i>*puni</i>	'hide'	<i>vuni</i>
	<i>*puni-a</i>	'hide it'	<i>vuni-a</i>
	<i>*puni-(C)-akini-a</i>	'hide (s.t.) for s.o.'	<i>vuni-taʔin-a</i>

Again there are two reconstructable forms, POc **-aki* and **-akini*. The difference between them needs more research, as does their status, their POc function, and the history of their reflexes (Harrison 1978, 1982). It was noted above that the POc transitiviser **-i-* occurred only with consonant-final or **-a-* final roots. The applicative **-aki[ni]* was not subject to this limitation. In Boumaa Fijian, like other languages, an apparently non-etymological thematic consonant is in many cases inserted between a vowel-final root (including one in *-a-*) and the reflex of **-aki[ni]* to form *ðoʔa-taʔin-a*, *vuni-taʔin-a* and so on. The inserted thematic consonant is apparently a lexically determined choice between *-t-* and *-v-*.¹⁸ This gives rise to the reconstructive difficulty seen in (11): we do not have enough information to know what happened in POc when **-aki[ni]* followed a root ending in a vowel.

3.1.3 Fossilised verbal morphology

The morphology described in §3.1.2 was largely productive when POc diversified into daughter languages. There are a few patterns in our reconstructions of verbs, however, which reflect morphology that was already dead by this stage.

One of these is illustrated in (9), where intransitive forms descended from PAN or PMP reduplicated monosyllabic roots correspond with transitive forms reflecting the unduplicated root plus inseparable **-i-*. PAN monosyllabic roots have been investigated in some detail by Blust (1988) and are also often reflected as the second syllable of POc CVCVC intransitive roots.¹⁹ As a result, consonant-final disyllables with related meanings often share their second syllable. Thus in Chapter 9, §6.1 we find the following reconstructions forming the following set:

¹⁸ Cf. *dusi-a* 'point it out (nearby)' vs *dusi-vaʔin-a* 'point it out (far off)'; *te-a* 'plant (crop)' vs *tee-vaʔin-a* 'plant (land)'; *tala-a* 'send her/him' vs *tala-vaʔin-a* 'send for s.o.'

¹⁹ A tentative explanation of the origin of PAN monosyllabic roots is offered by Ross (1995b:95–96).

(12) PAn root **-buC* 'weed, pull, pluck out' (Blust 1988:86–87)

POc	<i>*pupu(t), *puti-</i>	'pick (fruit +), pluck (feathers +)'
POc	<i>*(s, j)apu(t), *(s, j)aput-i-</i>	'pull out, pull up, pluck (fruit, nuts)'
POc	<i>*iapu(t), *iaput-i</i>	'strip (crops), pull off'

The pair **pupu(t), *puti-* reflects PAn **buC-buC* in accordance with the paradigm in (9), whilst the intransitive roots **(s, j)apu(t)* and **iaput* apparently reflect PAn forms ***sa-buC* and ***ta-buC*.²⁰ Other such sets are:

(13) PAn root **-pak* 'break, crack, split' (Blust 1988:135–136)

POc	<i>*sapaki</i>	'pluck off, break off (leaves) with the hand' (Ch. 9, §6.1)
POc	<i>*paki</i>	'pluck, break off (leaves) with the hand' (Ch. 9, §6.1)
POc	<i>*lopa(k)</i>	'break' (Ch. 9, §6.2)

(14) PAn root **-Tuk* 'knock, pound, beat' (Blust 1988:160–161) (Ch. 9, §5.1)

POc	<i>*tutuk, *tuki-</i>	'pound, mash by pounding, hammer, crack by hammering'
POc	<i>*putu(k)</i>	'repeatedly knock, pound, beat'
POc	<i>*butu(k), *butuk-i-</i>	'repeatedly knock, pound, beat'

(15) PAn root **-Tak* 'sound of cracking, splitting, knocking' (Blust 1988:157–158)

POc	<i>*potak, *potak-i-</i>	'crack open, split open, make incision' (Ch. 9, §3.8)
POc	<i>*botak, *botak-i-</i>	'crack open, split open, make incision' (Ch. 9, §3.8)
POc	<i>*pita(k), *pitak-i-</i>	'break, split' (Ch. 9, §5.2)

An additional complication consists in the fact that Blust finds PAn/PMP roots which differ only in the voicing of the root-initial consonant and which have similar meanings. Since PAn/PMP voicing distinctions were not retained in POc (§2.4), their reflexes are indistinguishable in Oceanic languages. Thus POc **tupu(k), *tupu(k)-i-* 'knock against', apparently reflecting PMP **tu(m)buk* 'pound', is attributed by Blust (ACD) to the PAn root **-buk* 'pound, thud, heavy splash' (Blust 1988:87–88). POc **sapu(k), *sapu(k)-i-* 'hit', on the other hand, apparently reflecting PMP **sa(m)puk* 'collide, bump into', is attributable to the PAn root **-puk* 'throb, thud, clap, break' (Blust 1988:87–88) (cognate sets in Ch. 9, §5.1).

PAn monosyllabic roots probably ceased to be independent morphemes (if indeed they ever were independent) sometime around the break-up of PAn, although they may well have played a role in the phonaesthetics of daughter languages for some time after the break-up. The other dead patterns I wish to consider, however, probably arose from morphology which remained productive in Eastern Malayo-Polynesian until not long before the break-up of POc. This is morphology which reflects the Austronesian 'focus' system, variants of which occur in many non-Oceanic Austronesian languages. I present the reconstructed systemic changes first, then the instances of them, partly because the systemic changes also have a bearing on POc nominal morphology, discussed in §3.2.1.

The essence of the focus system is that the semantic role of the 'topic' (alias 'subject', 'nominative', 'pivot', 'trigger') of a verbal clause is indicated by an affix or affixes on the verb.²¹ The morphology of the PMP focus system was, at least roughly, as in (16).

²⁰ The double asterisks indicate that I do not know of non-Oceanic cognates which would independently support the PAn reconstructions.

²¹ The question of how 'focus' systems should best be described has a long and controversial history. A good

(16) The PMP verbal system (based on Wolff 1973 and Ross 1995a)

	nominalisations <i>or</i>		non-indicative
	indicative	independent	or dependent
	imperfective	perfective	
Actor focus or intransitive	⟨ <i>um</i> ⟩√	⟨ <i>um-in</i> ⟩√	√
Actor focus only	[<i>ma</i>]N-√	<i>na</i> N-√	<i>pa</i> N-√
Patient focus or intransitive	√- <i>en</i>	⟨ <i>in</i> ⟩√	√- <i>a</i>
Location focus	√- <i>an</i>	⟨ <i>in</i> ⟩√- <i>an</i>	√- <i>i</i>
Instrument or beneficiary focus	<i>i</i> -√	<i>i-in</i> ⟩√	√- <i>án</i>

The symbol √ represents the verb root and ⟨...⟩ an infix after the root-initial consonant. PMP -N- represents an underlying velar nasal which combined with a root-initial voiceless obstruent to give the homorganic nasal, and with a root-initial voiced obstruent to give either the homorganic nasal or a nasal + obstruent sequence:

- (17) **pa*N- + **takaw* 'steal' → **panakaw* 'steal (actor focus)'
 **pa*N- + **deŋeR* 'hear' → **pandeneR* 'hear (actor focus)'

The systemic features relevant to this discussion are that (i) there were two sets of verb forms, the first used in indicative independent clauses and the other in non-indicative independent and dependent clauses; and (ii) those in the first set were formally identical with nominalisations. However, there were probably no nominalisations corresponding with the actor focus forms.

The historical relationship between the PMP and simpler POc system has intrigued various scholars (Pawley & Reid 1980, Starosta, Pawley & Reid 1982, Wolff 1980). The POc system in (18) is set out in such a way that it corresponds with (16).

(18) The POc verbal system

	nominalisation		verb
	imperfective	perfective	
Intransitive	—	—	√
(relic transitives)	(√- <i>on</i>)	—	(<i>pa</i> N-√, N-√)
Transitive	√- <i>an</i>	⟨ <i>in</i> ⟩√(- <i>an</i>)	√- <i>i</i> -
Applicative	<i>i</i> -√	—	√- <i>aki</i> [<i>ni</i>]-

The stages by which the PMP system became the POc system lie beyond the scope of this chapter (Ross 1997 provides a hypothesised sequence), but the main changes (not necessarily in diachronic order) were:

- Instrument or beneficiary focus *√-*án* was replaced by *√-*aki*[*ni*]-. This change is also reflected in many languages in Indonesia.
- PMP patient focus forms were lost, and the function of location focus forms was extended to include patient focus. These forms became the POc transitives.
- The PMP indicative independent verbal forms lost their verbal functions and remained

only as nominalisers, leaving the erstwhile non-indicative/dependent verbal forms as the only verbal forms.

Note that the verbal morphology reconstructed in the rightmost column of (18) is what has been described in §3.1.2. The only additions are the parenthesised forms, representing possible fossils. Evidence for these is given in (19).

(19) POC relic verb forms (Ross 1988:41–42 gives supporting data)

PMP root	*[pa]N-root	POc	
* <i>takaw</i>	* <i>panakaw</i>	* <i>panako</i>	'steal'
* <i>ka(ʔe)n</i>	* <i>paŋa(ʔe)n</i>	* <i>paŋan</i>	'eat'
* <i>ka(ʔe)n-i</i>		* <i>kani-</i>	'eat'
* <i>sepsep</i>	* <i>ñep</i>	* <i>sopi-</i> , * <i>ñopi-</i>	'suck'
* <i>da(n)daŋ</i>	* <i>naŋ</i>	* <i>raŋi-</i> , * <i>naŋ</i>	'shine' (Ch. 9, §11)
* <i>buni</i>	* <i>muni</i>	* <i>puni-</i> , * <i>muni-</i>	'hide (VT)'

In POC **panako* and **paŋan*, we have clear cases where **paN-* is preserved. The pair **paŋan* and **kani* is evidence that some relic of the focus system may have continued to exist until shortly before the break-up of POC, **paŋan* reflecting the actor focus in this system, **kani* the patient focus. This in turn allows us to interpret the POC pairs **sopi*, **ñopi* etc. in (19) as patient/actor pairs. Note, however, that this interpretation is not watertight. First, the expected outcome of *-*N-raŋ* is ***draŋ*, not **naŋ*. Second, **ñopi* 'suck' displays both initial **ñ-* and suffixed *-*i-*, i.e. the morphology of both actor and patient focus simultaneously.²²

A third set of morphological fossils also seems to date from the pre-POC period and may also be associated with the focus system. We find a number of POC verbs, mainly in Chapter 9, where the data support the reconstruction of a pair of forms differing in the grade (oral or nasal; cf. §2.4) of their initial consonant. For the verbs in (20), the data justify the reconstruction of two forms. For those in (21), the case is not quite so clear, but there are forms which indicate that there may also have been a POC form with a nasal-grade initial.

(20) POC	POc
* <i>puru(k)</i> , * <i>puruk-i-</i> 'pierce, bore (hole)'	* <i>buru</i>
* <i>putu(k)</i> 'repeatedly knock, pound, beat'	* <i>butu(k)</i> , * <i>butuk-i-</i>
* <i>kiri</i> 'file, rasp, saw'	* <i>giri</i>
* <i>kora(s)</i> , * <i>koras-i-</i> 'scrape out'	* <i>gora(s)</i> , * <i>goras-i-</i>
* <i>rama(R)</i> 'torch; fish with torch'	* <i>drama(R)</i>
(21) POC	Reflexes with voiced initials
* <i>poka</i> 'to divide, cut up'	Wayan <i>boka(ti-)</i> 'split or cut s.t. in half'
	Carolinian <i>pax</i> 'be cut, split'
* <i>potak</i> , * <i>potak-i-</i> 'crack open'	Motu <i>bota(i)</i> 'beat, thrash'
	Wayan <i>bote(ki)</i> 'split or crack s.t. open'

²² This doubling up of morphology has at least two possible explanations. One, *-*i-* was added to ***ñop* by analogy after the focus system had collapsed. Two, the system reconstructed in (21) is wrong and the pre-POC system was more like that of a number of Indonesian languages, where reflexes of **maN-* and *-*i* co-occur in a single verb form. The evidence to date is too thin to permit a choice.

*p ^(w) i p ^(w) i(t) 'press, wring, squeeze s.t.'	Gumawana <i>bibi</i> 'squeeze (boil +)' Arosi <i>bibi</i> 'crush, squeeze, crowd'
*kili(s), *kilis-i- 'twist, bore, rotate'	Bauan <i>gili-</i> 'twist or rub in the hands' Nadrosa <i>gili-</i> 'braid'
*kutu 'cut'	Bauan <i>gutu, gutuv(a)</i> 'cut off, sever'
*kinit, *kinit-i- 'pinch off'	Gumawana <i>ginisi</i> 'pinch s.o.' Lau <i>gini-gini</i> 'pinch off with the nails'
*kawit, kawit-i- 'hook, catch hold of'	Lukep <i>-gaot</i> 'pick (breadfruit)' Dobu <i>geuta</i> 'hook fruit, fruit hook' Lau <i>gau</i> 'pluck fruit with bamboo, crook'
*sapu(t), *saput-i- 'pull out, up, pluck'	Roviana <i>zapu</i> 'pull coconuts from a tree'

The pairs *p/*b, *k/*g, *s/*j and *r/*dr are represented in (20) and (21). Differences in token frequency are probably largely attributable to differences in the frequency of these consonants across POc vocabulary as a whole. The other logically possible pair *t/*d is not represented, but this reflects the fact that word-initial occurrences of *d were either rare or zero (§2.2).

A salient fact about these pairs is that there are generally more reflexes with the oral-grade alternant than the nasal-grade. This suggests that the nasal-grade alternants reflect morphologically marked forms of the unmarked oral-grade forms. If this is correct, then we have to ask whether all POc verb roots had an unmarked form with an initial oral-grade consonant. The answer seems to be a qualified 'yes'. Exceptions occurred when a noun with an initial nasal-grade consonant was used as a verb, e.g. POc *buku 'node, knot, protuberance' was used as the verb *buku (VI), *bukuti (VT) 'tie (a knot); fasten'. Otherwise we find, in Chapter 9 for example, that the large majority of reconstructed POc verbs begin with an oral-grade consonant. A few, like POc *baba(k), *baki- 'strike one against another, knock', begin with a nasal-grade initial, and I have no explanation for these other than to speculate that an oral grade-initial root occurred but is not reflected in our data.

If the suggestion of the previous paragraph is correct, then we are looking for a morphological alternation that ceased to be productive shortly before the break-up of POc. Initial nasal-grade consonants (which did not occur in this position in PMP) arose from a sequence of nasal + obstruent. That is, *b, *g, *dr, *j developed from pre-POc *mp, *ŋk, *nr, *ns (and *nc) (§2.4). It is only a short step to infer that this nasal feature was the actor focus morpheme *-N- seen in (16) and (18) and that these pairs are systemically parallel to those in (19). But we should be wary of making this inference too quickly. PMP nasal + obstruent sequences occurred in actor focus verbs only when the root-initial obstruent was voiced, as illustrated in (17). If the nasal feature in the voiced-initial members of the pairs in (16) and (18) really was *-N-, then we would expect to find that they were all descended from PMP voiced-initial roots. But when the known PMP ancestors of these pairs are listed against them, we find that they often have a voiceless initial obstruent:

(22) POc	PMP
*putu(k) 'repeatedly knock, pound, beat'	*buTuk
*kiri 'file, rasp, saw'	*kirKir
*poka 'to divide, cut up'	*peka
*potak, *potak-i- 'crack open'	*beTak
*p ^(w) i p ^(w) i(t) 'press, wring, squeeze s.t.'	*pitpit

<i>*kinit</i> , <i>*kinit-i-</i> ‘pinch off’	<i>*kinit</i>
<i>*kawit</i> , <i>kawit-i-</i> ‘hook, catch hold of’	<i>*kawit</i>

This means that instead of the pair **kiri*/**giri*, for example, descended from PMP voiceless-initial **kirkir*, we would expect a pair **kiri*/**giri*, corresponding to the pairs in the lower half of (19). But the only such pairs I have found are those in (19). Thus, although I cannot exclude the possibility that the pairs in (16) and (18) reflect a feature of the focus system, I am unable to give a principled account of them.²³

3.2 Nouns

Nouns had a valency of either one or zero. A monovalent noun normally took a suffix which cross-referenced the person and number of the dependent noun phrase, usually its possessor, e.g. POc **tama-gu* ‘my father’, **tama-ña* ‘her/his father’ (cf. Bali-Vitu, Tolai, Fijian *tama-gu*, *tama-na*), **tama-ña tam^wata* ‘the man’s father’. I assume that, as in many modern languages, the dependent noun phrase usually occurred only if it was third person, and was optionally omissible even there.²⁴ A zero-valency noun had no affixation, e.g. POc **Rumaq* ‘house’ (Ch. 3, §3.3). Monovalent nouns were nouns that are possessed by default: they included kin terms (like **tama-* ‘father’), body parts (e.g. POc **qaqe-* ‘leg’) or parts of wholes (e.g. POc **gab^wari-* ‘area underneath a raised house’ (Ch. 3, §3.4)), and are shown in reconstructions and supporting data with a final hyphen. Zero-valency nouns were all other nouns. These two subclasses are reflected in numerous Oceanic languages, and are referred to in grammars either by the semantic labels ‘inalienable noun’ and ‘alienable noun’ or, since Lichtenberk (1985), by the syntactic labels ‘directly possessed noun’ and ‘indirectly possessed noun’.

3.2.1 Derivational morphology of nouns

Morphemes which derive nouns have rather a complex history in Oceanic. As noted above (§3.1.3), PMP nominalisations were identical to certain independent indicative forms of the verb. These are repeated in (23), with examples based on the root **kaʔen* ‘eat’ to illustrate how the system apparently worked. The meanings based on the focus labels are the probable central meanings of these nominalisations: as in the modern languages, each affix must have had other senses too.

²³ Explanations might include (i) errors in the association of POc and PMP reconstructions, i.e. more items in (23) and (24) are descended from voiced-initial PMP roots than is apparent (unlikely, as PMP **g-* had a very low functional load); (ii) some unrecognised developments had occurred in the pre-POc focus system; (iii) the nasal feature came not from PMP **-N-* but from PMP **-um* in (19), i.e. the POc system in (21) is incorrectly reconstructed.

²⁴ When a monovalent noun had a non-specific possessor, it was evidently linked to the latter by the preposition **qi*, e.g. **natu qi boRok* ‘piglet’ (lit. ‘child of pig’), but there is considerable evidence that **qi* was bound to the preceding monovalent noun (cf. for example, Seimat [Admiralties] *nat-i pou* ‘piglet’; see Hooper 1985 for further evidence).

A description of the (quite complex) POc possessive system is beyond our scope. The interested reader is referred to Pawley (1973:153–169), Lichtenberk (1985), Hooper (1985), Lynch (1996a).

(23) PMP	nominalisation		
	imperfective	perfective	<i>*kaʔen</i> 'eat'
Patient	$\sqrt{-en}$	$\langle in \rangle \sqrt{\quad}$	<i>*kaʔen-en</i> 'thing to be eaten, food' <i>*k\langle in \rangle aʔen</i> 'thing eaten'
Location	$\sqrt{-an}$	$\langle in \rangle \sqrt{-an}$	<i>*kaʔen-an</i> 'place where one eats' <i>*k\langle in \rangle aʔen-an</i> 'place where one has eaten'
Instrument	$i\sqrt{\quad}$	$(i\text{-}in)\sqrt{\quad}$	<i>*i-kaʔen</i> 'thing one eats with'

The affix combination **i\langle in \rangle \sqrt{\quad}* is parenthesised because I know of no reflexes of it as a nominaliser. Reflexes of **\langle in \rangle \sqrt{-an}* are known only from Oceanic, and may reflect a local innovation.

The corresponding POc nominalisations are tabulated in (24). Although the verbal focus system had disappeared in POc, it is reasonably clear that the nominalising morphology continued to be associated with semantic roles:

(24) POc	nominalisation		
	imperfective	perfective	<i>*kani</i> 'eat'
Patient	$(\sqrt{-on})$	$\langle in \rangle \sqrt{\quad}$	<i>*kanonj</i> 'thing to be eaten, food' <i>*k\langle in \rangle ani</i> 'thing eaten'
Location	$\sqrt{-an}$	$\langle in \rangle \sqrt{-an}$	<i>*kan-an, *kananj</i> 'place where one eats' <i>*k\langle in \rangle an-an</i> 'place where one has eaten'
Instrument	$i\sqrt{\quad}$	—	<i>*i-kani</i> 'thing one eats with'

The affix combination $\sqrt{-on}$ is parenthesised because it survived only in fossilised forms like POc **kanonj(a)* 'flesh, meat, coconut flesh' (Ross 1996d:174). However, it is clear that the rest of the system remained productive in POc (and much of it remains productive in various modern languages), as **\langle in \rangle* and **i-*, at least, were evidently added to the productive POc root, e.g. **kani*, not the stem **kan* reflecting PMP **kaʔen*. However, it is less clear that this is true of **-an*.

Instrumental **i\sqrt{\quad}* has kept its PMP function, e.g. **asa(q)* 'grate', **asaq-i-* 'grate (s.t.)'; **i-asa(q)* 'grater' (Ch. 9, §2.1). It has been lost in a number of languages, however, sometimes where it was in competition with initial-syllable reduplication, which also formed instruments.

I noted in §3.1.3 that the function of location focus forms was extended to include patient focus. This also happened to a degree with nominalisations, in that $\sqrt{-on}$ survives only in fossils. However, its perfective counterpart **\langle in \rangle \sqrt{\quad}* survives as patient and general nominaliser in Mussau and the Meso-Melanesian cluster.²⁵ In Roviana and Hoava (MM) the general nominaliser is $\langle in \rangle$, e.g. Roviana *k\langle in \rangle era* 'song' from *kerā* 'sing', whilst **-an* retains its local meaning, e.g. Roviana *huhuve-ana* 'bathing place, bath' from *huhuve* 'bathe' (Roviana preserves POc final consonants with a following echo vowel, so *-ana* is the regular reflex of **-an*). In other languages the reflex of the ertswile locational $\sqrt{-an}$ has taken over the function of general nominaliser, so that some reflexes of POc **mate-an*, e.g. Vitu (MM) *mate-a*, Longgu (SES) *mae-a-*, mean 'death', rather than 'deathbed' or 'cemetery'. The affix combination **\langle in \rangle \sqrt{-an}* is reflected in fossilised reflexes of POc **k\langle in \rangle ani-ana* 'food' in the languages of Epi (central Vanuatu) (Tryon 1976:289).

The history of $\sqrt{-an}$ as a nominaliser in Oceanic has several complications. First, as **kananj* and **kanonj* above indicate, forms in final **-ŋ* occurred in POc alongside those in

²⁵ Zero-derivation or reduplication is also used to form deverbal nouns in a number of languages.

final **-n*, so $\sqrt{-an}$ and $\sqrt{-a\eta}$ apparently coexisted, a fact for which I have no explanation. Secondly, there is good evidence that both also occurred with an additional **-a*, i.e. as $\sqrt{-ana}$ and $\sqrt{-a\eta a}$. The only known language where a contrast has been found between forms without and with *-a* is Mangseng (NNG), where *-η* is the general nominaliser, *-η-a* the instrumental formative (e.g. *puno-η* (N) 'fight', *puno-η-a* 'weapon', both from *pun* (V) 'fight'). This suggests that the forms with **-a* may have had a separate function in POc.

Forms reflecting $\sqrt{-an}$ and $\sqrt{-a\eta}$ can be disambiguated only in languages which preserve POc final consonants faithfully, and in fact only two such languages are known to reflect $\sqrt{-an}$. These are Roviana and Hoava, as illustrated above. However, if reflexes of $\sqrt{-ana}$ are also taken as evidence of POc $\sqrt{-an}$, then there are a number of these in the Admiralties, e.g. Seimat *paku-an*²⁶ (N) 'dance', from *pak* (V) 'dance', and in Central and South Vanuatu, e.g. Paamese *sau-ene* 'singing' from *sau* 'sing', Lenakel *akar* 'talk' from *n-akar-aan* 'talking' (where *n-* reflects a POc article **na*).

Forms reflecting $\sqrt{-a\eta}$ are found in languages of the NNG cluster. Here, however, there is a different complication, namely that $\sqrt{-a\eta}$ and $\sqrt{-a\eta a}$ are reflected as $\sqrt{-\eta}$ and $\sqrt{-\eta a}$, e.g. **mate-a\eta a* 'death' is replaced by **mate-\eta a*, getting rid of the vowel sequence in favour of the strongly CV canonic shape of early Oceanic (§2.2). This is evidently a local innovation. Thus we find, for example, Lukep-Pono *kani-\eta* 'yam' (from **kani* 'eat'), Gitua *gururu-\eta* (N) 'thunder' (from **guru* (V) 'thunder').

Forms reflecting $\sqrt{-a\eta a}$ and $\sqrt{-\eta a}$ are well scattered, for example, Poeng (NNG) *mate-\eta a* 'death' (from **mate* 'die'), Mussau *palapala-\eta a* (N) 'thunder' (from **p^waraq* (V) 'thunder', Samoan (Pn) *inum-a\eta a* 'draught, dose' (from **inum* 'drink'), *tafi-\eta a* 'removal' (from *tafi* 'remove'), and throughout Polynesia.

There is a wealth of languages in which final consonants are lost, so that both $\sqrt{-an}$ and $\sqrt{-a\eta}$ are regularly reflected as *-a*, leaving us with no way of knowing which form was ancestral (e.g. Loniu *he-ya* 'washing' from *he* 'wash'; Malo *dule-a* 'clearing bush' from *dule* 'clear bush'). The Bali dialect of Bali-Vitu retains final consonants with a following echo vowel, but neutralises POc **-n* and **-η* as *-η*, so that the ancestral consonant is again ambiguous (e.g. *mo\eta e-a\eta a* 'sleeping' from *mo\eta e* 'sleep').

In the light of these complications—and because we do not understand them well—we reconstruct each nominalisation as the data require, with $\sqrt{-an}$, $\sqrt{-a\eta}$, $\sqrt{-ana}$ or $\sqrt{-a\eta a}$ (or on occasion $\sqrt{-\eta}$ or $\sqrt{-\eta a}$), but recognising that this is probably not an accurate rendering of the POc form. As I noted above, however, we find cognate sets which allow the reconstruction of, say, both **mate-an* (or **mate-a\eta* or whatever) and **mⁱn>ate* 'death'. These pairs occur almost certainly because the reflex of one of $\sqrt{-an}$ (etc.) or **<in>\sqrt{}* has extended its productivity at the expense of the other in various languages, creating the appearance that POc had both forms. In such cases we reconstruct, e.g., POc **mate* ('die') + NOMINALISER 'death', as we cannot tell which form was in fact lexicalised in POc.

3.3 Adjectival classes

POc had no separate adjective class. Instead, it had a large class of adjectival verbs and a small class of adjectival nouns (Ross 1998). The class of adjectival verbs appears to have included all U-statives, and at least some U intransitives (§3.1.1). Many reconstructed adjectival

²⁶ The presence of *-n* attests the earlier presence of a following vowel.

verbs include the U intransitive prefix **ma-* (§3.1.2). Both adjectival verbs and adjectival nouns could apparently follow the noun they modified without any morphological marking, but their behaviour differed in the predicate. There, an adjectival verb behaved like any intransitive verb, whilst an adjectival noun behaved as a (zero-valency) noun whose property is attributed to a referent or referents. Thus POc **saqat* ‘bad’ was an adjectival verb, **paqoRu* ‘new’ an adjectival noun. Either could modify a noun: POc **a Rumaq saqat* ‘a bad house’, POc **a Rumaq paqoRu* ‘a new house’ (where **a* was a common article). Compare Bali-Vitu *a rumaka zayata* and *a rumaka vayoru* (Bali-Vitu is a conservative Oceanic language of the Meso-Melanesian cluster). However, as predicates they behaved differently, probably as in the Bali-Vitu examples below, where *zayata* ‘bad’ is a verb preceded by the proclitic *ti*, a portmanteau marker of third person subject and perfective aspect, whilst *vayoru* ‘new’ is preceded by the article *a* and means ‘a new one’.

(25) Bali-Vitu:

- a. A *vaga beini ti* *zayata*.
 ARTICLE canoe that PERFECTIVE:3 bad
 ‘That canoe is broken.’
- b. A *rumaka beini a* *vayoru*.
 ARTICLE house that ARTICLE new
 ‘That house is new.’

4 Assigning reconstructions to word classes

Although we know with reasonable certainty what the open word classes were in POc and what their major subclasses were,²⁷ we cannot always assign a reconstructed etymon to a single word class or subclass. Some items, of course, like **tama-* ‘father’, **Rumaq* ‘house’ and **kinit-i-*, are easily assigned: they are, respectively, a monovalent noun, a zero-valency noun and a transitive verb. Quite a number of the items we reconstruct are derived items, and their morphology allows us to assign them to a class. Relevant morphemes are described above in §3.1.2 and §3.2.1. Other items, especially zero-valency nouns and intransitive verbs, the comparative evidence suggests, could readily serve in more than one word class without any morphological change. Thus in cases like POc **p(ʷ)anaq* (N) ‘bow’, (VI) ‘shoot’ (Ch. 8, §9) we assume that the etymon served as both a noun and verb in POc.

In other cases our data sources simply give insufficient or inaccurate information about word class and subclass memberships, so that we often do not know whether a disyllabic vowel-final verb base in a given language is transitive, intransitive or both. In the case of adjectival nouns and adjectival verbs, we cannot always be sure which of the two subclasses an etymon belonged to. Confronted with situations of this kind, we have not always attempted formally to assign POc etyma to their word classes, but allow our glosses and the hyphenation conventions referred to in the discussion above to speak for themselves.

²⁷ For more detailed information the reader is referred to Pawley (1973:126–140), Crowley (1985), Ross (1998).

The first of these is the fact that the word *haka* is used in a wide range of contexts, from a formal ceremony to a simple greeting. This is a clear indication that the word has a long history in the language. The second is the fact that the word *haka* is used in a wide range of contexts, from a formal ceremony to a simple greeting. This is a clear indication that the word has a long history in the language. The third is the fact that the word *haka* is used in a wide range of contexts, from a formal ceremony to a simple greeting. This is a clear indication that the word has a long history in the language.

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3 *Architectural forms and settlement patterns*

ROGER GREEN AND ANDREW PAWLEY

1 Aims and methodological preliminaries

This chapter seeks to reconstruct something of the architectural elements and settlement patterns of speakers of Proto Oceanic and its immediate descendants, speech communities that many associate with the colonisation of south-west Oceania by bearers of the archaeological culture known as Lapita in the second half of the 2nd millennium BC (Bellwood 1978, Pawley & Ross 1995, Shutler & Marck 1975, Spriggs 1995).¹

Some methodological questions are in order. Are such culture historical reconstructions feasible? Which disciplines and methods can provide evidence relevant to this task? What is each method good for, and to what extent, if at all, can evidence provided by different methods be connected?

At least three distinct disciplines—historical linguistics, archaeology and comparative ethnology—are used to do culture history. Each discipline has particular strengths and limitations.² Although their combined testimonies are likely to reveal a fuller picture than any yielded by a single discipline, synthesising evidence from diverse disciplines and methods is not a straightforward matter. A synthesiser can accept the testimony of different disciplines but it is not easy to know when the witnesses are talking about the same historical events. One is reminded of the story of the six blind philosophers each of whom touched a different part of an elephant and then equated the parts with six unrelated objects.

The richest primary data for culture historical reconstruction come from comparative

¹ This chapter is based on a longer paper by Green and Pawley (in press, vol. 3) which correlates archaeological findings from Lapita sites with the linguistic work presented here. The current version includes some minor revisions and the archaeological data are omitted here, as the aim of the present series is to reconstruct POc lexicon without attempting to treat archaeological evidence in any detail. We are indebted to Meredith Osmond for research assistance and comments. Peter Sheppard, Richard Walter, Janet Davidson, Patrick Kirch, Malcolm Ross and Valerie Green also read the draft and suggested a number of improvements.

² Blust (1976b) points out ways in which archaeological and linguistic evidence can be complementary, corroboratory or contradictory.

ethnology (or comparative ethnography, if you prefer). This discipline has the advantage, under favourable circumstances, of starting with descriptions of contemporary or historical societies and cultures that are immensely more complete than anything the archaeologist can hope to recover. However, the historical method of comparative ethnology is a fairly blunt instrument.³ The method is based on general arguments from typology. From contemporary reports of cultures the comparative ethnologist may arrive at a theory of earlier cultural types and their transformations or their directions of diffusion. The proofs for drawing such inferences are essentially statistical, based on the frequency and distribution of types and typological associations in contemporary societies: often the most common and/or most widely distributed type is assumed to be the oldest. A problem familiar to archaeologists and linguists who use ethnographic analogy is that the reconstructed past becomes simply an extension and reflection of one's knowledge of present-day traditional societies. Quite different pasts are not easily recognised.

The following remarks by Waterson (1993:221) about the antiquity of houses on piles and roof styles are fairly typical of the kinds of argumentation used by historical ethnologists:

Architectural styles can change rapidly—but they can also maintain continuity over surprisingly long periods. The antiquity of some aspects of architectural style in the Austronesian world is undoubted. Elements such as pile building and the saddle roof with its extended ridge line are first to be seen on the bronze drums of the Dong Son era, but to judge from their appearance in regions as distant from the [Southeast Asian] mainland as Micronesia and New Guinea, it is reasonable to assume they are much older than their earliest surviving pictorial representations; in other words, that this style is a genuinely Austronesian invention.

In her two-volume work, *Kulthausen in Nordneuguinea*, Hauser-Schäublin (1989:618) writes as follows of houses in a region that contains hundreds of non-Austronesian languages as well as a smaller number of Austronesian languages:

The hut on piles with supports carrying both the roof and the built-in floor seems to belong to Austronesian cultures. On the North Coast both elements are combined: the first floor platform is supported by its own poles, whereas the upper floors are slotted into the horizontal beams. In areas settled by non-Austronesian groups, all parts of the building are traditionally lashed with lianas. Pin and peg techniques are only known in those regions where Austronesian languages are spoken. The Middle Sepik cultures took over the idea of buildings with projecting gables from the Austronesians who settled at certain places on the North Coast. They adapted it to their own technology and architectural experience, giving it a new expression. [translated from the German, in Waterson 1993]

Note the temporal priorities assigned in these two accounts. The conclusions about what is older and younger based on ethnological distributions may well be valid, but how much confidence can we place in them? The same reservations apply to conclusions about directions of diffusion. A serious weakness of comparative ethnology, as an instrument for doing prehistory, is that it has no very reliable way of distinguishing between shared resemblances among a set of contemporary cultures that are due to (a) retention from a common ancestral tradition, (b) convergent development, or (c) diffusion.

In a different context, Bellwood has remarked that “only archaeology will tell us for certain whether pile-built dwellings really belong to an early phase of Western Austronesian

³ The nature of the contrast between the historical methods of comparative ethnology and linguistics is discussed in Blust (1980a), Green (1994a) and Pawley and Ross (1993, 1995).

culture, or whether they have been diffused at a much later date..." (Bellwood 1987:92). As we shall see, in that particular matter, historical linguistics can also provide crucial evidence.

Granted these caveats, the evidence of comparative ethnology can at times be very suggestive. Thus it forms one of the more fruitful sources of testable interpretations about the recent past and of analogical inferences employed by archaeologists in their reconstructions. Such evidence can provide a useful constraint on the semantic reconstructions proposed by linguists. For example, in his study of Austronesian terms for 'house', Blust (1987) gave good reasons for glossing POC **kamali(R)* as 'men's house'. He then proposed to extend this gloss back to Proto Malayo-Polynesian (PMP). However, Fox (1993) and Waterson (1993) give ethnographic arguments for rejecting this last proposal. A building specifically for men alone to use as a meeting and sleeping place and for ritual activities is common among Austronesian societies only in parts of Melanesia. Fox (1993:12) suggests, reasonably, that the institution of a men's house was not part of original Austronesian or Malayo-Polynesian culture, but was borrowed by early Oceanic speakers from non-Austronesian speaking peoples of Melanesia.

The great advantage of prehistoric archaeology over comparative ethnology and historical linguistics is that it can locate particular assemblages of structural and portable artefacts more precisely in space and time. However, archaeologists must generally make do with extremely fragmentary data. The portable artefacts recovered are typically confined to durable items of material culture while those of the structural kind require extensive excavations of the remnants of structures and the below-ground imprints of features. Often only a very small sample of the range of a society's entire material culture is recovered and inferences about the rest of the culture—including its systems of behaviour and belief—must be made on indirect grounds.

The strengths and weaknesses of historical linguistics are largely complementary to those of archaeology and comparative ethnology. Like ethnologists, linguists draw their primary data from reports of contemporary or historical language-culture systems. They lack truly reliable methods for placing in space or absolute time the languages and linguistic events they reconstruct. Unlike comparative ethnology, however, historical linguistics has a method for reconstructing prehistoric events that is quite distinct from typology. (Strictly speaking, it has a theory, which underlies a set of established procedures for interpreting data, including techniques for evaluating competing interpretations.) This method or theory derives its force from the fact that in all languages the code for forming minimal signs (morphemes) is arbitrary, i.e. the conventions for pairing form (pronunciation) and meaning in morphemes are not based on functional considerations. For this reason, unrelated languages are unlikely to show anything more than occasional resemblances in their morphemes, unless there has been borrowing between them. Languages, like organisms, are highly integrated systems and certain elements in the system—particular sounds and particular morphemes—show a continuity over time that may usefully be called 'genetic'. These continuities are traceable in spite of changes in the form of these elements across generations of speakers.

The special nature of linguistic systems and linguistic change gives linguists a powerful method for reconstructing the histories of related words (cognates) shared by sister languages. In any language the sounds and meanings of the words of a language undergo constant, though normally gradual, change. In time, over many thousands of years, all languages will change beyond recognition if they continue to be spoken at all. Paradoxically, it is precisely this fragility of linguistic artefacts, together with the regular nature of one kind of linguistic change, which makes it possible (i) to distinguish genetic relationship from other kinds of resemblances and (ii) to determine subgrouping or family tree relationships within genetic stocks. Regular change is characteristic of sound systems. In a socially homogeneous speech

community, pronunciations tend to change regularly, such that if in some words the sound *x* changes to *y* under certain structural conditions, say [t] to [s] before [i], or [p] to [v] between vowels, that change will generally extend to all words that meet those structural conditions. However, words borrowed from a sister language or dialect after the change *x* to *y* is complete usually will not undergo that change and, in that case, will be detectable as anomalous.

The weakest link in linguistic reconstructions is meaning. Semantic change is not regular or systematic in the way that sound change is, and when cognates in languages A, B, C, etc. exhibit a diverse range of meanings, it may be difficult to determine the original meaning(s). Some of the procedures linguists adopt to constrain semantic reconstruction are discussed in Blust (1987). How linguists approach these issues and the problems they pose for archaeologists who wish to use such reconstructions is discussed in Green (1994a).

The linguistic comparative method works well only at fairly shallow time depths because cumulative change wears away the evidence of common origin. There have been few cases in which the genetic comparative method has reliably penetrated much deeper than about 6,000 years. No special mystique should be attached to this particular figure—it happens that several of the large, well-defined language families in the world are the outcome of dispersals that began within the last 5,000 to 6,000 years.⁴ When the relevant cognate sets survive, the reconstructions for prehistoric ‘artefacts’ and ‘ecofacts’ accessible to historical linguistics cover an extremely wide range of cultural domains—so this discipline is well equipped to recover elements of the perishable material often unavailable to archaeologists as well as cognitive aspects of social organisation, beliefs, and ideology that archaeologists find difficult to infer. However, historical linguistics must look to archaeology to supplement its relatively weak methods for locating reconstructed prehistoric languages in space and in absolute time.

But here an old problem arises: How can reconstructed languages be correlated with archaeological assemblages? For instance, how can one make a strong claim about whether a particular Lapita site was occupied by Austronesian speakers or by non-Austronesian speakers? Aren’t there culture areas where people speaking different, indeed unrelated, languages share very similar material cultures? Welch et al. (1992) certainly make such a claim concerning the Sepik coast (and Lapita), but things have not turned out to be as clearcut as they supposed (cf. Moore & Romney 1994, 1995, Roberts, Moore & Romney 1995). The answer is that we can confidently make the Austronesian–Lapita association only when one or more of the following conditions are met: (a) when there is good evidence for believing that Austronesian speakers were the only people to inhabit a region in prehistoric times—as is the case in, say, Micronesia, Fiji and Polynesia—or at least around the time in question, as appears to be the case in, say, the area of Central Papua around Port Moresby 2,000 years ago; (b) when there is well-established continuity between the prehistoric site or sites in question and recent, historically documented Austronesian-speaking communities in the region; (c) in the case of regions known to have been inhabited by both Austronesian and non-Austronesian speakers, when the material culture of Austronesian speakers is sharply distinct from that of non-Austronesian speakers. And if a site was occupied by Austronesian speakers, we may ask

⁴ It has been suggested that the expansion of many of the world’s large, well-defined language groups was associated with the spread of agriculture (Bellwood 1991, Renfrew 1987, 1992). Be that as it may, reconstruction of fairly remote protolanguages is certainly easiest when the number of descendants is large, as is the case with such well-known families as Indo-European (at least 140 languages) and Austronesian (about 1,000 languages). The conservatism of a good many Austronesian languages is such that, if they were to change no more over the next 5,000 years than they have in the past 5,000 or so, their genetic relatedness would still be obvious, some 10,000 years after their divergence.

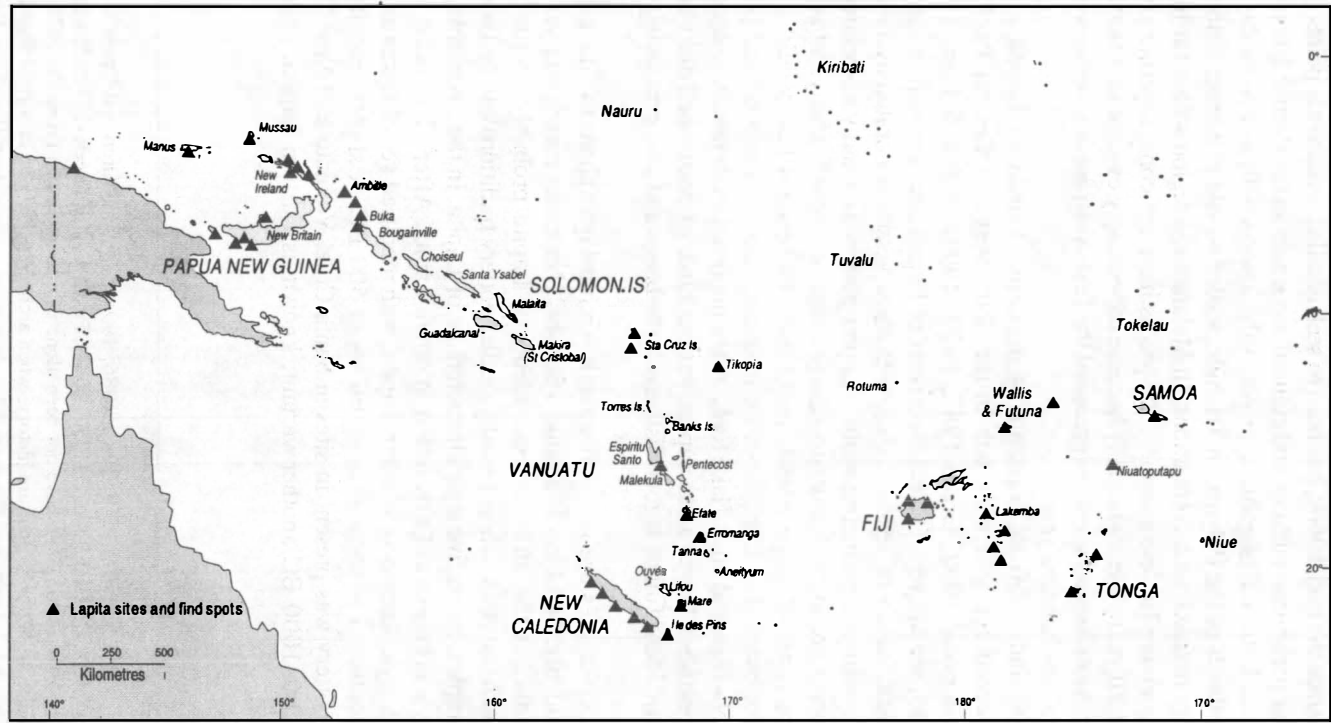
how it can be shown that the occupants were speakers of, say, stage A or subgroup A of Austronesian rather than stage B or subgroup B. The short answer is that this is a complicated business that involves taking account of the distribution of subgroups, continuities and discontinuities in the archaeological sequence, and geographic, demographic and political factors.

Our strategy, since the mid-1960s, has been to seek detailed, systematic points of connection between particular prehistoric cultures and cultural sequences in the Pacific Islands, as defined by archaeology and historical linguistics, respectively, always with an eye on the comparative ethnology.⁵ The islands of the Polynesian Triangle, settled so late in human history, have been an ideal laboratory to make such correlations. In Melanesia, a region with a far more complex prehistory, but receiving far less attention, the pieces have not come together nearly so well. But over the past 30 years it has gradually become increasingly evident that the settlement of Near Oceania by Austronesian speakers preceded the first Austronesian settlement of Remote Oceania by only a few hundred years.

Between 1500 and 1000 BC variants of a culture known as Lapita appear in the archaeological record across a wide belt in the Southwest and Central Pacific (Allen & Gosden 1991, Galipaud 1992, Green 1967, 1979, 1994a, Kirch & Hunt 1988, Spriggs 1990, 1995, 1996; see Map 5). The chief markers of Lapita sites are well-made earthenware with a characteristic variety of vessel shapes, with some vessels decorated by very distinctive, elaborate dentate-stamped geometric motifs. Lapita pottery is usually associated with other features. Settlements are in the hamlet-to-village range and nearly always situated on small islands or on the coast of large islands and handy to beaches that would provide good launching sites for boats. The Lapita tool kit frequently contains ground and polished stone and shell adzes; obsidian and chert flake tools, often imported from remote sources; one-piece shell fishhooks; pearlshell knives and scrapers; various kinds of conus shell disks and pendants; earth ovens; and middens full of lagoon fish and turtle bones and also containing the bones of dog, chicken and pig.

The earliest Lapita sites are in the Bismarck Archipelago. There the distinctive pottery style appears suddenly, full blown, around 1500 BC. No exact match has yet been found outside of Oceania but the ultimate antecedents of Lapita probably lie further west, in Indonesia and Southeast Asia, where broadly similar pottery traditions can be found, although these lack the complex decorative style characteristic of Lapita. In the Bismarcks, the earliest Lapita pottery style is known as Early or Far Western Lapita. After 1200 BC it was replaced in that region by a style, known as Western Lapita, with modified vessel forms and decorative patterns which continued in some sites up till about 500 BC. A slightly modified form of Western Lapita pottery was present in sites in Santa Cruz, Vanuatu and New Caledonia by 1200 BC. By 1200–1000 BC another variant, known as Eastern Lapita, appears in Fiji, Tonga and Samoa.

⁵ For example, Green (1966, 1967, 1979, 1981, 1986, 1994a, 1994b); Kirch and Green (1987); Pawley (1981, 1982, 1996a); Pawley and R.Green (1973, 1984); Pawley and K.Green (1971); Pawley and Pawley (1994); Pawley and Ross (1993). We have not been alone in this enterprise. From the 1920s on, Kenneth Emory was a pioneer in Polynesian culture history, when archaeological and historical linguistic studies in that region were in their infancy and the main reliance was on comparative ethnology. For more recent interdisciplinary work see Bellwood (1978, 1985, 1987, 1991); Blust (1976b, 1980a, 1984–85, 1994); Chowning (1991); French-Wright (1983); Kirch (1984); Osmond (1996); Ross (1989a); Shutler and Marck (1975); Walter (1989); and various papers in Pawley and Ross eds (1994).



Map 5: Lapita sites in the south-west Pacific (after Spriggs 1995:113)

On currently favoured subgrouping hypotheses, the likeliest dispersal centre for the Oceanic subgroup was the Bismarck Archipelago (Pawley & Ross 1993, 1995, Ross 1988; cf. also Grace 1961, 1964). This conclusion is consistent with the view that the break-up of Proto Oceanic (POc) was associated with the dispersal of the Lapita culture beyond the Bismarcks after about 1300 BC.

Throughout Remote Oceania the appearance of the Lapita culture can be associated with the first arrival in the region of Austronesian languages, specifically members of the Oceanic subgroup. The connections are easiest to make in Fiji and Western Polynesia, regions that almost certainly were not inhabited by humans before the bearers of the Lapita culture arrived. In Fiji and Polynesia there is a continuity of tradition, with more or less gradual change, from Eastern Lapita material culture to later archaeological cultures that are clearly ancestral to recent, historically documented cultures. Comparable continuities are harder to demonstrate in parts of Remote Oceania west of Fiji, where the archaeological record has become more complex, but a strong case can still be made there for the Lapita–Oceanic Austronesian association (Green 1997).

2. Settlement patterns: evidence from archaeology and comparative ethnology

The archaeological record tells us much about the siting and size of Lapita sites. All 36 sites of known size are on the coast (see Map 5), usually handy to lagoons and beaches that would have provided seafood and canoe landing and launching places. Settlements cover the typical Oceanic ethnographic range from hamlets to small villages, though a few are larger (the largest being 72,500m²) (Green 1994b). But what does archaeology tell us of the internal organisation of Lapita settlements? Disappointingly little. Although the size of most Lapita living sites has been calculated from surface features, such as the distribution of potsherds, only a few sites have been extensively excavated. Thus, reconstructions of the internal organisation of Lapita settlements rest mainly on a few large-scale investigations of portions of settlement areas (e.g. Best 1984, Frimigacci 1974, 1980, Kirch 1988, Poulsen 1987, Sheppard & Green 1991).

The ethnological record on settlement patterns and architecture in Austronesian-speaking societies is far too extensive to review here. Our remarks must be very brief and selective. We will use selected ethnological evidence and a comparative approach mainly to generate hypotheses that might be tested against evidence from archaeology and/or linguistics.

For example, certain features of Austronesian settlements in Oceania were so widespread at first European contact, that one may reasonably ask whether these directly continued traditions established during the initial dispersal of Oceanic languages. Recurrent features noted in the literature (Forge 1972, Hogbin & Wedgewood 1953, Oliver 1989) include those set out below.

- (1) There is a preference for coastal settlements, handy to reef/lagoon systems and beaches with landing places for boats, and to garden land in the interior.
- (2) Both dispersed and nucleated settlements are common. Dispersed settlements, sometimes containing hamlets inhabited by a few extended families, are commonest where land is plentiful. Nucleated settlements, consisting of villages of up to 300 people, are invariably found when land is in short supply and, where attacks are feared, settlements may be situated in inaccessible places with defences constructed.

- (3) In villages where the terrain allows, main dwellings are generally arranged in parallel lines on each side of a rectangular space that serves as a ceremonial centre for the settlement.
- (4) Villages divide into sections or wards each belonging to a single lineage (or section of a lineage) and containing one or more households.
- (5) The sections are not physically bounded but each lineage owns certain house sites and these sites have considerable ritual importance.
- (6) Each family or extended family has a rectangular main house, which in western Melanesia is generally raised on piles; but in eastern Melanesia, nuclear Micronesia and Polynesia comes in both rectangular, oval, and round forms and is usually (there are some exceptions in Micronesia) built on the ground or, in some regions, on a flat mound.
- (7) Main dwelling houses have two-section thatched roofs with high gable. This relatively heavy superstructure is supported by large posts and beams.
- (8) There is a porch in the front of raised houses and often on those built on the ground.
- (9) The interior of the main dwelling is divided into compartments with an inner room or compartment for sleeping and an outer 'living room'.
- (10) While main houses serve as sleeping places and as storage places for valuables, much daily life takes place in smaller, less durable structures erected on the ground near the main dwelling and used for various daytime activities such as preparing food, cooking, eating, weaving mats, conversation with neighbours and sometimes for sleeping in at night. These structures, including kitchen and day-houses, are less well built, being open-sided or only partly walled, often with flat roofs of coconut leaves or rough thatching.
- (11) Coastal settlements have open-sided boat houses, each usually belonging to an extended family.
- (12) In yam-growing areas there are storage houses with raised platforms for keeping yams; similar structures often occur elsewhere.
- (13) In parts of Melanesia a men's house is commonly part of the hamlet or village, providing a centre where men and boys may congregate and perform certain rituals from which women are barred.
- (14) A menstrual hut is sometimes built near the main dwelling of a family.
- (15) Ovens made with heated stones, including both earth ovens (where the food is cooked in pits) and above-ground ovens, occur close to the dwellings.
- (16) Graves, often marked by piles of stones, may be sited under or close to the main dwelling house.
- (17) The ritual activity of kin groups is focused in dwelling houses. The principal ritual foci within the house are the posts, entrance, ridge-pole and hearth.

In a passage cited earlier, Hauser-Schäublin (1989) discussed features of house design among Austronesian peoples of the central north coast of New Guinea. Let us take another example, from south-eastern New Guinea. The traditional dwelling houses of the people of Goodenough Island in the D'Entrecasteaux group were, by Austronesian standards, extremely modest structures, smaller and less elaborately constructed than the grander houses of many regions. Yet they exhibit most of the basic structural features of dwelling houses among the

coastal Austronesian-speaking peoples living throughout the New Guinea area. The following description (cited in Young 1993:182) applies to the early contact period of 1911–12.

All houses...are erected on four poles forked at the top to hold the plates...Two plates run horizontally from the front to the back posts of the house, and from them a series of poles and rafters lead up and support the ridge pole. Everything is firmly lashed together with vines...Thus the framework of the house is provided; for walls it is covered with overlapping layers of sago-leaf matting. Back and front are sometimes covered in the same way, but often the matting is here replaced by planks on which the native can display his artistic powers. The back wall is unbroken but a gap is left in the front by which the inmates can enter; it can be closed at will by native mats. A platform is often built in front, usually as a mere extension of the floor, though sometimes a foot or so lower. This...offers a very convenient place to sit and gossip, especially when the roof and sides are made to project as well and so ward off both sun and rain. Propped up against the platform...will be found a ladder, which is simply the stem of a small tree with notches cut for steps at intervals of a few inches. The floor is made of transverse poles or rough boards resting on the plates, and is generally covered with mats of coconut leaves. The interior is sometimes divided into an inner and an outer compartment, with a gap in the dividing wall similar to that in the front of the house. In some houses there is a low bench running along one side, for the inmates to sleep on, but this is not very common.

...A medium sized hut that we measured had a front of 22' 6" (6.9 m) and a depth of 26' (8 m). The platform, which extended 6' (1.8 m) outwards from the floor, was 5' (1.5 m) above the ground, and the height of the room inside from floor to ridge-pole was only 4' 8" (1.4 m) (Jenness & Ballantyne 1920:182–183).

In his overview of domicile arrangements in Island Melanesia, Oliver (1989:333) chose a community of the Austronesian-speaking Baegu (Malaita, Solomon Islands) to “typify, substantively, hundreds of Island Melanesia’s thousands of communities” (New Guinea communities are given separate treatment). Given his extensive ethnographic knowledge of the region, and his objective in setting up a model to characterise most communities in it, the selection of Baegu is, one would believe, no accident. And it suits well the need for a general ethnographic guideline within which to work.

Baegu communities consist of one or more *fera* (or hamlets) (Ross 1973). Although *fera* “had no visible boundaries and little symbolic identity, they remained more or less localised and were distinctly perceptible in terms of social interactions of the members”. Baegu local communities become more ‘solidary’ under the influence of ‘focal’ men, clan seniors and priests whose statuses were ascribed by birth, and feast givers and war leaders whose positions were achieved.

Note also the gender arrangements and symbolic structures of relations within and without the *fera*, shown in Figure 2. Strikingly similar parallelism of inside–outside structural relations, physical and symbolic, were noted by Goodenough (1983) for Malekula and the Polynesian marae and by Green (1986:54) for a Kwaio settlement in relation to Polynesian settlements.

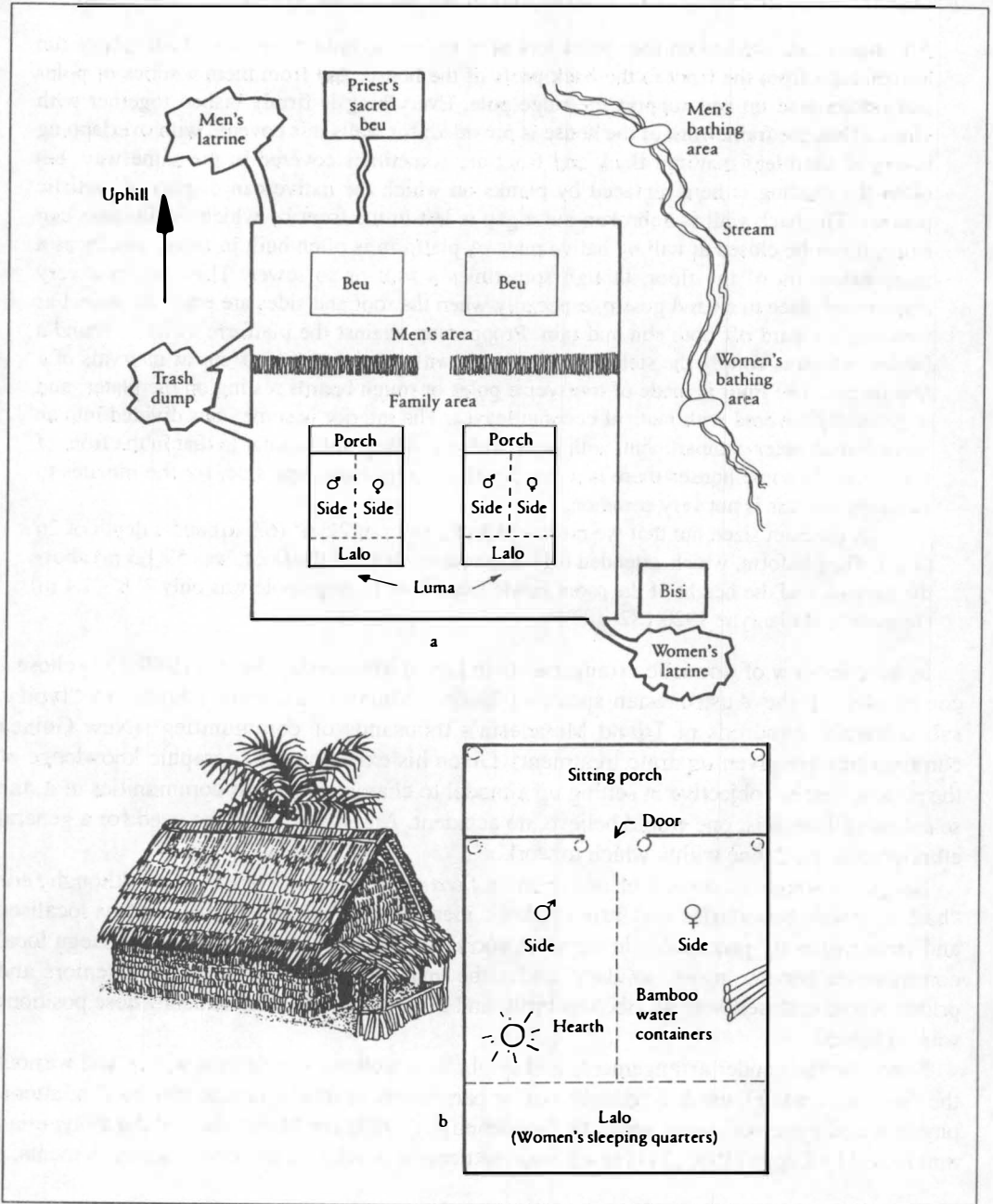


Figure 2: Typical Baegu (Malaita, Solomon Islands) dwelling and community layout

(from Oliver 1989:335)

(Baegu terms are *luma* 'dwelling house', *lalo* 'women's sleeping quarters', *beu* 'men's house', *bisi* 'menstrual hut')

2.1 Dwelling house architecture

Most Oceanic-speaking societies distinguish by name more than one design of dwelling house. Arosi speakers, of San Cristobal in the Solomons, for instance, first distinguish *ruma* 'a house, oblong in shape' from *hare* 'a shed for yams, a house with roof thatched on one side only, a shrine (a small house on poles)' and then distinguish at least the following kinds of *ruma* (Fox 1978):

ruma huri, a round house, taller than the well-known Santa Cruz round house

ruma gaura, a double, oblong house

ruma ora, a house with ten posts or more (five pairs of posts)

ruma p^warap^wara, a house roughly built, with roof of whole fronds instead of thatching

ruma rangi, a house with two roofs, the second roof only above the upper part of the first roof, made by extending the rafters upwards

ruma rokeru, like *ruma rangi* but the two roofs close together

ruma sinakuhi, house with rounded end

ruma waiho, simplest form of oblong house with six posts (three pairs).

Are there significant structural differences between the houses and settlements of Austronesian and non-Austronesian speakers in Melanesia? It is hazardous to generalise—in these matters individual societies in Melanesia show considerable variation and in certain regions there has been much cultural influence across linguistic boundaries. But if we exclude the most problematic cases, the following generalisations about non-Austronesian societies seem to apply rather widely. (1) There is a preference for inland settlements. (2) Main dwelling houses are built on the ground, not on piles. (3) Houses are relatively small and lack a high, gabled roof requiring strong crossbeams and centre-posts. Instead, the roof is relatively low and flat or domed with the support of centre poles. (4) Timbers are lashed, and seldom secured by wooden pins or pegs. (5) There is no projecting gable. (6) There is no porch or raised open platform outside the room. (7) There is often a men's house. (8) Boat houses are absent. (10) Stone heated ovens, including earth ovens, are made close to the dwellings.

The ethnological evidence suggests various questions for culture history. Can we show by linguistic or archaeological evidence that these features were part of the settlement patterns of Proto Oceanic speakers and their immediate descendants?

3. Settlement patterns: evidence from comparative linguistics

3.1 Subgrouping

Given the minimal subgrouping assumptions set out in the Introduction, we can reconstruct a Proto Oceanic etymon for any set of cognate lexical units that is regularly reflected in at least one language in any two of the following subgroups or sets: (a) the Admiralties, (b) Western Oceanic, (c) Eastern Oceanic, or in at least one Oceanic language and one non-Oceanic Austronesian language.

Interstages later than Proto Oceanic are also of interest. Of particular concern are those that might be associated with archaeologically discernible events, such as the first appearance of the Lapita culture in certain regions or changes in architectural or settlement patterns. Lapita appears in the Bismarck Archipelago between 1500 and 1300 BC and spread rapidly south-east across the SW Pacific as far as Fiji and Western Polynesia. If the bearers of Lapita spoke hardly differentiated dialects of Oceanic when they spread to the major archipelagos of SW Melanesia, it should occasion no surprise that it is hard to find evidence for subgroups that span different archipelagos in that region. What we do find is a number of fairly well-defined subgroups confined to particular island groups of Remote Oceania.

There are two prominent exceptions to this prevalence of geographically compact major subgroups. Each of the Polynesian and Nuclear Micronesian groups is spread over a number of far-flung archipelagos. The many innovations defining the Polynesian subgroup indicate a long pause, probably on the order of 1,000 years, in a compact area before dispersal (Clark 1979, Pawley 1996a). From the internal subgrouping of Polynesian one can deduce that this 'homeland' was in the Tonga–Samoa area (Green 1966, 1981). Evidence for a period of common development uniting the Polynesian subgroup with the Fijian languages and Rotuman (Geraghty 1983, 1986, Pawley 1996a) is consistent with this view, as is the archaeological evidence for the Fiji–West Polynesia region (Green 1981, Kirch & Green 1987). The internal structure of the Nuclear Micronesian subgroup, as defined by Bender (1971) and Jackson (1983), suggests an initial dispersal centre somewhere in the eastern half of Micronesia.

3.2 Lexical reconstructions

A number of cognate sets yield lexical reconstructions that tell something about early Austronesian settlement patterns. These are treated here under the headings: (a) kinds of buildings, (b) house site and main structural components of house, (c) other structures associated with buildings or settlements and (d) spatial organisation of settlements. We will focus on those etyma that are definitely or possibly attributable to Proto Oceanic, noting in passing others that have considerable antiquity but cannot be reconstructed for Proto Oceanic.

3.3 Kinds of buildings

Blust (1987) compared four widely distributed cognate sets whose members generally name types of domestic buildings. He attributed the reconstruction **Rumaq* 'dwelling house' to both PAN and PMP but could reconstruct the terms **balay*, **kamaliR* and **lepaw* only as far back as PMP, tentatively attributing to them the respective senses of 'public building', 'men's house' and 'granary'. His formal reconstructions are secure but the semantic reconstructions for the last three forms are somewhat problematic. **lepaw* is not known to have Oceanic reflexes. The other three terms are all reflected in a number of Oceanic subgroups and therefore must be attributed to POc. Let us briefly review the lexical reconstructions and supporting data.

PAN **Rumaq* 'dwelling house' (Blust 1987)

POc **Rumaq* 'house'

Adm: Lou	<i>um</i>	
NNG: Arawe	<i>a-rumuk</i>	'village'

NNG:	Vehes	<i>yumak</i>	
PT:	Motu	<i>ruma</i>	
MM:	Bali	<i>rumaka</i>	
MM:	Petats	<i>luma</i>	
SES:	Lau	<i>luma</i>	'family house'
SES:	Arosi	<i>ruma</i>	
NCV:	Mota	<i>ima</i>	
NCV:	Tasiriki	<i>ima</i>	
NCV:	Lewo	<i>yuma</i>	
SV:	Lenakel	<i>n-im^wa</i>	
NCal:	Dehu	<i>uma</i>	
Mic:	Ponapean	<i>im^w</i>	'building, house, home, dwelling'
Mic:	Kiribati	<i>uma</i>	'any kind of dwelling'

The central sense of PAN, PMP and POc **Rumaq* is uncontroversial: in contemporary Austronesian languages this form is widely reflected in the meaning 'house, dwelling', including the main dwelling house of a family or larger kin-group. In Oceania, reflexes having this meaning are found in all major groups except Central Pacific. The question remains whether **Rumaq* had other, secondary senses. Fox (1993) notes that "among Austronesian populations [reflexes of **Rumaq* are] often given a metaphoric sense to define an associated social group claiming some kind of common derivation or ritual unity...". Blust (1980a) reconstructed PMP **Rumaq* 'lineage, descent group'. This and associated reconstructions sparked off a lively discussion about early Austronesian social organisation which need not concern us here but could prove important in the interpretation of Lapita society. Suffice to say the present day evidence for such a figurative use of **Rumaq* appears to be centred in Indonesia and lacking in Oceania.

PMP **balay* 'open-sided building'

POc **pale* 'open-sided building'

Adm:	Mussau	<i>ale</i>	'house'
Adm:	Lou	<i>pal</i>	'canoe hut'
NNG:	Bebeli	<i>bele</i>	'house'
NNG:	Yabem	<i>ale</i>	'house'
NNG:	Lukep (Pono)	<i>para</i>	'yam house'
MM:	Tolai	<i>pal</i>	'house'
MM:	Tangga	<i>pal</i>	'small house or shed, canoe shed, storehouse for gifts of food'
MM:	Mono-Alu	<i>hale-hale</i>	'public building'
SES:	Arosi	<i>hare</i>	'shed for yams' (E. dialect); 'house with one side of roof only, made in garden' (W. dialect); 'a shrine, small house on poles' (= <i>hare ni asi</i>)
SES:	Bauro	<i>hare</i>	'canoe house, men's house'
SES:	'Are'are	<i>hare</i>	'house of retirement for women during menstruation and after childbirth'
SES:	Sa'a	<i>hale</i>	'house built near a garden for temporary storage of produce'
SES:	Kwaio	<i>fale</i>	'hut for childbirth'
SES:	Bugotu	<i>vade</i>	'house, building' (cf. <i>vade babale</i> 'shed')

SES:	Gela	<i>vale</i>	'house'
Mic:	Woleaian	<i>pal</i>	'menstrual hut'
Fij:	Wayan	<i>vale</i>	'underwater hole in rocks inhabited by a fish or other sea creature'
Fij:	Bauan	<i>vale</i>	'house, building'
Pn:	Samoaan	<i>fale</i>	'house'
Pn:	Hawaiian	<i>hale</i>	'house'

Blust (1987) glosses PMP **balay* as 'public building'. However, Waterson (1993:222) observes that 'public buildings' traditionally are absent in many Southeast Asian societies. Her architectural survey of Island Southeast Asia leads her to say (1993:222–223) that reflexes of PMP **balay* encompass architectural forms with two predominant meanings, 'unwalled building' and 'a meeting hall'. (It is not strictly accurate to speak of just two predominant meanings because, in the Philippines, **balay* reflexes have generally usurped **Rumaq* as the ordinary term for the main domestic building.)

Our view is that the primary sense of PMP **balay* (and its POc continuation **pale*) was probably as a generic for open-sided buildings, whether crudely or well built, whether used for private or public use and whether sited in the main settlement or elsewhere. This semantic reconstruction has two virtues. First, it is consistent with the widely distributed reflexes of **balay* (often occurring with modifiers) that refer to kinds of buildings with sides open or partly open (e.g. yam sheds, garden shelters, canoe houses, shrines or god houses, public buildings) without commitment to any one function or type. Second, it provides a social motivation for the semantic shift to 'house, main domestic dwelling' that has occurred independently in a number of branches of Malayo-Polynesian—namely, that **balay* named a type of building of lower prestige than **Rumaq*, and, as such, **balay* was an appropriately modest or humorous term to call one's own house. In some cases this secondary sense became the primary one.

PMP **kamaliR* 'men's house' (Blust 1987); 'granary shed' (Tryon 1995)
 POc **kamali(R)* 'men's meeting house' (after Blust 1987)

Adm:	Titan	<i>kamal</i>	'male; men's house'
Adm:	Nyindrou	<i>kamen</i>	
NCV:	Emae	<i>kamali</i>	
NCV:	Mota	<i>gamal</i>	
NCV:	Hiw	<i>gemel</i>	
NCV:	S.E. Ambrym	<i>nemel</i>	
NCV:	Namakir	<i>na-kamal</i>	

As was noted earlier, Fox (1993:12) suggests that the institution of a men's club house was not part of PMP culture but was borrowed by early Oceanic speakers from non-AN-speaking peoples of Melanesia and the term **kamali(R)* was applied to this institution. Fox prefers to follow Tryon's (1995) gloss of 'granary, shed' for PMP **kamaliR*, noting that the meaning 'storehouse for grain' is strongly attested only in the Philippines. How it came to function as a place for men to congregate can at present only be a source of speculation. Unlike PMP speakers, the POc speech community did not cultivate grain crops and it is possible that in POc some communal social function associated with the building called **kamali(R)* became central.

Blust (1987:97, 101) associates the meaning 'granary' with another PMP term, **lepaw*. Only one WMP and one CMP witness among the seven that he cites for this cognate set

exhibit reflexes of **lepaw* with the meaning 'storehouse for grain'. Why then does Blust favour it? The main reason is his judgment that this reconstruction makes the best sense of the overall data, i.e. of the range and distribution of meanings in the several cognate sets whose members typically denote some sort of domestic building. In particular, there are much stronger candidates than **lepaw* for the meaning 'dwelling house' (namely, **Rumaq* and **balay*) but not for the meaning 'granary'. But in our view PMP **kamaliR* has at least as strong a claim as **lepaw* to be glossed 'granary'. In any case, the range of meanings exhibited by reflexes of **lepaw* in Blust's list is not confined to 'house' and 'granary', but also includes 'hut or building other than a longhouse', 'back verandah or kitchen', 'booth or shop'. If we go beyond Blust's data we may note also Ilokano *lapaw* 'hut, shanty, not necessarily having walls, used e.g. as a temporary shelter or a poor family's dwelling', Lahanan *lepau* 'farmhouse', Kenyah *lepau* 'field hut', Kayan *lepo* 'single family farmhouse'. Our preference is to leave the gloss of PMP **lepaw* uncertain while agreeing with Fox (1993:11) that it might well have been used for an 'alternative dwelling', a lesser kind of house or shack that could be used for a variety of purposes—not only as a makeshift house but as a lodge for hunting, gardening, or as a store house.

3.4 House site and main structural components of house

In Indonesia and western Melanesia, contemporary dwelling houses are often raised on piles, but as one moves east, and especially in Remote Oceania, dwellings are usually constructed on the ground, often on flat mounds of earth raised some 40 cm to 150 cm. In the archaeological record for Oceania, houses on piles (often over water) are known or inferred for Early Far Western Lapita sites (the Mussau and Arawe Groups) and Western Lapita sites (Kreslo, Nissan, Buka). In contrast, in the Reef Islands of Remote Oceania, Lapita houses have sand floors with debris up against the walls and features within the ground floor are known. New Caledonian Lapita buildings also have sand floors.

The following cognate set indicates that POc speakers built dwellings raised on piles. Although so far attested only in languages of NW Melanesia, the witnesses are widely dispersed and belong to two distinct high-order (probably first order) subgroups of Oceanic (Ross 1988), so that the POc reconstruction looks secure.

POc **gab^wari-* 'the area underneath a raised house'

Adm: Titan	<i>kap^waliŋ</i>
NNG: Mapos Buang	<i>gbine</i>
PT: Tawala	<i>gaboli-</i>
PT: Dobu	<i>gabura</i>
PT: Duau	<i>gabule-</i>
PT: Sinaugoro	<i>gabule-</i>

**gab^wari-* evidently took inalienable possessive marking, with 3rd person singular suffix marking it as an integral part of a larger entity, namely, the house.

PEOc **apu* 'mound for house site, platform of earth on which a house is built'

SES: Gela	<i>avu</i>	'the site of a house'
SES: Arosi	<i>ahu</i>	'a mound of earth, heap of things'

Fij:	Wayan	<i>avu</i>	'house site, mound (consisting mainly of earth but sometimes also coral rubble), faced with stones, on which a dwelling house is built; functions of mound are drainage and status'
Fij:	Bauan	<i>yavu</i>	'house site, a mound, faced with stones, on which a main dwelling house is built'
Pn:	Rapanui	<i>ahu</i>	'large platform of stones with religious functions'
Pn:	Tahitian	<i>ahu</i>	'platform of stones, often stepped, with religious functions; pile up stones, put up wall of a <i>marae</i> '
Pn:	Tuamotuan	<i>ahu</i>	'any artificially raised platform or mound of earth, a walled platform; form a mound of earth'
Pn:	Maori	<i>ahu</i>	'platform of stones'

It is probably significant that this cognate set is restricted to the Southeast Solomons, Fiji and Polynesia. The shift to solely ground-level houses seems to have taken place within Remote Oceania, but perhaps began in the Southeast Solomons. There, and in Fiji and much of Polynesia, houses are built on mounds or platforms of earth or coral rubble, faced with stones. The height of the mound at times correlates with status: chiefs in Fiji have higher mounds (but not in Samoa; see Davidson 1969). In Eastern Polynesia the meaning of **apu* changed. In several regions the term was applied to (often very elaborate) sacred platforms, on which offerings and sacrifices to the gods were presented.

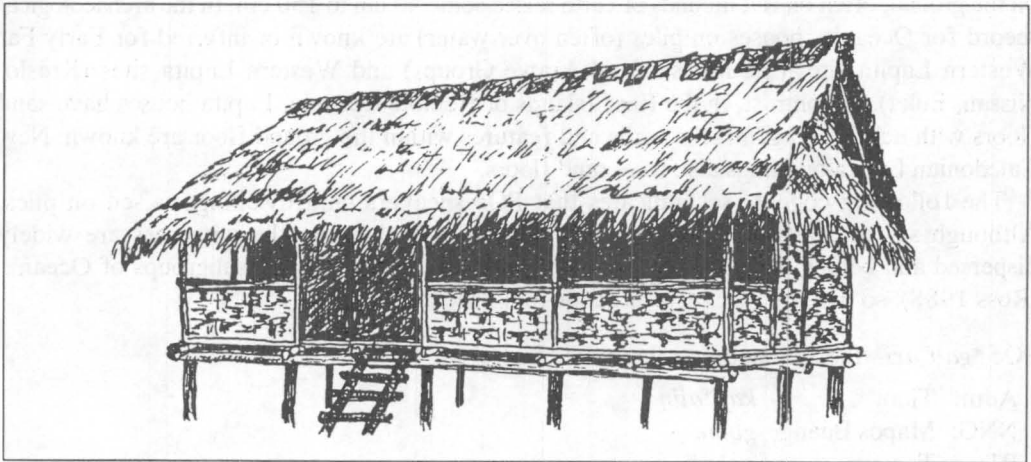


Figure 3a: POc **Rumaq* 'house'

POc **qatop* 'thatch, roof', POc **kataman* 'doorway', POc **tete* 'ladder or log bridge',
POc **gab^wari* 'area underneath house'

POc **kataman* 'entrance to house, doorway'

Adm:	Mussau	<i>katamana</i>	
NNG:	Kove	<i>atama</i>	
NNG:	Yabem	<i>katam</i>	
PT:	Gumawana	<i>kaitamana</i>	'steps of house'
PT:	Dobu	? <i>ataman</i>	'centre of a village'

MM:	Vitu	<i>yatama</i>	'doorpost'
MM:	Halia (Haku)	<i>tamana</i>	
SES:	'Are'are	<i>mana</i>	'hole, opening, outlet, doorway'
NCV	Marino	<i>yatama</i>	'door'
Mic:	Woleaian	<i>gatama</i>	

**kataman* probably referred to an entrance with its wooden framework. From ethnographic evidence we infer that true doors were not used: when entrances were to be closed they were probably blocked off by a barricade.

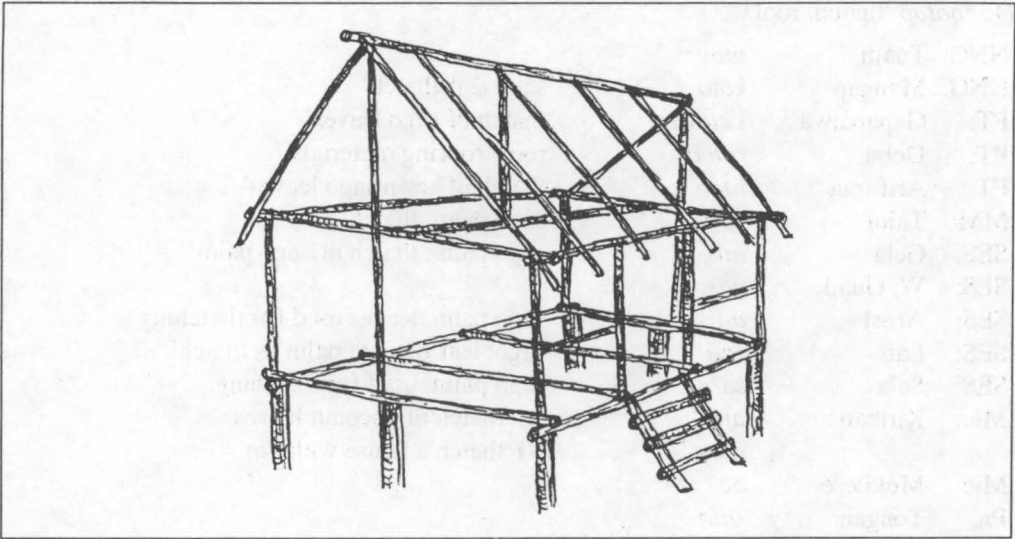


Figure 3b: POc **Rumaq* 'house'

POc **pupuŋ-an* 'ridgepole', POc **kasu* 'rafter', POc **aRiRi* 'post', POc **туру(s)* 'post', POc **bou* 'main bearers supporting raised floor/roof or centre post supporting ridgepole, POc **soko(r)* 'bracing timber, crossbeam'

The following group of ten cognate sets indicate that early Austronesian dwelling houses were built with a robust and fairly heavy superstructure, including ridgepole, thatched roof, rafters and crossbeams. Those sets indicating POc **pupuŋ-an* 'ridgepole' and POc **qatop* 'thatch, roof' are consistent with ethnographic evidence indicating that gabled houses with a ridgepole supporting a thatched, probably two-section roof were built by both PMP and POc speakers.

PMP **bubuŋ* (Dempwolff 1938, Zorc 1994); **buhuŋbuhuŋ* (Blust 1972b) 'ridgepole, ridge of the roof'

POc **pupuŋ-an* 'ridgepole' (Blust 1983–84a)

Adm:	Mussau	<i>puna</i>	
NNG:	Takia	<i>fuŋ, fuŋan</i>	'roof top'
NNG:	Numbami	<i>bomboana</i>	
PT:	Misima	<i>ponan</i>	
MM:	Sursurunga	<i>puna</i>	'cover ridgepole with grass'
MM:	Halia (Haku)	<i>puna</i>	'thatch'

SES:	Gela	<i>vuvuŋa</i>	
SES:	Arosi	<i>(ab^wa)huŋa</i>	'the ridge of a house'
		<i>hunga-</i>	'roof top, centre-post of a round house'
Mic:	Carolinian	<i>ūŋ-wūŋ</i>	'large pole of traditional house'
Pn:	Tongan	<i>(to^ʔu)fufu</i>	'inner ridge-pole'
Pn:	E. Futunan	<i>(ta^ʔo)fufu</i>	
Pn:	Maori	<i>(tā)huhu</i>	
Pn:	Emae	<i>(tā)fufu</i>	

PMP **qatep* 'thatch of sago palm leaves' (Dutton 1994), 'roof, thatch' (ACD)

POc **qatop* 'thatch, roof'

NNG:	Tuam	<i>atov</i>	
NNG:	Mangap	<i>kōto</i>	'sago leaf thatch'
PT:	Gapapaiwa	<i>katova</i>	'thatch of sago leaves'
PT:	Dobu	<i>?atoa</i>	'roof, roofing materials'
PT:	Arifama	<i>atob</i>	'thatch of sewn sago leaves'
MM:	Taiof	<i>votof</i>	'sago palm; thatch'
SES:	Gela	<i>ato</i>	'sago palm; thatch of sago palm'
SES:	W. Guad.	<i>gaso</i>	
SES:	Arosi	<i>ao</i>	'sago palm, leaves used for thatching'
SES:	Lau	<i>sao</i>	'sago; leaf of sago palm as thatch'
SES:	Sa'a	<i>sa^ʔo</i>	'sago palm, used for thatching'
Mic:	Kiribati	<i>ato</i>	(N) 'thatch of coconut leaves'
		<i>ato-</i>	(V) 'thatch a house with <i>ato</i> '
Mic:	Mokilese	<i>ɔc</i>	
Pn:	Tongan	<i>?ato</i>	

Dutton (1994) has reviewed in detail cognate sets referring to sago palms (PMP **Rambia* or **rumbia*) and their uses. Ethnographic descriptions show that, where available, the leaves of sago palms (esp. *Metroxylon* spp.) are preferred by Austronesian speakers as roofing materials, several leaves being sewn together before being lashed to the ridge-pole and stringers. However, we suggest that 'thatch of sago palm leaves' is too narrow a gloss for PMP **qatep* and POc **qatop*. Leaves of other palms (e.g. coconut, nipa) and grass are also widely used as thatch. The more general gloss 'thatch, roof' allows for variation in roofing materials.

A second POc term for thatch is reconstructable, namely **rau(n)*, whose primary sense was 'leaf, leaves, foliage'.

PMP **daSun* 'leaf'

POc **rau(n)* 'leaf; thatch'

NNG:	Poeng	<i>lau</i>	'leaf, paper; roof of grass'
Mic:	Kiribati	<i>rau</i>	'thatch, made of pandanus leaves'
		<i>rau-</i>	(V) 'thatch s.t.'
Fij:	Bauan	<i>rau</i>	'dry grass or reeds for thatching houses'
Pn:	Samoan	<i>lau</i>	'leaf; thatch'
Pn:	Maori	<i>rau</i>	'thatch'

PMP **sasa(h,q)* 'cut or collect palm leaves for roofing' (Blust 1980b:143)

POc **saja(q)* 'prepare thatching materials or begin to thatch a roof'

SES: Gela *sada* 'tie the thatch in beginning a roof'

PMP **kapit* 'fasten thatch with battens or slats' (after Blust 1980b:85)

POc **kapit* 'secure thatch with battens' (generic sense: 'grasp'; cf. Ch. 6, §2.7)

PT: Motu *kahi* 'fix sticks to keep thatch or walls down'

SES: Arosi *?ahi* 'put a broken limb into splints; splints'

PMP **kasaw* 'rafter' (Dempwolff 1938)

POc **kaso* 'rafter'

PT: Gumawana *kao*

MM: Bulu *karo*

MM: Roviana *gaso-*

SES: Gela *gaho*

SES: Arosi *?ato*

NCV: Mota *gaso*

Mic: Carolinian *kat* 'stringers used to tie coconut shingles on to traditional houses'

Fij: Bauan *kaso*

Pn: Samoan *?aso*

Pn: E. Futunan *kaso*

Pn: Nukuria *gaso* 'roof thatch rafters'

Four POc terms can be reconstructed that referred either to posts or beams in a house.

PAn **SadiRi* 'house post, pillar' (ACD)

POc **aRiRi* 'post'

NNG: Manam *ariri* 'post'

NNG: Numbami *alili* 'house post, pillar'

SES: Lau *lili* 'sideposts; turn to one side'

SES: Sa'a *lili-* 'door posts'

There are some formal problems with the previous set. Some Oceanic forms show unexpected absence of initial **a-*. Assimilation of the first consonant to the second apparently occurred in POc.

PMP **turus* 'house post'

POc **turu(s)* 'post'

Adm: Mussau *tutulu* 'house post'

MM: Lihir *tultul* 'doorpost'

MM: Nehan *tur* 'side posts'

NCV: Mota *tur, turi* 'trunk, body, hull'

tur(saja) 'middle posts of a house, with fork on which the ridgepole (*saja*) sits'

Mic: Carolinian *īr* 'main house post'

Fij: Bauan *duru* 'post, esp. the shorter posts of a house, on which the wall plates rest'

POc **bou* '(?) main bearers supporting raised floor or roof structure, or centre post supporting ridgepole'

PT:	Bwaidoga	<i>fou</i>	'main bearers of a house'
PT:	Misima	<i>popou</i>	'floor bearers, running from one end of house to the other'
SES:	Arosi	<i>boʔu</i>	'the crossbeam or stay in the roof to strengthen the house; sometimes the main-post in the centre rests on this; a cross' (<i>boʔu</i> for expected <i>bou</i>)
SES:	Kwaio	<i>bou</i>	'house post'
Fij:	Wayan	<i>bou</i>	'large posts in centre of a house, supporting the ridgepole'
Fij:	Bauan	<i>bou</i>	'main posts in a house'
Pn:	Samoan	<i>pou</i>	'house post, pillar'
		<i>pou(tū)</i>	'main post'
		<i>pou (lalo)</i>	'side post'
Pn:	Tongan	<i>pou</i>	'post, pillar'
		<i>pou (lalahi)</i>	'big inner post (of house) on which joists rest'
		<i>pou (fehihi)</i>	'small outer posts (of house)'

cf. also:

SES:	Arosi	<i>bou</i>	'seasoned dry wood'
SES:	Lau	<i>bou</i>	'seasoned log'
SES:	Gela	<i>bou</i>	'(timber) hard or seasoned'

The Papuan Tip (Bwaidoga, Misima) forms point to POc **pou*, other forms to **bou*. No non-Oceanic cognates of this set have been found. The precise meanings of PMP **Sadiri* and **turus* (and their POc reflexes) and of POc **bou* are unclear. Reflexes of **turus* most often refer to a main weight-bearing post, supporting either the top plates or ridge-pole. Reflexes of POc **bou*, except in Central Pacific, usually refer to a main bearer supporting the raised floor or roof timbers.

The next term, POc **soka(ŋ)*, evidently referred to any sort of bracing timber in a house or boat.

PMP **seŋkar* 'cross-seat in boat, thwart' (Blust 1972b: **soka*)

POc **soka(r)* 'bracing timber, crossbeam' (cf. Ch. 7, §2.5)

SES:	'Are'are	<i>oka</i>	'cross beam' (irreg. for expected <i>*ɾoka</i>)
Mic:	Kiribati	<i>oka</i>	'rafter of house going from horizontal beam to ridgepole'
Fij:	Bauan	<i>(i)ðoka</i>	'crossbeams in a house' (<i>i-</i> < POc <i>*i</i> INS)
		<i>soka</i>	'smaller transversal beams in a house'
Pn:	Tongan	<i>hoka</i>	'king post in a Tongan house'
Pn:	Samoan	<i>soʔa</i>	'collar beam'
Pn:	W. Futunan	<i>soka</i>	'some kind of bracing-timber in a house'

cf. also:

NNG:	Dami	<i>soko</i>	'roof'
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3.5 Other structures associated with buildings

Under this heading we include terms for partitions, shelves, steps, and so on.

POc **logi* 'partition, partitioned area'

NNG:	Hote	<i>lok</i>	'(garden) fence; wall of house'
Mic:	Kiribati	<i>roki</i>	'screen (of mats +); curtain; bathroom; closed with screen' (possibly borrowed from Polynesian)
Fij:	Rotuman	<i>loki</i>	'the end of the interior of a house'
Fij:	Bauan	<i>logi</i>	'inner or private part of a house, used as a bedroom and for keeping valuables'
Pn:	Tongan	<i>loki</i>	'inner room'
Pn:	Samoaan	<i>loʔi</i>	'inner room'
Pn:	Rapa	<i>roki</i>	'irrigated terrace'
Pn:	Tahitian	<i>roʔi</i>	'bed'
Pn:	Hawaiian	<i>loʔi</i>	'irrigated terrace for taro'
Pn:	Tuamotuan	<i>roki</i>	'wall of a temple; bed, couch'
cf. also:			
SES:	Gela	<i>voki</i>	'room, partition in a house'

The meaning of **logi* is not entirely clear. The weight of the ethnographic and linguistic evidence suggests that it probably referred to an inner room or partition containing a bed or sleeping platform screened off from the outer and more public area of a house. In contemporary societies the inner room is generally used as a bedroom for husband and wife and for storing valuables. However, it is conceivable that the POc term did have a more generalised meaning and could be applied to any partitioned area, whether house or garden (see also Ch. 5, §12).

PMP **pa(n)tar* 'shelf; bed-frame of wooden or bamboo laths' (Blust 1980b:123)

POc **patar* 'platform of any kind, including a bed-frame of planks' (see also Ch. 7, §3.1)

Adm:	Seimat	<i>paca</i>	'canoe platform'
Adm:	Lou	<i>put-put</i>	'upper shelf'
PT:	Motu	<i>pata</i>	'shelf, table'
PT:	Molima	<i>vata-vata</i>	'platform of any kind'
PT:	Dobu	<i>pata-patara</i>	'platform'
SES:	Kwaio	<i>fā(laŋi)</i>	'raised plank floor or building with such a floor'
SES:	'Are'are	<i>hā</i>	'generic name for stage, shelf or small platform above the fireplace, used as a depository'
SES:	Arosi	<i>hā</i>	'platform, for fishing, for storing yams, for laying out a corpse'
NCV:	Fortsenal	<i>vata</i>	'shelf, platform, rack'
Fij:	Bauan	<i>vata</i>	'shelf, loft, platform; bed in a corner of a native house'
Pn:	Tongan	<i>fata</i>	'loft or wide rack (for sleeping on, or for keeping food or other things on); stretcher, litter'
Pn:	Samoaan	<i>fata</i>	'shelf, trestle, stretcher or litter'
Pn:	Tikopia	<i>fata</i>	'stage for storing food'

cf. also:

Mic: Kiribati *pata* 'small house, hut, cabin, hovel'PMP **pa(l,R)a* 'shelf, rack'POc **pa(r,R)a* 'rack or shelf above hearth for storing or smoking food'

Adm: Nauna	<i>pay</i>	'shelf above the hearth (for storing food, betel +, but not firewood)'
Adm: Loniū	<i>pay</i>	'smoking rack for fish and storage rack above the hearth'
NNG: Takia	<i>pira-par</i>	'storage platform above rafters'
NNG: Gedaged	<i>fala</i>	'ceiling, sometimes used for storage'
PT: Motu	<i>hara</i>	'platform of sticks on which meat is grilled'
MM: Maringe	<i>fara</i>	'bamboo or wooden storage shelf, often located above a stone oven'
SES: Lau	<i>fala</i>	'fishing stage, platform for drying nuts'
NCV: Nguna	<i>vāla</i>	'bed, rack for storing yams or drying copra'
Fij: Bauan	<i>vara</i>	'platform'

The Nauna, Loniū and Lau forms point to POc **paRa*, the Fijian reflex to **para*, while other Oceanic forms cited here are compatible with either reconstruction.⁶

PMP **titey* (also **teyey*) 'foot-bridge' (after Blust 1989)POc **tete* 'single log bridge or ladder', 'climb a ladder, walk along a bridge or branch' (after Chowning 1991)

NNG: Kove	<i>tete</i>	'ladder; log leading into house'
NNG: Manam	<i>tete</i>	'stairs, ladder'
PT: Molima	<i>tete</i>	'walk along a ridge or branch of tree'
	<i>(i)tete</i>	'bridge' (<i>i</i> - < POc <i>*i</i> INS)
MM: Mono-Alu	<i>tete</i>	'ladder'
SES: Bugotu	<i>tete</i>	'climb up on a fishing tripod'
SES: Gela	<i>tete</i>	'cross a stream on a log or bridge; descend a ladder, not using hands'
Mic: Carolinian	<i>(liga)tēte</i>	'ladder' (<i>liga</i> - is prefix of uncertain origin)
	<i>tēte</i>	'climb'

PMP **papan* 'plank, board (of boat +)'POc **baban* 'board, plank; canoe strake' (cf. Ch. 7, §2.4)

PT: Wedau	<i>papana</i>	'built-up canoe'
SES: Lau	<i>baba</i>	'flat; long side board of canoe'
SES: Arosi	<i>baba</i>	'slab, board'
Fij: Wayan	<i>baba</i>	'board, plank, or other flat, wide piece of wood'
Pn: Tongan	<i>papa</i>	'plank, board'
Pn: Samoan	<i>papa</i>	'flat board, plank; rock'
Pn: Maori	<i>papa</i>	'flat rock, slab, board'

⁶ Blust (ACD) has proposed POc **pala* or **paRa* 'platform, firewood shelf above the hearth' and, under the entry headed Western Malayo-Polynesian **palapala* 'scaffolding', also refers to PMP **paRa* 'storage shelf'.

PMP **pak(o,u)* 'nail' (Blust 1972b); **paqet* 'chisel' (Dahl 1981)

POc **pako* 'wooden peg or pin'

NNG:	Mapos Buang	<i>pko</i>	'stake, peg; vertical stakes driven in to keep a log + in place'
Fij:	Bauan	(<i>i</i>) <i>vako</i>	'nail' (<i>i</i> - < POc * <i>i</i> INS)
Pn:	Samoan	<i>fao</i>	'nail'
Pn:	Tongan	<i>faʔo</i>	'nail'
Pn:	Tahitian	<i>fao</i>	'nail, chisel'

The Polynesian forms reflect PPn glottal stop rather than expected **k*, a development found in several other words (Geraghty 1983, 1986).

As metal tools were almost certainly unknown to the early Austronesians, POc **pako* and its PMP source presumably referred to wooden pegs or pins. In many languages the reflex of this term was later applied to iron nails. Terms for stone woodworking tools can be reconstructed for PAn and later interstages (see Ch. 4, §4.1), indicating a woodworking tradition continuing from PAn times.

3.6 Other structures associated with settlements

A general term for fireplace or hearth is reconstructable for PMP and continued in POc. We cannot tell from linguistic evidence whether or not fireplaces for cooking were built inside main dwelling houses.

PMP **dapuR* 'hearth, fireplace' (Dempwolff 1938)

POc **rapu(R)* 'hearth, fireplace; ashes'

Adm:	Nyindrou	<i>drahu (jih)</i>	'fireplace' (<i>jih</i> 'fire')
PT:	Motu	<i>rahu-rahu</i>	'fireplace, ashes'
MM:	Maringe	(<i>nak</i>) <i>rofu</i>	'ashes'
SES:	Gela	<i>ravu</i>	'ashes; side of a house where the fire is made (= <i>ravu ni mandiru</i>); site of a house (= <i>ravu ni vale</i>)'
SES:	Arosi	<i>rahu</i>	'ashes'
NCV:	Mota	(<i>ta</i>) <i>rowo</i>	'ashes; white ashes of burnt-out wood'
Fij:	Wayan	<i>ravu</i>	'ashes'
		(<i>tā</i>) <i>ravu</i>	'fireplace'
Fij:	Bauan	<i>dravu</i>	'ashes'
Pn:	Samoan	(<i>magā</i>) <i>lafu</i>	'hearth'
Pn:	Tokelauan	(<i>gā</i>) <i>lafu</i>	'fireplace'
Pn:	Hawaiian	<i>lehu</i>	'ashes'

A term for an oven made with hot stones, POc **qumun* is widely attested (see Ch. 6, §2.6, for further discussion).

POc **qumun* 'oven made with hot stones; cook in a stone or earth oven' (Chowning 1991, Lichtenberk 1994)

Adm:	Seimat	<i>um</i>	'earth oven'
NNG:	Kairiru	<i>umu-i, um</i>	'cook in earth oven' (singular/plural object)
PT:	Molima	? <i>umula</i>	'stone oven'

MM:	Nalik	<i>umun</i>	'earth oven'
MM:	Nakanai	<i>humu</i>	'hearth; cook on the hearth by covering food with heated stones'
SES:	Gela	<i>umu</i>	'circular fireplace of stones'
SES:	'Are'are	<i>ūmu</i>	'stone oven'
SES:	Arosi	<i>umu</i>	'round stone oven, with loose stones on top'
NCV:	Mota	<i>um</i>	'native oven'
SV:	Kwamera	<i>n-umun</i>	'earth oven'
Mic:	Kiribati	<i>umun-</i>	'put s.t. to cook on hot stones in earth oven'
Pn:	Niuean	<i>umu</i>	'stone oven; food cooked in stone oven'
Pn:	Samoa	<i>umu</i>	'stone oven, consisting of a shallow cavity lined with stones on which a fire is lit and cleared away before the food is laid on the hot stones'
Pn:	Emae	<i>umu</i>	'earth oven'
Pn:	Maori	<i>umu</i>	'earth oven'

Two terms referring specifically to pits are reconstructable:

PMP **lianʻ* 'hole, pit, cave'

POc **lua(ŋ)* 'hole, pit, cave'

Mic:	Kiribati	<i>rua</i>	'pit, ditch, trench'
Pn:	E. Futunan	<i>lua</i>	'hole, pit, tomb, grave'
Pn:	Takuu	<i>rua</i>	'depression, hole in ground'
Pn:	Hawaiian	<i>lua</i>	'hole, pit'
Pn:	Tokelauan	<i>lua</i>	'big hole or pit'

POc **giRu* or **guRi* 'deep pit, (?) for grave or well'

PT:	Molima	<i>guli</i>	'grave; pit for pig hunting'
PT:	Motu	<i>guri</i>	'pit, grave'
SES:	Gela	<i>gilu</i>	'grave'
SES:	Lau	<i>kilu</i>	'hole, well'
SES:	Kwaio	<i>kilu</i>	'hole, pit'
SES:	Sa'a	<i>kilu</i>	'well, hole (in ground)'
SES:	Arosi	<i>giru</i>	'hole (in ground), grave'

The PT and SES forms in the above set are cognate on the assumption that metathesis occurred in one set or the other. In many Oceanic languages a reflex of **lua(ŋ)* is the general term for any sort of hole, including pits used for cooking or for storing breadfruit and certain other crops. POc **giRu* or **guRi* may have referred to deep pits dug for graves or wells.

PMP **ba(l,r,R)a* 'pen, enclosure for domestic animals' (ACD)

POc **baRa* 'fence' (ACD)

Adm:	Mussau	<i>bala, bala-bala</i>	'fence'
MM:	Ramoaina	<i>bala(da)</i>	'fence round a house'
MM:	Roviana	<i>bara</i>	'fence, wall; a fenced pen'
SES:	Lau	<i>bara</i>	'fence, enclosure, hedge'
SES:	Sa'a	<i>para</i>	'fence, enclosure'
Fij:	Wayan	<i>bā</i>	'fence or wall enclosing an area'
Pn:	Tongan	<i>pā</i>	'fence; wall; enclosure, fish trap'

Pn:	Tokelauan	<i>pā</i>	'fence, wall, seawall and reclaimed land behind it'
Pn:	Rarotongan	<i>pā</i>	'fish weir with stone walls'
Pn:	Maori	<i>pā</i>	'stockade, fortified place; fish weir'
		<i>pā-ia</i>	'block up, act as barrier'

POc **bayat* 'fence, boundary marker', POc **bayat-i* 'make a garden boundary'

PT:	Gumawana	<i>bayata</i>	'garden boundary made by terracing rocks'
		<i>bayasi</i>	'make a garden boundary'
PT:	Iduna	<i>bai</i>	'stick used as garden boundary; roof baton'
MM:	Tolai	<i>bait</i>	'enclose with a fence'
		<i>ba-bait</i>	'fence'
SES:	Arosi	<i>bai-bai</i>	'large logs put round a finished garden'
NCV:	Mae	<i>pae</i>	'fence, wall'
Fij:	Bauan	<i>bai</i>	'fence round garden or town'
Pn:	Tuvalu	<i>pae</i>	'stones round an earth oven'
Pn:	Tikopia	<i>pae</i>	'wall-like accumulation of stones'
Pn:	W. Futunan	<i>bae</i>	'a stone fence'

PAn **qa(l,R)ad* 'fence, palisade' (Ross 1994a:459)⁷

POc **qaRa(r)* 'fence'

NNG:	Numbami	<i>ala</i>	'fence (e.g. garden fence)'
NNG:	Kove	<i>ala</i>	
PT:	Bwaidoga	<i>ala</i>	
PT:	Motu	<i>ara</i>	'fence of upright stakes'
NCV:	Raga	<i>ara</i>	
NCV:	Nguna	<i>na-ara</i>	'wall of bamboo or cane'
Pn:	Tongan	<i>?ā</i>	'fence, wall, enclosure'
Pn:	E. Uvean	<i>?ā</i>	'palisade'

One further reconstruction, POc **kaRi* 'garden fence or partition', is given with supporting evidence in Chapter 5, § 6.

Also included here is a reconstruction for a path.

PMP **zalan* 'path, road' (Dahl 1976)

POc **jalan* 'path'

Adm:	Nauna	<i>cal</i>	
Adm:	Drehet	<i>saŋ</i>	'trail, path, road'
NNG:	Mangap	<i>zala</i>	
NNG:	Manam	<i>zala</i>	'path, road, door'
PT:	Motu	<i>dala</i>	
MM:	Bali	<i>dalaja</i>	
MM:	Tigak	<i>salan</i>	
MM:	Tinputz	<i>hanan</i>	
MM:	Banoni	<i>sanana</i>	

⁷ Reconstruction of PMP **-R-* is based on Manobo (S. Philippines) data: Tigwa Manobo, Binukid, Kinamigin, Sarangani Manobo, Western Bukidnon Manobo, Ilianen Manobo *?alad*; Obo, Dibabawon *?aad*; Tagabawa *alad* (Elkins 1974:607).

SES:	Tolo	<i>salana</i>	'road, path, way'
SES:	Sa'a	<i>tala</i>	'path, road, way'
NCV:	Mota	<i>sala</i>	
Mic:	Mokilese	<i>al</i>	
Mic:	Woleaian	<i>yala</i>	'road, way, path'
Fij:	Rotuman	<i>sala</i>	
Fij:	Wayan	<i>ðala</i>	'animal track' (<i>ðaa-levu</i> 'path')
Fij:	Bauan	<i>sala</i>	'path, road, track'
Pn:	Tongan	<i>hala</i>	
Pn:	Maori	<i>ara</i>	

3.7 Settlement patterns

Some contemporary Oceanic societies live in villages of up to several hundred people in size; others live in scattered hamlets or homesteads containing one or two extended families. No POc term specifically meaning 'village' or 'nucleated settlement' can be reconstructed with any confidence. It appears that present-day terms denoting 'village' or some sort of nucleated settlement originally meant something else. This point is illustrated by the following four cognate sets.

PMP **banua* 'inhabited territory, where a community's gardens, houses and other possessions are' (Blust 1987)

POc **panua* '(1) inhabited area or territory, (2) community together with its land and things on it, (3) land, not sea, (4) (with reference to weather) the visible world, land and sky'

Adm:	Mussau	<i>anua</i>	'land'
Adm:	Penchal	<i>panu</i>	'village'
NNG:	Gedaged	<i>panu</i>	'village, settlement, hamlet'
NNG:	Manam	<i>anua</i>	'village'
		<i>anua izara</i>	'dawn' (<i>anua idaradara</i> 'evening glow')
NNG:	Tami	<i>panu</i>	'house'
PT:	Motu	<i>hanua</i>	'village, town'
		<i>hanua(boi)</i>	'night' (<i>boi</i> < POc <i>*boŋi</i> 'night')
PT:	Molima	<i>vanua</i>	'house'
MM:	Vitu	<i>vanua</i>	'garden'
MM:	Tabar	<i>vanua</i>	'house'
MM:	Taiof	<i>fan</i>	'village'
SES:	Bugotu	<i>vanua</i>	'land, island'
SES:	Lau	<i>fanua</i>	'land, the earth, world; weather'
SES:	Ulawa	<i>hanua</i>	'land, country, village place, country; the area where a person lives, where his possessions are'
NCV:	Mota	<i>vanua</i>	'land, island, village, place'
Mic:	Woleaian	<i>faliu</i>	'land, island'
Fij:	Rotuman	<i>hanua</i>	'land, country, place; native land or place, home'
Fij:	Bauan	<i>vanua</i>	'land (not sea), territory, region, place, community, country; (in expressions for weather) the visible world, land, sea and sky'

Pn:	Tongan	<i>fonua</i>	'land, country, territory, place; people (of the land)'
Pn:	Hawaiian	<i>honua</i>	'land, earth'

Although reflexes of PMP **banua* carry the meaning 'village' in a number of languages belonging to different high-order subgroups (or at least are given this gloss in the dictionaries) a host of other evidence, summarised in Blust (1987:94–95, 99–100) suggests that PMP **banua* and its reflex in POc referred primarily to an inhabited territory; not only to the land but to the human population and dwellings and all plant and animal life and other elements that contribute to the maintenance of the human community—a complex concept with no simple equivalent in European languages (but compare the many senses of 'land' and 'country'). Indeed, the single word glosses that bilingual dictionaries give for reflexes of **banua* should generally be regarded not as accurate descriptions of their meaning in the source language, but as shorthand translations designed to fit the categories of the target language.

POc **pera* '(?) settlement, open space associated with a house or settlement'

NNG:	Manam	<i>pera</i>	'house'
SES:	Bugotu	<i>vera</i>	'courtyard, open space in a village'
SES:	Tolo	<i>vera(na)</i>	'village, home, country, place where one lives'
SES:	Lau	<i>fera</i>	'land; village; habitation, home, artificial island (built for habitation)'
		<i>(ma)fera</i>	'hamlet, of two or more houses'
SES:	Baegu	<i>fera</i>	'hamlet, a named locality'
SES:	Kwaio	<i>fela</i>	'skull house'
SES:	'Are'are	<i>herā</i>	'an agglomeration of houses, a village'
		<i>he-hera</i>	'an open place in front of the houses for people to walk'
SES:	Sa'a	<i>hera</i>	'courtyard'
SES:	Arosi	<i>hera</i>	'open space for dancing, usually to the east of chief's burial ground; burial space, usually enclosed by stone'

cf. also:

NCV:	Mota	<i>varea</i>	'village, place of a village settlement'
NCV:	Raga	<i>a-vare</i>	'outside the house'
NCV:	Nguna	<i>varea</i>	'men's house'

The term **pera* is well-attested in both major subgroups of Southeast Solomonic (i.e. Cristobal-Malaitan and Guadalcanal-Gelic) but has only one secure external cognate, in Manam. The range of meanings or glosses associated with this cognate set makes it impossible to make a firm semantic reconstruction either for POc or for Proto Southeast Solomonic. Our best guess is that **pera* referred to some sort of settlement or space associated with this.

For POc **malaqai*, Milke (1968) proposed the gloss 'village'. However, that gloss applies only to its few Western Oceanic reflexes. PPN **mala?e* clearly denoted an open space in the centre of a settlement, used for communal activities.

POc **m(a,e)laqai* '(?) open space in a settlement'

NNG:	Yabem	<i>mela?</i>	'village'
PT:	Wedau	<i>melagai</i>	'village'

PPn **malage* 'open, cleared space used as meeting place or ceremonial place' (Biggs 1993)

Pn:	Tongan	<i>malaʔe</i>	'village green, park, playground, open market place'
Pn:	Samoan	<i>malae</i>	'open space in the middle of a village, meeting-ground'
Pn:	Maori	<i>marae</i>	'enclosed space before house, courtyard'

Rotuman *marəʔe* 'open space in centre of village' is indicated to be a loan from Polynesian by the presence of *r* and glottal stop for expected *l* and zero. Kiribati *marae* 'empty space, clear place, public place, sports ground' is probably borrowed from Polynesian.

Another POc term whose reflexes in a few daughter languages now mean 'village' is **m^walala*. Once again, however, the balance of the evidence suggests that it did not have this meaning in POc.

POc **m^walala* 'cleared land, land free of encumbrances, i.e. cleared of vegetation but not built on or planted'

Adm:	Drehet	<i>m^walaj</i>	'open area/clearing'
NNG:	Manam	<i>malala</i>	'market place, assembly place'
PT:	Bwaidoga	<i>melala</i>	'village'
MM:	Vitu	<i>malala</i>	'village'
MM:	Nakanai	<i>malala</i>	'a garden, cleared but not planted; village plaza'
MM:	Tabar	<i>marar</i>	'cleared ground'
NCV:	Nguna	<i>m^walala</i>	'dancing place'
NCal:	Nengone	(<i>gu</i>) <i>marara</i>	'cleared ground' (<i>gu</i> - 'piece')
Fij:	Wayan	<i>ŋ^walala</i>	'(esp. land) unoccupied, vacant, not in use; (trees, buildings) widely spaced; (person) free, at liberty'
Fij:	Bauan	<i>ŋalala</i>	'free from encumbrances, at liberty'

cf. also:

NCV:	Lonwolwol	<i>har</i>	'dancing place, ceremonial clearing in village'
Fij:	Bauan	<i>lala</i>	'(esp. land) empty, unoccupied, uninhabited'
Pn:	Tongan	<i>lala</i>	'(place) uninhabited, empty or almost so'

Various POc terms for garden land and for land not under cultivation can be reconstructed (see Ch. 5, §3). Here we cite only one, POc **qutan* 'bushland, hinterland, away from village and gardens close to village' which goes back to PAn **quCan* 'fallow land' (Blust 1989); 'scrubland, bush' (ACD).

4 On variation and change in early Oceanic architectural styles and settlement patterns

Contact with Papuan (non-Austronesian) speaking communities may have led to local variation and change in the architectural forms and settlement patterns of Proto Oceanic speakers or their immediate descendants. Earlier we touched on the possibility that the concept of a 'men's clubhouse', associated with POc **kamali*(*R*), was borrowed from Papuan speakers. The same applies to the concept of an oven made with heated stones, POc **qumun* (Chowning 1991, Lichtenberk 1994). Such ovens appear to have a much greater antiquity in Near Oceania and Australia than in Southeast Asia (Allen, Gosden & White 1989:550–551;

Berbetti & Allen 1972, Horton 1994).⁸

The ethnographic and linguistic evidence point to a shift from dwelling houses built on piles in the Bismarck Archipelago and New Guinea area to houses built on the ground in the Solomons and Remote Oceania. It is significant that the term **apu* 'mound, mound made for a house site' appears to be confined to languages of the Southeast Solomons and Remote Oceania. Conversely, it is not surprising that reflexes of POc **gab^wari-* 'area underneath a house' are confined to Western Oceanic.

In interstages postdating the break-up of POc a number of changes can be discerned in terms for houses and their parts. For example, POc **bou* probably meant 'main bearer or cross beam', but its Fijian reflexes now mean 'the tall or centre posts of a house' while in PPn this term became the generic name for 'post', while POc **turu(s)* '(main) post' was lost. The POc word for 'entrance, doorway', **katama*, is replaced in PPn by **fa[?]itoka*. In Central Pacific, or at least in the eastern region of the Central Pacific dialect chain (ancestral to Polynesian and some Eastern Fijian dialects), **pale* replaced **Rumaq* as the ordinary term for a dwelling house. Further study is needed to see whether any of these linguistic changes can be correlated with transformations in house forms in the eastern Fiji–Polynesian area.

5. Conclusion

Where comparable evidence is available, the testimonies of archaeology, ethnology and comparative linguistics are generally consistent regarding the architecture and settlement patterns of the Austronesian speakers who colonised the SW Pacific in the late 2nd millennium BC. Various POc terms for types of buildings and parts of a dwelling house and for associated artefacts and activities have been reconstructed, including some elements that can be associated with Austronesian as opposed to non-Austronesian speaking societies. The more completely excavated Lapita sites show some of these elements and nothing inconsistent. At least some dwellings in Far Western Lapita sites were of the raised platform type. However, as one moves east into the Solomons and beyond, they more often sat on the ground, as is still the case ethnographically. It should perhaps be emphasised that the equation of Lapita sites with Austronesian languages does not rest solely on the evidence concerning house forms and settlements. This equation is supported by a wide range of correspondences in many cultural domains of which we have canvassed only one in detail. It is also in keeping with the geographic distribution of these languages and sites. In our view the conjunction of the two data sets opens up possibilities that are well worth exploring further. When both are employed they allow the construction of a far more rounded picture of a period of considerable foment in Pacific colonisation than either does alone.

⁸ Note that although ovens are very ancient in Australia, stones do not appear to have been used in them.

The first part of the paper discusses the archaeological evidence for the presence of human activity in the Pacific region. It begins with a review of the evidence for the peopling of the Pacific, from the earliest human occupation of the continent of Australia to the arrival of the first humans in the Pacific Islands. The paper then discusses the evidence for the presence of human activity in the Pacific region, from the earliest human occupation of the continent of Australia to the arrival of the first humans in the Pacific Islands. The paper then discusses the evidence for the presence of human activity in the Pacific region, from the earliest human occupation of the continent of Australia to the arrival of the first humans in the Pacific Islands.

2. Discussion

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4 Household artefacts

MEREDITH OSMOND AND MALCOLM ROSS

1 Introduction

The artefacts considered here are mainly household items, used in the gathering and storage of food, in the construction and maintenance of dwellings and gardens, and those used for personal adornment. Some of the items—earthenware pots, stone adzes and axes, bone needles, bone and shell ornaments, and stone bark-cloth beaters—have provided archaeologists with data that permit dating. Those made of perishable materials—such as leaf baskets, string bags, mats and bamboo knives—seldom leave any trace in the archaeological record. For these we are dependent on linguistic reconstruction interpreted in the light of current ethnographic practice.¹

Artefacts are organised under the following headings: (1) containers; (2) mats and cordage; (3) tools; (4) items of body decoration and clothing, and (5) instruments of communication and music. Terms for relevant processes are included. Thus, within the section on mats and cordage we have included terms for weaving, making thread, sewing, and for needle and twine. Often the term for a tool is derived from the verb denoting the activity of using it.

2 Containers

2.1 Pottery containers

Pottery is one of the more distinctive features of the Lapita culture, here held to coincide with and thus be an integral marker of the early dispersal of Proto Oceanic.² Pottery manufacture in Oceania is geographically discontinuous. By no means all Oceanic speakers make pottery. Obviously, pottery can only be made where suitable clay is available, but its availability is no

¹ We are indebted to Ann Chowning both for the many references taken from her 1991 paper 'Proto Oceanic culture: the evidence from Melanesia', and for her more recent comments and additions to the data offered during the preparation of this chapter.

² For a fuller account of POc pottery manufacture, see Ross (1996c).

guarantee that pottery will be manufactured. Nor is its absence from the immediate locality a guarantee that pottery will not be made: the Gumawana speakers of the Amphlett group transport their clay some distance by sea from Fergusson Island. As a result of this discontinuity, pots were traditionally important trade items. A linguistic spin-off of this trade is that words for pots are not infrequently loan words, especially in the languages of the people who are not potters.

Ross (1996c:69) writes that most Oceanic languages have quite a simple pot terminology with three or four main terms.

There is generally a term for cooking pot, which often also doubles as the term for pottery in general... Secondly, there is a term for water pot or water jar. Thirdly, there is a term for a bowl or dish with a variety of functions, and finally a term for a frying dish or frying pan (in some societies the object itself is actually the large sherd of a broken pot).

There is fair agreement across Oceanic languages about the structure of the terminology—Ross provides evidence from NNG, PT, Admiralties and Fijian languages which all have terms (not necessarily cognate) for pot (generic), cooking pot, water jar, bowl/dish and frying pan (see Figure 4)—and we have PMP reconstructions in support of corresponding POc terms. However, our cognate sets are disappointingly small. Of our reconstructions, the cooking pot/generic term is the most soundly based.

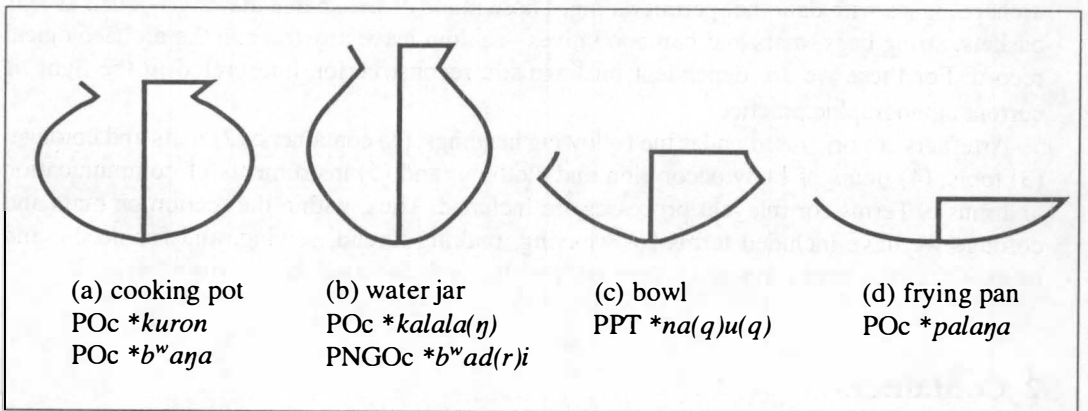


Figure 4: Typical pot shapes

(from Ross 1996c)

2.1.1 *Cooking pot*

PMP **kuDen* 'clay cooking pot' (Blust 1982)

POc **kuron* 'earthenware pot'

Adm: Drehet	<i>kuj</i>	
Adm: Nyindrou	<i>kun</i>	
NNG: Kove	<i>ulo</i>	'cooking pot, boil (in water)'
NNG: Numbami	<i>ulaja</i>	
NNG: Adzera	<i>gur</i>	
PT: Molima	<i>?ulena</i>	

PT:	Misima	<i>ulun</i>	
PT:	Motu	<i>uro</i>	
MM:	Bali	<i>yulon(i)</i>	‘boil (in water)’
MM:	Ramoaina	<i>kuro</i>	
NCV:	Wusi	<i>uro</i>	
Fij:	Bauan	<i>kuro</i>	
Pn:	Samoa	<i>?ulo</i>	‘pot, cauldron’

2.1.2 Water jar

The best candidate for ‘water jar’ is POc **kalala(ŋ)*, reconstructed on the basis of Proto WMP **kalalay* ‘narrow-necked water jar’ (Tagalog *kalalay* ‘narrow-necked water jug’; Blust 1980b). However, only one Oceanic reflex, in the PT language Iduna, has been found: *kalala* ‘cooking pot made in Wedau’. Even this reflex is problematic, since POc **l* is reflected as Iduna *n* in directly inherited items, and we must therefore assume that the item has been borrowed, as its gloss would imply.

Another possible, PNGOc, term for water jar is **b^wad(r)i*, for which the evidence is given below. All reflexes except one are from the north coast of New Guinea, and mean ‘pot (generic), cooking pot’, where they have ousted reflexes of POc **kuron* in this role, but there is evidence that this is the result of post-Proto Oceanic genericisation. The characteristic Oceanic cooking pot and water jar are quite similar in form, differing only in the narrowness of the neck of the water jar, so that genericisation of the water jar term is quite likely. The facts that the one non-north coast term, from Misima, means ‘water pot’ and that there are indications (in Mindiri and Bilibil) that reflexes of **b^wad(r)i* also mean ‘water pot’ suggest that this was its original meaning.

PNGOc **b^wad(r)i* ‘k.o. large pot, possibly for water storage’

NNG:	Lukep	<i>bor</i>	‘pot’
NNG:	Roinji	<i>buari</i>	‘cooking pot’
NNG:	Mindiri	<i>badi(n)</i>	‘water pot’
NNG:	Bilibil	<i>bodi</i>	‘cooking pot’
		<i>(yu)bodi</i>	‘pot for water storage and carrying’ (<i>yu</i> ‘water’)
NNG:	Takia	<i>bod</i>	‘clay, clay pot’
NNG:	Manam	<i>boadi</i>	‘pot, cooking vessel’
NNG:	Kaiep	<i>biar</i>	‘generic name for pots’
NNG:	Kairiru	<i>buar</i>	‘cooking pot’
NNG:	Ulau-Suain	<i>buad</i>	‘cooking pot’
NNG:	Tumleo	<i>pier</i>	‘cooking pot, pot (generic)’
PT:	Misima	<i>(ulun)b^wal</i>	‘water pot about 30 cm high’ (<i>ulun</i> ‘clay pot’)

cf. also:

PT:	Motu	<i>hodu</i>	‘narrow-necked water pot’
PT:	Lala	<i>vodu</i>	‘narrow-necked water pot’

The Motu and Lala items are either borrowed or simply bear a chance resemblance to this set.

2.1.3 *Frying pan*

The best candidate for ‘frying pan’, POc **palana*, has been noted by Blust (ACD). Again, Oceanic reflexes are not plentiful, but here there can hardly be any doubt that they reflect the PMP term.

PMP **balana* ‘shallow earthenware cooking pot or pan’ (ACD)

POc **palana* ‘frying pan’

NNG: Bilibil	(<i>bodi</i>) <i>palan</i>	‘sago frying bowl, made by cutting down a broken pot’ (<i>bodi</i> ‘cooking pot’)
NNG: Gedaged	<i>palan</i>	‘potsherd, used to render fat and to cook oil; frying pan, shallow roaster’

2.1.4 *Large cooking pot*

One other Proto Oceanic term for a type of pot is reconstructable, namely **b^wana*. This seems to have referred to a large pot, perhaps a communal cooking pot:

PMP **b^wanaq* ‘pot, cooking vessel’

POc **b^wana* ‘k.o. large pot’

PNGOc **(kuron) b^wana* ‘communal cooking pot’

NNG: Adzera	(<i>gur</i>) <i>ba^wana</i>	‘common cooking pot for meat’ (<i>gur</i> ‘clay pot’)
PT: Misima	(<i>ulun</i>) <i>b^wana</i>	‘cooking pot about 60 cm high, used as a community cooking pot’ (<i>ulun</i> ‘clay pot’)

2.1.5 *Dish*

We have been unable to reconstruct a POc term for a bowl or dish. Indeed, the only term we have found reflected over quite a large area is PPT **na(q)u(q)*. The meanings of its reflexes indicate that it meant ‘dish’. In a number of PT languages it has come to mean ‘cooking pot’, but this is not surprising if it is recognised that in south-east (but not central) Papua, the typical Oceanic cooking pot with its restricted spherical form has been frequently replaced by pots with an unrestricted, dish-like form. In Gumawana, an important pot-making centre in the Amphletts, *no*, reflecting **na(q)u(q)*, has been genericised to mean ‘pot’ and is the first element in a number of pot types listed in Olsen’s dictionary: *nobadala*, *nogaiga*, *nokaokao*, *nokunu*, *nopaeva*, *nosipoma*. All of these are apparently dish-like in form. Some reflexes of **naquq* are listed below. The crucial reflexes for determining the meaning of **na(q)u(q)* are those from central Papua—Hula, Motu and Kuni—where Oceanic restricted pot forms remain the norm, and *nayu/nau* clearly refers only to dishes.

PPT **na(q)u(q)* ‘clay dish’

PT: Gumawana	<i>no</i>	‘clay pot’
PT: Molima	<i>nau(kai)</i>	‘wooden dish’ (<i>kai</i> ‘wood’)
PT: Iduna	<i>nau?a</i>	‘dish, bowl, plate’
PT: Are	<i>nau</i>	‘cooking pot’
PT: Muyuw	<i>no(kay)</i>	‘large wooden dish’ (<i>kay</i> ‘wood’)
PT: Sudest	<i>noya</i>	‘(wooden) dish’

PT:	Hula	<i>nayu</i>	‘clay plate used by Motu and Mailu people’
PT:	Motu	<i>nau</i>	‘shallow open dish for serving’
PT:	Kuni	<i>nau</i>	

Only the Hula form reflects a possible medial **-q-*. Since Hula sometimes adds a non-etymological *-y-* between vowels, **-q-* cannot be reconstructed with certainty. Final **-q* is reflected in Iduna and Sudest, but not in Gumawana, Molima or Are, where a reflex would also be expected. These uncertainties raise the possibility that this term is cognate with the forms attributed to POC **napu* ‘steam (?)’, ‘boil (?)’ (Ch. 6, §3.4).

2.1.6 Lid

Both cooking pots and narrow-necked water jars may have utilised lids. In addition to those terms glossed ‘plug, stopper’, which are included with coconut or bamboo water carriers, we have terms referring rather to ‘lid’ or ‘cover’:

PMP **tub-tub* ‘close, cover’ (Mills 1981)

POc **tutup* ‘cover’ (Lichtenberk 1994)

POc **tupi* ‘cover (s.t.)’ (Blust 1978b)

Adm:	Lou	<i>tup-tup</i>	‘cover up’
Adm:	Loniū	<i>tu-tuh</i>	‘cover’
Fij:	Bauan	<i>tuvi</i>	‘cover, conceal’

PMP **tub-an* ‘lid, cover’ (Mills 1981, glossed as a verb)

POc **tup-a((n,ŋ))* ‘lid, cover’

Adm:	Loniū	<i>tu-tuha</i>	‘cover, lid, leaf used as lid’
NNG:	Tumleo	<i>cup</i>	‘lid’

Note that **tup-a((n,ŋ))* is a nominalised form derived from **[tu]tup*, **tupi* (see discussion of nominalisations in Chapter 2, §3.2.1).

2.1.7 Tools in pot manufacture

Oceanic pots were typically made using the paddle-and-anvil technique, whereby a smooth stone (the ‘anvil’) is held against the inside of the pot while the outside is beaten with a flat piece of wood (the ‘paddle’). Almost every Oceanic pot-making group for which we have data refers to the anvil simply as the ‘stone’, for which the POC word was **patu* (Andra *pat*, Mindiri *pot*, Uruava *patu*, Bauan Fijian *vatu* are all reflexes used both in the general sense of ‘stone’ and in the specialised sense of ‘anvil’). Ross (1996c) has reconstructed **tapi* ‘paddle for beating clay into shape’ with the proviso that the apparent reflexes may be independently derived instrumental nominalisations of the PMP verb **tapik* ‘slap, pat lightly’ (Blust 1988).

2.2 **Wooden or coconut-shell containers**2.2.1 **Wooden bowl**

The most important non-ceramic vessel in immediate pre-contact times was the wooden bowl. In parts of Papua New Guinea, finely-wrought bowls were an important trade item. (Among the most famous are bowls from the Tami Islands off the Huon Peninsula and the Trobriand Islands). The generic term for a wooden bowl was probably POC **tabiRa*:

POC **tabiRa* 'wooden bowl'

NNG:	Gedaged	<i>tabiŋ</i>	'wooden bowl, plate'
NNG:	Manam	<i>tabira</i>	'wooden dish'
NNG:	Ali	<i>taper</i>	
MM:	Sursurunga	<i>tabir</i>	'full of good things'
NCV:	Raga	<i>tabera</i>	'plate'
Mic:	Marshallese	<i>cæpe</i>	'small dug-out wooden bowl for pounding food'
Mic:	Mokilese	<i>capi</i>	
Mic:	Carolinian	<i>sæpi</i>	'plate, bowl for food'
Mic:	Woleaian	<i>tapiya</i>	'dish, bowl'
cf. also:			
SES:	Tolo	<i>tabili</i>	'wooden vessel used to smash nut kernels in'
SES:	Longgu	<i>tabili</i>	'bowl shaped like a vase, used for mashing taro to make pudding'
SES:	Kwaio	<i>tabili</i>	'big wooden bowl'
SES:	'Are'are	<i>tapire</i>	'wooden bowl in which taro is mashed'
SES:	Arosi	<i>tapiri</i>	'long trough-like food bowl'
Fij:	Bauan	<i>tābili</i>	'wooden bowl for crushing <i>yaqona</i> roots'

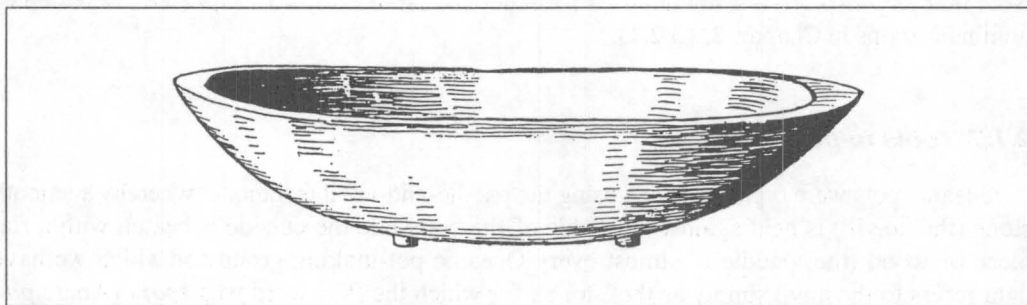


Figure 5: POC **tabiRa* 'wooden bowl'

This last set could be taken to reflect a POC ***tabili*, but their formal and semantic similarity to reflexes of **tabiRa* suggests that this inference is not justified. Rather, they are probably descended from an etymon which originated somewhere in the Solomons in the borrowing of a reflex of **tabiRa* denoting a trade item, apparently a wooden dish used for mashing and/or crushing.

A term with more restricted distribution and apparently denoting a subtype of **tabiRa* is PNGOc **gabom* 'wooden dish':

PNGOc **gabom* ‘wooden dish’

NNG:	Takia	<i>gab</i>	‘cup made of half a coconut shell’
NNG:	Mapos Buang	<i>gabum</i>	‘carved wooden dish or bowl’
PT:	Sewa Bay	<i>kaboma</i>	
PT:	Wedau	<i>aboma</i>	
PT:	Misima	(<i>ulun ab</i>) <i>gabom</i>	‘simple unrestricted earthenware vessel found on Brooker Island’

PSS **popo* ‘wooden bowl’ is reconstructable (Gela *popo* ‘a bowl’, ‘Are’are *hoho* ‘a wooden bowl for pounding food’, Lau *fofo* ‘a round wooden dish’) but no cognates are known outside the Southeast Solomons.

PCP **kumete* ‘large wooden bowl (used as a mortar in pounding, mashing food and/or in stone-boiling)’ (Lichtenberk 1994)

Fij:	Rotuman	? <i>umefe</i>	‘bowl’
Fij:	Bauan	<i>kumete</i>	‘wooden bowl’
Pn:	Tongan	<i>kumete</i>	‘kava bowl’
Pn:	E. Futunan	<i>kumete</i>	‘wooden bowl, wooden trough’
Pn:	Kapingamarangi	<i>ɲumade</i>	‘large wooden bowl for pounding food’
Pn:	Tahitian	? <i>umete</i>	‘wooden trough or bowl (ovoid in shape)’

cf. also the following probable loans from Polynesia:

NCV:	Mota	<i>wumeto</i>	‘wooden bowl used for stone-boiling’
Mic:	Kiribatese	<i>kumete</i>	‘kind of wooden mortar trough; hollow, empty, concave; thin, ravenous (hungry)’

2.2.2 *Cup, liquid container*

One of the most widely-used containers was the coconut-shell cup, for which we have several reconstructions. The term for a gourd also refers to a water bottle in some languages.

POc **b(w)ilo* ‘coconut shell used as liquid container’

Adm:	Lou	<i>pil</i>	‘coconut shell used for soup’
Adm:	Titan	<i>p^we-p^wil</i>	‘coconut shell’
Adm:	Drehet	<i>p^wi-p^wiŋ</i>	‘coconut shell’
MM:	Tolai	<i>bilō</i>	‘cup’
SES:	Longgu	<i>b^wilo</i>	
SV:	Lenakel	(<i>ui</i>) <i>pəl</i>	‘container’
SV:	Anejom	<i>ne-pce-</i> (<i>inhu</i>) <i>pec</i>	‘container’
Fij:	Wayan	<i>bilō</i>	‘cup, drinking vessel, formerly a half-coconut’
Fij:	Bauan	<i>bilō</i>	‘cup or dish, originally a half-coconut’

POc **lasa* ‘coconut half-shell cup’

NNG:	Tami	<i>lat</i>	‘coconut shell’
NNG:	Bing	<i>lās</i>	
NNG:	Numbami	<i>lasa</i>	
MM:	Tolai	<i>lā</i>	‘dish, bowl, any open utensil; shell of a coconut’

MM:	Halia (Selau)	<i>las</i>	'young drinking coconut'
NCV:	Mota	<i>lasa</i>	'drinking cup'
		(<i>vin</i>) <i>lasa</i>	'cup <i>lasa</i> made of coconut shell <i>vin</i> '
NCV:	Raga	<i>laha</i>	'drinking cup made from coconut shell'
NCV:	Nguna	<i>lāsa</i>	
Mic:	Marshallese	<i>lat</i>	'coconut shell; skull'

PEMP **ubi/*ibu* 'drinking vessel' (Blust 1978b)

POc **ubi/*ibu* 'half coconut shell used as a drinking cup'³

NNG:	Adzera	<i>umpi, impi</i>	'coconut-shell cup, spoon'
SES:	Ulawa	<i>ipu</i>	'hollow in tree holding water'
Mic:	Kiribatese	<i>ipu</i>	'(coconut-shell) toddy container'
Fij:	Rotuman	<i>ipu</i>	'cup, drinking vessel'
Pn:	Tongan	<i>ipu</i>	'cup'
Pn:	Samoaan	<i>ipu</i>	'(coconut-shell) cup; bowl; dish'
Pn:	Rapanui	<i>ipu</i>	'gourd, container for liquid'
Pn:	Rarotongan	<i>ipu</i>	'generic for articles that serve as basin, cup + , made in old days from coconut shell or calabash'

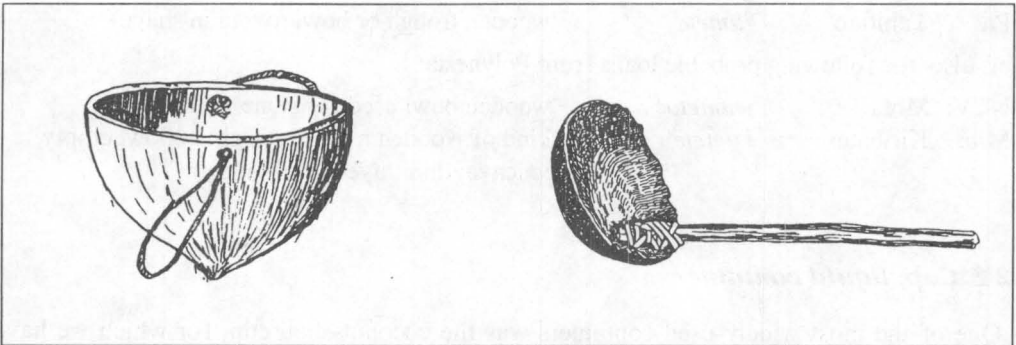


Figure 6: POc **b(ʷ)ilo* 'coconut shell used as liquid container', POc **lasa*, POc **ubi/*ibu* 'coconut half shell-cup'

Figure 7: POc **kulopi* 'cup, ladle' (from Nevermann 1934:179)

PMP **ka(ŋ)bu(q)* 'ladle, dipper' (Blust 1972b)

POc **kabu* 'cup, ladle'

Adm:	Loniu	<i>kopu</i>	'bowl made by coiling slender bundles of natural fibre'
Pn:	Tongan	<i>kapu</i>	'form into a cup-like shape, esp. a banana leaf'
Pn:	Samoaan	? <i>apu</i>	'cup made from leaf'
Pn:	Tuamotuan	<i>kapu</i>	'ladle'
Pn:	Hawaiian	? <i>apu</i>	'coconut-shell cup'

³ The pair are strikingly parallel to POc **upi/*ipu* 'blow', and it is possible that both pairs were generated at the same time by the application of a single rule (or similar wordplay) to the pre-existing member of each pair.

The gloss proposed for the following reconstruction is highly tentative:

POc **kulopi* 'ladle, bailer'

Adm: Loniu	<i>oloh</i>	'wooden bailer'
MM: Vitu	<i>kolopi</i>	'basket'
MM: Bola	<i>kulopi</i>	'basket'
MM: Tolai	<i>kul-kulup</i>	'ladle, spoon'

An additional reconstruction, POc **asu* (V) 'scoop or ladle out'; (N) 'ladle, bailer', from PMP **aŋsu* 'scoop or bail out' is included in Chapter 7, §7.4.

The following set, from Ross (1996a), is listed because explanation is needed for the fact that it is apparently reflected only in Yapese and NNG languages: is it a retention or a borrowing? (Takia *-ae-*, Bilibil, Megiar *-ai-* reflect **-a-* which has undergone umlaut because of a lost final **-i*.)

POc **d(r)ag(i)* (?) 'k.o. container' (?)

Yap: Yapese	<i>ðāg</i>	'coconut-shell container'
NNG: Takia	<i>daeg</i>	'dish'
NNG: Bilibil	<i>daig</i>	'dish'
NNG: Megiar	<i>daig</i>	'dish'
NNG: Mapos Buang	<i>dεg</i>	'cooking pot'
NNG: Patep	<i>dεg</i>	'cooking pot'

2.2.3 Water bottle

Water may be carried and stored in bamboo or coconut-shell bottles stoppered with leaves. Blust has reconstructed a term for a coconut-shell bottle:

Proto South Halmahera/West New Guinea **wai_p* 'water container' (ACD)

POc **wai(p)* 'coconut-shell water bottle'

SES: Arosi	<i>wai</i>	
Fij: Rotuman	<i>vai</i>	'cask'
Pn: Samoan	<i>vai</i>	'coconut gourd'
Pn: Rennellese	<i>bai</i>	'coconut-shell bottle'
Pn: Anutan	<i>vai</i>	'water container'
Pn: Maori	<i>wai</i>	'vessel to hold water + ; calabash'

but adds a warning note that the Oceanic forms cited may reflect POc **wai_R* 'fresh water'. If so, all that can be inferred is a second gloss for this reconstructed form (ACD).

PEOc **tapaya* '(gourd or coconut-shell) container, bottle'

NCV: Mota	<i>(wo)tavae</i>	'kind of gourd, eaten' (<i>wo-</i> 'prefix indicating form, i.e. round object, fruit')
NCV: Raga	<i>tavai</i>	'gourd'
Fij: Bauan	<i>tavaya</i>	'bottle'
Pn: Takuu	<i>tafā</i>	'flask made of coconut shell'
Pn: Maori	<i>tahā</i>	'calabash with narrow mouth'

2.2.4 Stopper

A number of terms are reconstructable for the plug, probably of rolled leaves, used to stop up the mouth of a water bottle:

POc **joŋ-a(n,ŋ)* 'plug, bung, stopper'

NNG: Manam	<i>ro-zoŋa</i>	(N) 'plug'
NNG: Adzera	<i>nzoŋan</i>	(V) 'plug'
SES: Gela	<i>do-doŋa-na</i>	'fitted tight as a cork'

This is a nominalisation of the verb below (cf. Ch. 2, §3.2.1):

PAn **seŋseŋ* 'cork, stopper, plug' (Blust 1986)

POc **jojoŋ, *joŋi* 'plug, stop, caulk'

NNG: Gitua	<i>zozon</i>	(V) 'plug, stop'
NNG: Tami	<i>jojoŋ</i>	(N, V) 'cork'
NNG: Gedaged	<i>dod</i>	'cork, stopper made out of leaves rolled together to stop the hole in the coconut-shell water container'
NNG: Numbami	<i>dodoŋa</i>	(V) 'plug' (epenthetic <i>-a</i>)
NNG: Yabem	<i>sòŋ</i>	(V) 'plug'
NNG: Manam	<i>rozon</i>	'plug a hole in something, plug (bottle +)'
NCV: Raga	<i>siŋo(hi)</i>	'stopper, cork' (metathesis)

Two other etyma are reconstructable in the domain 'lid, cover, stopper', but it is impossible to determine their exact meanings:

POc **buruŋ(a)* (N) 'cover, plug' (?)

Adm: Drehet	<i>(na)puluŋ</i>	'plug, usually for a teapot spout'
MM: Patpatar	<i>buruŋ</i>	(N) 'cover'
MM: Ramoaina	<i>buru-buruŋ</i>	(N) 'cover'

PEOc **b^walu* 'cover, lid, stopper'

SES: Arosi	<i>b^waru</i>	'put lid on, stopper in bamboo water vessel'
	<i>b^waru-na</i>	'lid, plug, stopper'
Mic: Carolinian	<i>b^wala-b^wal</i>	'cover, lid, top for s.t.; be covered'
	<i>b^walí</i>	'cover s.t.'

2.2.5 Lime pot

There is one other kind of container associated with Melanesians other than the inhabitants of Vanuatu and Fiji, and that is the lime pot of betel-nut users. The lime container is usually a gourd, coconut shell or small tightly-woven basket. A lime spatula of bone or wood, sometimes highly decorated, rests in the gourd and is used to convey lime to the mouth. We have a reconstruction for the spatula, POc **d(r)amu*, but no specific term for the lime pot. In a number of word lists the term for lime (often from POc **qapu(R)*) also can refer to the pot. We have reconstructed a PEOc term for a gourd, **tapaya* 'gourd, water bottle', but there are

no cognates from SES, which is the only area of eastern Oceanic where betel is chewed, and we lack any Western Oceanic reconstruction.

2.2.6 Lime spatula

POc **d(r)amut* 'lime spatula'

Adm: Mussau	(<i>ai</i>) <i>ra-ramuti</i>	(<i>ai</i> 'stick')
Adm: Lou	<i>rem</i>	
NNG: Gedaged	<i>dam</i>	'(bone or wood) lime spatula'
MM: Nakanai	<i>damu</i>	
SES: Sa'a	<i>demu</i>	'chew betel nut'
SES: Arosi	<i>damu</i>	'chew betel nut'

The final *-i* of Mussau *ra-ramuti* suggests that this reflects a transitive verb **d(r)amut-i-*, perhaps 'add lime to a chew of betel nut'.

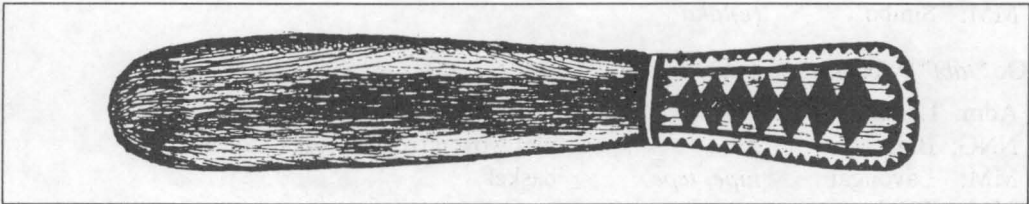


Figure 8: POc **d(r)amut* 'lime spatula'

2.3 Woven containers

Usable baskets or trays can be improvised in a few minutes from the wealth of leaves and fibres generally within easy reach. Baskets used today vary greatly in size, shape and function. They range from the large trays used at feasts to tiny purses carried within string bags. Individual communities have evolved their own shapes, styles and traditions of use. Some styles may be so individual or striking that they come to be representative of a particular region or community. Baskets may be with or without handles; carried over the shoulder, from the head or hand or under the arm; used by men only or women only; strictly utilitarian or finely decorated, multi-purpose or highly specific in their use. Different styles may be distinguished by name.

Perhaps surprisingly, in view of the widespread use of bags and baskets and the large number of terms collected, it has proved difficult to locate clear cognate sets with broad distribution. Any proliferation of types and styles would require new terms or reinterpretation of old terms. The likelihood of borrowing is also high.

PMP **ka(n)tuŋ* 'basket, pocket in clothing' (Dempwolff 1938)

POc **katu(m,ŋ)* 'basket'

SES: Arosi	<i>kaso</i>	'basket without a handle'
NCV: Lonwolwol	<i>aro(bol)</i>	'basket, container; sack, bag' (<i>-bol</i> from POc <i>*bola</i> 'coconut leaves woven together')

NCV:	Paamese	<i>atu(voi)</i>	'basket of coconut leaves'
SV:	Lenakel	<i>karəm</i>	
SV:	Anejom	<i>in-yat</i>	'pandanus, basket'
Mic:	Woleaian	<i>xato</i>	'kind of small basket for food'
Mic:	Carolinian	<i>xɔ̄t</i>	'k. o. basket'
Fij:	Bauan	<i>kato</i>	'basket, box, trunk, suitcase'
Pn:	Tongan	<i>kato</i>	'basket; suitcase; pouch; pocket'
Pn:	W. Futunan	<i>kato</i>	'basket with a four-cornered base'

Arosi *-s-* from **-t-* is conditioned by a following **-u-*, supporting its reconstruction rather than that of **-o-*. Carolinian *xɔ̄t* and some other Micronesian cognates are problematic, since their *-t* reflects POC **s* or **j* rather than **t*.

POC **laka* 'basket'

Adm:	Mussau	<i>laka</i>	
MM:	Nalik	<i>laka</i>	
MM:	Tabar	<i>rake</i>	'netbag; basket'
MM:	Simbo	<i>(e)laka</i>	

POC **tab^(w)e* 'basket, probably small'

Adm:	Loniū	<i>tap^wa</i>	'basket, string bag'
NNG:	Bing	<i>tāb</i>	'mat woven from coconut fronds'
MM:	Lavongai	<i>tape, tepe</i>	'basket'
MM:	Tigak	<i>tape</i>	'basket'
MM:	Sursurunga	<i>tap</i>	'basket type'
MM:	Patpatar	<i>tep</i>	'basket for carrying food'
Mic:	Marshallese	<i>cepe</i>	'small basket'
Fij:	Wayan	<i>tabe</i>	'small oval basket, usually woven from coconut or pandanus leaves'
Fij:	Bauan	<i>(i)tabe</i>	'small oval basket without handles' (<i>i-</i> < POC <i>*i-</i> INS)
Pn:	Tongan	<i>tape</i>	'k.o. shallow basket'

PWOc **kase* 'k.o. basket'

PT:	Gapapaiwa	<i>kase-kase</i>	'basket of coconut fronds'
PT:	Misima	<i>ke-kehe</i>	'basket of coconut fronds used as a handbag'
PT:	Sudest	<i>kaḏi-kaḏiye</i>	'(name of a) basket'
MM:	Barok	<i>kis</i>	'netbag; basket'
MM:	Lamasong	<i>kis</i>	'basket'
MM:	Sursurunga	<i>kas</i>	'basket type, closely woven like a Buka basket'
MM:	Patpatar	<i>kas</i>	'basket'

cf. also:

Adm:	Mussau	<i>keru</i>	'k.o. basket'
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PEOc **kete* 'belly, basket' (Biggs 1965)

NCV:	Mota	<i>gete</i>	'woven basket'
NCV:	Raga	<i>gete</i>	'basket made of plaited coconut leaves'

Fij:	Bauan	<i>kete</i>	'belly, stomach'
		<i>kete-kete</i>	'basket'
Pn:	Tongan	<i>kete</i>	'stomach, abdomen'
Pn:	Samoaan	? <i>ete</i>	'bag, basket'
Pn:	Maori	<i>kete</i>	'plaited flax basket with carrying handles'

This form is unlikely to be of POc ancestry, as medial *-e- is rare in POc. It may well have an association with one of the two *k-initial forms above.

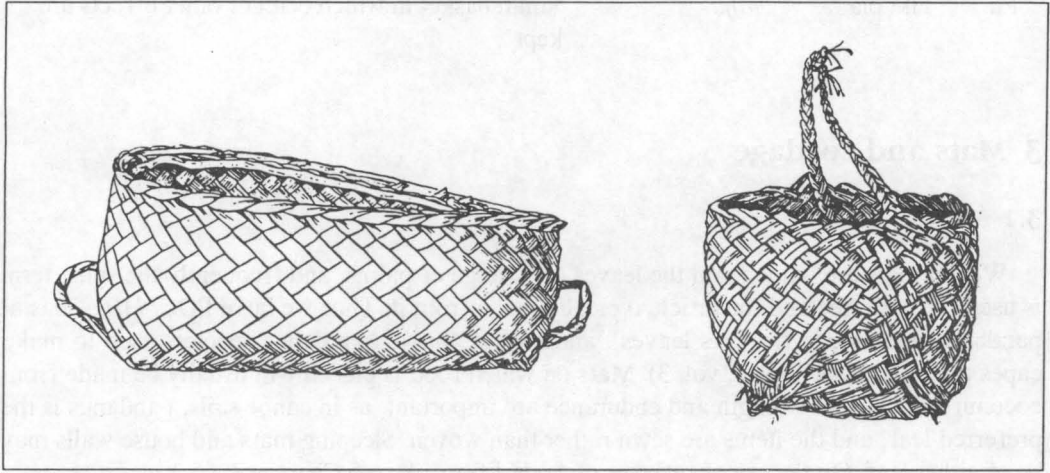


Figure 9: Reconstructions (non-specific) include: POc **katu* (*m,ŋ*) 'basket', POc **laka* 'basket', POc **tab*(^w)*e* 'basket, probably small', POc **taŋa* 'basket or bag, small, used for personal effects' (after Koch 1986:104 and n.d.:59)

Biggs (1993) lists two further terms for PPn, **tāpola* 'basket plaited from a single coconut frond' (from POc **bola* 'coconut leaves woven together for any purpose'. See under §3.1 Mats); and **qora* 'fishing basket'.

Bags, typically of twine made from fibres rolled together on the thigh and then knotted into a mesh, are more likely to be used for carrying than for storage. They are a prominent item among western Oceanic peoples, the women carrying them slung from a band round the head, and the men generally over one shoulder. On the New Guinea mainland, they are the means by which a woman carries a baby. The widespread modern term for these bags is *bilum*, a Tok Pisin term apparently from Tolai, but without cognates outside MM. The present distribution pattern of use would seem to reflect a possible Papuan origin for the net bag. In east New Britain (Tolai and Baining at least) heavy loads are carried in a coconut leaf basket suspended from the forehead by a tumpline (Ann Chowning, pers.comm.). The following reconstruction may have been a general term for a small plaited or woven container which has come to refer to a net bag in parts of western Oceania.

POc **taŋa* 'basket or bag, small, used for personal effects'

NNG:	Lukep (Pono)	<i>taŋa</i>	'net bag, womb'
NNG:	Gedaged	<i>taŋ</i>	'net bag used by women'
PT:	Kilivila	(<i>va</i>) <i>taga</i>	'small basket (very simply plaited)'
PT:	Dobu	<i>tana</i>	'dilly bag' (Grant)

MM:	Meramera	<i>taja</i>	'netbag; nest; web; basket'
MM:	Tangga	<i>taŋ</i>	'netbag, basket'
SES:	Arosi	<i>aŋa(na)</i>	'plaited bag with string handles, generic'
NCV:	Raga	<i>taja</i>	'small basket made of plaited pandanus leaves'
NCV:	Ambae	<i>taja</i>	'small basket, woven from pandanus, used like a handbag for small personal items'
Fij:	Bauan	<i>taja</i>	'bag, pocket, sack'
Pn:	Tongan	<i>taja(i)</i>	'bag, sack'
Pn:	Tikopia	<i>taja</i>	'small basket in which betel or other effects are kept'

3 Mats and cordage

3.1 Mats

Woven mats are made from the leaves of a range of palms, and frequently the same term is used for both tree and the article typically made from it. Thus we have POc **kiRe* 'coastal pandanus: mat made from its leaves', and PWOC **moke* 'pandanus species, used to make capes and mats' (see *Plants*, vol. 3). Mats on which food is placed will usually be made from coconut leaf. Where strength and endurance are important, as in canoe sails, pandanus is the preferred leaf, and the items are sewn rather than woven. Sleeping mats and house walls may be of either leaf. On the use of reflexes of **qebal* for sails, see Chapter 7, §5.1.

POc **qebal* 'pandanus mat, possibly sleeping mat'

NNG:	Numbami	<i>embala</i>	'mat'
PT:	Molima	<i>?ebana</i>	'sewn pandanus mat; pandanus used for it'
PT:	Sinaugoro	<i>yeba</i>	
SES:	Longgu	<i>eba</i>	
SES:	Lau	<i>eba</i>	'mat of pandanus; a sail'
SES:	Kwaio	<i>eba</i>	'sleeping mat'
NCV:	Mota	<i>epa</i>	'mat, piece of matting; sail of matting'
NCV:	Raga	<i>ebe</i>	'sleeping-mat'
SV:	Anejom	<i>n-ep</i>	'pandanus mat for carrying a child'
Mic:	Carolinian	<i>āp</i>	'small soft mat used for babies'
Mic:	Woleaian	<i>yepē</i>	'baby's mat'
Pn:	Tongan	<i>?epa</i>	'mats (collectively) given to a bride'
Pn:	Samoaian	<i>epa</i>	'native mats and cloth on which dead chief is laid'
Pn:	Tikopia	<i>epa</i>	'ritual offering of finely plaited pandanus mats'

POc **tabakau* 'mat woven from coconut leaves'

NNG:	Lukep (Pono)	<i>pakau</i>	'trash mat: a woven coconut-leaf mat used to carry trash and sand'
NCV:	Mota	<i>tapaŋau</i>	'mat of coconut leaves, large, coarsely woven'
SV:	Anejom	<i>(nici)pakau</i>	'chief's single thickness coconut mat with large spine'
Fij:	Wayan	<i>tabakau</i>	'coarsely woven mat of coconut leaves'
Pn:	Tongan	<i>tapakau</i>	'large coconut leaf suitable for making floormats'

Pn:	Samoaan	<i>tapaʻau</i>	'coconut leaf floormat'
Pn:	Maori	<i>takapau</i>	'floormat; plaited floormat' (metathesis)
PEOc <i>*bola</i> 'coconut leaves woven together for any purpose, including mats, baskets, thatch'			
NCV:	Nguna	<i>pora</i>	'woven wall panel'
NCV:	Lonwolwol	<i>(aro)bol</i>	'basket, container; sack, bag' (<i>aro</i> > POC <i>*kato</i> 'basket')
Fij:	Rotuman	<i>pora</i>	'coconut leaf used for walls +'
Fij:	Wayan	<i>bola</i>	'basket, especially four-cornered type with lid'
Fij:	Bauan	<i>bola</i>	'leaf of coconut plaited into a sort of narrow mat for thatching'
Pn:	Tongan	<i>pola</i>	'plaited coconut leaves used for making walls or roof, or as a food tray; fishing net made of plaited coconut leaves, and used in community fishing'
Pn:	Samoaan	<i>pola</i>	'plaited coconut leaf wall screen'
Pn:	Maori	<i>pora</i>	'coarse cloak; floormat'
Pn:	Tikopia	<i>pora</i>	'small plaited coconut leaf mat'

It is possible that the two NCV reflexes in the above set are borrowings from Polynesia (Ross Clark pers.comm.). If so, this reduces the reconstruction from PEOc to PCP.

PEOc **ibe* 'mat' (Pawley 1976)

SES:	Gela	<i>ibe</i>	
SES:	'Are'are	<i>ipe</i>	'mat, bed'
Fij:	Bauan	<i>ibe</i>	

Two further terms have been reconstructed for PPn only: **fala* 'plaited pandanus mat', and **fāliki* 'cover floor with mats or grass; floor covering', both from Biggs (1993).

3.1.1 Weaving, plaiting

The distinction between weaving and plaiting is not clear even in English, although as a broad principle, weaving produces a fabric and plaiting a braid. Sometimes plaiting is used in descriptive accounts as a general term for all forms of mat and basket making. There are some processes in mat making where the edges of the mat are finished with a kind of braiding. Any distinction between the terms in word lists is consequently not considered significant, unless clarified by context. Where plaiting is used in reconstructions here, it is to be taken as an inclusive term for all kinds of mat and basket manufacture (but excluding loom weaving).

PMP **batuR* 'plait, weave (mats, baskets +)' (ACD)

POc **patu(R)*, **patuR-i-* 'tie, plait, weave (mats, baskets +)'

Adm:	Mussau	<i>atu</i>	'plait (mats, baskets)'
NNG:	Lukep	<i>-watu</i>	'tie a pig up preparatory to slaughter'
PT:	Kilivila	<i>vatunu</i>	'rope, line' (borrowed from elsewhere in PT)
PT:	Motu	<i>hatu-</i>	'plait (mats +), weave; twist a small rope'
MM:	Banoni	<i>pacu</i>	'tie'
SES:	Tolo	<i>vatuli-</i>	'weave (s.t.)'

SES:	Lau	<i>faoli</i>	'weave (s.t.)'
SES:	Arosi	<i>hauri-</i>	'plait (s.t.)'
NCV:	Tamambo	<i>vatu</i>	'weave, plait'
NCV:	Ambae	<i>vatu</i>	'weave'
Fij:	Wayan	<i>vatu</i>	'be formed or built in a certain way'
Pn:	Tongan	<i>fatu</i>	(V) 'fold; begin the making of a mat; construct the framework of a house'
Pn:	Samoan	<i>fatu</i>	'assemble (s.t.) with the hands'
Pn:	Hawaiian	<i>haku</i>	'compose, put in order, arrange; weave (flower necklace +)'

PMP **añam* 'plait (mats, baskets +)' (Blust 1980b)

POc **aña* 'woven, braided'

Mic:	Kiribatese	<i>ana</i>	'term used in mat weaving to designate a certain width'
Fij:	Bauan	<i>yana-yana</i>	'(mats +) loosely plaited or woven'
Pn:	Tahitian	<i>ana(ve)</i>	'twisted cord made from small combings of coconut fibre' (Oliver 1974:140)

POc **paus*, **paus-i-* 'weave, plait'

NNG:	Tami	<i>wa-wau</i>	'weave'
NNG:	Kilenge	<i>pau-</i>	'weave'
SES:	Gela	<i>vauhi-</i>	
SES:	'Are'are	<i>haosi-</i>	
SES:	Longgu	<i>vaosi-</i>	'weave (s.t.)'
NCV:	Mota	<i>vau</i>	(V) 'mat, plait, weave (mats, baskets)'
NCV:	Nguna	<i>vausi-</i>	'weave'
SV:	Anejom	<i>(a)hod</i>	'weave'
SV:	S.W. Tanna	<i>kwuh</i>	'weave'

POc **tiki* (V) 'plait (mat +)' (ACD)

Adm:	Lou	<i>tik</i>	(V) 'plait (mats, baskets)'
Adm:	Loniu	<i>tiʔi</i>	'weave'
NCV:	Mota	<i>tig</i>	'finish off the plaiting of a mat'

POc **pai* 'weave'

NNG:	Tuam	<i>va-vai</i>	
NNG:	Gitua	<i>va-vai</i>	
NNG:	Numbami	<i>wa-wai</i>	
NNG:	Kove	<i>wai</i>	'make a basket, plait a door'
		<i>wa-waiŋa</i>	'string figures'
PT:	Misima	<i>vei</i>	'plait'
MM:	Vitu	<i>vai</i>	
MM:	Lavongai	<i>pai</i>	
MM:	Label	<i>hai</i>	
NCV:	Paamese	<i>hai</i>	(VT) 'weave, make fence'

Biggs (1993) adds one lower-level reconstruction: PPn **lan̄a* 'plait (mat, basket)'.

Ann Chowning (pers.comm.) has offered an additional sense to POc **raraŋ*, **raraŋ-i-* (from PAN **da(n)daŋ*), which Lichtenberk glosses as ‘warm oneself by fire’; ‘warm up, reheat (esp. food)’ (see Chapter 6, §3.5, for the full cognate set). She contributes cognates from Molima, Kove and Nakanai which all refer to the preparation of pandanus leaves for mat making by softening them over a fire, and accord closely with the gloss of the single Polynesian cognate.

POc **raraŋ*, **raraŋ-i-* ‘heat s.t. or warm oneself by fire’

NNG: Kove	<i>lala</i>	‘wilt pandanus leaves over a fire in order to soften them for mat making’
PT: Molima	<i>lala</i>	‘wilt pandanus leaves over a fire in order to soften them for mat making’
MM: Nakanai	<i>lala</i>	‘wilt pandanus leaves over a fire in order to soften them for mat making; hold over the fire, heat over the fire (as bamboo which is to be bent)’
Pn: Pukapukan	<i>lala</i>	‘bleach pandanus leaves by passing them over a fire’

3.2 Cord, twine

The simplest material for tying would have been lengths of vine or rattan, or strips of suitable bark, such as hibiscus. (POc **waRoc* ‘vine, creeper, rope, string’; POc **quwe* ‘rattan’ (see Plants, vol. 3)). A strong light twine could be made by rolling fibres together on the thigh. The strongest cords and ropes are made by twisting or plaiting various kinds of fibres or rolled thread, principally coconut fibre or hibiscus bark.

POc **loqi* ‘make thread by rolling fibres on the thigh’ (Chowning 1991: **loi* ‘thread made ...’)

NNG: Kove	<i>loi</i>	
MM: Nakanai	<i>loi</i>	‘rub between the hands’
MM: Tolai	<i>loe</i>	(V) ‘twist, coil’
	<i>lo-loi</i>	(V) ‘roll or coil (strips of shell money)’
SES: Kwaio	<i>loi</i>	‘weave a net, knit’
NCV: Nguna	<i>lo-lo</i>	‘thread’
Pn: Maori	<i>roi(roki)</i>	‘secured, tied up; knot, bind’

An unrelated PPn term has been reconstructed for the same process, **amo* ‘prepare fibres for string making (by rubbing between hands or on thigh); prepared fibre’ (Biggs 1993).

POc **tali* ‘rope, cord, plaiting’

Adm: Lou	<i>tel</i>	‘rope, string’
SES: Gela	<i>tali</i>	‘rope’
SES: Arosi	<i>ari</i>	(N) ‘rope’; (V) ‘plait’
	<i>ari(heda)</i>	‘flat-shaped rope’
	<i>ari(hua)</i>	‘rounded rope’
	<i>ari(huemadi)</i>	‘knotted line’
NCV: Mota	<i>tal, tali</i>	‘rope, cord, made of plaited or twisted lines’
Fij: Wayan	<i>tali</i>	(V) ‘plait, weave; rope’

Fij:	Bauan	<i>tali</i>	(V) 'plait, interweave'
Pn:	Anutan	<i>tari</i>	'kind of plaiting'
Pn:	Maori	<i>tari</i>	'plaiting as opposed to weaving or twining'

PMP **piri(c,t)* 'twist, plait' (Blust 1970)

POc **piri* 'plait a cord, twist, wrap around'

Adm:	Mussau	<i>iri</i>	'tie, bind by wrapping around'
NNG:	Gedaged	<i>piŋi</i>	'weave (mats, sails +), (V) braid, knot (the strands of grass-skirts)'
PT:	Kilivila	<i>vili</i>	'turn; make grass-skirts; be twisted'
PT:	Molima	<i>vili</i>	'make a skirt, roll a cigarette, put a headdress round the head'
PT:	Motu	<i>hiri</i>	'fasten by twisting round and round; tie up (a parcel, bundle), twisting string all round it; kill (pig) for visitors'
MM:	Tolai	<i>pir</i>	'plait (basket, mat +)'
MM:	Nakanai	<i>vir</i>	'twist, wind up, wind around'
MM:	Simbo	<i>vir</i>	'plait, make a basket'
SES:	Sa'a	<i>hiri</i>	(V) 'lap with string, bind spears or arrows'
SES:	Arosi	<i>hiri</i>	'twist, twine round, (snake) coil, wind (a line) round'
NCV:	Mota	<i>vir</i>	'twist, wring, squeeze with a twist, plait'
NCV:	Tamambo	<i>vir</i>	'twist, plait, braid; coconut milk'
SV:	Sye	(<i>e</i>) <i>vi</i>	'weave (basket)'
NCal:	Nemi	<i>fili</i>	'braid'
Mic:	Ponapean	<i>pir</i>	'turn, spin, twist'
Mic:	Kosraean	<i>pir(aki)</i>	(V) 'braid, plait'
Fij:	Rotuman	<i>hiri</i>	'plait three strands of sennit, hair, etc., and the 'tail' of a basket or floormat made of coconut-leaf, this tail itself being called a <i>hiri</i> '
Fij:	Bauan	<i>vir</i>	'lash (fence, raft +)'
Pn:	Samoaan	<i>fili</i>	'plait, braid (sennit, hair +)'
cf. also:			
PT:	Gumawana	(<i>ki</i>) <i>pili</i>	'twist s.t., unscrew a lid'
MM:	Tolai	<i>pir</i>	'plait (basket, mat +)'

PEOc **piri-piri* 'twine round and round; thing made by braiding'⁴

SES:	Sa'a	<i>hiri-hiri</i>	'plaited spear'
SES:	Arosi	<i>hiri-hiri</i>	'twist, twine round, (snake) coil, wind a line round; a thread for tying a hook to a line'
Mic:	Woleaian	<i>piri-pir</i>	'tie, twist, fold, lash (as in twisting ropes)'
Pn:	Samoaan	<i>fili-fili</i>	'chain'
Pn:	Hawaiian	<i>hili-hili</i>	(V) 'braid, plait, string'

⁴ Oliver (1974:139) describes cord making from "the flax-like *piripiri* (*Cenchrus echinatus*)" in Tahiti, quoting from Henty (1927).

Reduplication was regularly used to form intransitive verbs from verbs which were otherwise transitive (see Ch. 2, §3.1.2).

PEOc **pilos, pilos-i-* 'make a cord by twisting fibres on the thigh' (Bethwyn Evans pers.comm.)

SES: Lau	<i>filo, filosi-</i>	'twist together (strands), twist round'
SES: Kwaio	<i>filosi-</i>	'twist, wring'
SES: 'Are'are	<i>hirosi-</i>	'wring, twist, roll'
SES: Arosi	<i>hiro, hirosi-</i>	'revolve, spin'
NCV: Port Sandwich	<i>vlösi-</i>	'roll on one's thigh'
NCV: Paamese	<i>vilesi-</i>	(VT) 'turn around, turn over'
Fij: Bauan	<i>vulo</i>	'twist a thread on the knee'
Pn: Tongan	<i>filo, filohi-</i>	'thread; spin, make thread, string, rope'
Pn: Takuu	<i>filo</i>	'roll rope on thigh'
Pn: Mangareva	<i>hiro</i>	'make threads by rolling filaments on the thigh'
Pn: Hawaiian	<i>hilo</i>	'twist, braid, spin; twisted, braided'

See Chapter 9, §§7–8, for discussion of the item above.

PWOc **m^wali* 'braid large ropes (for use with canoes +)' (Chowning 1991)

NNG: Lukep	<i>mol-</i>	'twist into a loop'
NNG: Manam	<i>moli</i>	'plait'
PT: Sudest	<i>m^wana(basi)</i>	'twist (s.t.)'
MM: Nakanai	<i>mali</i>	'plait (mat)'

PMP **kapat* 'cotton, thread' (Dempwolff 1938)

POc **kapa* 'sennit'

Fij: Wayan	<i>kava</i>	'(sennit) be rolled into a coil; a coil of sennit'
Fij: Bauan	<i>kavā</i>	(also spelled <i>kapā</i>) 'roll of sinnet'
Pn: Tongan	<i>kafa</i>	'sennit (string or rope made of coconut fibre)'
Pn: Tikopia	<i>kafa</i>	'sennit cord plaited from fibre of coconut husk'
Pn: Marquesan	<i>kaha</i>	'sennit rope used in lashing canoe'

The product of tying a piece of cordage is, of course, a knot. POc seems to have had no term dedicated to a knot as understood in English, but had the more generalised term **buku*, which referred to a node, protuberance, joint or knot (this word was also used with the meaning 'tie a knot'; see Chapter 9, §10):

PMP **buku* 'node (as in bamboo or sugarcane); joint; knuckle; knot in wood, string or rope' (ACD)

POc **buku* 'node (as in bamboo or sugarcane); joint; knuckle; knot in wood, string or rope' (ACD)

NNG: Manam	<i>buku</i>	'mountain; knuckle'
NNG: Gedaged	<i>buku-n</i>	'knot on the stem of a tree, or a knot tied in a cord; knob; tumour, haemorrhoids'
MM: Nakanai	<i>bu-buku</i>	'knot in a tree'
MM: Kara (West)	<i>buki-</i>	'knee'
MM: Tabar	<i>puk-puku</i> <i>puku-</i>	'knee' 'boil, ulcer'

MM:	Tolai	<i>buk</i>	'boil, ulcer, abscess; hence any lump, corner, point, knob +'
		<i>buku-</i>	'knee'
MM:	Babatana	<i>pu-puku</i>	'elbow'
MM:	Roviana	<i>puku-na</i>	'a knot'
MM:	Maringe	<i>p^hu-puku</i>	'knee, elbow'
SES:	Bugotu	<i>puku</i>	'a swelling from a blow; lump, knot, tumor'
SES:	Gela	<i>puku</i>	'a knot'
		<i>vari-puku</i>	'tie a knot'
Mic:	Kiribati	<i>buki-ni-bai</i>	'elbow'
		<i>buki-narora</i>	'reef jutting out at end of land'
Mic:	Kosraean	<i>fuku-ne</i>	'ankle'
		<i>puku-n ne</i>	'shank, shin'
Mic:	Trukese	<i>p^w-p^wuk</i>	'knot'
Fij:	Bauan	<i>buku</i>	'the raised end of a shell + ; knot, protuberance'
		<i>(i)buku</i>	'a knot'
		<i>buku ni kai</i>	'hinge of a bivalve'
Pn:	Rennellese	<i>puku</i>	'knot, as in a tree'
Pn:	Maori	<i>puku</i>	'swelling, tumor, knob; head of seed, cob of corn; swell'

3.2.1 Sewing

POc **saqi(t)* was the term used specifically for sewing activities. The terms **(su)suk-i* 'pierce, sew (mats)' and **(su)suRi* 'bone (needle); sew' were also used for sewing, but this was not their primary meaning.

POc **saqi(t)* 'sew' (Milke 1961); 'sew (pandanus mats, thatch +)' (Chowning 1991)

Adm:	Mussau	<i>saki</i>	'sew'
		<i>saiki</i>	'sew (clothes)' (cf. <i>sui, suli</i> 'sew (mats, thatch)')
NNG:	Amara	<i>sai-sai</i>	'sew'
NNG:	Kairiru	<i>sai</i>	'sew'
PT:	Motu	<i>dai(āhu)</i>	'close a bag by sewing up the mouth' (<i>ahu</i> 'closed')
MM:	Meramera	<i>sai</i>	'sew'
MM:	Nakanai	<i>sahi</i>	'sew'
		<i>sa-sahi</i>	'sew two things together'
SES:	Lau	<i>tai</i>	'sew'
SES:	Arosi	<i>ta?i</i>	'sew, join together'

cf. also:

NNG:	Sengseng	<i>sihit</i>	'sew areca palm spathe pouches for lime; barricade a doorway by interlacing vines across'
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PMP **cukcuk, *suksuk* 'skewer' (ACD)

POc **(su)su(k)* 'anything used to pierce, prick' (cf. Ch. 9, §4.1)

NNG:	Gitua	<i>zuzu</i>	'sharpened stick used like cooking fork'
PT:	Motu	<i>dudu</i>	'prod with a stick'

MM:	Nakanai	<i>susu(tola)</i>	'pierce the footprint (kind of sorcery)'
SES:	Gela	<i>susu(ihu)</i>	'hole in septum in nose; nose stick; strengthening sticks through thatch of house ridge' (<i>ihu</i> 'nose')
SES:	Lau	<i>susu</i>	(V) 'point, prick, impale, pierce, poke out with a stick, sting, darn'
NCV:	Mota	<i>sus</i>	'pierce, run through'
Fij:	Rotuman	<i>susu</i>	? 'sew, prick'

In the following set there may be some blending of meaning between two formally close terms, POc **s(u,i)ri* 'pierce, poke' (Ch. 9, §4.1) and POc **suRi* 'bone', because needles were at times made from bones (of bird or flying fox or occasionally pig).

POc **(su)suRi* 'bone (needle); sew' (cf. POc **suRi* 'bone')

Adm:	Mussau	<i>sui</i>	'sew (mats), thatch'
MM:	Roviana	<i>susuri(na)</i>	'bone'
SES:	Sa'a	<i>suli(teru)</i>	'bone needle' (<i>suli</i> 'bone')
SES:	Arosi	<i>suri(ao)</i>	'needle for sewing thatch' (<i>suri-suri</i> 'bone', <i>ao</i> 'sago palm')
NCV:	Mota	<i>su-sur</i>	'sew, prick'

The following term for needle, POc **saRum*, evidently had specific reference to a tattooing needle, in addition to a more general meaning.

PMP **zaRum* 'needle' (Dempwolff 1938)

POc **saRum* 'needle, tattooing needle (typically made from wing-bone of flying fox)'

Adm:	Mussau	<i>raum</i>	'needle'
Adm:	Lou	<i>sou-</i>	'needle'
NNG:	Lukep (Pono)	<i>sar</i>	'needle (traditionally made of bat bone or fish bone)'
MM:	Nakanai	<i>salu</i>	'needle or awl'
SES:	Arosi	<i>taru</i>	'bat's bone for tattooing'
SES:	'Are'are	<i>taru(a)</i>	'needle, the bones of a flying fox'
Fij:	Bauan	<i>sau</i> (<i>i</i>) <i>sau</i>	(V) 'prick, as in tattooing' 'needle' (<i>i-</i> < POc <i>*i-</i> INS)
Pn:	Tongan	<i>hau</i>	'thin dagger, like a giant needle, used in spearing bonito'
Pn:	Samoaan	<i>au</i>	'needle, tattooing comb'
Pn:	Tokelauan	<i>au</i>	'needle for sewing thatch; tattooing comb'

4 Tools

4.1 Cutting implements

4.1.1 Axe, adze

Oliver (1989:88) identifies axe heads as having cutting ends bevelled on both sides, adzes as having cutting ends bevelled on one side only, and axe-adzes which are bevelled so as to be

used either way. They are, of course, hafted differently on to their handle, the axe head lying along the same plane while the adze head is set at right angles to the handle. Axes would have been used primarily in tree-felling; adzes for such activities as the hollowing out and shaping of canoes, or the extraction of pith from sago palms. Either implement could have been utilised in the shaping of timber for the construction of houses, fenceposts etc. Although the preferred material for an adze blade was presumably basalt, archaeological sites in Island Oceania contain numbers of axes and particularly adzes, made of shell, mostly of *Tridacna*, the giant clam (Oliver 1989:89). On coral atolls, shell often has by necessity to substitute for stone.

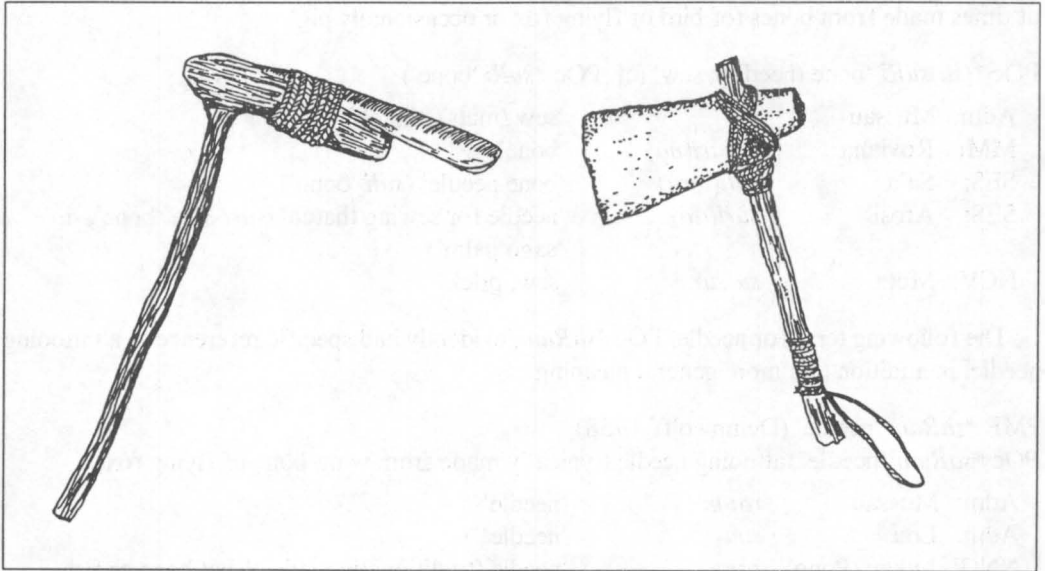


Figure 10: POc **kiRam* 'stone adze, axe', POc **matau* 'axe', POc **taku*, POc **taRa(q)* 'adze'

PMP **kiRam* 'axe or adze' (ACD)

POc **kiRam* 'stone adze, axe' (Milke 1968)

Adm:	Mussau	<i>iema</i>	'knife'
NNG:	Manam	<i>kira</i>	'stone axe, axe blade'
PT:	Gumawana	<i>kiyama</i>	'axe'
PT:	Molima	<i>ilama</i>	'stone axe'
PT:	Motu	<i>ira</i>	'hatchet; adze'
PT:	Dobu	<i>ila</i>	'stone axe'
MM:	Vitu	<i>kira</i>	'axe'
MM:	Label	<i>iram</i>	'axe'
MM:	Tolai	<i>riam</i>	'the original stone (basalt) tomahawk' (metathesis)
SES:	Gela	<i>gila</i>	
SES:	Kwaio	<i>?ila</i>	'flint, flint tool'
SES:	Arosi	<i>?ira</i>	
NCV:	South Efate	<i>karam</i>	'axe'
SV:	Lenakel	<i>(ka)kil</i>	'sharpened stick (used as adze, digging stick +)'
Mic:	Ponapean	<i>ki</i>	'shell adze'

Fij:	Rotuman	<i>?ia</i>	'axe'
Fij:	Wayan	<i>kia</i>	'axe or adze'

Note the change in meaning in the three examples given at the end of the following cognate set. All three languages are Samoic Outliers.

POc **matau* 'axe'

Adm:	Loniu	<i>motow</i>	'k.o. knife or cutting tool'
NNG:	Lukep (Pono)	<i>matau</i>	
MM:	Lihir	<i>matau</i>	
MM:	Patpatar	<i>matau</i>	
SES:	Tolo	<i>matau</i>	'stone axe'
Fij:	Bauan	<i>matau</i>	'native adze made of stone'
Pn:	Samoaan	<i>matau</i>	'adze, axe'
Pn:	Luangiua	<i>matau</i>	'tattooing chisel'
Pn:	Tikopia	<i>matāu</i>	'tattooer's serrated chisel of bird-bone'
Pn:	Anutan	<i>matau</i>	'tattooing chisel'

POc **m^(w)ata-* 'point, cutting edge, sharp projection' (Grace 1969)

Adm:	Loniu	<i>mata-n</i>	'blade'
Adm:	Bipi	<i>mata-n</i>	'sharp'
NNG:	Takia	<i>mala-n⁵</i>	'sharp, bright; (knife) edge'
PT:	Motu	<i>mata</i>	'point or tip of anything'
SES:	Lau	<i>mā</i>	'point, edge'
SES:	Sa'a	<i>mā</i>	'edge, point, blade, brim'
NCV:	Mota	<i>mata(i)</i>	'edge, point' (-i < POc <i>*qi</i> 'generic possessive preposition')
Mic:	Puluwat	<i>māh</i>	'(pencil, spear +) point'
Mic:	Mokilese	<i>mac</i>	'spearhead'
Fij:	Wayan	<i>ŋata</i>	'be sharp'
Pn:	Tongan	<i>mata</i>	'blade, cutting edge, point'
Pn:	Tahitian	<i>mata</i>	'edge of a tool'

The following are possibly related to the set above but all reflect an extra **i* (Loniu and Tawala reflect a possible POc **m^wati*, the NNG items a putative **m^(w)aita*). It is possible that this **i* reflects the incorporation into **m^(w)ata* of the generic possessive preposition **qi*, which would frequently have occurred immediately after it (e.g. POc ***m^(w)ata-qi kiRam* 'axe blade') and is reflected in Mota *matai* above.

Adm:	Loniu	<i>m^wati</i>	'axe'
NNG:	Takia	<i>mait</i>	'(small) knife'
NNG:	Manam	<i>moita</i>	'knife'
NNG:	Kairiru	<i>m^weit</i>	'knife'
PT:	Tawala	<i>m^wasi-m^wasi</i>	'machete, bush knife'

⁵ Takia *-l-* is the lenis reflex of POc **-t-*.

PMP **ta(ŋ)kub* 'adze' (Dahl 1981)POc **taku* 'adze'

Adm:	Loniu	<i>taku(wen)</i>	'dig (s.t.) with adze'
PCP <i>*taku</i> 'cutting implement made from shell of turtle or <i>Tridacna</i> shell'			
Fij:	Wayan	<i>taku</i>	'Hawksbill turtle and its shell'
Pn:	Tongan	<i>toku</i>	'knife or cutter made from turtleshell or hard wood (now rare)'
Pn:	Tuvalu	<i>takū</i>	'axe or flat-bladed adze with <i>Tridacna</i> blade'
Pn:	E. Uvean	<i>takū</i>	'shell of turtle'

PMP **(t,T)aRaq* 'hew, plane' (Blust 1972b)POc **taRa(q)* (N, V) 'adze'; **taRaq-i-* 'chop with adze'

NNG:	Takia	<i>tare</i>	(VT) 'cut, hew, as with an axe'
NNG:	Manam	<i>tara</i>	'cut down (branches)'
PT:	Motu	<i>tarai-</i>	(V) 'adze, chop, cut wood'
PT:	Molima	<i>tala</i>	'cut down trees; cut firewood; carve'
PT:	Dobu	<i>tala</i>	(VT) 'fell a tree, cut out a canoe; lance flesh'
MM:	Tabar	<i>tara</i>	'chop'
MM:	Minigir	<i>(ta)tara</i>	'adze'
SES:	Arosi	<i>arai-</i>	'chop, cut, cut down a tree'
NCV:	Mota	<i>tara</i>	'hew, chop, cut'
NCV:	Paamese	<i>tāta</i>	'adze'
SV:	Lenakel	<i>(a)rai</i>	'cut'
SV:	Anejom	<i>(a)tai</i>	'slice, cut without raising knife'
Mic:	Kiribatese	<i>ta-tā</i>	(V) 'adze'
Mic:	Carolinian	<i>sār</i>	'knife'
Fij:	Bauan	<i>tā</i>	'chop with knife or axe'
Pn:	Tongan	<i>tā</i>	'hit, strike, beat'
		<i>tāʔi</i>	'chop, cut or carve (canoe+)'
Pn:	Niuean	<i>tā</i>	'strike, kill, adze'
Pn:	Hawaiian	<i>kā</i>	'hit, strike, hack, thrust'

The existence of axe and adze heads with characteristic shaping to accommodate a handle, together with reconstruction of a term clearly designating 'handle of adze or axe' indicates that POc speakers were familiar with a stone head hafted to a wooden handle. This would have been by means of gum adhesives and cordage, much as described by latter day ethnographers (e.g. Oliver 1974:135–137 for Tahiti).

PMP **paRada* 'axe-adze handle' (Blust 1989)POc **p(ʷ)aRara* 'handle' (Milke 1968: **paRaRa*)

NNG:	Lukep (Pono)	<i>parere</i>	'handle: used of axe, hammer; not of machete, shovel'
NNG:	Gedaged	<i>paʔaʔ</i>	'handle (of broom, hammer, but not of cups +)'
NNG:	Takia	<i>parar</i>	'handle, a curved shaped handle used in the construction of several Takia cutting tools. It is made from the <i>makas</i> tree (pidgin) (<i>Hibiscus tiliaceus</i>). They heat the handle over a fire in order to shape it.'

PT:	Motu	<i>parara</i>	'handle'
MM:	Roviana	<i>varara</i>	'wooden handle (of axe +)'
SES:	Gela	<i>valala</i>	'handle; cross handle of an adze'
SES:	Sa'a	<i>halala</i>	'helve an axe'
SES:	Arosi	<i>hara-hara</i> <i>(a)harara</i>	'bamboo knife for cutting up pigs' 'having a handle' (<i>a-</i> < POC <i>*ta-</i>)
NCV:	Raga	<i>vara</i>	'handle'
Mic:	Puluwat	<i>pār, pera-</i>	'(knife, saw) handle'
Mic:	Woleaian	<i>paş</i>	'that part of a utensil or tool which is to be held with the hand'

With regard to the reconstruction of **p(ʷ)*, see Chapter 2, §2.1. Western Oceanic and SES languages show assimilation of POC **r* to **R*, but we assume that assimilation had not occurred in POC, since, as Blust points out, Puluwat *r* reflects POC **r*, whilst Woleaian *ş* inexplicably reflects POC **dr*. One of the Arosi reflexes and the Raga, Puluwat and Woleaian reflexes show haplology.

4.1.2 Knives

Knives were typically made from bamboo. Shells also provided good cutting edges. Probably the very best cutting edge would have been a flake of obsidian, used as a razor or for whatever forms of surgery might have been performed on the human body, and the term for this was apparently **koto* (see below). However, dedicated terms for 'knife', as opposed to the substances they were made from, are hardly reconstructable in POC. The only one we can be sure of is:

PMP **pisaw* '(bamboo) knife'⁶

POc **piso* '(bamboo) knife'

Adm:	Mussau	<i>iso</i>	'cut (meat +)'
MM:	Bola (Harua)	<i>viso</i>	'knife'
MM:	Nakanai	<i>viso</i>	'(steel) knife' (a loan?)
MM:	Tabar	<i>viso</i>	'bamboo'

Although PCP **sele* 'knife; cut with a knife' seems to have cognates elsewhere, it is highly likely that the Lukep, Lihir and Nengone terms were introduced by Fijian or Polynesian missionaries to apply to western metal knives:

PEOc **sele* 'knife; cut with a knife'

SES:	Kwaio	<i>sele</i>	'shell used for cutting; trim (edge of s.t.)'
Fij:	Rotuman	<i>sele</i>	'cut across path, intercept'
Fij:	Wayan	<i>sele</i> <i>(i)sele</i>	'cut a slice of s.t.; slice (one piece) of s.t.' 'instrument for slicing, knife (generic)' e.g. <i>isele loku</i> 'pocket knife', <i>isele ni drukudruku</i> 'bushknife, machete' (<i>i-</i> < POC <i>*i-</i> INS)

⁶ Reconstructed on the basis of Gorontalo *pito*, Indonesian *pisau*, Buginese *piso*, all 'knife', and the Oceanic reflexes listed here.

Fij:	Bauan	<i>sele, sele(va)</i> (i) <i>sele</i>	'cut with a knife; operate on; castrate' 'knife' (<i>i-</i> < POc * <i>i-</i> INS)
Pn:	Tongan	<i>hele</i>	'knife; cut with a knife'
Pn:	E. Futunan	<i>sele</i>	'knife, cut'
cf. also			
NNG:	Lukep	<i>sele</i>	'machete'
MM:	Lihir	<i>sele</i>	'knife'
NCal:	Nengone	<i>hele</i>	'knife'

Although the following Admiralties set bears a superficial similarity to the CP set above, the forms are too different to suggest cognation. PEAd **care* points back to an otherwise unattested POc ***ja(r,c)e*.

PEAd **care* 'knife, slice with a knife'

Adm:	Titan	<i>calé-le, cále</i>	'knife'
Adm:	Drehet	<i>sele(?e)</i>	'razor'
Adm:	Loniu	<i>ca?e, ca?i(ti)</i>	'cut'
Adm:	Nyindrou	<i>san</i>	'slice, cut'

Biggs (1993) includes one further reconstruction for 'bamboo knife', PPn **kofe*.

4.1.3 *Flint, obsidian*

Obsidian, glass-hard volcanic stone found on Lou Island (Admiralties), on Fergusson Island in the D'Entrecasteaux group, at Talasea (Willaumez Peninsula of New Britain) and Banks Island, Vanuatu, and, from its traces in excavated Lapita sites, a much sought-after trade item among early Oceanic speakers, serves as a fine cutting edge. POc **nad(r)i* is reconstructable, although in places it refers only to hard stone (with a cutting edge?). **qa(r,R)ij* is reconstructable only for PWoc. Reflexes of POc **koto* refer to a variety of uses of the material and suggest that its primary meaning was 'obsidian cutting edge':

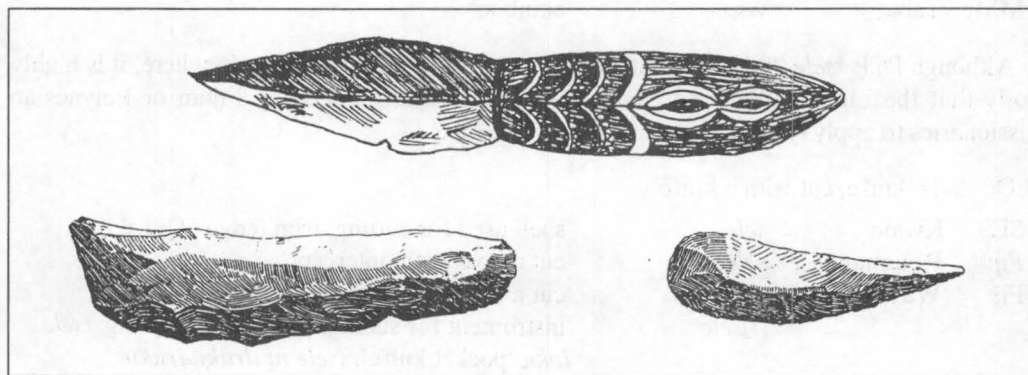


Figure 11: POc **nad(r)i* 'flint, obsidian, stone with a cutting edge';
POc **koto* 'obsidian knife or blade'

POc **nad(r)i* 'flint, obsidian, stone with a cutting edge'

NNG:	Takia	<i>nad</i>	'obsidian, volcanic glass'
PT:	Motu	<i>nadi</i>	'stone'
SES:	Gela	<i>nadi</i>	'flint'
SES:	Bugotu	<i>nadi</i>	'flint'
SES:	Lau	<i>(fou) nagi</i>	'flint'
SES:	Arosi	<i>nagi</i>	'flint, obsidian'

PWOC **qa(r,R)ij* 'obsidian; razor'

NNG:	Lukep (Pono)	<i>ailij</i>	'razor (traditional razor was a sharpened shell)'
NNG:	Gedaged	<i>yaliij</i>	'obsidian (a splinter of it serves as a razor)'
NNG:	Kove	<i>ali-ali</i>	'obsidian'
PT:	Duau	<i>kalilia</i>	'arrow'
PT:	Sudest	<i>kayina</i>	'knife'
MM:	Nakanai	<i>hali</i>	'obsidian; razor formerly made of obsidian'
MM:	Meramera	<i>ali</i>	'obsidian'

POc **koto* 'obsidian head of spear, obsidian knife or blade; cut (across)'

NNG:	Dami	<i>oto</i>	'spear'
NNG:	Lukep	<i>koto</i>	'cut across grain'
NNG:	Wab	<i>kot</i>	'cut'
NNG:	Sissano	<i>?ot</i>	'chop'
MM:	Tigak	<i>koto</i>	'cut off'
MM:	Ramoaina	<i>koto</i>	'obsidian; used to make scars or to shave'
MM:	Tolai	<i>koto</i>	'piece of stone (obsidian) or shell used as a lance'
MM:	Roviana	<i>koto(a)</i>	'cut or trim hair, shrubs +'
SES:	Kwaio	<i>?oto</i>	'hit and perforate'
SES:	Arosi	<i>koto</i>	(V) 'spear'
		<i>oto</i>	'arrow without barbs'
NCV:	Mota	<i>koto</i>	'nip, snap'
NCV:	Nguna	<i>koto(vi)</i>	'break, cut (a long thing); separate, away'
NCV:	Lonwolwol	<i>kote, gote</i>	'across, through'

A group of eastern Polynesian languages have a term for obsidian probably derived from POc **m(w)ata* 'cutting edge' (§4.1.1).

Pn:	Rapanui	<i>matā</i>	'obsidian'
Pn:	Maori	<i>matā</i>	'obsidian, flint, quartz'
Pn:	Hawaiian	<i>mākā</i>	'kind of stone'

4.1.4 *Awl*

Multi-purpose piercing tools may have been carried, fashioned from bone, perhaps a pig's femur. These were useful for piercing shells, splitting fibres for weaving, splitting areca nuts, separating coconut meat from its shell and such daily activities. They were probably also used to pierce earlobes and the nasal septum. Green (1979:39) lists a worked pig-tusk piercing tool from the Main Reef Islands, circa 1100 B.C. Reconstructions appear primarily verbal, with a term for the instrument sometimes derivable from the verb. They include POc **puru(k)*,

**puruk-i-* 'pierce, bore (hole)', POc **buru* 'bore a hole, drill'; PWOc **b^waR(i,e)* 'bore (hole)'; and PEOc **paRo* 'drill through, pierce, perforate' (see Chapter 9, §4.2, for the cognate sets).

4.1.5 *Sharpening and grinding*

There is evidence that all three of the basic methods for shaping stone—flaking (also called chipping), pecking and grinding—were practised in POc times (Oliver 1989:144). We have several reconstructions for actions which include sharpening or grinding, but they may also refer to grating (foodstuffs), and at times to rasping and filing (wood and shell). Pumice, widely available in volcanic regions, was typically used for sharpening stone. Although we can reconstruct terms for the activity, the only reconstruction we have for the implement is the PCP term for a whetstone.

PCP **vuqa(i)ŋa* 'whetstone, grindstone'

Fij:	Wayan	<i>vuaiŋō</i>	'pumice stone, pumice; used for scouring coconut-shell cups'
Pn:	Tongan	<i>fu^o-fu^oŋa</i>	'pumice'
Pn:	Samoan	<i>foaŋa</i>	'grindstone'
Pn:	Rarotongan	<i>?oaŋa</i>	'grindstone'
Pn:	Mangareva	<i>hoaga</i>	'volcanic stone used as hone or sharpener'
Pn:	Maori	<i>hōaŋa</i>	'sandstone used in grinding stone'

From its form it is clear that PCP **vuqa(i)ŋa* is a nominalisation. The corresponding verb occurs in Polynesian languages with somewhat altered meaning (Samoan *foa* 'break rock or shell', Hawaiian *hoa* 'strike with stick or club'). Together with the WOc cognates, Iduna (PT) *fua-* 'crush', Motu (PT) *huari* 'smash, as pottery' and Tolai *puar* 'break (cup, glass +)' they point to POc **pu(q)a(R)*, **pu(q)aR-i-* 'break, as s.t. hard, smash'.

PAn **Sasaq* 'whet, sharpen' (ACD)

POc **asa(q)*, **asaq-i-* 'grate, sharpen by grating or rubbing'

POc **i-asa(q)* 'grater; anything used to grate, grind' (Lichtenberk 1994)

Adm:	Loniū	<i>yasa(y)</i>	'sharpen (a cutting edge)'
NNG:	Manam	<i>ara</i>	'grate, sharpen, rub'
NNG:	Kairiru	<i>yas</i>	'sharpen s.t.'
MM:	Teop	<i>aha</i>	'grate (tapioca +); scrub (floor +)'
		<i>(i)aha</i>	'grater (for tapioca)' (<i>i-</i> < POc * <i>i-</i> INS)
MM:	Maringe	<i>jaha</i> or <i>zaha</i>	'sharpen (knife, axe +); grate (tapioca, sweet potato)'
MM:	Roviana	<i>asa-i-</i>	'grind (very blunt axe +); grate (sweet potato, taro +)'
SES:	Bugotu	<i>(a)aha</i>	'grate, rub down (taro +) on a stone, sharpen by rubbing'
SES:	Lau	<i>sata</i>	'rub, rub down, sharpen by rubbing'
SES:	Arosi	<i>ata</i>	'scrape, rub, sharpen with rubbing'
NCV:	Mota	<i>asa</i>	'rub, wash with rubbing'
SV:	Kwamera	<i>arəsi</i>	'scrape, grate'
Mic:	Carolinian	<i>(m)asa</i>	'(knife, axe +) blade'
Mic:	Ponapean	<i>ete</i>	'sharpen, put an edge on s.t.'

Fij:	Bauan	<i>yaða-</i> (<i>i</i>) <i>yaða</i>	'grate, grind, file' 'grater, grindstone' (<i>i</i> - < POC * <i>i</i> - INS)
Pn:	Maori	<i>aha-aha</i>	'saw-like instrument of shark teeth set in a wooden mounting'

PMP **kirkir* (V) 'file, rasp' (Blust 1977)

POc **kiri* 'file, rasp, saw'

NNG:	Roinji	<i>kiri-</i>	'bore (hole)'
NNG:	Manam	<i>kuiri-</i>	'bore (hole)'
NNG:	Kove	<i>iri</i>	'clean teeth, scrub a saucepan (both done by rubbing with sand)'
PT:	Iduna	<i>kili-li</i>	'pumice stone'
PT:	Motu	<i>iri</i>	(N) 'saw'
		<i>iri-ri</i>	'file'
Pn:	Tongan	<i>kili</i>	'saw, file'
Pn:	Tokelauan	<i>kili</i>	(V) 'file, rasp'

POc **giri* 'file, rasp, saw'

NNG:	Mangseng	<i>kir</i> <i>kir(oŋa)</i>	'rub, file' (N) 'file' (- <i>oŋa</i> NOM)
SES:	Gela	<i>gi-giri</i>	(N) 'rasp; a saw'
SES:	Lau	<i>giri-giri</i>	'roughen, as a stick with notches, or in making a file'

cf. also:

NNG:	Takia	<i>riri</i>	'grate, pulverise by rubbing against s.t. rough; rasp'
PT:	Motu	<i>riri</i>	'grate (yams +)'

Both **kiri* and **giri* are reconstructable, the latter perhaps a verb from **N-kiri*; the Polynesian reflexes are attributable to either.

The same terms may have also been used to describe the actions of smoothing and polishing. The Polynesians, in particular, were concerned to produce a fine finish to their artefacts by rubbing. Beaglehole wrote of the Tahitians, "All their [wood] work however acquires a certain neatness in the finishing for they polish every thing, even the side of a canoe or a Post of a house, with Coral sand rubbed on in the outer husk of a Cocoa nut and rays skin, which makes them very smooth and neat." (quoted in Oliver 1974:134). The general term for this may have been POC **quju(r)* 'rub, make smooth by rubbing' (see Ch. 9, §2.3). In at least one language (Woleaian in Micronesia) the term for a file is the same term as that for stingray (*faiya* > PAN **paRis* 'stingray'), the skin of which serves as a fine abrasive.

5 Bark-cloth, clothing, body decoration

5.1 Bark-cloth (*tapa*)

The material used to make bark-cloth or *tapa* in the Pacific area is obtained mainly from various species of trees belonging to the genera *Broussonetia*, *Artocarpus*, and *Ficus*, all of

which belong to the family Moraceae. Wherever tapa was made, the *Broussonetia papyrifera* or paper mulberry tree was used for the highest quality cloth. It is not native to the Pacific, but to eastern Asia, whence migrants carried it to Indonesia and the Pacific. The only other significant source is the *Pipturus* species, used for tapa particularly in Hawaii (Kooijman 1972:1).

Bark-cloth is a significant item in Indonesia and in the eastern Oceanic region, particularly Polynesia, but also Santa Cruz, New Caledonia and Fiji. However, it does not feature strongly in the western Oceanic region. Ivens wrote (1918:186) that although bark-cloth (tapa) was made in Melanesia, it never figured as an article of clothing, and its main use was to form a kind of shawl in which the baby was slung when carried from the shoulder. Ivens was probably speaking from a Solomons perspective. Kooijman (1972:446) quotes reports by Chalmers and Gill (1885) which mention bark-cloth from Collingwood Bay and the Gulf of Papua (both PT); while in the Northern Province of south-east Papua, for instance, bark-cloth is a prestigious valuable. In parts of New Britain it was used to bind the heads of young babies to achieve the desired elongated skull shape (Ann Chowning, pers.comm.). Kooijman (pp.446–453) points out that the descriptions of the manufacture of New Guinea bark-cloth and the study of the museum material indicate that, as a rule, this tapa is relatively thick and stiff and made from *Ficus* and *Artocarpus* varieties, rather than from *Broussonetia*. He believes that the latter was probably not used for tapa cloth in New Guinea. He records little mention of bark-cloth use in Micronesia, other than the wearing of tapa ponchos in Ponape. Yen (1973:83), in his examination of the origins of Oceanic agriculture, describes the cultivation of paper mulberry, as a pruned shrub for the production of bark for cloth, as ceasing west of the Melanesia/Polynesia border area.

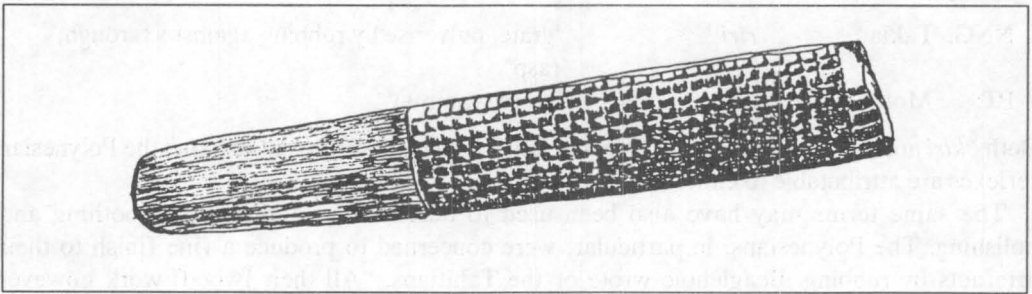


Figure 12: POC **ike* 'tapa beater'

Although terms can be located in WOC, none are cognate, and no POC term is reconstructable, apart from terms for the sources of raw material, POC **m(ʷ)ase* 'wild mulberry, paper mulberry, *Broussonetia papyrifera*', POC **kuluR* 'breadfruit, *Artocarpus* (from PAN **kuluR*)' and POC **nunu(k)* (from PMP **nunuk* 'banyan, *Ficus* spp.'). (see Plants, vol. 3).

The term *tapa*, now virtually the generic term for bark-cloth, can be reconstructed for PCP.

PCP **taba* 'bark'

Fij: Wayan *taba* 'skin, bark'

Pn:	Tongan	<i>tapa</i> ⁷	present meaning: 'edge, rim, border, boundary'; old meaning: 'bark-cloth (not printed or stained)' (Kooijman, p. 301, from Mariner 1827)
Pn:	Samoa	<i>tapa</i>	'white border of coloured bark-cloth sheet'
Pn:	Mangareva	<i>tapa</i>	'bark-cloth'
Pn:	Rarotongan	<i>tapa</i>	'cloth made from inner bark of certain trees'
Pn:	Hawaiian	<i>kapa</i>	'bark-cloth'
cf. also:			
SES:	Lau	<i>?aba</i>	'hand, arm, wing; leaf, frond, cloth; portion, part'
SES:	Arosi	<i>?aba</i>	'wing, limb; leaf (of banana +)'

Note that although the general term for bark-cloth in Tonga is *ηatu* and in Samoa is *siapo*, the term *tapa* does exist in both places. In Tonga today it refers more generally to 'edge, rim, border, boundary', and in Samoa it refers to the uncoloured border of the coloured bark-cloth sheet or *siapo*. Biggs (1993) lists these as apparently unrelated homonyms. Alternatively, if we assume the original PPn meaning of **tapa* to be 'bark-cloth which was not printed or stained', its more restricted meaning in Samoa is understandable.

A second term in Polynesia, referring both to plant and product, is widespread:

PPn **siapo* 'paper-mulberry plant (*Broussonetia* sp.); bark-cloth' (Biggs 1993)

Pn:	Niuean	<i>hiapo</i>	'paper-mulberry plant, bark-cloth garment'
Pn:	Tongan	<i>hiapo</i>	'paper-mulberry plant'
Pn:	E. Futunan	<i>siapo</i>	'bark-cloth'
Pn:	Samoa	<i>siapo</i>	'bark-cloth from paper mulberry'
Pn:	Marquesan	<i>hiapo</i>	'young banyan from which tapa is made'

A number of reconstructions have been made at PCP or PPn level, but the similarity of gloss indicates the likelihood of more subtleties of meaning than we have been able to identify here. They include: PCP **ηatu* 'old or worn bark-cloth', PCP **leu-leu* '(old) tapa cloth', and PPn **ηafi-ηafi* 'old mat or bark-cloth' (Biggs 1993).

The only term reconstructable for the Southeast Solomons is apparently limited to the island of Malaita.

SES:	Lau	<i>maku</i>	'bark-cloth'
SES:	Kwaio	<i>maku</i>	'bark-cloth'
SES:	'Are'are	<i>maku</i>	'cloth for married women, a fringe of string or a piece of pandanus worn in front and behind, not around the hips'

We have a reconstruction for the mallet used in beating tapa which goes back as far as PMP:

PMP **ike* 'tapa-beating mallet'

WMP:	Uma ⁸	<i>ike</i>	'tapa-beating mallet' (Kennedy 1934:237)
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⁷ Kooijman quotes from a report by William Mariner, a young Englishman stranded in Tonga from 1806–1810, indicating that at that time the term *tapa* was used as well as the more general term *ηatu*, the former referring to any bark-cloth "not printed or stained" (Mariner 1827, vol. 2, p.206).

⁸ Kennedy identified terms as 'Toradja' in central Sulawesi. This is now recognised as a group of around a

POc **ike* 'tapa beater'

SES:	Sa'a	<i>iki</i> (?o?o)	'beat the slitgongs' (?o?o 'gong')
Fij:	Bauan	<i>ike</i>	'tapa beater'
Pn:	Tongan	<i>ike</i>	'mallet with which <i>tutu</i> is beaten in making tapa cloth'
Pn:	Samoaan	<i>i?e</i>	'tapa beater'
Pn:	E. Futunan	<i>ike</i>	'tapa-cloth beater'
Pn:	Hawaiian	<i>i?e</i>	'tapa beater'

Biggs (1993) has PPn reconstructions for the action of beating tapa (**tutu*), and the board or anvil on which this was done (**tutua*). Both terms are derived from PAN **tuqtuq* 'hammer, pound, crush', POc **tutuk* (see Ch. 9, §5.1). It is of interest that the Toradja of central Sulawesi also have a term *totua* for the wooden board on which the bark-cloth is beaten (Kennedy 1934).

5.2 Clothing

Over the region as a whole there is enormous variation in the degree and nature of body covering in these areas. Chowning (1991:46) points out that "although ornaments were worn everywhere, clothes were not; for example, in parts of the Bismarck Archipelago both sexes wore nothing. In others, as Nakanai and part of Kove, only women wore clothing." Where clothing was worn, bark-cloth was undoubtedly the most substantial wearable material. Leaves, and to a lesser extent, grass, were used to fashion skirts, aprons and G-strings.

5.2.1 Loincloth

The following reconstruction of POc **malo* is soundly based, although there is doubt as to whether the term can be traced back to an earlier stage. Blust (1970:133) proposes PMP **maru* 'loincloth', but notes the difficulty of reconciling the PMP form with the POc, with the latter having unexplained **o* for expected **u* and **l* for expected **r*. There can be little doubt that the POc term referred to bark-cloth and a garment made from that material.

POc **malo* '*broussonetia papyrifera*, loincloth' (Milke 1968)

NNG:	Gedaged	<i>mal</i>	'tree, bark of which is used to make G-strings and blankets'
NNG:	Takia	<i>mal</i>	'bark-cloth'
NNG:	Kove	<i>malo</i>	'bark-cloth' (<i>malo maloŋa</i> male and female breechclout—worn under skirt by women)
MM:	Patpatar	<i>māl</i>	'cloth; clothing'
MM:	Tolai	<i>mal</i>	'name of small tree, <i>Broussonetia papyrifera</i> ; native cloth made from bark of this tree; any kind of cloth, loincloth'
MM:	Teop	<i>maro</i>	'cloth/clothing'

dozen related languages. The term *ike* 'barkcloth beater' exists in at least one of them, Uma. Thanks are due to Phil Quick for locating relevant texts.

SES:	Arosi	<i>maro</i>	'tree species, paper mulberry; beaten cloth of the <i>maro</i> (bark soaked in water and then beaten out, later painted in gay colours and used as a sling (<i>duru</i>) to carry a child, or a loincloth (<i>gaha</i>)'
NCV:	Raga	<i>malo</i>	'men's loin cloth'
Fij:	Bauan	<i>malo</i>	'paper mulberry; hence the native cloth made from it and the former native male dress, passed between the thighs and fastened with a girdle'
Pn:	Samoaan	<i>malo</i>	'loincloth'
Pn:	Emae	<i>maro</i>	'bark-cloth'
Pn:	Hawaiian	<i>malo</i>	'loin garment'

Another apparent POc reconstruction for a loincloth, **sulu*, with cognates in Kilivila (PT) and New Ireland as well as in the central Pacific, is relegated to PCP or PPn on the grounds that the term and garment were brought to New Guinea by Fijian and Polynesian missionaries in the nineteenth century.

The term **tipi* 'man's loincloth' perhaps had the generic sense 'man's clothing', as its reflexes have been reinterpreted quite broadly with changes in sartorial customs.

POc **tipi* 'loincloth, man's garment'

NNG:	Numbami	<i>tiwi</i>	'loincloth'
PT:	Motu	<i>sihi</i>	'man's girdle; the paper mulberry from which the girdle is made'
MM:	Simbo	<i>ti-tivi</i>	'skirt, sarong'
MM:	Roviana	<i>tivi-tivi</i>	'loincloth'
SES:	Gela	<i>tivi</i>	'sling for carrying a baby'
SES:	Ghari	<i>tivi</i>	'native loincloth for men'
SES:	Longgu	<i>ivi</i>	'sarong, <i>lavalava</i> '
Mic:	Woleaian	<i>sifi-sif</i>	'grass-skirt'

5.2.2 Grass or leaf skirt

Perhaps surprisingly, there is no widely reflected item for 'grass-skirt' or, more accurately, 'leaf skirt'. The set below has cognates in two primary subgroups, but, since the Admiralties and the north coast of New Guinea were connected by trading links, it may be due to borrowing.

POc (?) **nai(V)* 'woman's grass (shredded leaf?) skirt'

Adm:	Loniu	<i>nay</i>	'short ornamented skirt'
Adm:	Nyindrou	<i>nay</i>	'woman's dress'
NNG:	Gedaged	<i>nai</i>	
NNG:	Kairiru	<i>nai</i>	

Along much of that coast, reflexes of POc **jiRi* 'cordyline' are used for 'grass-skirt':

NNG:	Bariai	<i>(dajasi)sid</i>
NNG:	Kilenge	<i>na-sir</i>
NNG:	Mangap	<i>sere(kini)</i>
NNG:	Lukep	<i>sere(k)</i>

NNG: Malasanga	<i>sir</i>
NNG: Bing	<i>zier</i>
NNG: Mindiri	<i>da-dir</i>
NNG: Bilibil	<i>da-dir</i>
NNG: Takia	<i>di-dir</i>

Biggs (1993) has reconstructed PPn **iiti* 'skirt or kilt worn in the dance', a term which may have the same source.

A term found only on the island of New Guinea is:

PNGOc **ram(i,e)* 'grass-skirt'

NNG: Gitua	<i>ram</i>
NNG: Sio	<i>lome</i>
NNG: Bing	<i>rām</i>
PT: Motu	<i>rami</i>

POc **kaput* and POc **kopu* have been mentioned in relation to the wrapping of food before oven cooking (see Ch. 6, §3.7), although both are believed to have more general reference (**kaput* 'wrap up, cover', **kopu* 'bundle up together'). It would seem that in Polynesia their reflexes have also come to apply to the covering of the body, PPn **kafu* 'spread over, cover the body (with a blanket)', PPn **kofu* 'wrap up; clothing'.

5.3 Paint, smear, anoint

The practice of rubbing oil or grease on the body is known throughout the region, coconut and candlenut oil being favoured, rather than the pig fat used in the Highlands. The practice of painting red, yellow, black or white designs on the face and body with clay, lime etc. is found mainly in Melanesia. POc **lumu(k)* most probably refers to oil. POc **pani* would seem to cover both oiling and painting. Reflexes of POc **lumut* 'seaweed' and **lumu(k)* 'oil' coincide in several SES languages, so the 'Are'are term appears to be a blend of the two meanings, the idea of anointing with oil presumably introduced with Christianity.

PMP **lumuk* '(hair, skin) oily' (ACD)

POc **lumu(k)* 'oil, grease'

MM: Nakanai	<i>lomo</i>	'paint for hair and body, usually made from the oil of candlenut and red pigment'
MM: Simbo	<i>lumu</i>	'oil, grease'
MM: Roviana	<i>lumu-</i>	'anoint'
SES: 'Are'are	<i>rumu</i>	'seaweed; k.o. moss on trees, used in ceremonial purification, is wrung out over the head of a newborn baby when taken into somebody's house'
SES: Arosi	<i>rumu</i>	'oil' (cf. <i>rumu-rumu</i> 'moss')
Fij: Bauan	<i>lumu</i>	'anoint with oil'
cf. also:		
SES: 'Are'are	<i>ruma</i>	'oil, grease from pigs and coconuts, rubbed on the body to make it shiny'

In Fiji and Polynesia, reflexes of a different term, PCP **sinu* 'oil' are used.

POc **pani* 'apply oil or paint to the body' (Chowning 1991)

NNG:	Sengseng	<i>pan</i>	'paint designs on bark-cloth'
MM:	Nakanai	<i>vali</i>	'apply paint, feathers, or other surface adornment to the head or body'
Mic:	Kiribatese	<i>bani (kamaimai)</i>	'perfumed oil' (<i>kamaimai</i> 'molasses of toddy')
Fij:	Bauan	<i>vani</i>	'put oil through hair with fingers'
Pn:	Tongan	<i>pani</i>	'smear, besmear, daub, or stain; rub the head with oil'
Pn:	Rennellese	<i>pani</i>	'anoint (head + with turmeric)'
Pn:	Samoaan	<i>pani</i>	'dye the hair with the juice of <i>pani</i> (tree)'
Pn:	Maori	<i>pani</i>	'paint, besmear'

Chowning (p.48) mentions another form of body ornamentation, the blackening of teeth, evidently widespread in Melanesia as far east as the Solomons. Seligman (1910:492) describes the custom among the people of Tubetube (PT), in which fragments of a black bituminous semi-fossilised wood called *tari* are mixed into a paste with the chopped and roasted leaves of the *badira* tree, and held against the teeth overnight. He gives the purpose of teeth blackening as 'a means of personal adornment and to attract the opposite sex'. A reconstructed form, **tapal*, can be made for PWOC (the Sa'a term, *taha* rather than the expected *aha*, has to be considered a borrowing). Mikloucho-Maclay (1975:89) recorded in 1871 that "The natives [of Astrolabe Bay] not only blacken their faces, but also the mouth (tongue, teeth, gums, lips) with a substance which they chew." He gives the name *taval* for this substance. Although we cannot attribute *taval* to a particular language (Mikloucho-Maclay lived in a village of Papuan speakers), it is evidence that reflexes of **tapal* occur in the NNG area.

PWOC **tapal* 'substance used to blacken teeth' (Chowning 1991)

PT:	Molima	<i>tavana</i>	'mineral substance used for blackening the teeth'
MM:	Tolai	<i>taval</i>	'baked earth for blackening teeth; the custom of blackening the teeth'

cf. also:

MM:	Roviana	<i>davala</i>	'blacken the teeth with a mixture of Terminalia leaf, oil etc.'
SES:	Sa'a	<i>taha</i>	'pigment made from river rock, used in teeth-blackening'

A second reconstruction is PSS **ogo* 'tooth-blackening powder' (Lau *ōgo*, Kwaio *ogo*). Ivens (1927 (reissued 1972):83) described the custom as practised by 'young men or girls, who wish to give themselves airs', although later, (1930:121) he wrote that "it was said to preserve the teeth and prevent sore gums".

5.4 Tattooing

Chowning (1991:48) points out that tattooing in New Guinea has only limited distribution, tending to be confined to people with relatively light skin. "Where it was practised, methods ranged from the cutting of fine lines with obsidian, after which pigment was rubbed in, to the use of special implements. Darker-skinned people practised ornamental cicatrisation." Although no POc reconstruction has been made for the activity, reflexes of POc **saRum* (see §3.2.1)

indicate that a tattooing needle of bat's bone was known in both eastern and western Oceanic as well as the Admiralties. In the east Oceanic region tattooing is widespread. It was practised most extensively and reached its highest artistic development in Polynesia. A needle of bat or bird bone was tapped repetitively with a mallet, and a dye, probably of vegetable origin, rubbed into the punctured area. (Maoris used a dye made from the oily smoke of burning nut kernels. In Bellona the sap of the *ŋemugi* tree—*Canarium herveyi*—was collected, allowed to set, burnt and the carbon collected and scraped into a black powder (Tickle 1977:11)). A group of Samoic Outliers (Anuta, Luangiua, Takuu, Tikopia) use reflexes of PPn **matau* 'axe' to refer to their tattooing chisel.

The term *tattoo* is Polynesian in origin:

PPn **tatau* (N, V) 'tattoo'

Pn:	Tongan	<i>tā-tatau</i>	(V) 'tattoo'
Pn:	Samoan	<i>tatau</i>	'tattooing'
Pn:	Rennellese	<i>tatau</i>	'tattooing'
Pn:	Rarotongan	<i>taa-tatau</i>	'tattooing'
Pn:	Tahitian	<i>tatau</i>	'marks or points on the human skin'
Pn:	Hawaiian	<i>kākau</i>	'tattoo; write, print on tapa'

A different term for tattooing is reflected in some Southeast Solomonian and Micronesian languages.

PEOc **make* (N, V) 'tattoo'

SES:	'Are'are	<i>make</i>	(V) 'tattoo, draw'
Mic:	Puluwat	<i>mæk</i>	'mark of any kind; person's own tattooing'
Mic:	Woleaian	<i>make</i>	'tattoo'
Mic:	Carolinian	<i>mæk</i>	(N, V) 'tattoo, mark, drawing, writing'

5.4.1 *Design*

Ross (1996c) has reconstructed a verb, **noŋo* 'decorate', used with reference to putting patterns onto pots and other articles, and for tattooing, but his supporting data are limited to three reflexes, and the reconstruction must be deemed tentative.

POc **noŋo* 'decorate'

NNG:	Gitua	<i>noŋo</i>	'decoration in general'
MM:	Halia	<i>nono(a)</i>	'add ornamentation to edge of pot'
NCV:	Lewo	<i>nono</i>	'tattoo, picture, image, idol'

The kinds of designs used in tattooing, as on pottery and carved objects, and to a more limited extent on baskets and mats, are a substantial study in themselves. Ross has identified one pattern which reflects a familiar pattern in nature, the fishbone, and is found across a range of crafts.

POc **m^wati* 'herringbone pattern'

NNG:	Lukep	<i>mos</i>	'traditional carving on paddles, canoes and wooden bowls'
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PT:	Misima	<i>mati</i>	'design representing a fish'
NCV:	Wusi	<i>mac</i>	'herringbone pattern'

5.5 Ornaments

Chowning (1991:47) describes the situation in the New Guinea area:

Perhaps the most common everyday ornaments were necklaces of shell or animal teeth, bracelets and armbands of a variety of materials, most often worn above the elbow, and ear ornaments. Noses were usually pierced, but it is not clear how often nose ornaments were worn. The other very common ornaments were legbands, worn below the knee, and anklets; belts and girdles; and hair ornaments, including ornamental combs. Aromatic herbs were commonly stuck onto armbands and into the hair; feathers too, unmodified or made into simple ornaments, were often stuck into the hair.

POc **bara* 'plaited cane armlet'

MM:	Tolai	<i>(ta)bāra</i>	'armlet made from different kinds of woven or plaited grass'
SES:	Lau	<i>bara (obi)</i>	'plaited cane armlet (worn on lower arm)'

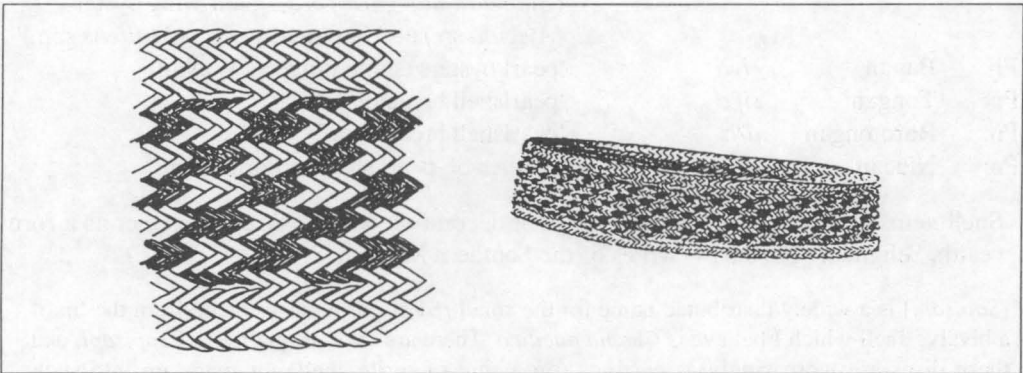


Figure 13: POc **bara* 'plaited cane armlet' (from Nevermann 1934:151)

Spriggs (1997a:88) lists the distinctive range of shell ornaments recovered from Lapita sites such as Eloaua in the Admiralties, Balof (New Ireland) and Arawe Islands south-west of New Britain. They include *Conus* shell rectangular units, beads, rings and disks, *Tridacna* rings, *Spondylus* beads and long units and *Trochus* armrings. Reconstructions have been possible for armlets, pearlshell ornaments, ear decorations and for the act of stringing together a necklace.

POc **[la]lak[o]* 'trochus shell; bracelet made from it'

MM:	Tolai	<i>lalai</i>	'trochus shell; armlet made from this'
SES:	Gela	<i>layo</i>	'cone shell'
SES:	Lau	<i>lao</i>	'cone shell'
SES:	Arosi	<i>ra'o</i>	'cone shell'
NCV:	Mota	<i>lala</i>	'univalve, top shell; bracelet made of it'

NCV: Raga	<i>lala</i>	'top shell, <i>Trochus stellatus</i> ; shell armlet, ring'
Mic: Woleaian	<i>lax</i>	'bracelet'

Although these examples are in theory sufficient to justify attributing to POc *[la]lak[o] the meaning 'bracelet' in addition to its shell meaning (see Shellfish, vol. 3), we cannot know if both meanings were genuine inheritances in the daughter languages, or were simply associations independently made.

A similar reconstruction, referring both to a particular shell and to an ornament typically made from it, is POc **japi*.

POc **japi* 'k.o. bivalve (possibly gold-lipped pearlshell, *Pinctada maxima*); ornament made from this' (Pawley 1996b)

NNG: Manam	<i>sai</i>	'pearlshell spoon'
PT: Hula	<i>ravivi</i>	'clamshell'
MM: Roviana	<i>davi</i>	'pearlshell'
SES: Bugotu	<i>davi</i>	'gold-lipped pearlshell'
SES: 'Are'are	<i>tafi</i>	'pearlshell; ornament made of same'
SES: Arosi	<i>dahi</i>	'gold-lipped pearlshell'

PCP **jiva* 'pearl oyster' (metathesis)

Fij: Wayan	<i>civa</i>	'pearl oysters, including blacklipped pearl (<i>Pinctada margaritifera</i>), giant wing oyster (<i>Avicula</i> sp.) and hammer oysters (<i>Malleus</i> spp.)'
Fij: Bauan	<i>civa</i>	'pearl oysters (same range as Wayan)'
Pn: Tongan	<i>sifa</i>	'pearlshell breastplate'
Pn: Rarotongan	<i>ti'a</i>	'pearlshell breastplate'
Pn: Niuean	<i>tifa</i>	'mother-of-pearl shell and ornament'

Shell items were evidently used not only for decoration but also strung together as a form of wealth. Seligman (1910:514) writes of the Southern Massim:⁹

[*Sapisapi*] is a widely distributed name for the small red or purple discs made from the lip of a bivalve shell which I believe is *Chama pacifica*. There are various qualities of *sapisapi*, and these discs are worn singly as earrings (on a ring of turtle shell), or made up into such standard ornaments as *bagi* or the necklaces called *samakupa* at Tubetube. *Bagi* are always imported and never made locally either at Tubetube or Milne Bay, in both of which localities they constitute the most valuable portable property a man can acquire.

POc *(*sabi-*)*sabi* 'shell disc used as earring'

PT: Tawala	<i>sapi-sapi</i>	'earring'
SES: Arosi	<i>tabi-tabi</i>	'ear ornaments'
cf. also:		
PT: Muyuw	<i>lap</i>	'red discs in string of veigun (shell wealth)'
PT: Molima	<i>sapi-sapi</i>	'large red shell discs sewn to belt'

⁹ Seligman's work is an ethnography of the people who live in the region of Milne Bay, at the southeastern tip of mainland New Guinea. He does not specify language groups, but Wagawaga and Tubetube are among the languages spoken.

PCP *sau 'ear pendant' (Biggs 1993)

Fij:	Rotuman	<i>sau</i>	'earring or ear ornament'
Fij:	Bauan	<i>sau (ni daliŋa)</i>	'earring' (<i>daliŋa</i> 'ear')
Pn:	Tongan	<i>hau</i>	'earring, ear ornament; nose ring, nose ornament'
Pn:	E. Uvean	<i>hau</i>	'ear pendant'
Pn:	E. Futunan	<i>sau</i>	'ear pendant'

We have not reconstructed a word for 'necklace', but we can reconstruct the verb used to describe stringing things together to make one.

PAN *CuSuR 'string together (beads +)' (ACD)

POc *tuRi 'sew, thread, string together'

PT:	Motu	<i>turi-</i>	'plait an armband, sew, string fish together'
PT:	Magori	<i>turi</i>	(V) 'thread, sew'
PT:	Lala	<i>kuli-kuli</i>	'sew (with thread)'
MM:	Vitu	<i>turi</i>	'sew'
MM:	Tolai	<i>tur, turu</i>	'pierce, as spear or arrow'
NCV:	Uripiv	<i>(o)turi</i>	'sew'
SV:	Lenakel	<i>til</i>	'sew, string, put on a string'
SV:	Kwamera	<i>(a)tiri</i>	'sew, weave, string beads, shuffle'
Fij:	Bauan	<i>tui</i>	'lift up with a string'
		<i>tui-tui-(vaka)</i>	'string together'
Pn:	Tongan	<i>tui</i>	'put in, insert (hand into pocket +); thread (needle, beads +)'
Pn:	Tahitian	<i>tui</i>	'thread, string (pierced objects)'
Pn:	Hawaiian	<i>kui</i>	'string (pierced objects, as flowers in a lei, or fish); thread (beads)'

5.5.1 Comb

POc inherited *saRu 'comb' from PMP. However, Remote Oceanic reflexes reflect *seru, and this discrepancy suggests that a borrowing must have occurred at some stage during the Oceanic dispersal.

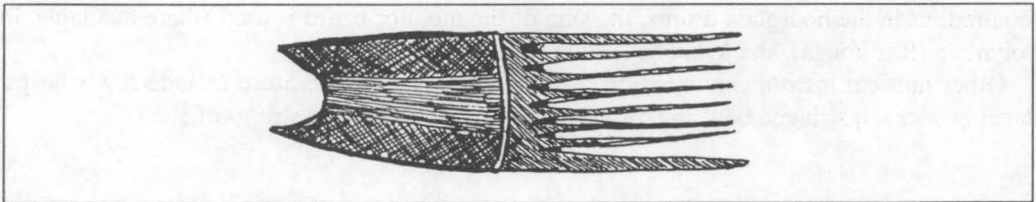


Figure 14: POc *saRu 'comb'

PMP *saRu 'comb' (Blust 1980b)

POc *saRu 'comb' (Milke 1968)

NNG:	Manam	<i>saru</i>
NNG:	Bing	<i>sar</i>

NNG: Gedaged *saŋ* 'headgear made from feathers'
 SES: Tolo *tsalu*

Proto Remote Oceanic **seru* 'comb' (Milke 1968)

NCV: Nguna *seru*
 Fij: Rotuman *seru*
 Fij: Bauan *(i)seru* (N) 'comb' (*i*- < POC **i*- INS)
 Pn: Tongan *helu* (V) 'comb, (bird) preen'; (N) 'comb'
 Pn: Samoan *selu* (N, V) 'comb'
 Pn: Maori *heru(a)*

Blust reconstructs PMP **suat* 'k.o. comb', a root which seems to have survived as a transitive verb in POC.

PMP **suat* 'k.o. comb' (Blust 1983–84a)

POc **su(w)at*, **su(w)a[t,r]-i-* 'comb (hair)'

NNG: Bing *sar*
 NNG: Bilibil *sari*
 NNG: Manam *ruati*
 NNG: Ulau-Suain *sur*
 NNG: Numbami *suwala*
 PT: Misima *huwal*
 PT: Sudest *ðuwe*
 PT: Motu *duari*
 MM: Lihir *col*
 MM: Teop *sua*

6 Instruments of communication and music

These fall into two main categories, a) wind instruments, and b) drums. Apart from the conch shell trumpet, the wind instruments recorded in the ethnographic literature are usually of bamboo, although Blackwood (1935:413) describes a didgeridoo-type instrument, the *mabu*, used on Buka, which is made from the trunk of a small tree. Bamboo instruments are often simply referred to by the term for bamboo. The drums are typically wooden; but occasionally lighter drums are made from larger varieties of bamboo. Where a skin head is required, as in the hourglass drums, the skin of the monitor lizard is used where available. In Polynesia (Rarotonga), sharkskin has been recorded as a drum skin.

Other musical instruments mentioned in the ethnographic literature include Jew's-harps, dancing sticks, a stringed bow and rattles made from seed pods or strings of shells.

6.1 Conch shell trumpet

PMP **tambuRi(q)* 'conch shell trumpet' (ACD)

POc **tapuRi(q)* 'triton shell: *Charonia tritonis*, used as trumpet'

Adm: Mussau *taue* 'triton shell'
 NNG: Takia *taur, taul* 'conch shell horn (used for sending messages)'

NNG: Manam	<i>tauru</i>	'conch shell; used as a horn for calling village meetings with the councillor'
MM: Sursurunga	<i>taur</i>	'shell type blown to send messages, triton shell'
MM: Tolai	<i>tavur</i>	'triton shell'
SES: Sa'a	<i>ahuri</i>	'conch shell, triton, used to summon people'
SES: Arosi	<i>ahuri</i>	'conch shell, triton'
NCV: Lonwolwol	<i>taviu</i>	'conch shell (and sound)'
NCV: Lewo	<i>tapuru</i>	'shellfish <i>Trochus</i> spp.'
Mic: Kiribatese	<i>tau</i>	'triton conch, trumpet shell'
Mic: Ponapean	<i>sewi</i>	'conch shell, trumpet'
Fij: Wayan	<i>tavui</i>	'triton shell: Pacific or Triton's Trumpet'
Fij: Bauan	<i>davui</i>	'trumpet shell or triton'

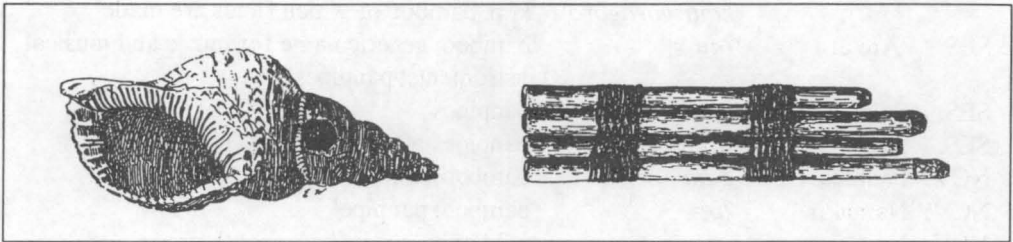


Figure 15: POc **tapuRi(q)*
'triton shell trumpet' (from Nevermann 1933:218)

POc **kauR* 'bamboo wind instrument'

In Polynesia the triton shell trumpet is generally known as *puu*, an onomatopaeic word which in many languages is associated with concepts of blowing.

6.2 Bamboo flute

Reflexes of POc **upi/*ipu* 'blow' or compounds containing it, commonly refer to either the playing of wind instruments or the wind instruments themselves. It is of interest that terms for panpipes from the sets below are limited to the Southeast Solomons. We have no POc reconstruction specifically for panpipes.

POc **upi/*ipu* 'blow; native flute'¹⁰

PT: Kilivila	<i>(y)uvi</i>	'blow'
PT: Motu	<i>ivi(likou)</i>	'a reed musical instrument, a flute'
MM: Roviana	<i>ivu</i>	'blow, as a conch shell'
	<i>iv-ivu(ana)</i>	'a native flute' (- <i>ana</i> NOM)
SES: Bugotu	<i>ifu</i>	'blow, of fire or panpipes; panpipes'
SES: Kwaio	<i>ufi</i>	'play panpipes'
SES: Sa'a	<i>uhi</i>	'blow with the mouth upon an object'

¹⁰ Cf. POc **ubi/*ibu* 'half coconut shell used as drinking cup' (§2.2.2). It is possible that both **ubi/*ibu* and **upi/*ipu* were generated at the same time by the application of a single rule (or similar wordplay) to the pre-existing member of each pair.

SES:	Arosi	(?au)uhi-uhi	'panpipes of bamboo' (uhi 'blow, breathe')
Fij:	Bauan	uvu(ða)	'blow with the mouth'

PAn **qauR* 'bamboo sp.' (ACD)

POc **kauR* 'bamboo; bamboo wind instrument'

Adm:	Mussau	<i>kauru</i>	'bamboo'
NNG:	Lukep (Pono)	<i>kaur</i>	'flute: traditional musical instrument made out of bamboo (<i>monomono</i>); it has four notes per octave. Historically a man would play the flute when he was hungry and had nothing to eat.'
NNG:	Bing	<i>kau(mahay)</i>	'bamboo sp.; flute, long bamboo wind instrument (2.7 m x 5 cm)'
MM:	Tolai	<i>kaur</i>	'k. o. bamboo'
		<i>kaur goragoro</i>	'k. o. bamboo of which flutes are made'
SES:	'Are'are	? <i>au</i>	'bamboo; generic name for music and musical instruments; panpipes'
SES:	Sa'a	<i>au</i>	'panpipes'
SES:	Arosi	? <i>au(uhi-uhi)</i>	'panpipes of bamboo' (uhi 'blow, breathe')
NCV:	Paamese	<i>e-au</i>	'bamboo; knife; slitgong fixed in ground'
NCV:	Namakir	? <i>o</i>	'bamboo; panpipe'
NCV:	Nguna	<i>na-au</i>	'wild cane, reed; flute, mouth organ'

POc **kopi* 'bamboo; bamboo flute'

PT:	Gumawana	<i>ko-kopi</i>	'flute'
Pn:	Niuean	<i>kofe</i>	'flute'
Pn:	Rennellese	<i>kohe</i>	'bamboo'
Pn:	Samoan	? <i>ofe</i>	'bamboo sp.'
Pn:	Luangiua	? <i>ohe</i>	'bamboo whistle'

6.3 Hourglass or kundu drum

This relatively small drum, easily carried, is of wood, with the end covered in (lizard) skin. Chowning (1991:59) has noted that on the north coast of New Guinea and in some parts of west New Britain the name for the instrument is suspiciously close to the word for 'monitor lizard' (Sengseng *pahiyo* 'drum', *apahiya* 'lizard'). Drumming is produced with the hand, and typically accompanies dances. Ivens (1927 (reissued 1972):169) reports that "a true drum of wood with skin stretched over it, such as is used in New Guinea and Torres Straits, is not found on Mala [Malaita] and Ulawa".

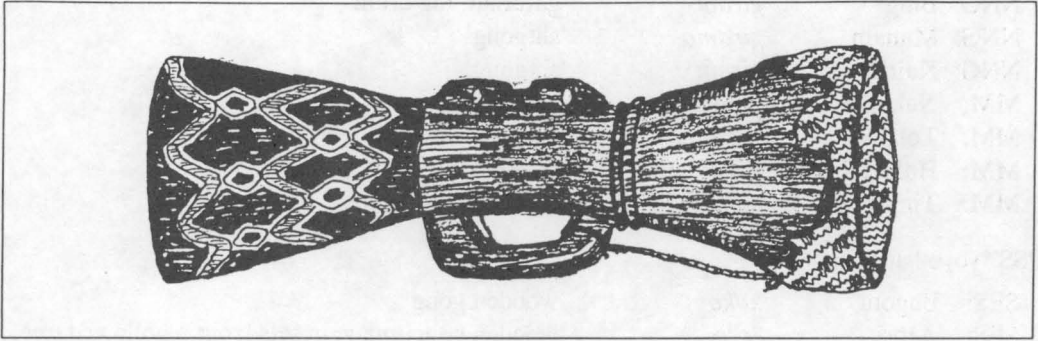


Figure 16: POc **kude* 'hourglass drum'

POc **kude* 'hourglass drum'

NNG:	Kilenge	<i>kure</i>	'slitgong drum'
MM:	Patpatar	<i>kudu</i>	'drum' (-u for -e unexpected)
MM:	Tolai	<i>kudu</i>	'a long drum, the end of which is covered with the skin of an iguana' (-u for -e unexpected)
MM:	Vitu	<i>kude</i>	'(hourglass) drum'
MM:	Bulu	<i>kude</i>	'(hourglass) drum'
MM:	Nakanai	<i>kude</i>	'hourglass drum'
NCV:	Mota	<i>kore</i>	'slitgong drum'

The alternation in gloss between the two kinds of drum is probably due to the term for one kind being used also as a generic. Chowning (1991:60) reports that in Kove *kure* can be used for either instrument, although there is a separate term for slitgong.

6.4 Slitgong

Slitgongs are carved from logs hollowed through a longitudinal slit, and beaten on one side of the lip, usually with a single heavy stick. They are often played in unison, with different logs producing different notes. The sound can carry over considerable distances and can be used to convey simple messages, summon villagers, announce a feast or the death of someone of rank and so on (Blackwood 1935:409). They are large and heavy, often ornately carved, and will normally survive for many years. They are almost always used horizontally. In the entire Oceanic region, upright gongs, standing on their own, are found only in central Vanuatu (Crowe 1996:147). In southern Malaita (SES), somewhat smaller wooden gongs are placed on stands and played in sets of three, loosely described as soprano, tenor and bass. These are beaten with short sections of sago bark branches, pithy and soft (Ivens 1927 (reissued 1972):169).

Although words for musical instruments are candidates for borrowing, the fact that POc final **-t* is regularly reflected or deleted throughout the cognate set below is a strong indication that these terms are not borrowed.

POc **garamut* 'slitgong'

Adm:	Emira	<i>galamutu</i>	'slitgong'
NNG:	Kove	<i>yilamo</i>	'slitgong'

NNG:	Bing	<i>giram</i>	'garamut, log drum'
NNG:	Manam	<i>giramo</i>	'slitgong'
NNG:	Kairiru	<i>giram</i>	'slitgong'
MM:	Nakanai	<i>galamo</i>	'slitgong'
MM:	Tolai	<i>garamut</i>	'native log drum'
MM:	Halia (Haku)	<i>garamuc</i>	'slitgong'
MM:	Tinputz	<i>kāmus</i>	'drum/slit drum'

PSS **yoyo* 'slitgong'

SES:	Bugotu	<i>koko</i>	'wooden gong'
SES:	Arosi	<i>ʔoʔo</i>	'wooden gong, made in sets from a hollowed tree, and used to send messages by a code so that practically any message can be sent'
SES:	Arosi	<i>barai ʔoʔo</i>	'set of slitgongs' (includes <i>ʔoʔo raha</i> 'bass gong'; <i>ʔoʔo maradaro</i> 'soprano gong'; <i>ʔoʔo riʔi</i> 'treble gong')

PCP **lali* 'slitgong'

Fij:	Bauan	<i>lali</i>	'native wooden drum, beaten with two sticks'
Pn:	Tongan	<i>lali</i>	'wooden drum (Fijian style)'
Pn:	Samoaan	<i>lali</i>	'middle-sized wooden gong, drum'
Pn:	Tuvalu	<i>lali</i>	'bell, wooden gong'

PCP *(*v,b*)*asu* 'a drum; to drum, thump'

Fij:	Bauan	<i>vaðu</i>	'punch with the fist'
Pn:	Niuean	<i>pahu</i>	'drum'
Pn:	Tongan	<i>pahu</i>	'thump'
Pn:	Rarotongan	<i>paʔu</i>	'drum formed from a hollowed block and covered with sharkskin'
Pn:	Tahitian	<i>pahu</i>	'drum; thumping blow'
Pn:	Hawaiian	<i>pahu</i>	'drum'
Pn:	Maori	<i>pahū</i>	'wooden gong'

PPn **nafa* 'a wooden drum'

Pn:	Niuean	<i>nafa</i>	'small wooden drum shaped like a canoe, with a narrow slot on one side'
Pn:	Samoaan	<i>nafa</i>	'native drum'
Pn:	Tikopia	<i>nafa</i>	'large bowl-shaped trough'

6.5 Jew's-harp

PWOC **bogo-bogo* 'Jew's-harp'

NNG:	Mapos Buang	<i>bgog</i>	'Jew's-harp; usually made from bamboo'
MM:	Tinputz	<i>pokpoko</i>	'Jew's-harp' (Blackwood 1935:413)

7 Other artefacts

7.1 Broom

POc **sapu(r)*, **sapur-i-* 'brush (dirt +) off (s.t.)' (where 's.t.' is the object)

Adm:	Titan	<i>sap^wi</i>	'wipe, wipe off'
NNG:	Mapos Buang	<i>rvu</i>	'wipe, dry, clean'
PT:	Muyuw	<i>(katu)sap</i>	'brush dirt off'
PT:	Misima	<i>hapul</i>	'brush down (e.g. with coconut husk); brush; brush off'
PT:	Motu	<i>dahu</i>	'rub, wipe'
MM:	Bulu	<i>ravu</i>	'wipe'
MM:	Nakanai	<i>savul(a-taro-a)</i>	'brush away'
MM:	Patpatar	<i>sah</i>	'sweep'
MM:	Tolai	<i>avu(lar)</i>	(VT) 'brush or wipe off, as dust with the hand'
SES:	Talise	<i>savu(lano)</i>	'rub'
SES:	Lau	<i>tafu</i>	'brush off, brush against'
SES:	Longgu	<i>tavuri-</i>	'flick or brush something off'
Pn:	Samoan	<i>safu</i>	'broom'

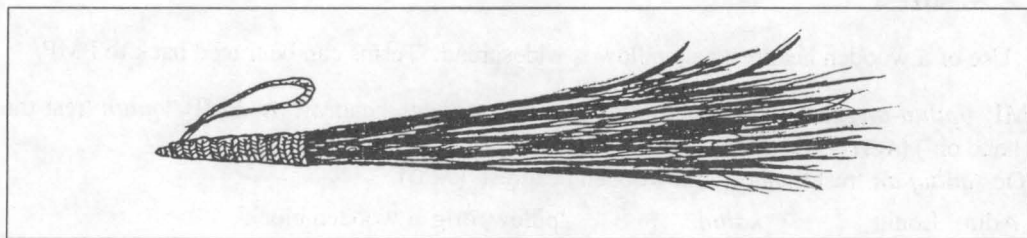


Figure 17: POc **salap* 'broom'

POc **tapi* 'dust off, brush lightly'

PT:	Motu	<i>tahi-</i>	'dig out; (fowls +) scratch'
PT:	Minaveha	<i>tapi-</i>	'dust off (ashes from food +)'
MM:	Sursurunga	<i>tahi</i>	'sweep out, clean out'
MM:	Tolai	<i>tavie</i>	'a broom'
Fij:	Wayan	<i>tavi</i>	'be brushed lightly, swept, peeled'
Fij:	Bauan	<i>tavi</i>	'slap, pat, push with the hand'
Pn:	Tongan	<i>tafi</i>	'sweep'
Pn:	Samoan	<i>tafi</i>	'clear away, remove, brush off, rub off'
Pn:	Tikopia	<i>tafi</i>	'brush lightly, stroke, smear'
Pn:	Maori	<i>tahi</i>	'sweep'

POc **salap*, **salap-i-* 'sweep, broom'

NNG:	Yabem	<i>salep</i>	'broom, originally the fruit stem of the nipa palm'
NNG:	Gedaged	<i>salai</i>	'inflorescence of coconut'
PT:	Misima	<i>hala</i>	'sweep'

SES:	Lau	<i>ta-tala</i>	'broom made from midribs of sago palm'
		<i>talafi</i>	'sweep (s.t.)'
SES:	'Are'are	<i>tā-tara</i>	'sweep the house'
SES:	Sa'a	<i>tala</i>	'sweep the house with a bunch of leaves or grasses'
SES:	Arosi	<i>tara</i>	'rake, sweep, gather; a broom'
		<i>ta-tarahi</i>	'sweep (s.t.)'

cf. also:

MM:	Tolai	<i>are</i>	'clear away'
SES:	Sa'a	<i>sā-sala</i>	'be clear, not touching the ground'
SES:	Arosi	<i>ma-sara</i>	'burnt-off garden'
NCV:	Mota	<i>sara</i>	'pass, draw along, sweep, be swept away'
NCV:	Nguna	<i>sara</i>	'sweep'
Fij:	Wayan	<i>ðara</i>	'clear a garden (burn off dried vegetation) for planting'
Fij:	Bauan	<i>ðara</i>	'clear a walk of rubbish'
		<i>ðara-ðara</i>	'cleared, clean of weeds'

7.2 Headrest

Use of a wooden headrest as a pillow is widespread. Terms can be traced back to PMP:

PMP **qulun-an* 'place where one rests the head: wooden headrest' (> PMP **qulun* 'rest the head on') (ACD)

POc **quluŋ-an* 'rest the head on; wooden headrest' (ACD)

Adm:	Loniu	<i>kaluŋ</i>	'pillow, orig. a wooden block'
Adm:	Seimat	<i>ul-ulŋ</i>	'rest the head'
Adm:	Titan	<i>ul-uləuŋ</i>	'pillow, wooden neck support, anything used as a pillow'
PT:	Gabadi	<i>i-uina-na</i>	'pillow'
MM:	Sursurunga	<i>l-ulŋan</i>	'pillow'
SES:	Bugotu	<i>uluŋa</i>	(N) 'pillow'; (V) 'pillow (the head)'
SES:	Gela	<i>uluŋa</i>	'rest one's head on; a headrest of wood, pillow (modern)'
SES:	Ulawa	<i>uluŋa</i>	(V) 'pillow, serve as a pillow'
NCV:	Mota	<i>uluŋa</i>	'pillow'
SV:	N. Tanna	<i>koulogo</i>	'pillow, headrest'
Mic:	Ponapean	<i>ul-ūl</i>	'pillow; small hill; use a pillow'
		<i>uluŋ</i>	(VT) 'use as pillow'
Mic:	Trukese	<i>wīn</i>	'pillow, headrest'
Pn:	Tongan	<i>?oluŋa</i>	'headrest, pillow'
Pn:	Niuean	<i>uluŋa</i>	'pillow, headrest'
Pn:	Hawaiian	<i>uluna</i>	'pillow'

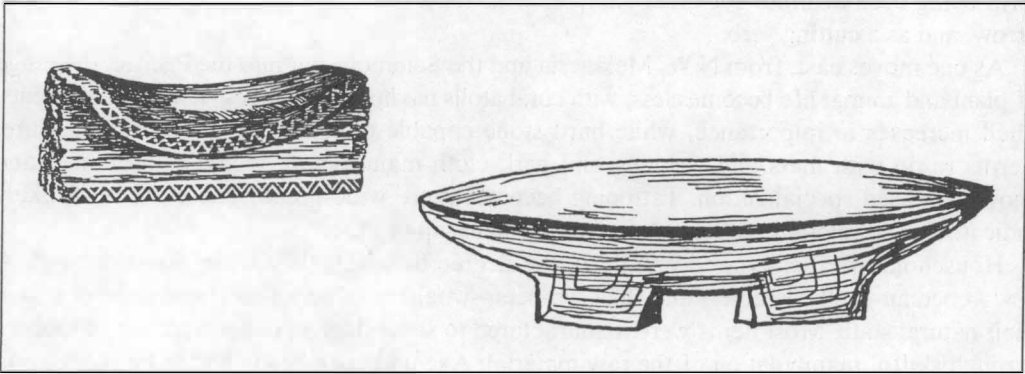


Figure 18: POc **quluŋ-an* ‘wooden headrest’ (from Nevermann 1934:271)

POc **kalik* ‘native wooden pillow’

NNG:	Takia	<i>kalik</i>	‘wooden headrest’
NNG:	Lukep (Pono)	<i>kaliki</i>	‘pillow: traditional pillow was made of wood with intricate carvings’
Fij:	Bauan	<i>kali</i>	‘native pillow, made of wood’
Pn:	Tongan	<i>kali</i>	‘native wooden pillow or headrest’

8. Conclusions

Our reconstructions are for items which draw on a range of raw materials. They include:

- vegetable products (a variety of timbers, bamboo, coconut shell, leaves, vine, cane and bark)
- stone (of variable quality, the most useful being obsidian, flint and basalt)
- coral and shell (*Tridacna*, *Trochus*, *Conus*, clam, pearlshell and others; turtle shell)
- animal products (bone, skin)
- earth products (pigments, earth, clay).

While most of these would be readily available throughout the western Oceanic region, two in particular—obsidian and clay of good, workable quality—are limited in their distribution. Although obsidian and clay pots were widely traded, cognate sets supporting reconstructions are relatively few. The potting term evidence, however, for all its limitations, shows considerable continuity of terms from PMP to POc. The paucity of Oceanic terms may be due in part to the scattered nature of pot-making settlements, together with the widespread replacement in recent times of pots by tinware, but is also no doubt due to the long-term disappearance of the skill in the eastern Oceanic region. Although traces of Lapita pots have been uncovered as far east as Fiji–Tonga–Samoa, the manufacture and use of pottery was evidently abandoned in Polynesia early in the first millennium AD (Kirch 1997:68). Fiji is the most easterly place where pottery manufacture survives in the Pacific. In the Solomons, archaeologists have found few traces of pottery other than some scattered remains on Buka Island (Kirch 1997:53), and, more recently, in Marovo Lagoon, western Solomons (Peter Shepherd, pers.comm.).

Nor has reconstructing a term for obsidian been straightforward. As a glance at the glosses will show, there is considerable variation in meaning from place to place, with the obsidian

term being used at times for other sharp stones, for a razor, for the head of a spear or an arrow, and as a cutting verb.

As one moves east, from N.W. Melanesia and the Solomons out into the Pacific, the range of plant and animal life becomes less, with coral atolls having the most restricted environments. Shell increases in importance, while hard stone capable of taking an edge becomes rare. Terms to do with mats and weaving and bark-cloth manufacture increase in number and show increased specialization. Tattooing becomes more widespread. These are most likely indicators of developing elaborations after the break-up of POc.

Household artefacts varied greatly in the degree to which they were manufactured. A few—coconut-shell containers and shell scrapers—would have been functional more or less in their natural state. Most items were manufactured to some degree, either with use of tools or through skilful manipulation of the raw material. Axe and adze heads had to be shaped and fitted with a handle; wooden bowls required tools that cut and shaped and gouged, smaller versions of the tools used in canoe manufacture. Mats and baskets ranged from the very simple to the intricately shaped and patterned, serving not only as domestic items but also as house walls and canoe sails. Cordage produced not only bags but also a range of fishing nets.

Pottery would seem to be the household artefact requiring the most complex stages of manufacture. There would have been little need of tools beyond paddle (POc **tapi*) and anvil (POc **patu* 'stone'). However, stages would include preparation of the clay involving tempering with sand, moulding, decorating, drying, firing, and, for some, sealing with a vegetable caulking agent.¹¹ One would assume that this kind of knowledge would be accumulated over a long period of trial and error, and probably passed down as an integrated procedure. We know that in more recent times the skill of making pots was a jealously guarded trade secret, not one that could simply be copied by examining the final product.

One further point that can be made about POc artefacts is that at least some of them demonstrated a desire by their makers to produce something that was more than simply functional. Although this point is illustrated most vividly by archaeological findings dating back to POc times, particularly the early Lapita pots, the mere existence of such decorative items as earrings, arm rings and combs points to a desire for some sort of ornamentation, some kind of artistic expression.

¹¹ See Ross (1996c) for more detail of these processes.

5 Horticultural practices

MEREDITH OSMOND

1 Introduction

It is claimed that one of the distinguishing features of the Lapita culture is the movement out into the Pacific of a wide range of domesticated plants, and that Lapita represents, in the Bismarcks and Solomons, the first clear evidence for an agricultural base to the economy, a base apparently little changed until this century (see Pawley & Green 1973, Shutler & Marck 1975, Spriggs 1997a).¹

Early this century, ethnographers such as Malinowski (1935) for the Trobriands, Blackwood (1935) for north Bougainville and Ivens (1927 (reissued 1972)) for the Southeast Solomons, described communities in which the people were, above all, gardeners. Their gardens provided a basis for their settlement size and determined the nature and division of labour. Much of the ritual and magic practised related to the stages of cultivation and growth and harvest. Their produce excessive to daily needs fuelled their festivals, it was their standby in times of food scarcity, and their trading currency. Reciprocal obligations to kin were expressed in foodstuffs exchanged. Years were calculated in terms of annual crop cycles—an event might have occurred two yam crops ago or could be expected after the next galip nut harvest.

Over one hundred POC food plant terms have now been reconstructed (see Food Plants in vol 3, an earlier version of which has been published as Ross 1996d). Here, however, we are concerned, not with the terms for the plants themselves (these are listed where relevant, but without supporting data) but rather, with terms for gardens and for activities associated with gardening.

A considerable debt is owed to the unpublished 1983 thesis of Renwick French-Wright, *Proto Oceanic Horticultural Practices*, a work which travelled much the same road as this chapter does, and many of whose cognate sets have been included here. Because more stringent subgrouping requirements apply today before a reconstruction can be identified as

¹ I am indebted to Michael Bourke, Ann Chowning and Matthew Spriggs for a host of useful comments, to Malcolm Ross for adding to and tidying up many of my reconstructions, and to Jean Kennedy who drew my attention to P. H. McEldowney's thesis, *Subsistence intensification in the late prehistory of Manus*.

For evidence of the association of Lapita people with the break-up and spread of Proto Oceanic see Chapter 3, §1.

POc, some revision of his reconstructions has been necessary — usually involving downgrading from POc to PEOc.

2 Background

Almost all of Melanesia lies within the humid tropics and experiences high rainfall. Apart from areas round Port Moresby and the west coast of New Caledonia, which receive less than 1,000 mm per annum, most of Melanesia averages above 2,500 mm, while south-west New Britain receives over 6,000 mm. Seasonal variation of rainfall is due primarily to the changing trade wind cycle, and can best be described as variation between 'fairly wet' and 'very wet', although major droughts can occur from time to time. As Ann Chowning (pers.comm.) points out, one of the primary components of garden magic is weather magic. There is little seasonal variation in temperature. Most Austronesian settlement is close to the sea, where maximum temperatures are around 30–32°C, with minima around 23°C. Associated with these factors are high humidity and cloudiness (McAlpine, Keig & Falls 1983:3, 61–66). The natural vegetation cover is tropical forest. Even in the drier areas, savanna woodland is the natural plant cover.

There is broad general agreement that the Austronesian-speaking people who first ventured into Melanesia practised a swidden style of gardening, centred on the cultivation of tubers, particularly taro (*Colocasia esculenta*) in the wetter areas and various varieties of yam (*Dioscorea*) in the drier regions (Brookfield & Hart 1971, Yen 1973). Some of their practices, however, may have been adopted from Papuan speakers who had practised agriculture in New Guinea for millennia before Austronesian speakers arrived. Brookfield and Hart (1971) made an exhaustive survey of forty-four places, fourteen of which are Austronesian settlements², in order to identify, as best they could, the environment and land use in 'Old Melanesia', the region as it was before external forces began to radically modify the man-environment systems. These provide a good representative sample of traditional methods across the region, and incidentally cover the major linguistic subgroups from New Guinea to Fiji, together with the Samoic outlier of Tikopia. The factors they considered were location (distance from the sea), elevation, topography, rainfall regime, biotic environment (soil and vegetation type), wild food sources, traditional crops, cultivation methods, cultivation frequency and crop segregation. With the exception of the locations in Fiji, New Caledonia and Tikopia, which have developed more intensive systems, all these places employed what was 'a set of variations on the classic swidden or shifting cultivation system.' (p.108)

All gardens are mixed, although usually dominated by a single staple, and crops are planted by making only small holes in the soil, sometimes with limited spot-tillage by levering the soil with a stick before inserting the seed tuber or cutting, or occasionally, as at Roviana, making small mounds. Gardens are generally used only once, though sometimes subsidiary crops are planted after the main crop, and remain longer in the ground. Useful trees continue to provide fruit for some time after the garden has been relinquished to wild growth. Crops are usually planted among the fallen trees and ash ...[although] ash is sometimes thrown out

² They are Buang and Wogeo (NNG); Dobu and the Trobriands (PT); Sengseng in W. N. Britain (also NNG); Roviana (New Georgia, Sols.) (MM); Langalanga in Malaita (SES); inland Santo and Seniang (both NCV); Loyalty Islands; New Caledonia; two locations in Fiji (Rewa Delta and Moala in the northern Lau group) and the Samoic outlier, Tikopia (Pn).

of the garden before planting, or else piled around stumps where it is of no direct use to the plant. Occasionally ash is piled around particular plants which are thought to benefit from such treatment, but not around others.

There is sometimes a little crop segregation, but it is quite subsidiary...Most gardens are untidy, littered with the fallen trunks of trees and quickly invaded by weeds. Because of wild and domesticated pigs, most gardens are fenced. Weeding is sometimes done in the early months but is never continued beyond the lifting of the main crop. (Brookfield & Hart 1971:107–108)

Rarer techniques within what was still essentially a swidden system included tillage in some grassland areas to eradicate grassroots and aerate the soil; the planting of yams in specially prepared pits which were composted with a mixture of leaves, grass and soil (e.g. in Mapos Buang (NNG)); and employing rudimentary irrigation (e.g. in Seniang (NCV)). Locations in Fiji, New Caledonia and the Solomons were distinguished by more advanced irrigation systems, permitting some continuous cultivation of the same plots.

3 Land usage

For swidden agriculturalists, land could be classified in one of three ways—as land under cultivation or ready for cultivation, as old garden land now lying fallow, and as uncleared ‘bush’ or forest. The following reconstructions illustrate.

3.1 Garden

PAn **qumah* ‘swidden; work a swidden’ (ACD)

POc **quma* ‘garden; to clear land for a garden’ (Grace 1969)

NNG: Gedaged	<i>um</i>	‘garden, cultivated land’
NNG: Adzera	<i>gum</i>	‘garden’
NNG: Poeng	<i>kume</i>	‘prepare a garden’
NNG: Sengseng	<i>kum</i>	(V) ‘work (in general)’
PT: Molima	? <i>uma</i>	‘planted garden’
PT: Sudest	<i>uma</i>	‘garden’
PT: Motu	<i>uma</i>	‘garden, enclosed, cultivated plot’
MM: Bulu	<i>γin>uma</i>	‘garden’ (< POc <i>*q<in>uma</i> <NOM>garden)
MM: Nakanai	(<i>ma</i>) <i>huma</i>	‘garden’
MM: Tolai	<i>uma</i>	‘garden’
MM: Kia	(<i>n-un</i>) <i>uma</i>	‘garden’ (< POc <i>*na</i> ART + <i>*q<in>uma</i> <NOM>garden)
MM: Roviana	<i>uma</i>	‘make a garden’
	(<i>in</i>) <i>uma</i>	‘a garden’ (< POc <i>*q<in>uma</i> <NOM>garden)
SES: Gela	<i>uma</i>	‘clear away the bushes in making a garden’
SES: Arosi	<i>um^wa</i>	‘weed a garden’
NCV: Mota	<i>um^wa</i>	‘clear away growth from a garden, first stage of preparation’
NCV: Nguna	<i>uma</i>	‘cut bush, clear land’
Fij: Wayan	<i>uma(ni)</i>	‘turn the soil over’

Three MM languages (Bulu, Kia and Roviana) reflect POc **qin>uma* <NOM> + 'garden' (on nominalisers, see Ch. 2, §3.2.1), suggesting perhaps that at least in the early MM linkage, **quma* was a verb meaning 'make a garden', **qin>uma* the product of that activity. The following item betrays a similar pattern.

POc **b^(w)aku(r,R)* 'work a garden' (Dempwolff 1938: POc **(p,b)agur* (V) 'hoe')

PT:	Gumawana	<i>bagula</i>	'work in a garden'
		<i>baguli</i>	'plant (s.t.)' (perhaps < POc <i>**b^(w)aku(r,R)-i</i>)
PT:	Kalokalo	<i>bagula</i>	'garden'
PT:	Bwaidoga	<i>bakula</i>	'garden'
PT:	Sudest	<i>bakubaku</i>	'ground (cleared near house)'
PT:	Kilivila	<i>bagula</i>	'work in a garden, make a garden'
SES:	Arosi	<i>b^waʔu</i>	'tableland above the shore where the gardens are'

Ross (1994a) has reconstructed Proto Central Papuan **v<in>ayula* 'do work' (Hula *inayulu*, Lala *vinaula*, Kuni *bilaula*, East Mekeo *pinauna*). Central Papuan languages reflect POc final consonants only in borrowings from other PT languages, so **v<in>ayula* points to PPT **b<in>aqura*, POc **b^(w)in>aku(r,R)*. The presence of the nominaliser **<in>* suggests that **b^(w)aku(r,R)* was a verb.

3.2 Fallow land

PMP **talun* 'fallow land' (Blust 1972b)

POc **talun(n)* 'fallow land, land returning to secondary growth'

SES:	Gela	<i>talun</i>	'forest land which has been previously cultivated'
SES:	Kwaio	<i>alu</i>	'garden of second or third crop'
		<i>alu (sisi)</i>	'an old garden plot returning to secondary growth, beginning to be overgrown'
SES:	Sa'a	<i>alu</i>	'last year's yam garden'
SES:	Arosi	<i>aru</i>	'an overgrown garden; land formerly used for a garden; a dug garden'
Pn:	Niuean	<i>talun-talun</i>	'land out of cultivation'
Pn:	Rennellese	<i>tagu-tagu</i>	'begin to be brush-covered, of a fallow garden'
Pn:	Maori	<i>taru-taru</i>	'weeds, herbs'

3.3 Uncultivated land

PAn **quCaN* 'fallow land' (Blust 1989:174)

POc **qutan* 'bushland, hinterland'

Adm:	Mussau	<i>utana</i>	'garden'
NNG:	Manam	<i>(a)uta</i>	'inland'
PT:	Motu	<i>uda</i>	'bush, forest'
PT:	Bwaidoga	<i>yudana</i>	'forest'
PT:	Misima	<i>ulan</i>	'forest'
MM:	Nakanai	<i>huta-huta</i>	'general term for small plants and leaves; trash'
SES:	Tolo	<i>uta</i>	'garden'

NCV: Mota	<i>uta</i>	'bush, forest, unoccupied land; the inland country'
NCV: Nguna	<i>uta</i>	'inland'
NCV: S.E. Ambrym	<i>ut</i>	'place, area, land, shore, island, homeland, weather'
Mic: Kosraean	<i>wət</i>	'area inland or towards the mountains'
Fij: Rotuman	<i>ufa</i>	'land (from the sea); interior (from the coast)'
Pn: Tongan	<i>?uta</i>	'inland (from shore); shore, land (from sea)'
Pn: Hawaiian	<i>uka</i>	'inland (from shore); shore, land (from sea)'

The Mussau and Tolo reflexes mean 'garden': this change of meaning is probably due to the fact that, in Melanesia, gardens are often remote from the village and surrounded by bushland, so that to go to the garden is to go into the bush.

PEOc **wao* 'forest' (French-Wright 1983)

SES: Gela	<i>ao</i>	'forest, land never brought under cultivation'
Fij: Rotuman	<i>vao</i>	'forest, large number of trees or big plants growing together'
Pn: Tongan	<i>vao</i>	'forest, bushland, scrub, land in its natural uncultivated state'
Pn: Tahitian	<i>vao</i>	'wilds, wilderness'
Pn: Maori	<i>wao</i>	'forest'

4 Soil

The meaning of earth as soil would seem to be the central meaning of POC **tano(q)* (cf. POC **panua* whose extended meanings included (1) inhabited area or territory; (2) community together with its land and things on it; (3) land, not sea; see Ch. 3, §3.7).

PMP **taneq* 'earth, land'

POC **tano(q)* 'earth, soil'

Adm: Loniū	<i>(ko)tan</i>	'earth'
Adm: Lou	<i>tan</i>	'loose soil'
NNG: Gedaged	<i>tan</i>	'soil, ground, land, garden, earth, world'
NNG: Takia	<i>tan</i>	'ground, earth, land'
NNG: Kove	<i>tano</i>	'earth, sand'
PT: Motu	<i>tano</i>	'earth, soil, country, land'
PT: Minaveha	<i>tano(pi)</i>	'earth, ground, world'
MM: Nakanai	<i>talo</i>	'down'
MM: Meramera	<i>tano</i>	'down'
SES: Bugotu	<i>tano</i>	'earth, ground'
SES: Sa'a	<i>ano</i>	'ground, garden ground'
SES: Arosi	<i>ano</i>	'ground, earth, soil, the land'
NCV: Raga	<i>tano</i>	'earth'
NCV: Lewo	<i>tano</i>	'earth, land'
Mic: Kiribatese	<i>tano</i>	'earth, ground, soil'
Mic: Woleaian	<i>tal</i>	'earth, ground, soil'

POc **p^waya* 'cultivable) soil'

NNG:	Poeng	<i>pae</i>	'soil used to blacken teeth'
PT:	Kilivila	<i>p^we-p^waya</i>	'real soil'
PT:	Muyuw	<i>p^we-p^way</i>	'ground, land, earth, soil, dirt'
PT:	Molima	<i>p^waya-p^waya</i>	'dust'
MM:	Tolai	<i>pia</i>	'earth, land, dirt'
MM:	Ramoovina	<i>pia</i>	'plantation'
SES:	Sa'a	<i>p^wai(nā)</i>	'the garden ground just above the beach'

In some Central Pacific languages, reflexes of **g(w)ele* carry a similar range of meanings.

PCP **g(w)ele* 'earth, soil'

Fij:	Wayan	<i>gwele</i>	'earth'
Fij:	Bauan	<i>gele</i>	'earth, soil'
Pn:	Tongan	<i>kele-kele</i>	'land, dirt, soil, earth, ground'
Pn:	Rennellese	<i>kege</i>	'earth, ground, dirt, land, soil, world'
Pn:	Maori	<i>kere-</i>	'earth (in compounds only)'

5 Preparation of ground

New gardens are traditionally prepared along the following lines. First, the undergrowth and vines and small trees are cleared. Before the introduction of metal implements, this would have been done with a large digging stick used as a crowbar (§5.5) and perhaps a stone axe (POc **kiRam*, Ch. 4, §4.1.1), together with smaller cutting implements made of bamboo or shell. Large trees may be left standing, although branches may be lopped off to admit maximum sunlight. Alternatively, they may be slowly killed off by ringbarking or by burning rubbish heaped round their base. Debris is usually left to dry and then burnt, with the ashes fertilizing the soil. The ground can then be raked or picked over, and remaining rubbish removed, together with any weeds which have survived the burning.

5.1 Clearing the land

It seems from its reflexes that POc **quma* meant 'clear land for a garden' (§3.1). In addition, the following terms are reconstructable.

PAn **tebaS* 'cut, clear vegetation' (ACD) (Dempwolff (1938) reconstructed **teba* 'land appropriated by clearing of forest')

POc **topa* 'land cleared for a garden', or 'land formerly planted as a garden'

Fij:	Wayan	<i>tova-tova</i>	'garden plantation'
Fij:	Bauan	<i>tova</i>	'flat piece of land, formerly planted with yams'

POc **salu-* 'slash, hoe; a hoe, an adze'

NNG:	Gedaged	<i>salu</i>	'hoe made out of shell'
NNG:	Yabem	<i>salu(na)</i>	'stone adze with small blade'
SES:	Gela	<i>halo</i>	'a small k.o. adze'
NCV:	Mota	<i>sal</i>	'cut with a slashing cut'

Fij:	Rotuman	<i>saru</i>	'dig (as a garden), till, break up finely'
Fij:	Bauan	<i>saru</i>	'strike grass and reeds with a heavy stick'
Pn:	Tongan	<i>halu</i>	'scarify soil'
Pn:	Samoaan	<i>salu</i>	'brush up, as rubbish; scrape out, as coconut'

POc **poki* 'clear the ground for a garden site' (French-Wright 1983)

PT:	Lala	<i>voi</i>	'gardening (general); (clear garden in grassland after burning)'
MM:	Tangga	<i>pok</i>	'cut down, cut off' (<i>pok palan</i> 'clear clumps of bamboo and other low scrub from a garden site'; <i>palan</i> 'garden')
MM:	Simbo	<i>poki</i>	'clear ground; garden, clearing'
SES:	Sa'a	<i>hui</i>	'clear a taro garden'

POc **sani* 'complete clearing of garden; stripping, of leaves'

Adm:	Loniu	<i>cani</i> (<i>pono</i>) <i>sani</i>	(VT) 'clear, cut down bush or sugarcane' 'clear out, sweep, straighten up a garden after heavy clearing is completed; trim trunk of tree before chopping up'
PT:	Motu	<i>dani</i>	'cover, as weeds a garden'
Fij:	Bauan	<i>sani</i>	'remove leaves'
Pn:	Tongan	<i>hani</i>	'remove all the leaves'

POc **sara* 'clear (vegetation, rubbish) from a garden'

MM:	Nakanai	<i>sala</i>	'scrape away garden debris with the hand'
NCV:	Mota	<i>sara</i>	'pass, draw along, sweep, be swept away'
NCV:	Nguna	<i>sara</i>	'sweep'
Fij:	Wayan	<i>ðara</i>	'clear a garden (burn off dried vegetation) for planting'
Fij:	Bauan	<i>ðara</i> <i>ðara-ðara</i>	'clear a walk of rubbish' 'cleared, clean of weeds'

PWOc **lamo* 'clear a garden site' (Ann Chowning, pers.comm.)

NNG:	Sengseng	<i>lom</i>
NNG:	Mangseng	<i>lom</i>
NNG:	Amara	<i>lomo</i>
MM:	Nakanai	<i>lamo-lamo</i>
MM:	Meramera	<i>lamo-lamo</i>

cf. also:

Adm:	Baluan	<i>lolome(k)</i>	'the communal activity of planting tubers' (McEldowney 1995:472)
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PEOc **kokoda* 'gather weeds or rubbish, prepare a garden' (French-Wright 1983)

SES:	Arosi	<i>?o?ora</i>	'prepare a garden; unplanted but prepared, of a garden'
NCV:	Mota	<i>gogor(ag)</i>	'gather together (weeds +)' (- <i>ag</i> < POc * <i>aki</i> APPL)

Fij:	Bauan	<i>gogot(a)</i>	'gather up in handfuls; clear up rubbish'
Pn:	Maori	<i>koko</i>	'scoop up'

5.2 Burning

The following reconstruction may refer particularly to the action of burning grass, undergrowth and debris. There are other burning terms more general in their application.

PMP **zeket* 'burn (fields, +)' (ACD)

POc **soko(t)*, **sokot-i-* 'burn (grass, rubbish +)'

Adm:	Lou	<i>sakot</i>	'burn on'
MM:	Bulu	<i>royo</i>	'(fire) burn'
MM:	Lihir	<i>so</i>	'(fire) burn'
		<i>sakt</i>	'burn (grass)'
MM:	Barok	<i>sonjot</i>	'burn (grass); bake (on fire)'
MM:	Tangga	<i>sok</i>	'(fire) burn'
MM:	Nehan	<i>suk</i>	(ADJ) 'burnt'; (V) 'singe'

cf. also:

SES:	Arosi	<i>togo</i>	'make up a fire, set more wood on'
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Reflexes of POc **tunu* 'roast on embers or in fire; burn (grass +); make decorative cicatrices by burning the skin' (Ch. 6, §3.2) are commonly used in NNG and MM languages to refer to burning off land for clearing.

5.3 Weeding

PMP **babaw* 'weed (a garden +)' (ACD)

POc **papo* 'weed (a garden +)' (ACD)

NNG:	Yabem	<i>wao(ŋ)</i>	'weed'
PT:	Gapapaiwa	<i>vao</i>	(VT) 'grow, plant'; (N) 'garden'
SES:	Gela	<i>vavo</i>	(VT) 'weed'
SES:	Lau	<i>fofo</i>	'weed with a knife'
SES:	Sa'a	<i>hoho</i>	'cut undergrowth' (<i>hohola</i> 'a garden cleared for yams')
SES:	Arosi	<i>haho</i>	(V) 'weed'
NCV:	Mota	<i>wowo(r)</i>	(V) 'weed'
Fij:	Bauan	<i>vovo</i>	'dig the ground between yam mounds'

POc **rabut/*rubat* 'uproot' (French-Wright 1983 has **(R,d)amput* 'uproot')

MM:	Tolai	<i>rubat</i>	'root up, pull up by the roots, raise taro +'
MM:	Roviana	<i>rabutu</i>	'pull out by the roots'
SES:	'Are'are	<i>rahu-i</i>	'pull out, down, of grass, shrubs, trees, plants'
SES:	Tolo	<i>rubo(a)</i>	(V) 'weed'

See also POc **puti-* 'pick, pluck (feathers), pull out (weeds +)' (Ch. 9, §6.1).

5.4 Digging

Both **kali* and **keli* are reconstructable for POc, and both apparently refer to digging as a general activity, including planting and digging up (tubers)³.

PAn **kali* 'dig' (Blust 1983–84a:15)

POc **kali* 'dig', **kali-aki-* 'plant (garden) with (taro +)'

MM: Minigir	<i>kali</i>	
MM: Tolai	<i>kal</i>	'dig (out)'
	<i>kalie</i>	'plant, dig in'
SES: Arosi	<i>?ari?ae</i>	'plant taro in a garden'
Pn: Tikopia	<i>kari</i>	
Pn: Maori	<i>kari</i>	'dig for, dig up'
Pn: Hawaiian	<i>?ali</i>	

POc **keli* 'dig, harvest (tubers)'

NNG: Lukep	<i>keli</i>	'dig, unearth (used for the action of harvesting yams and sweet potato)'
NNG: Wogeo	<i>(i)kel-kel</i>	
NNG: Manam	<i>?eli</i>	'dig postholes, yamholes +'
NNG: Sengseng	<i>kel</i>	'dig, dig up, as yams'
PT: Kilivila	<i>keli-</i>	
PT: Motu	<i>yei</i>	'dig, dig up (yams +)'
MM: Bali	<i>yeli</i>	
MM: Lihir	<i>kel</i>	
MM: Roviana	<i>yeli</i>	'dig (yams +)'
SES: Gela	<i>yeli-</i>	'dig, harvest a crop of yams +'
SES: Lau	<i>?eli</i>	'dig (yams, postholes +)'
SES: 'Are'are	<i>eri</i>	'dig, harvest'
NCV: Raga	<i>geli</i>	
SV: Kwamera	<i>eri</i>	
Fij: Wayan	<i>keli</i>	'dig up, dig out soil'
Fij: Bauan	<i>keli</i>	'dig (a hole)'
Pn: Tongan	<i>keli</i>	'plant (yams)'
Pn: Rennellese	<i>kegi</i>	'dig, esp. tubers'
Pn: Samoan	<i>?eli</i>	'dig, dig up, harvest (a root crop)'

cf. also:

Adm: Mussau	<i>kai</i>	
	<i>(ka)kaia</i>	'bury'
MM: Patpatar	<i>kil</i>	'dig (with a stick)'
MM: Ramoaina	<i>kil</i>	
MM: Label	<i>kil</i>	
SES: Lau	<i>?ili</i>	
SES: Arosi	<i>giri</i>	'dig with a stick'

³ There is a sporadic tendency in Oceanic languages for **a* > *e/_i,e* - e.g. POc **kati* 'husk with the teeth' > PEOc **keti* (Ch. 9, §3.7), PPN **waha* 'divide' > *wehe* in EPn languages.

NCV: Lonwolwol	<i>kil</i>	'dig, dig for'
SV: Lenakel	<i>il</i>	

Although pigs usually have an unwanted, destructive effect on gardens, in some areas pigs are allowed to root in ground that has been harvested of its tubers. This contributes to turning over the soil in preparation for a second crop.

POc **suar, *suar-i-* 'root up the ground, as pigs do'

NNG: Manam	<i>suari</i>	'dig, grub up, turn up the ground'
NNG: Gitua	<i>zuar</i>	'(pig) root about'
MM: Nakanai	<i>sua</i>	'push up the hot stones of an oven with a stick'
MM: Nalik	<i>suar</i>	'dig'
MM: Tabar	<i>cuor</i>	'plant (sweet potato +)'
SES: Lau	<i>sua-sua</i>	'heap of earth thrown up by crabs'
SES: 'Are'are	<i>sua(hi)</i>	'burrow, root the earth (of pigs)'
SES: Arosi	<i>sua</i>	'root up earth, as a pig'
Pn: Tongan	<i>hua</i>	'root in earth (of pigs)'
Pn: Samoan	<i>sua</i>	'dig over the ground, to free it from roots'

cf. also:

MM: Vaghua	<i>sula</i>	'dig'
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5.5 Digging stick

Two kinds of digging stick may be physically differentiated—the longer, heavier version used to break up the surface of the soil, and the smaller dibble used to poke holes in the soil for planting. These are seldom, if ever, differentiated in word lists and it may be that most languages use the same term for both.

POc **waso* 'digging stick'

MM: Nakanai	<i>uaro</i>	
MM: Tangga	<i>wās</i>	
SES: Lau	<i>kwato</i>	'digging stick in planting yams'
SES: Sa'a	<i>wāto</i>	'digging stick (for making holes when yam planting or for husking coconuts)'
SES: 'Are'are	<i>wato</i>	'stick used for husking coconuts and digging holes for planting of food'
SES: Arosi	<i>wato</i>	'a digging stick, a stake for husking coconuts'
NCV: Uripiv	<i>nu-was</i>	
NCV: Mota	<i>as</i>	'pierce, stab, prick'

Note also Sengseng (NNG) *e-suk* 'digging stick' and East Fijian *ḍukit-a* (V) 'root, dig up or loosen the ground with a stick', both reflexes of POc **(su)suk-i* 'pierce, prick, sew' (Ch. 4, §3.2.1); also the Polynesian reflexes of POc **kojom* 'husking stick' which refer to 'digging stick' (Ch. 6, §5.5).

6 Fence

Great damage can be done to gardens wherever there are bush pigs or wallabies. Although wallabies are not found in the Solomons or places east, wild pigs are found throughout virtually all of Melanesia. In these places, preparation of a garden usually includes construction of a strong fence. In addition to POC **baRa* 'fence, wall, enclosure' (see Ch. 3, §3.6), a term which evidently encompasses all kinds of fences and walls, there are several terms which may apply more specifically to garden enclosures made of logs or stakes.

PAn **qa(l,R)ad* 'fence, palisade' (Ross 1994a:459)⁴

POc **qaRa(r)* 'fence'

NNG: Numbami	<i>ala</i>	'fence (e.g. garden fence)'
NNG: Kove	<i>ala</i>	
PT: Bwaidoga	<i>ala</i>	
PT: Motu	<i>ara</i>	'fence of upright stakes'
NCV: Raga	<i>ara</i>	
NCV: Nguna	<i>na-ara</i>	'wall of bamboo or cane'
Pn: Tongan	<i>?ā</i>	'fence, wall, enclosure'
Pn: E. Uvean	<i>?ā</i>	'palisade'

Ross Clark (pers.comm.) has pointed out that PPn **loto-qā* is reconstructable (where **-qā* reflects POC **qaRa(r)*); this is evidently a fossilised compound, literally 'inside the fence', which in a number of Polynesian languages (Emae, Samoan, Tongan, Tikopia) means 'a garden'.

POc **kaRi* 'garden fence or partition'

NNG: Tami	<i>kali</i>	'fence'
NNG: Kairiru	<i>kar</i>	'fence'
PT: Molima	<i>ali</i>	'fence, esp. of garden'
PT: Kilivila	<i>kali</i>	'garden fence'
SES: Lau	<i>(sā)kali</i>	'fence round a garden'
SES: 'Are'are	<i>ari-ari</i>	'a separation, partition in the garden'

POc **bayat* 'fence, boundary marker', **bayat-i-* 'make a garden boundary'

PT: Gumawana	<i>bayata</i>	'garden boundary made by terracing rocks'
	<i>bayasi</i>	'make a garden boundary'
PT: Iduna	<i>bai</i>	'stick used as garden boundary; roof baton'
MM: Tolai	<i>bait</i>	'enclose with a fence'
	<i>ba-bait</i>	'fence'
SES: Arosi	<i>bai-bai</i>	'large logs put round a finished garden'
NCV: Mae	<i>pae</i>	'fence, wall'
Fij: Bauan	<i>bai</i>	'fence round garden or town'
Pn: Tuvalu	<i>pae</i>	'stones round an earth oven'

⁴ Reconstruction of PMP **-R-* here is based on Manobo (S. Philippines) data: Tigwa Manobo, Binukid, Kinamigin, Sarangani Manobo, Western Bukidnon Manobo, Ilianen Manobo *?alad*; Obo, Dibabawon *?aad*; Tagabawa *alad* (Elkins 1974:607).

Pn:	Tikopia	<i>pae</i>	'wall-like accumulation of stones'
Pn:	W. Futunan	<i>bae</i>	'a stone fence'

7 Food plants⁵

The two staples, taro and yams, would have primarily determined the nature of gardening activities, although the degree to which each is cultivated and the varieties favoured may vary from place to place. The two follow a different growth cycle. Malinowski (1935:296) describes the situation in the Trobriands:

Taro differs considerably from both yams and taytu [small yams] in the time it takes to mature, the conditions in which it thrives and in its capacity for being stored. Its period of growth is much shorter...There can...be three taro crops in a year, as against one for both yams and taytu.

Ivens (1927 (reissued 1972):355) describes the practice at Sa'a and Ulawa, in the Southeast Solomons, where the staple crops are yams, hana (a prickly yam regarded as distinct from a yam) and taro, the latter being grown in a separate plot.

The bush (inland) people grow taro and hana...My lists contain names of sixty varieties of yams, twenty of hanas and a hundred and twenty of taro, the large number of taro showing that the people were originally dwellers of the high lands. All of these varieties are cultivated and the differences between them recognised. In a taro garden the tubers are pulled as required, the tops are replanted, the suckers are planted out and clearing goes on all the year through, but yams and hanas have a regular season and only one crop. New ground is cleared for the yams and hanas every year, and the same ground is never planted twice, fertilizers being unknown. The old yam gardens serve for bananas and pawpaws, and for the planting of betel pepper, and the edible reed *awalosi*. Different words are used to denote the clearing for a yam garden, and the clearing for taro.

In a description of traditional gardens on Manus Island in the Admiralties, McEldowney (1995:98) describes the yams *Dioscorea esculenta* (*suwe*) and *D. alata* (*meyen*) as completely dominating, with only limited amounts of taro (*Colocasia esculenta*) sometimes found along the boundary walls of the garden.

Food plants other than tubers would require little labour. The most significant are breadfruit (also a staple in some places), some banana varieties, sugarcane and greens. Sago is eaten in the absence of other staples. The coconut might also be regarded as a staple, the plant's use, as with sago, extending beyond that of a foodstuff. Together with other fruit and nut trees, all of these are found in the wild, sometimes 'managed' as semi-wild, but also planted in garden plots, where they remain while the plots undergo their cycle of fallow.

William Clarke (1994:13) has commented on the importance of arboriculture to Oceanic peoples:

A striking characteristic of what can now be interpreted as an independent origin of agriculture in western Melanesia is its emphasis on arboriculture—the culture of trees—orchards. Trees were transported Pacific-wide, carried by the itinerant colonist-cultivators, incorporated into all production systems and begot the typical village environs of Polynesia and Micronesia

⁵ The reconstructions listed in this section are from Ross (1996d). See also *Food Plants*, vol. 3.

(Yen 1990). Some nut and fruit trees and sago dropped out before reaching the farther islands of the eastern and northern Pacific. Archaeological evidence for a well-developed arboriculture at least 3,500 years ago comes from the Mussau Islands, north of New Ireland (Kirch 1989). Arboreal species existing at this considerable time depth included: coconut, two or three species of *Pandanus*, *Inocarpus fagifer* (the ‘Tahitian chestnut’, which remains one of the most important Oceanic arboricultural species), *Canarium indicum* (a nutritionally substantial ‘almond’-producing tree in Melanesia), *Spondias dulcis* (the vi-apple, now of very wide distribution in the tropical Pacific), *Pometia*, *Pangium*, *Terminalia*, *Burckella*, *Calophyllum*, and others, including hardwood trees widely prized for woodworking.

We have reconstructions going back at least as far as PMP for two kinds of taro (*Colocasia esculenta* and *Alocasia macrorrhiza*), the greater yam, bananas, breadfruit and sago. Other food plants, such as sugar cane, may have been indigenous to New Guinea. The sweet potato is of South American origin, and was probably introduced into New Guinea–north-west Melanesia after AD 1550, though it was introduced into Polynesia in pre-contact times (Yen 1973).

Ross (1996d) includes the following POc reconstructions for items he classifies as “staples and related food plants”:

taro

**talo(s)* ‘taro, *Colocasia esculenta*’; **m^wapo(q)* ‘taro’; **piRaq* ‘giant taro, elephant ear taro, *Alocasia macrorrhiza*’; **bulaka* ‘swamp taro, *Cyrtosperma chamissonis*’; **kam^wa* ‘k.o. wild taro (?)’; *(*b,p*)*oso* ‘k.o. taro’

yams

**qupi* ‘greater yam, *Dioscorea alata*; also used as yam generic’; **p^watik* ‘potato yam, aerial yam, *Dioscorea bulbifera*’; (?) **mamis* ‘k.o. yam’; **m^waruqen* ‘k.o. yam: wild yam (?)’; **udu(r,R)* ‘k.o. greater yam’; **p^wasepe* ‘greater yam’, PWOC **gobu* ‘potato yam, *Dioscorea bulbifera* (?)’, PWOC *(*q,k*)*amisa* ‘lesser yam, *Dioscorea esculenta*’; and PEOc **damu* ‘k.o. yam’

coconut (*Cocos nucifera*)

**niuR* ‘ripe coconut; coconut (generic)’

breadfruit (*Artocarpus* and *Parartocarpus* spp.)

**kuluR* ‘breadfruit, *Artocarpus altilis*’; **baReqo* ‘breadfruit fruit (?)’; **beta* ‘k.o. breadfruit’; PEOc **ma(R)i* ‘breadfruit’

bananas

**pudi* ‘banana, *Musa* cultivars’; **joRaga* ‘banana, *Australimusa* group’; **sakup* ‘k.o. cooking banana’; **b^wera* ‘banana type’; **baqapun* ‘k.o. banana’; **tawai* ‘k.o. banana’; PWOC **b^watiq* ‘k.o. banana’

sugarcane

**topu* ‘sugarcane, *Saccharum officinarum*’; **pijo* ‘k.o. edible wild cane or reed, possibly *Saccharum spontaneum*’

sago

**Rabia* 'sago, *Metroxylon* spp.'

greens

**bele* 'shrub species, *Abelmoschus manihot* (syn. *Hibiscus manihot*)'

No doubt a variety of green leaves were eaten but other reconstructions (e.g. **kusa(q)*) do not permit a definition more precise than 'k.o. edible greens'.

other fruit trees

**wai*, **waiwai* 'mango (generic)'; **pau(q)* 'mango, probably *Mangifera indica*⁶; **koRa* 'wild mango, *Mangifera minor*'

**quRis* 'Polynesian plum, hog plum, Tahitian apple, golden apple, *Spondias Cytherea* (syn. *Spondias dulcis*)'

**molis* 'citrus fruit or citrus-like fruit'

**kapika* 'Malay apple and rose apple, *Eugenia* spp.'

**tawan* '*Pometia pinnata*'

**n̄atu(q)* 'k.o. tree with avocado-like fruit and hard wood, *Burckella obovata*'

nut trees

**raqa(p)* 'New Guinea walnut, *Dracontomelon dao*' (syn. *D. mangiferum*, *D. edule*)

**(w,v)ele* 'cut nut, *Barringtonia* sp.'

**[ka]ŋaRi* 'canarium almond, *Canarium* spp.'

**qalip* 'canarium almond, *Canarium* sp.'

**talise* 'Java almond, Indian almond, *Terminalia catappa*'

**qipi* 'Tahitian chestnut, Pacific chestnut, *Inocarpus fagifer*' (syn. *Inocarpus edulis*).

No garden is complete or likely to succeed without an abundance of colourful and aromatic herbs and shrubs. In addition to their ornamental qualities, these herbs and shrubs play a major role in various forms of garden magic and ritual. Reconstructions for two such are **laqia* 'ginger, *Zingiber officinale*', whose role is magical rather than culinary, and **yaŋo* 'turmeric, *Curcuma longa*', which has both an edible root and a rich orange pigment, of ritual significance in many Oceanic societies.

⁶ Ross (1996d:210) warns that we cannot be completely sure of the original POc referents of **pau(q)* and **wai*. Although both terms are reconstructable to PMP, their referents have apparently undergone some switching, with the sweet-tasting *Mangifera indica* being introduced from Asia at a date probably well after the break-up of POc, to supplement the indigenous *Mangifera minor* and *Mangifera foetida* varieties.

8 Planting

8.1 Propagation material

Taro is propagated either by replanting the cut-off top of a tuber or by transplanting the suckers that grow around the 'mother' taro. Alternatively, these are simply left in the ground after the mature taro has been harvested. Reconstructed terms for this propagation material may refer to other plants in addition to taro. They are POC **(s,j)uli(q)* 'banana or taro sucker, slip, cutting, shoot (i.e. propagation material)'; POC **wasi* 'taro stem, used for planting'; POC **b^wajo* 'taro tops, top shoots of areca nut, coconut' and POC **up(e,a)* 'taro seedling'.

PAn **suliq* 'tendrils, sucker' (Blust 1972b)

POC **(s,j)uli(q)* (1) 'banana or taro sucker, shoot (i.e. propagation material)' (2) 'slip, cutting' (Ross 1988)

Adm: Lou	<i>sili-n</i>	'sprout: sprout of banana or pineapple'
Adm: Loniu	<i>cili</i>	'sprout, esp. banana shoot'
NNG: Tami	<i>jili</i>	'taro sucker'
NNG: Lukep (Pono)	<i>suli-</i>	'a banana shoot'
NNG: Manam	<i>suli</i>	'banana slip, cutting'
PT: Dobu	<i>suli</i>	'taro'
PT: Tawala	<i>huni</i>	'taro'
PT: Motu	<i>dui</i>	'banana plant'
MM: Nehan	<i>hon</i>	'taro'
SES: Gela	<i>duli</i>	'banana sucker'
NCV: Mota	<i>suli(u)</i>	'sucker from roots of a plant'
SV: Anejom	<i>ni-sje-n</i>	'taro shoot with leaves'
Fij: Wayan	<i>ɔuli</i>	
Fij: Bauan	<i>suli</i>	'banana or taro sucker'
Pn: Tongan	<i>huli(?i talo)</i>	'taro sucker' (?i < POC <i>*qi</i> 'generic possessive preposition'; <i>talo</i> 'taro')

POC **wasi* 'taro stem' (Ross 1996d)

Adm: Mussau	<i>asi</i>	'taro'
Adm: Loniu	<i>wos</i>	'taro stem, used for planting'
NNG: Rauto	<i>i-sin</i>	'taro'
PT: Ubir	<i>wasi</i>	'taro'
PT: Nimoa	<i>wusi</i>	'taro'
SV: Anejom	<i>n-ase(n-tal)</i>	(-n CONST, <i>tal</i> 'taro')

POC **b^wajo* 'new leaves or shoots, (or taro tops for planting?)' (Ross 1996d)

NNG: Manam	<i>baŋ</i>	'taro'
PT: Tawala	<i>pam</i>	'edible green leaves (e.g. taro leaves)'
SES: Lau	<i>g^wajo</i>	'taro tops (for planting)'
SES: Arosi	<i>b^wajo-b^wajo</i>	'the top shoots of betel nut/coconut, taro for planting'

POc **up(e,a)* 'taro seedling'

NNG: Mutu	(do)uwe	'seed'
NNG: Tami	uwe	
NNG: Yabem	uwe	'seedling'
NNG: Kove	uwe	'top of taro or pineapple, coconut sprout, all intended for replanting'
PT: Are	ube	'taro tops for planting'
PT: Gapapaiwa	uve	'taro tops for planting'
PT: Tawala	uwe	'taro seed shoots'
PT: Motu	uhe	'the end of yam, kept for planting, any seed for planting'
PT: Molima	uveya	'taro top for replanting'
MM: Nakanai	uve	'taro top for replanting'
SES: Arosi	uha	'taro sp.'
NCal: Pwapwâ	upe	
	uva	'taro'
NCal: Pije	uwe(q ^w aco)	
NCal: Fwâi	uve(qio)	
	uva	'taro'

These four items refer to parts of a plant which are used in its propagation. Except perhaps for POc **wasi* 'taro stem, used for planting', they refer to the relevant parts of other plants, as well as taro. However, as Ross points out (1996d:180), in each case generic reference is to taro. In several Central Papuan languages (Motu and its relatives), reflexes of POc *(s,j)uli(q) have become the generic term for banana.

One 'cutting' term has been reconstructed which may refer to the severing of anything from its parent body, such as hair or leaves, but whose reflexes in North New Guinea, the Southeast Solomons and Micronesia have also come to apply specifically to the action of cutting off tuber tops.

POc **koti* 'cut off (hair, taro tops +)'

NNG: Manam	?oti(ŋ)	'cut off taro tops for planting'
NNG: Sengseng	kot	'cut leaves for roof material or bark from a tree'
MM: Nakanai	koti	'cut hair'
SES: Gela	goti	'cut off, as taro head in planting'
SES: Arosi	?oi	'cut off taro tops for planting; to scrape off or peel with a shell'
Mic: Woleaian	xos	'cut a tuber top'
Fij: Bauan	koti	'clip, shear, cut off small things'
Pn: Niuean	koti	'pinch, snip'
Pn: Hawaiian	?oki	'cut, clip'

Propagation of yams is generally by seed yams, small healthy yams selected from the previous year's crop, or by slices of larger yams. Ross has reconstructed PWOc **kapul* 'seed yam'.

PWOC *kapul 'seed yam'⁷

PT:	Dobu	<i>awona</i>	
PT:	Kakabai	<i>ko-koya</i>	'yam'
PT:	Misima	<i>ka-kaʔun</i>	
PT:	Kilivila	<i>kaula</i>	'yam'
MM:	Tiang	<i>ko</i>	'lesser yam'
MM:	Kara (East)	<i>ko-kau</i>	'lesser yam, <i>Dioscorea esculenta</i> '
MM:	Patpatar	<i>kau-kau</i>	'lesser yam, <i>Dioscorea esculenta</i> '
MM:	Nehan	<i>ko-ko</i>	'yam'

Ross suggests that this can probably be combined with the cognate set below.

PNGOC *k(ʷ)apil 'k.o. yam'

NNG:	Tami	<i>kʷapil</i>	'k.o. yam, <i>Dioscorea vulg.</i> '
NNG:	Numbami	<i>kowila</i>	'greater yam'
NNG:	Yabem	<i>kili</i>	'greater yam'
NNG:	Mapos Buang	<i>ker</i>	'yam'
PT:	Dobu	<i>kʷaleya</i>	'yam'
PT:	Iduna	<i>kʷavi-kʷavi</i>	'greater yam variety'

POC *paji 'cut yams for planting'

PT:	Dobu	<i>yadi</i>	'cut seed yams for planting'
Fij:	Wayan	<i>vāḍi, vaditi</i>	'snatch or grab at s.t.; pluck or break off s.t.'
Fij:	Bauan	<i>vadī</i>	'cut yams for planting; a piece of yam cut for planting'

8.2 Planting (tubers)

POC *sopu referred to yam planting. This much is clear from the Muyuw and Gela glosses. It is impossible to know from the available reflexes, however, whether the activity referred to was specific or general.

POC *sopu 'prepare yams for planting'

PT:	Kilivila	<i>sopu</i>	'the whole activity of planting, including preparing the hole, planting the seed or tuber, covering and mounding the soil' (Malinowski 1935:132)
PT:	Muyuw	<i>sopʷ</i>	'planting (yams)'
SES:	Gela	<i>sovu</i>	'cut off slices of yams for planting'
SES:	Lau	<i>tofu(a)</i>	'chop'
SES:	Kwaio	<i>tofu(a)</i>	(V) 'cut things up'
SES:	'Are'are	<i>tohu(a)</i>	'fell, cut, chop'
SES:	Sa'a	<i>tohu(a)</i>	'chop down, fell'
SES:	Arosi	<i>tohu</i>	'a bit, portion'

⁷ Reflexes in Fiji and Polynesia reflect PCP *bulabula (Bauan *i bulabula* 'yam settings'; Tongan *pulopula* 'seed yams, pieces of yams, suckers, seedlings etc. for planting').

PMP **hasek* 'dibble, plant seeds with a dibble stick' (ACD)

POc **asok* 'plant in holes in the ground' (ACD)

MM:	Notsi	<i>soka</i>	'plant (sweet potato +)'
MM:	Sursurunga	<i>soi</i>	'plant (sweet potato +)'
MM:	Patpatar	<i>soh</i>	'plant (sweet potato +)'
SES:	Sa'a	<i>ato(taha)</i>	'throw the first yam set into the hole, of priest'
SES:	Ulawa	<i>ato(ni wa²a)</i>	'throw the yams into the holes'
		<i>ato-ato</i>	'up and down dividing sticks in a yam garden'
SES:	Arosi	<i>ato</i>	'distribute yams in holes for planting'
		<i>ato-ato</i>	'lay in rows, mark out thus, as a garden with horizontal poles'

The following verb seems to have resulted from affixing **pa-* 'causative' to **asok* above.

PWoc **pasok*, **pasok-i* 'plant (tuber +)'

NNG:	Malai	<i>vazogi</i>	
NNG:	Gitua	<i>va-vazok</i>	
NNG:	Hote	<i>va²o</i>	'plant (by making hole in the ground)'
PT:	Hula	<i>varo</i>	
PT:	Motu	<i>hado</i>	
MM:	Bali	<i>vazoyi</i>	
MM:	Bola	<i>varo</i>	
MM:	Kara (West)	<i>fasu</i>	
MM:	Nalik	<i>fasu</i>	

Despite the formal resemblance of the following set to the one above, it is probable that they are not historically related.

PEOc **pasi* 'plant yams'

SES:	Gela	<i>vahi</i>	
SES:	Tolo	<i>hasi</i>	'plant (s.t.)'
SES:	Lau	<i>fasi</i>	'plant (s.t.)'
SES:	Arosi	<i>hasi</i>	'plant (s.t.)'
Fij:	Bauan	<i>vasi</i>	'plant yams in the same ground two or more years in succession'

cf. also

Adm:	Mussau	<i>pasa</i>	'plant (s.t.)'
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Other terms are reflexes of POc *(*su*)*suk-i* 'pierce, sew' (Ch. 9, §4.1):

SES:	Arosi	<i>su²i</i>	'transplant, put in a seedling'
NCV:	Mota	<i>sug</i>	'dig up, transplant'
Fij:	Bauan	<i>²uki</i>	'dig up ground, loosen ground with a stick'

POc **tanum*, **tanum-i-* 'bury, plant (tuber)'

NNG:	Bing	<i>tan</i>	'plant (sweet potato +)'
NNG:	Manam	<i>-tano</i>	'plant (sweet potato +)'
NNG:	Bam	<i>-tani</i>	'plant (sweet potato +)'
NNG:	Wogeo	<i>-tano</i>	'plant (sweet potato +)'

SJ:	Bongo	<i>tni(ei)</i>	'bury'
PT:	Ubir	<i>tanum</i>	'plant'
MM:	Bulu	<i>tanu</i>	'bury'
MM:	Taiof	<i>tanum</i>	'garden'
SV:	Lenakel	<i>renəm</i>	'bury, plant'
Pn:	Maori	<i>tanumi(a)</i>	'bury'

cf. also:

MM:	Nakanai	<i>galu</i>	(V) 'plant'
MM:	Meramera	<i>danu</i>	(V) 'plant'

8.3 Yam mound

Barrau (1955:56) describes cultivation of yams in Melanesia:

As a general rule, yams flourish on light, deep and well-drained soils. These requirements have led the natives to perfect cultural techniques which are often most ingenious. The simplest consists of carefully earthing up the plant. Sometimes a large ridge of well-worked soil is made...surrounded by draining ditches.

The following set suggests related reconstructions for 'mound up (earth) for yams' and 'yam mound'.

POc **(p,b)uk(i,e)* 'mound up (earth) for yams'

POc **ta-(p,b)uk(i,e)* 'yam mound'

MM:	Petats	<i>tahui</i>	'earth heaped up for planting yams in'
SES:	Arosi	<i>hu-hu?i</i>	'dig, mound up'
NCV:	Nguna	<i>tāki</i>	'yam mound'
NCV:	Atchin	<i>tawu</i>	'pile of earth'
Mic:	Kiribatese	<i>tabuki</i>	'hill, hillock'
Fij:	Wayan	<i>buke</i>	'mound on which yams + are planted'
Fij:	Bauan	<i>buke-buke</i>	'mound of earth for planting yams'
Pn:	Rennellese	<i>puke</i>	'hill, as for tubers'
Pn:	Hawaiian	<i>pu?e</i>	'mound, hill, heap'

8.4 Sow (seed)

PMP **kambuR* 'sprinkle, scatter (seed +)' (ACD)

POc **kabu(R)* 'sow or scatter small seeds'

Fij:	Bauan	<i>kabu</i>	'sow or scatter small seeds'
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Only a single Oceanic reflex has been located for this reconstruction, from the most easterly extension of Melanesia. This raises two questions. Firstly, why are there not WOc cognates? If the term reached this point, retaining its PMP meaning, it must have been a familiar one in the intervening regions. This situation arises often enough in linguistic reconstruction, and may be due to any number of sociolinguistic variables or perhaps to shortfalls in available word lists. It is of course possible that our searches have simply not located cognates that exist elsewhere. But the fact remains that most of the cultivated plants for

which we have POc reconstructions are propagated by planting parts of the plant other than its seeds. Secondly, are we overlooking the existence of plants that are cultivated from seed but are seldom recorded in word lists, perhaps being of minor importance in the diet, or subsumed under a more generalised term such as 'greens'. One such plant may be an *Amaranthus* (*Amaranthus tricolor*), recorded as an indigenous food plant by Quiros on his visits to Santa Cruz and Espiritu Santo at the beginning of the seventeenth century (Markham 1904:50). Another pre-European plant in New Guinea whose leaves are eaten is a nasturtium species found in the lowlands (*Nasturtium hybospermum*). It is a widespread practice today for bunches of these plants, with seed pods, to be hung up to dry until such time as a new garden is prepared. The seeds are then broadcast into the soil surface. Other contenders may be legumes, such as the winged bean (*Psophocarpus tetragonolobus*)⁸ and *Lablab purpureus*, both of which may date from pre-contact times (pers.comm. Michael Bourke). The association of these or similar plants with POc speakers will, however, depend on our reconstruction of appropriate terms.

9 Growth stages

9.1 Sprout, shoot

POc **tupul* 'send out new growth' (French-Wright 1983)

PT:	Motu	<i>tuhu-tuhu</i>	'young shoot'
MM:	Roviana	<i>tuvulu</i>	'send out new growth, of trees that have been cut down'
Fij:	Bauan	<i>tuvu</i>	'shoot up, of a tree'

POc **polok* '(plant) grow (tall)'

NNG:	Sengseng	<i>polok, plok</i>	'sprout (of plants, new tooth)'
MM:	Lavongai	<i>polok</i>	'(plant) grow'
MM:	Tigak	<i>polok</i>	'(plant) grow'
SES:	Arosi	<i>horo</i>	'begin to make stem, of a tree; the beginning of a stem in a coconut'

PWOc **pusuk* '(plant) grow'

NNG:	Bing	<i>pus</i>	'(plant) grow'
MM:	Konomala	<i>pusa</i>	'(plant) grow'
MM:	Solos	<i>pusuk</i>	'(plant) grow'

9.2 Grow, swell

PMP **tu(m)buq* 'grow, thrive; swell' (Blust 1986)

POc **tubuq* 'grow, swell'

NNG:	Numbami	<i>tubu</i>	'grow, fatten'
NNG:	Roinji	<i>tubu</i>	'(plant) grow'

⁸ The Sengseng grow these beans, but do not sow the seeds (Ann Chowning, pers.comm.).

NNG: Kove	<i>tuvu-tuvu</i>	'grow' (<i>tuvu</i> 'physique'; <i>pa-tuvu</i> 'grow a child')
PT: Motu	<i>tubu</i>	'grow; ferment; swell'
PT: Bwaidoga	<i>tubuga</i>	'grow large, swell'
MM: Ramoainana	<i>tubu</i>	'grow; principally of men and animals not trees'
MM: Nakanai	<i>tubu</i>	'be fat; grow'
MM: Teop	<i>subu</i>	'swell'
SES: Bugotu	<i>tubu</i>	'swell'
SES: Sa'a	<i>upu</i>	'swell'
SES: Arosi	<i>ubu</i>	'swell'
Fij: Wayan	<i>tubu</i>	'grow'
Fij: Bauan	<i>tubu</i>	'grow, increase, spring up, of plants'

9.3 Ripen

Chapter 6, §3.9 contains two reconstructions, POc **ma-osak* 'ready to be eaten (because ripe or cooked)', and POc **[ma-]noka* 'be in good condition for eating; nicely ripe, well-cooked, soft'.

9.4 Wither

Although any plant may become dry and droop through lack of water, it is a feature of yam vines that the leaves turn yellow and drop off when the tubers are ready to harvest.

POc **[ma-]raŋo* 'become withered (of vegetation)'

NNG: Manam	<i>ma-raŋo</i>	'dry, arid'
MM: Tolai	<i>ma-raŋa</i>	'withered, dry (leaves, husk, tree)'
MM: Halia (Selau)	<i>raŋo</i>	'dry'
SES: Bugotu	<i>raŋo</i>	'wither (leaves, yam vines)'
SES: Sa'a	<i>raŋo</i>	'be withered, dry (esp. yams when vine withers)'
SES: Arosi	<i>raŋo</i>	'withered, dead (of grass, green boughs +)'
NCV: Mota	<i>raŋo</i>	'become dried up in the course of nature'

POc **malai* 'withered, faded'

MM: Nakanai	<i>malai</i>	'be withered or drying up (leaves, fruit, copra)'
Fij: Wayan	<i>mālai</i>	'withered, faded (living things)'
Fij: Bauan	<i>malai</i>	'withered, faded'

cf. also:

NNG: Kove	<i>malai</i>	'tired, feeling lazy'
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PEOc **palo* 'wither, wilt' (ACD)

SES: Sa'a	<i>halo</i>	'wither, of full-grown taro plants'
Pn: Maori	<i>paro</i>	'shrunk, wilted'

10 Gathering, harvesting

We have not identified a reconstruction specifically for the digging up of tubers, either with or without the use of a digging stick, although **kali/*keli* (§5,4) is apparently a general term whose meaning includes this activity. It is possible that terms included under the heading 'weeding' were sometimes used to refer to pulling any plant out of the soil. Ann Chowning (pers.comm.) points out that, density of soil permitting, taro is often harvested by being pulled out directly by its thick stem, whereas yams have to be dug up. The reconstructions below relate to the gathering of fruit and nuts and sometimes leaves. They carry distinctions made on the basis of whether the item is plucked by hand, or with the aid of a stick or hook.

PMP **kawit* 'hook' (Dempwolff 1938)

POc **kawi(t)*, **kawit-i-* (V) 'hook, catch hold of; fruit crook' (French-Wright (1983)

NNG: Manam	<i>?aut</i>	'pluck fruit with a fruit crook'
MM: Tolai	<i>kait</i>	'catch, as clothes on thorns'
MM: Nakanai	<i>kau</i>	(V) 'hook, as in hooking fruit down from a tree'
SES: Gela	<i>kauti</i>	'drag off fruit with a hook'
SES: Sa'a	<i>i-kau</i>	'hooked stick for fruit-picking' (<i>i-</i> < POc <i>*i</i> INS)
SES: Arosi	<i>kau</i>	'catch and hold, as a shirt in a nail; a crook for pulling down fruit'
	<i>?awi</i>	'hook'
NCV: Mota	<i>kaut</i>	'catch hold and pluck, twitch'
	<i>i-kau</i>	'the cleft bamboo used to twitch off almonds, breadfruit +' (<i>i-</i> < POc <i>*i</i> INS)
Mic: Kosraean	<i>kai</i>	'catch with a hook'
Fij: Wayan	<i>kauti</i>	'hook s.t., catch s.t. on a hook'

For the implement, Polynesian languages use terms derived from PPn **lohu* 'fruit-plucking pole, hook something with a pole' (Biggs 1993).

The set above bears a formal and semantic resemblance to PMP/POc **kawil* 'hook, fish hook' (Ch. 8, §4), but it is unclear what historical connection (if any) exists between them.

The following sets, all relating to plucking by hand, have formal similarities, and it is sometimes hard to know which cognate set a given reflex belongs to. For discussion of the first three items below, see Ch. 9, §6.1.

PAn **buCbuC* 'pull up (weeds +), pluck (feathers +)' (ACD)

POc **pupu(t)* 'pick (fruit +), pluck (feathers +)'

PT: Motu	<i>huhu-</i>	'break off bananas singly'
PT: Dobu	<i>(lo)pupu</i>	'pluck feathers from a bird'
PT: Gapapaiwa	<i>pu(i)</i>	'pluck feathers from a bird'
PT: Tubetube	<i>pupu</i>	'pull off (leaves from tree +)'
PT: Sudest	<i>vu</i>	'pick; harvest a fruit'
SES: Lau	<i>fufu</i>	'pick fruit'
SES: Arosi	<i>huhu</i>	'pluck fruit'
SES: Sa'a	<i>huhu</i>	'pluck, pick off'
Fij: Bauan	<i>vuvu</i>	'root up entirely'
Pn: Niuean	<i>fufu</i>	'strip off (leaves, bark, +)'

POc **sapu(t)*, **saput-i-* 'pull out, pull up, pluck (fruit, nuts)'

PT:	Molima	<i>sabu</i>	'pull up taro or grass'
SES:	Arosi	<i>tahu</i>	'take by force'
NCV:	Raga	<i>havusi</i>	'pluck, as a fowl'
NCV:	Tamambo	<i>sabuti</i>	'pluck, pull out (plant, tooth +)'
Fij:	Bauan	<i>ðavu</i>	'pull up, eradicate'
		<i>ðavut(a)</i>	(VT) 'pull up, eradicate'
Fij:	Wayan	<i>ðavu</i>	'(tooth, root +) be pulled out, extracted, removed from a fixed position'
		<i>ðavuti-</i>	'pull s.t. out, remove s.t.'
Pn:	Tongan	<i>hafu(le)</i>	'strip the dry leaves from sugarcane, pandanus, banana and plantain plants'

cf. also

MM:	Roviana	<i>zapu</i>	'pull coconuts from a tree'
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POc **tapu(t)*, **taput-i-* 'strip (crops), pull off' (French-Wright 1983: **tapu*)

NNG:	Lukep	<i>tau(rai)</i>	'pick' (- <i>rai</i> < POc <i>*(r,R)-aki</i>)
PT:	Bwaidoga	<i>tavu(na)</i>	'harvest bananas'
PT:	Motu	<i>tapusi</i>	'pull strongly, with jerk of a string, and possibly break it'
MM:	Nakanai	<i>tavu</i>	'grasp, capture'
MM:	Simbo	<i>tapu</i>	'pull off, as husk off canarium nut'
SES:	Arosi	<i>ahu</i>	'(coconut +) fall; strip completely (garden of food); gather fruit'
Fij:	Bauan	<i>tavu</i>	'knock down and beat'

POc **sapaki-* 'pluck off, break off (leaves) with the hand' (French-Wright 1983)

NNG:	Manam	<i>sapa?</i>	'pluck off'
MM:	Tolai	<i>apak</i>	'break off leaves from a tree, as for cooking or ornament'
Mic:	Woleaian	<i>tepagi</i>	'cut (leaves)'

PEOc **sapi* 'strip (leaves); pluck (fruit, nuts)'

SES:	Gela	<i>sapi</i>	'pluck fruit from a bunch; strip off leaves'
SES:	Lau	<i>tāfi</i>	'lop off; take off midrib of sago palm leaf'
SES:	'Are'are	<i>tahi</i>	'strip off leaves; cut into slices'
SES:	Sa'a	<i>tahi</i>	'pluck hanging vines'
SES:	Arosi	<i>tahi</i>	'cut, cut off; strip off'
NCV:	Mota	<i>sav</i>	'pluck (hair, feathers)'

PCP **paki* 'pluck, break off (leaves) with the hand'

Fij:	Rotuman	<i>ha?i</i>	'pluck (feathers), pull out'
Pn:	Tongan	<i>faki</i>	'pick, pluck, esp. banana, coconut'
Pn:	Samoaan	<i>fa?i</i>	'break off, snap off, pick'
Pn:	Tikopia	<i>faki</i>	'gather (breadfruit +)'

cf. also:

NNG:	Sengseng	<i>pak</i>	'collect bedpoles by breaking off long straight branches or trunks'
PT:	Motu	<i>baki</i>	'break, of bread, sago +'
Pn:	Tongan	<i>paki</i>	'break or break off, esp. with the hand; pick or pluck'

POc **paRi* 'cut or lop off branches' (ACD)

NNG:	Mangseng	<i>var</i>	'cut, clip'
MM:	Nakanai	<i>vali</i>	'cut, as wood or a leaf from a tree; remove all the limbs from a tree'
SES:	'Are'are	<i>hari</i>	'lop off branches, cut off a bunch of bananas, betel nuts'
SES:	Sa'a	<i>hali</i>	'lop off branches'
SES:	Arosi	<i>hari</i>	'tear, tear off, pull off a cluster of fruit'
Fij:	Rotuman	<i>fai</i>	'cut or chop down (tree or branch)'

11 Storage: yam storehouse

The yam is the only tropical tuber which is easily preserved, provided it is placed in an airy, dry, dark and cool spot. It was a community's safeguard at times when the regular supply of foodstuffs was low. From New Guinea to New Caledonia, in areas where yam is the staple food, special huts are found in which they are preserved (Barrau 1955:58). Malinowski (1935:218) reports that in the Trobriands such structures (*bwema*) were given a more prominent position in the village than the family dwellings, and were more meticulously decorated and maintained. POc **pale* 'open-sided building', has been reconstructed (Ch. 3, §3.3), reflexes of which in some instances refer to yam storehouses (NNG: Lukep (Pono) *para* 'yam house'; SES: Arosi (E. dialect) *hare* 'shed for yams'). No term has been reconstructed that refers specifically to a hut for storing yams. In Mapos Buang (South Huon Gulf), yam houses are called *jok*. In Nengone, Loyalty Islands, *methuma* is the term for a harvest hut for yams.

12 Drainage and Irrigation

Water control has two opposing functions: (1) to aid drainage in wet areas, and (2) to carry water to drier areas. The New Guinea area apparently concentrated its developments towards the former, particularly in yam gardens, through such means as mounding and ditching (Yen 1973:83). In areas with lower or less reliable rainfall, it has long been the practice to irrigate—particularly the water-loving taro crops, whose yield can be considerably increased. For various reasons, including the fact that a more restricted environment limits crop choice, irrigated taro fields are more a feature of eastern Oceanic than of the west. Kirch and Lepofsky (1993:185) have written:

As archaeological and ethnobotanical data on the distribution of Oceanic irrigation technology accumulated, it became evident that the widespread distribution of both pondfield and raised-bed agricultural technologies in Polynesia was not matched by an equally extensive distribution in Melanesia...Although there are 'pockets' of highly intensive taro pondfield irrigation in

Melanesia (notably in the New Georgia group of the western Solomons, on Anejom in Vanuatu (Spriggs 1981), and in New Caledonia (Barrau 1956)), on most of the intervening islands (including the large island of New Guinea [but presumably excluding the Western Highlands systems of the Papuans mentioned below (m.o.)]) irrigation is absent.

The question to be resolved is whether the early Oceanic gardeners were familiar with what might be called more sophisticated irrigation techniques, or whether the knowledge was acquired later. Proto Oceanic speakers were generally coastal and island dwellers, far removed geographically from Papuan-speaking peoples of the New Guinea Highlands who may have been associated with ditch systems in the growing of taro as long ago as 6000 BP (Golson 1990, Swadling & Muke 1998). More feasible is the possibility that POC knowledge was passed down from Southeast Asian forebears. Although Southeast Asian paddies were used predominantly for rice growing, taro is reportedly grown in similar fashion in parts of the northern Philippines, south-west Sulawesi and Java (Spriggs 1981:173).

Kirch and Lepofsky (1993:196) considered both linguistic and archaeological evidence and concluded that:

neither body of evidence lends support to the...model for the origins of Polynesian irrigation technology, [which proposes] a direct transfer or diffusion from Southeast Asia via the migrations of Austronesian-speaking peoples. Rather, all of the evidence suggests that there have been multiple local sequences of innovation and development of complex irrigation or swamp drainage technology, or both, for *Colocasia* taro cultivation within eastern Melanesia and Polynesia.

Working from our own linguistic sources, which include possibly more data from Western Oceanic languages than were available to Kirch and Lepofsky, we have not been able to add a single cognate set to those already listed by the latter.⁹ No reconstructions have been possible for such concepts as ditch or water channel or irrigated garden. A single reconstruction is possible to PCP level.

PCP **pusi* 'taro swamp, taro bed' (from French-Wright)

Fij:	Bauan	<i>vudi</i>	'a taro garden under wet cultivation'
Pn:	Samoaan	<i>fusi</i>	'raised bed'
Pn:	E. Futunan	<i>vusi(ga)</i>	'pondfield'
Pn:	E. Uvean	<i>fuhi</i>	'raised bed'

A second reconstruction is open to conjecture. Both Spriggs and Kirch and Lepofsky drew attention to the Hawaiian and Rapa (Austral Islands) terms for a pondfield, *loʻi* and *roki*. We have a tentative reconstruction POC **logi* meaning something like 'partition, partitioned area' with a reflex from Hote in the Huon Gulf (NNG), *lok* '(garden) fence; wall of house' (Ch. 3, §3.5).

POC **logi* 'partition, partitioned area'

NNG:	Hote	<i>lok</i>	'(garden) fence; wall of house'
Mic:	Kiribatese	<i>roki</i>	'screen (of mats +); curtain; bathroom; closed with screen' (possibly borrowed from Polynesian)
Fij:	Rotuman	<i>loki</i>	'the end of the interior of a house'

⁹ One of the few detailed accounts of intensive irrigation on mainland New Guinea is Kahn (1984).

Fij:	Bauan	<i>loqi</i>	'inner or private part of a house, used as a bedroom and for keeping valuables'
Pn:	Tongan	<i>loki</i>	'inner room'
Pn:	Samoaan	<i>loʔi</i>	'inner room'
Pn:	Rapa	<i>roki</i>	'irrigated terrace'
Pn:	Tahitian	<i>roʔi</i>	'bed'
Pn:	Hawaiian	<i>loʔi</i>	'irrigated terrace for taro'
Pn:	Tuamotuan	<i>roki</i>	'wall of a temple; bed, couch'
cf. also:			
SES:	Gela	<i>voki</i>	'room, partition in a house'

The Polynesian reflexes, apart from the Rapa and Hawaiian terms, have the sense of 'inner room, room for sleeping' or similar. However, it is conceivable that the POc term did have a more generalised meaning and could be applied to any partitioned area, whether house or garden. Its reference to an *irrigated* partitioned area remains a localised one.

In spite of remarkable similarities of technique commented on by Matthew Spriggs (pers.comm.) in islands throughout eastern Oceania, including New Georgia, Guadalcanal, Maewo, Santo, New Caledonia, Fiji and a number of Polynesian islands, and possibly also New Hanover in the Bismarck Archipelago, archaeological findings to date would seem to support the theory that more complex irrigation systems are not as old as Oceanic settlement. Although many of these systems have fallen into disuse since European contact (largely as the result of dramatic decline in population that came about with exposure to European diseases), our best evidence for their existence is in the physical traces left by their water channels, sometimes stone-lined, and their banks and terraces. More recently, archaeologists have, under certain conditions, been able to identify soil strata that have at some time in the past been subjected to pondfield irrigation (Spriggs 1997b:84–85). Spriggs reports on one such site in Hawaii now dated to 1500 BP, the earliest date yet for evidence of pondfield irrigation (p.89). In New Caledonia, a buried taro pondfield terrace at Col de Piroque has been dated back to 1150–1100 BP (p.184). Other evidence points to more recent dating. On Aneityum, Spriggs estimates that the large-scale canal-fed irrigation systems of the valley flats have been constructed within the period since about 500–600 BP (Spriggs 1986:11). Oldest evidence for the Solomons remains the eye-witness report of the explorer Mendaña in 1568 (Amherst & Thomson 1901:306).

13 Gaps in reconstructions

Other concepts for which we currently lack reconstructions include a term for the stakes or supports on which the yam vines were trained. French-Wright (1983:64–65) lists a variety of ways in which vines can be supported. In addition to stakes, they include, in the Admiralties and the Trobriands, saplings left standing after the garden has been cleared; in the centre of Guadalcanal in the Solomons the vines trail over felled trees; in the Loyalty Islands an arrangement rather like an upturned basket is used, and on Efate, Vanuatu, a trellis-like structure is built over the yam mounds. French-Wright suggests that perhaps the lack of cognates denoting this basic feature of yam cultivation is due to the wide variety of support systems used, in other words, that each cultural adaptation has led to changes in terminology.

Gardens in the Trobriands (Malinowski 1935:55, 121) and in Malaita, Southeast Solomons (Ivens 1927 (reissued 1972):356), and elsewhere, are divided into sub-plots by means of

criss-crossing logs laid on the ground, but we have been unable to reconstruct terms for either the plots or the dividing logs, although these are named in their own communities.

A term must surely have existed for the period or activity of yam harvesting, which was frequently carried out by the whole community at the one time and typically accompanied by certain rituals. It does seem, however, that POc speakers associated the period of yam harvest with the conclusion of an annual cycle. In a number of widespread localities, past and future events are placed in time by referring to yam crop cycles, thus according the terms a meaning equivalent to our concept of 'year' (PT: Kilivila *tetu* 'small yam (the main staple); year'; NNG: Mapos Buang *ta* 'year; a complete cycle of yam growing'; NCV: Paamese *ouh* 'a yam; a year'). Similarly, Ivens (1927:358) writes, "Our [English] word year would be rendered in a Melanesian language [Sa'a *halisi*, Lau, Kwaio *falisi* 'yam harvest, yam season, year'] by whatever is equivalent to the yam crop."

14 Archaeological evidence

Archaeological evidence in support of POc horticultural practices comes, not from discovery of items of material culture, but in the form of the products of horticulture, and, less directly, from apparent sudden and dramatic changes in land use following settlement by POc speakers.

Kirch (1997:203–205) writes:

Direct archaeobotanical evidence for horticulture, in the form of preserved plant remains, largely eluded prior generations of Oceanic archaeologists...Then, during the 1986 excavation season at the waterlogged Talepakemalai site in the Mussau Islands, we were suddenly confronted with an unprecedented array of well-preserved (non-carbonised) plant remains. Sealed in an anaerobic, wet environment, the literally thousands of seed cases, endocarps, husks, syncarps, and other plant material, along with wood (including adzed wood chips) opened up a new window on Lapita relations to the plant world. Subsequently, a similar assemblage of preserved plant parts was also recovered by Chris Gosden...at his Arawe Island sites. The plant parts preserved...are primarily woody or fibrous, such as seed cases, fibrous husks, and wood. Soft, fleshy materials such as tubers or the soft flesh of fruits have not survived.

Among the food plants identified from archaeological sites are Canarium almond (*Canarium indicum*), Indian almond (*Terminalia catappa*), the New Guinea walnut (*Dracontomelon dao*), *Pometia pinnata*, *Burckella obovata*, Tahitian chestnut (*Inocarpus fagiferus*) and vi-apple (*Spondias dulcis*) (Kirch 1997:206–207).

The second source of evidence, modification of the landscape, supports the POc horticultural practice of swidden cultivation. Spriggs (1997a:85–86) describes the dramatic change in land use that coincides with the influx of Lapita people, a change particularly evident in the previously uninhabited islands east of the Solomons. Spriggs postulates initial settlement with large-scale clearance for agriculture, as indicated in the pollen record which shows suddenly high carbonised particle counts resulting from burning. This is typically followed by environmental degradation such as increased erosion rates, and often the extinction of endemic species of birds and reptiles resulting mainly from habitat alteration. Such changes have been documented for Aneityum in Vanuatu occurring about 2,900 years ago and for Fiji perhaps by 1200 BC (Kirch 1997:222).

A third potential source of evidence would lie in physical traces of irrigation systems and associated terracing. To date, however, neither linguistic nor archaeological evidence can support the association of sophisticated irrigation practices with POc speakers (see §12).

15 Conclusion

Proto Oceanic speakers cultivated their gardens with a minimum of implements other than their hands. Apart from the axe (**kiRam*) and smaller cutting implements of bamboo or shell such as **piso* or PEOc **sele* (Ch. 4, §4.1.2) used in clearing their plots, the only tools were a digging stick for tillage (**waso*), possibly a dibble stick for planting (for which we lack a reconstructed term other than that for digging stick) and a hooked stick (**kawit*) for picking fruit and nuts. The POc reconstructions to do with horticulture refer primarily to gardening activities: clearing, burning, weeding, digging, planting, picking and gathering. Also represented are the processes undergone by the plants themselves—sprouting, growing, swelling, ripening, withering.

We have no evidence that any form of fertilising was used, apart from the occasional spreading of ash from the burning off of new garden plots. There is no tradition of composting the soil with human waste, for instance. Mulching and digging-in of decomposed vegetable matter have been recorded in places as traditional gardening practice, but we have no specific reconstructions for these activities. Nor has linguistics shed any light on ways in which they may have attempted to control pests or diseases. Weight was given rather to magic, as a means of ensuring healthy crops.

Finally, we have no evidence from reconstructions that Proto Oceanic speakers irrigated their crops in any systematic way. Current archaeological findings support the view that elaborate systems are a more recent, independent development.

Brookfield and Hart (1971:81) observe that “cultivation techniques move less easily than crops, for while the latter can be transmitted from hand to hand, the former generally require migrants to carry their skills and adapt them to a new environment”. It is likely that the horticultural knowledge carried into the region by the first POc speakers would have included at the very least, awareness of preferred conditions for the cultivation of various kinds of taro and yams, together with related knowledge of growth stages, propensity for storage and propagation techniques for these and other garden plants such as sugar cane and bananas.

6 *Food preparation*

FRANTISEK LICHTENBERK AND MEREDITH OSMOND¹

1 Introduction

Much of this chapter is reproduced from Lichtenberk (1994), reordered and slightly revised in the light of more stringent subgrouping assumptions. To that work have been added a number of terms related to fire and its accompaniments. Organization of the chapter is (1) fire and the fireplace; (2) cooking methods; (3) preservation and (4) food processing.

2 Fire and the fireplace

There is a well-attested term for fire that can be traced back to PAN:

PAn **Sapuy* 'fire' (ACD)

POc **api* 'fire'

Adm: Wuvulu	<i>afi</i>
NNG: Gitua	<i>yap</i>
NNG: Numbami	<i>yawi</i>
PT: Motu	<i>lahi</i>
PT: Bwaidoga	<i>ai</i>
MM: Nakanai	<i>havi</i>
NCV: Mota	<i>av</i>
Mic: Kiribatese	<i>ai</i>
Mic: Woleaian	<i>yaf</i>
Pn: Tongan	<i>afi</i>
Pn: Hawaiian	<i>ahi</i>

¹ Meredith Osmond is responsible for reordering and revising Lichtenberk's work in order to integrate it into the present volume and for some additional reconstructions in §2, *Fire and the fireplace*. Some data and comments have been added from Malcolm Ross's verb analysis in Chapter 9.

2.1 Fire plough

Fire was produced throughout the Oceanic world by friction. Often this was achieved by rubbing a piece of wood rapidly to and fro along a long groove or furrow cut into a second piece of wood. We have a term specifically for the action of lighting a fire with fire plough. Note that the Central Pacific terms have unexplained vowel fronting.

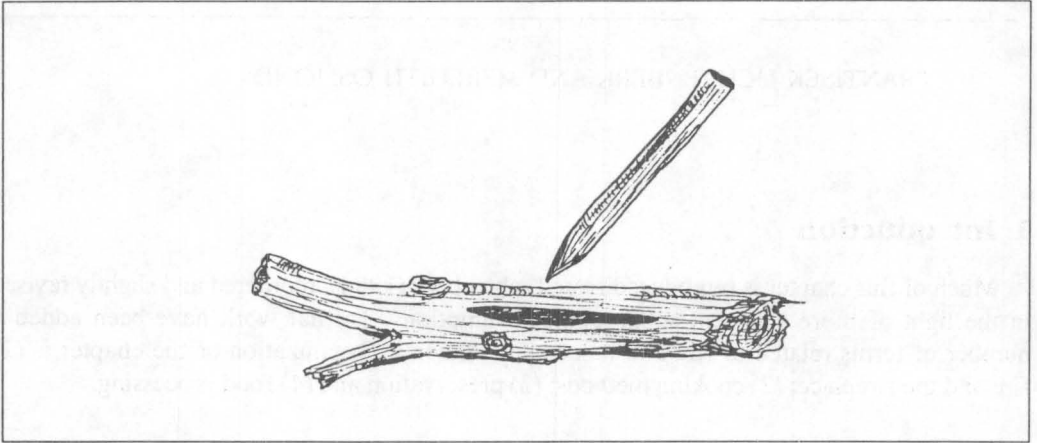


Figure 19: POc **suka*, **suka-i* ‘make fire with fire plough’

POc **suka*, **suka-i* ‘make fire with fire plough’

Adm:	Lou	<i>sok</i>	‘rub a friction stick against wood to make fire’
MM:	Nakanai	<i>suka</i>	‘the making of fire with the fire-plough; a fire-plough’
MM:	Tolai	<i>uk</i>	‘bore through, bore into’
SES:	Lau	<i>su-sukai</i>	‘bore’
		<i>su-suka</i>	‘a gimlet’
Fij:	Rotuman	<i>siʔa</i>	‘make fire by friction’
Pn:	Rennellese	<i>sika</i>	‘make fire by the fire-plough’
Pn:	Samoan	<i>siʔa</i>	‘light a fire by friction; apparatus (fire-plough) as a whole; base wood of fire-plough’
Pn:	Tikopia	<i>sika</i>	‘rub in groove, frictionate’

A second term is POc **usu(q,p)*, from PMP **usuq* whose primary meaning is probably ‘rub abrasively’, but which in a number of Oceanic languages is recorded as meaning ‘rub to make fire’.

PMP **usuq* ‘rub, wipe’ (ACD)

POc **usu(q,p)*, **usu(p)-i* ‘rub abrasively’

PT:	Motu	<i>udu-</i>	‘rub a stick to make fire’
MM:	Nakanai	<i>huru</i>	‘remove outside of shell by rubbing’
MM:	Tolai	<i>ū</i>	(VT,VI) ‘wipe’
SES:	Gela	<i>uhu</i>	‘rub, rub fire, scrape off skin by rubbing, cut design on forehead’
SES:	Sa’a	<i>usu</i>	‘rub, scrape, grate’ (<i>usu ʔei</i> ‘a firestick’)

SES:	Lau	<i>usu, usufi-</i>	'rub, wipe, rub off'
Mic:	Mokilese	<i>it</i>	'start a fire using sticks'

Biggs (1993) has reconstructed PPn **kau-natu*, for the implement used. Although this compound is derived from POc elements (POc **kaiu* 'tree, wood, stick' and POc **natu* 'child'), we have no proof that the compound itself is POc. We can be confident, however, that the term is older than PPn, given that POc **kaiu* was replaced by PPn **raqakau* 'wood, tree', and POc **natu* by PPn **tama* 'child'.

A separate term for the upper frictioning stick can be reconstructed, but only for the Central Eastern subgroup of Polynesia:

PCEPn **kau-lima* 'upper frictioning stick of fire plough' ('stick' + 'hand')

Pn:	Hawaiian	<i>?au-lima</i>	'stick held in the hand when making fire'
Pn:	Maori	<i>kau-rima-rima</i>	'upper stick of fire-plough'
Pn:	Tuamotuan	<i>kau-rima</i>	'the upper frictioning stick in the fire plough'

A Papuan Tip language, Minaveha, likewise uses a compound term for the upper frictioning stick which includes the term for 'hand', *nima-kabi* (*nima* 'hand' + *kabi* '?'). In at least two places, Sissano (NNG) and Nakanai (MM), the upper fire stick is referred to by the term for penis (*etin* in Sissano, *huti* in Nakanai), both reflexes of POc **quti(n)*.

Across the Oceanic region it is possible to find some variation in fire-making methods, although we have no reconstructions for methods other than by fire-plough. Bing on the PNG north coast and Mapos Buang in the Huon Gulf area (both NNG) offer evidence for a method in which rattan or vine is sawn rapidly around a piece of wood:

NNG:	Mapos Buang	<i>vanʔe rurn</i>	'make a fire by the traditional method using a piece of rattan, sawing it back and forth around a piece of dry wood with a split in it, lying on a little pile of tinder'
NNG:	Bing	<i>baŋ-baŋ</i>	'fire-stick and vine'

Another north coast language, Gedaged, has a term, *wol*, referring to a bow string. Fire is produced by pulling a bow string rapidly back and forth over a piece of wood. The action implied may be the same as in Carolinian *b^wuru-b^wur* 'make a fire by generating friction with a traditional drill' (from POc **buru* 'bore a hole, drill'; see Ch. 9, §4.2).

2.2 Firewood

In addition to the general term POc **kaiu* 'wood, stick', we can reconstruct a PEOc term **papia*, specifically for firewood. Note that an identical term is reconstructable for PEOc (cognates in SES and Fiji) with the meaning 'cook in native oven' (§3.1).

PEOc **papia* 'firewood, fuel'

Mic:	Kiribatese	<i>aia</i>
Mic:	Woleaian	<i>fafiya</i>
Pn:	Tongan	<i>fefie</i>
Pn:	Samoaan	<i>fafie</i>
Pn:	Maori	<i>wahie</i>

2.3 Firebrand, torch

Blust has reconstructed a PMP term for wood alight but not yet consumed:

PMP **aluten* ‘firebrand, unconsumed wood in a fire; charred wood’ (ACD)

POc **alito(n)* ‘firebrand’

NNG: Takia	<i>yalit</i>	‘piece of wood with fire burning in it’
NCV: Mota	<i>lito</i>	‘firewood’
Fij: Wayan	<i>lito</i>	‘shake a burning stick to make it glow brightly’
Fij: Bauan	<i>lito</i>	‘wave a firebrand; keep it alight’

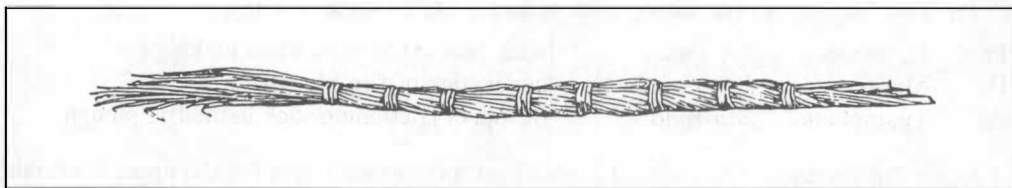


Figure 20: POc **sulu* ‘dry coconut leaf torch’

A burning brand, typically made from coconut fronds, served as a torch.

POc **sulu* ‘dry coconut leaf torch’ (Milke 1961)

Adm: Lou	<i>sul</i>	‘coconut frond (used for torches)’
Adm: Titan	<i>sūlu</i>	‘torch used for scorching canoe hulls and outriggers, made of coconut fronds’
NNG: Bing	<i>sul</i>	‘lamp (traditional, made from old mats of woven coconut leaves)’
NNG: Gedaged	<i>sul</i>	
NNG: Takia	<i>sul</i>	
MM: Lihir	<i>sul</i>	‘torch’
MM: Tolai	<i>ul</i>	‘torch made of dry leaves of the coconut palm’
SES: Longgu	<i>sulu</i>	‘leaf, especially of coconut’
NCV: Uripiv	<i>na-sul</i>	‘coconut frond (esp. a dry one); a light (traditional use for dry coconut fronds)’
SV: Sye	<i>ilwo</i>	‘torch’
Mic: Carolinian	<i>t̩l</i>	‘torch made from the long hard outer husk of young coconuts’
Mic: Mokilese	<i>til</i>	
Fij: Rotuman	<i>sulu</i>	‘torch’
Pn: Niuean	<i>hulu</i>	‘look for with light; torch’
Pn: Maori	<i>huru</i>	‘glow’

2.4 Fireplace, hearth

Green and Pawley (Ch. 3, §3.6) note a general term for fireplace or hearth, PMP **dapuR*, POc **rapu(R)*, with a frequent secondary meaning, particularly in Oceania, of ‘ashes’. Compounding may be used to distinguish the fireplace as ‘place of ashes’.

PMP **dapuR* 'hearth, fireplace' (Dempwolff 1938)

POc **rapu(R)* 'hearth, fireplace; ashes'

Adm:	Nyindrou	<i>drahu (jih)</i>	'fireplace' (<i>jih</i> 'fire')
PT:	Motu	<i>rahu-rahu</i>	'ashes, fireplace'
MM:	Maringe	<i>(nak)rofu</i>	'ashes'
SES:	Gela	<i>ravu</i>	'ashes'
SES:	Arosi	<i>rahu</i>	'ashes'
NCV:	Mota	<i>(ta)rowo</i>	'white ashes of burnt-out wood'
Fij:	Wayan	<i>ravu</i>	'ashes' (<i>mata-ravu</i> 'fireplace')
Fij:	Bauan	<i>dravu</i>	'ashes' (<i>matā-dravu</i> 'fireplace')
Pn:	Samoa	<i>(magā)lafu</i>	'hearth'
Pn:	Tokelauan	<i>(gā)lafu</i>	'fireplace'
Pn:	Hawaiian	<i>lehu</i>	'ashes'

cf. also:

Pn:	Tongan	<i>(ta)lafu</i>	'fireplace on a boat'
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There is a second term, PAN **qabu*, POc **qapu*, with similar reference. Blust (ACD) comments: "**qabu* is among the most widespread and stable morphemes in the Austronesian family. It referred to ashes, and prototypically to the ashes in the fireplace (hence its recurrent replacement of PMP **dapuR* in the meaning 'hearth')."

PAN **qabu* 'ash, cinder, powder' (ACD)

POc **qapu* 'ashes, dust'

Adm:	Mussau	<i>au</i>	'ash'
Adm:	Lou	<i>kɔp</i>	'dust'
NNG:	Gitua	<i>avu-avu</i>	'ash'
PT:	Iduna	<i>avu</i>	'ashes'
PT:	Motu	<i>kahu</i>	'ashes'
MM:	Nakanai	<i>havu</i>	'lime (made from burnt shells)'
SES:	To'aba'ita	<i>afufu</i>	'crumbs'
NCV:	Raga	<i>avu</i>	'ashes, lime, dust'

2.5 Trivet

We would expect to be able to reconstruct a term for a trivet, an arrangement of three stones on which the cooking pot is placed, but no clear reflex of PMP **dalikan*, 'trivet' (Blust 1986) has been found, in spite of the presence of terms for trivet in north-west Melanesia and Fiji. For example:

Adm:	Mussau	<i>atu ko-tolu</i>	'trivet' (lit. 'three stones')
PT:	Motu	<i>(bo)dika</i>	'the three stones for cooking-pot rest'
PT:	Muyuw	<i>alikwaw</i>	'fireplace'
PT:	Molima	<i>duku-duku</i>	'stones that support a pot, tripod effect'
Fij:	Wayan	<i>soqita (vatu)</i>	'trivet'
Fij:	Yasawa	<i>sue</i>	'hearth, trivet'

2.6 Stone oven

A far more soundly based reconstruction is POc **qumun* 'oven made with hot stones, cook in a stone or earth oven', which has reflexes in every major Oceanic subgroup, together with some external cognates.² However, archaeological evidence points to such ovens having much greater antiquity in Near Oceania and Australia than in Southeast Asia (Allen, et al. 1989:550–551; Horton 1994:380–381). The external cognates are therefore regarded as possible borrowings, and a higher-level reconstruction is not proposed.

POc **qumun* 'oven made with hot stones; cook in a stone or earth oven' (Chowning 1991, Lichtenberk 1994)

Adm: Seimat	<i>um</i>	'earth oven'
NNG: Kairiru	<i>umu(i)</i>	'cook in earth oven' (SG OBJ)
	<i>um</i>	'cook in earth oven' (PL OBJ)
PT: Molima	<i>?umula</i>	'stone oven'
MM: Nalik	<i>umun</i>	'earth oven'
MM: Nakanai	<i>humu</i>	'stone oven; cook on a stone oven by covering food with heated stones'
SES: Gela	<i>umu</i>	'circular fireplace of stones'
SES: 'Are'are	<i>ūmu</i>	'stone oven'
SES: Arosi	<i>umu</i>	'round stone oven, with loose stones on top'
NCV: Mota	<i>um</i>	'native oven'
SV: Kwamera	<i>n-umun</i>	'earth oven' (<i>n-</i> is a fossil article)
Mic: Kiribatase	<i>umun-</i>	'put s.t. to cook on hot stones in earth oven'
Pn: Niuean	<i>umu</i>	'stone oven; food cooked in stone oven'
Pn: Samoan	<i>umu</i>	'stone oven, consisting of a shallow cavity lined with stones on which a fire is lit and cleared away before the food is laid on the hot stones'
Pn: Emae	<i>umu</i>	'earth oven'
Pn: Maori	<i>umu</i>	'earth oven'

Chowning (1991:55) argues that the gloss 'earth oven' is too restrictive, as raised ovens (covered with leaves rather than earth) as well as pit ovens are common in Oceania.

2.7 Covering and uncovering an oven

The usual implement for handling hot stones and food in the oven was tongs, probably a bent or folded piece of cane or midrib of a coconut frond. Note that some terms have been derived from the transitive verb form POc **kapit-i-* 'grasp (with tongs)'.²

PMP **qapit* 'pinch or squeeze between two surfaces' (ACD)

POc **kapit* 'tongs'; **kapi(t)*, **kapit-i-* 'grasp (with tongs)' (Grace 1969). (A few reflexes show unexpected *-s*, via palatisation before **-i*; Lichtenberk reconstructs **kapis*.)

Adm: Loniū	<i>(pele)ʔip</i>	'tongs made from bamboo strips'
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² WMP: Chamorro *chum* 'hole in the ground for baking'; CMP: Fordata *umun* 'pit in which tubers are baked'; Kei *umun* 'pit in which food is cooked'.

Adm: Lou	<i>klp-klplt</i>	'tongs, forceps'
NNG: Bing	<i>kap-kapi(ŋ)</i>	'tongs (made of bamboo)' (-ŋ NOM)
NNG: Yabem	<i>kapi(ŋ)</i>	'clamp made of two pieces of wood tied together (used in sago washing); scissors, pincers, tweezers' (-ŋ NOM)
NNG: Sengseng	<i>e-kap</i>	'tongs' (e- ART)
PT: Sudest	<i>kavəə</i>	'tongs'
PT: Motu	<i>kahi</i>	'tongs to lift hot stones with'
MM: Sursurunga	<i>kapsi</i>	'get hot stones, pick up (coals)'
MM: Teop	<i>ka-kapihi</i>	'tongs'
MM: Tinputz	<i>(i)kapih</i>	'tongs made from a palm tree' (i- < POc *i- INS)
SES: Tolo	<i>kapi</i>	'bamboo tongs used to take hot stones out of the oven'
SES: Arosi	<i>?ahisi</i>	'take up with tongs; fasten two sticks together'
	<i>?a-?ahi</i>	'tongs, bamboo'
cf. also:		
Pn: Tongan	<i>(hi)kof i</i>	'tongs'
Pn: W. Futunan	<i>(i)kof i</i>	'large wooden tongs for removing stones from oven'

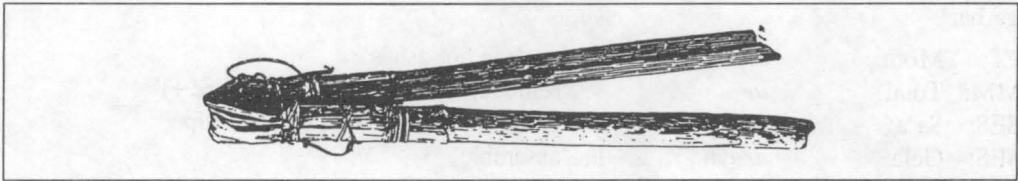


Figure 21: POc *kapit 'tongs' (from Nevermann 1933:102)

Lichtenberk adds a number of other terms which, as well as being used in relation to oven cooking, probably also have more general reference:

POc *taqo(n), *taqon-i- 'press down, weigh down with a weight, cover over with the cover weighed down', and thus 'close a stone oven, (when earth or the last layer of leaves has been placed on top)'

NNG: Mangap	<i>to</i>	'cook with hot stones; bake'
NNG: Kove	<i>ta-tao</i>	'cook in a native oven'
MM: Nakanai	<i>taho(robo)</i>	'put stones on top of the oven (over the bundled food)' (<i>robo</i> 'cover')
SES: Gela	<i>tao</i>	'be face down, flat on face; (leaves in cooking) be on oven'
NCV: Lewo	<i>toni</i>	'cook on hot stones; bake'
NCV: Nguna	<i>taoni</i>	'bake in earth oven'
Mic: Kiribatese	<i>taon-</i>	'press down, apply weight on'
Mic: Marshallese	<i>cōn</i>	'press down on'
Fij: Rotuman	<i>fao</i>	'cook and keep overnight for use next day'
Pn: Tongan	<i>ta^o</i>	'bake'
	<i>ta^o-ta^o</i>	'put a weight on to hold down'

Pn:	Tikopia	<i>tao</i>	'cover over, press down (oven +); bake food (from technique of covering earth oven with leaf pads in cooking)'
Pn:	Maori	<i>tao</i>	'cook in earth oven; weigh down'

PMP **bu(η)kas* 'expose, unveil' (Blust 1983–84a)

POc **puke(s), *pukes-i-* 'uncover, open (stone oven; probably other things as well)'

MM:	Nakanai	<i>pue</i>	'remove food from the oven and open the bundle for eating; open any k.o. bundle; to prepare any food for eating (as by boning fish)'
SES:	Ulawa	<i>hu?esi</i>	'open (native oven); turn (pages of book)'
SES:	Sa'a	<i>hu?esi</i>	'open a native oven'
NCV:	Paamese	<i>vue</i>	'unwrap, unfold (leaves covering cooked pudding)'
Fij:	Rotuman	<i>hu?e</i>	'uncover'
Fij:	Bauan	<i>vuke</i>	'uncover'
Pn:	Tongan	<i>fuke</i>	'open up (native oven)'
Pn:	E. Futunan	<i>fuke</i>	'uncover (earth oven +)'
Pn:	Maori	<i>huke</i>	'uncover (esp. earth oven)'

PMP **uruŋ* 'collect, gather' (Blust 1972b)

POc **uru(η)* 'take food and/or hot stones out of stone oven or fire'; more generally 'collect, gather'

PT:	Motu	<i>uru</i>	'cook in hot ashes'
MM:	Tolai	<i>ur</i>	'remove, take away (food off fire +)'
SES:	Sa'a	<i>uru-uru</i>	'gather up in the hand, collect, wipe'
SES:	Gela	<i>uruvu</i>	'assemble'
Mic:	Carolinian	<i>iri</i>	'drag (s.t.), pull it'
Mic:	Woleaian	<i>iuʒ-iuʒ</i>	'drag, pull'
Pn:	Tongan	<i>ū</i>	'spread out the hot stones in a native oven before putting food on them'
Pn:	Samoa	<i>ulu-ulu</i>	'clear the stones from the hearth (before lighting up an oven)'
Pn:	Rapanui	<i>uru</i>	'take out the stones that have been heated in the earth oven; stick used for same'

Only certain kinds of stones are suitable for use in stone ovens. Although some terms for these have been located, e.g. Sudest (PT) *γarumu* 'cooking stones used for mumu', Sursurunga (MM, New Ireland) *kor* 'kind of black stone used for mumuing', no cognates are identifiable.

3 Cooking methods

Lichtenberk quotes from Oliver (1989:49) who has this to say about traditional cooking in Oceania: "Most cooking was by broiling, by boiling (where there were clay pots, which was not everywhere), and by baking (which was done in earth-pit ovens containing heated stones.)" Lichtenberk continues (p.270): "In some places, food is boiled not over fire but by means of hot stones dropped into a wooden bowl that contains the food and some liquid. Food can also be steamed. In baking and roasting, the food is often, though not necessarily, wrapped,

usually in leaves, sometimes in bark.”

He has listed terms for a range of cooking methods, with a word of warning as to the reliability of precision in English glosses (‘roast’, ‘grill’, ‘broil’, ‘cook in fire’ etc.). He writes (p.273), “Even though more than one term for roasting may be reconstructable for POC, the differences in the glosses for the witnesses most likely reflect differences in the English backgrounds of the authors rather than differences in cooking methods.”

3.1 Cooking in stone oven

PEOC **papi-* ‘cook in oven with hot stones and leaves’ (cf. PEOC **papia* ‘firewood, fuel’ with cognates in Mic. and Pn.)

SES: Lau	<i>fafi</i>	‘put leaves on oven in cooking’
SES: Kwaio	<i>fafi</i>	‘cook in leaf oven’
SES: ‘Are’are	<i>hahi-</i>	‘cook between hot stones’
SES: Arosi	<i>hahi</i>	‘cook in native oven (<i>umu</i>)’
Fij: Bauan	<i>vavi-</i>	‘bake food in native oven (<i>lovo</i>)’

Lichtenberk also gives a reconstruction, **biti* ‘cook with hot stones (either by baking in stone oven, or by boiling by dropping hot stones into liquid)’ (p.271), which he suggests may be POC, although he points out that all cognates are from either Northwest or Southeast Solomonic languages, and thus likely candidates for borrowing. We have opted here to label his reconstruction PSS.

3.2 Roasting, burning, branding

PAn **CuNuh* ‘roast food over a fire’ (ACD)

POC **tunu* ‘roast on embers or in fire; burn (s.t.); make decorative cicatrices by burning the skin’

Adm: Wuvulu	<i>unu</i>	‘cook, roast’
NNG: Wogeo	<i>tunu</i>	‘roast, burn; cook it!’
NNG: Gedaged	<i>tun(i)</i>	‘cause to burn, light (a fire so it burns well), set fire’
NNG: Sengseng	<i>tun</i>	‘burn; burn shells or limestone to make lime; burn cicatrices; set fire to’
PT: Minaveha	<i>tunu</i>	‘roast, burn, ignite’
PT: Motu	<i>tunu-</i>	‘bake pottery’
MM: Tolai	<i>tun</i>	‘burn, cook, roast, broil’
MM: Roviana	<i>tunu</i>	‘burn scars on the arm (as is often done by young boys)’
MM: Maringe	<i>tunu</i>	‘burn with fire’
SES: Bugotu	<i>tunu</i>	‘a mark, blot, cicatrice caused by burning’
SES: Tolo	<i>tunu</i>	(1) ‘light lamp or fire’; (2) ‘burn the skin to make raised scar tissue’
SES: Sa’a	<i>ūnu-unu</i>	‘burn in the fire, roast flesh on the embers; raise cicatrices on the body by burning’

NCV: Mota ³	<i>tun</i>	'roast on or over embers'
NCal Nemi	<i>cini</i>	'burn, grill in fire'
Mic: Kiribatese	<i>tin-tin</i>	'grill or roast on open fire'
Fij: Bauan	<i>tunu</i>	'warm food up again'
Pn: Tongan	<i>tunu</i>	'cook on open fire'
Pn: Takuu	<i>tunu</i>	'cook on hot coals, roast'
Pn: Hawaiian	<i>kunu</i>	'broil (meat, fish +) on coals'

POc **m^waRi* 'roast, burn' (Grace 1969)⁴

NNG: Gedaged	<i>mazi</i>	'roast, cauterize, toast, bake, parch, sear, burn, incinerate, set fire to ignite, light (a cigar)'
NNG: Takia	<i>mari</i>	'roast on fire'
NNG: Manam	<i>moa-moari</i>	'cook in fire, roast, burn, singe'
SES: 'Are'are	<i>mari-ʔa</i>	'cooked, roasted' (-ʔa from adjectiviser <i>*-ka</i>)
Mic: Kiribatese	<i>m^wai</i>	'cooked, well done' (Geraghty 1990)

3.3 Piercing, pricking

When food was roasted, instead of simply being placed in the fire, it may have been skewered. The terms referring to skewering and skewers were also used to refer to testing food by pricking to see whether it was done. (See PMP **cukcuk*, *suksuk* 'skewer', and POc **(su)su(k)* 'anything used to pierce, prick, a skewer'; **(su)suk-i-* 'pierce, prick'; Ch. 4, §3.2.1 and Ch. 9, §4.1).

3.4 Boiling, steaming

Two verbs are reconstructable for POc with the meaning 'boil'. The problem is that the sources of data do not usually distinguish between boiling and steaming, both of which are practised in Oceania, 'boil' being the usual gloss. The difference between boiling and steaming lies in the amount of liquid used. For boiling, the food is (more or less) entirely covered with the liquid; for steaming, only a small amount of liquid is used. If POc did have a lexical distinction between the two processes, there is some evidence, albeit weak, that the verb for 'boil' was **nasu* and that the one for 'steam' was **napu*. It is also conceivable that of the two terms, **nasu* was unmarked and could be used to refer to both types of process.

PAn **nasuk*, **Nasu* 'cook by boiling' (ACD)

POc **nasu(q)* (V) 'boil; steam (?)'

NNG: Gitua	<i>na-nazu</i>	'cook in hot water'
PT: Maopa	<i>naru</i>	'boil (s.t.)'
PT: Motu	<i>nadu-</i>	'cook by boiling'
	<i>na-nadu</i>	'cook (general term)'

³ Veverau dialect.

⁴ Geraghty (1990:65) also cites PCP **ŋ^wai* on the basis of an Eastern Fijian term 'browned by exposure to sun'.

MM: Petats	<i>nös</i>	'cook by boiling'
MM: Teop	<i>nahu</i>	'cook; pot'

POc **napu* (v) 'steam (?), boil (?)'

NNG: Kairiru	<i>nau</i>	'cook, boil in a saucepan (plural object)'
NNG: Gedaged	<i>nai</i>	'cook, boil'
Fij: Bauan	<i>navu</i>	'cook in steam'

It is possible that the forms attributed to PPT **na(q)u(q)* 'clay dish' in Chapter 4, §2.1.5, are also reflexes of **napu*: see the discussion there.

3.5 Warming

Lichtenberk contributes a POc term which he glosses as 'warm oneself by fire; warm up, reheat (esp. food)'. Ann Chowning has added cognates from Kove, Molima and Nakanai which, like the Pukapuka term, refer to heating of leaves in preparation for mat making (see Chapter 4, §3.1.1). The POc gloss has been generalised accordingly.

PAn **da(n)dan* 'heat s.t. or warm oneself by fire' (Dempwolff 1938)

POc **raran*, **raŋ-i-* 'heat s.t. or warm oneself by fire'

NNG: Manam	<i>raran</i>	'warm up (food that has become cold), warm up again'
NNG: Kove	<i>lala</i>	'wilt pandanus leaves over a fire in order to soften them for mat making'
NNG: Numbami	<i>lalaŋi</i>	'singe, scorch'
PT: Molima	<i>lala</i>	'wilt pandanus leaves over a fire in order to soften them for mat making'
MM: Nakanai	<i>lala</i>	'wilt pandanus leaves over a fire in order to soften them for mat making'
SES: Gela	<i>raran(asi)</i>	'dry up by heat'
SES: Sa'a	<i>ra-raŋi</i>	'warm oneself at the fire'
NCV: Mota	<i>raŋ(ai)</i>	'roast or bake over embers, without a wrapper'
NCV: Raga	<i>ra-raŋi</i>	'roast on embers'.
SV: Kwamera	<i>(a)raŋi</i>	'singe, burn (hair off pig), warm, dry by fire'
Mic: Mokilese	<i>raŋ-raŋ</i>	'warm oneself'
Mic: Marshallese	<i>raŋ-raŋ</i>	'warm oneself by the fire'
Fij: Rotuman	<i>rara</i>	'warm, toast'
Fij: Bauan	<i>ra-raŋ-</i> <i>(vaka)ra-raŋ-</i>	'warm oneself at a fire; of pain, smart slightly' 'warm food again by placing it near a fire; sear up banana leaves around food'
Pn: Pukapukan	<i>lala</i>	'bleach pandanus leaves by passing them over a fire'
Pn: Hawaiian	<i>lala</i>	'warm up, cook over fire; warm oneself by a fire'
cf. also:		
Pn: Tongan	<i>lala</i>	'half-cook, cook lightly (fish)'

3.6 Singeing

A term can be reconstructed for the action of singeing food in preparation for cooking:

POc **sunu* 'singe'

Adm: Loniu	<i>sun</i>	
Adm: Nyindrou	<i>sun</i>	'burn or cook (over fire); roast'
PT: Kilivila	<i>sulu-sulu</i>	'cook'
MM: Nakanai	<i>sulu-lu</i>	
Mic: Marshallese	<i>t^wini-y</i>	
Fij: Rotuman	<i>su-sunu</i>	'burn, scorch'
Pn: Tongan	<i>hunu</i>	
Pn: Tuvalu	<i>hunu-hunu</i>	'cook fish or fowl in flames'
Pn: Maori	<i>hu-hunu</i>	

3.7 Wrapping prior to oven-cooking

Two similar terms for wrapping food for cooking (baking or roasting), POc **kapu(t)*, **kaput-i-* and POc **kopu*, have been reconstructed. Mills (1981:73) has proposed PMP **kaput* 'close, cover', while Blust (1986:45) gives a gloss of 'tie or clasp together' for an identical PMP reconstruction. Oceanic reflexes indicate two distinct terms, although there may have been some blending of meaning in daughter languages. Lichtenberk suggests that the two POc terms may have referred to different ways of wrapping food; Firth (1957), for instance, gives four terms for different ways of wrapping food in Tikopia. From the glosses below, it seems possible that **kapu(t)*, **kaput-i-* referred to covering (as an earth oven is covered), whilst **kopu* referred to the wrapping of the food in bundles. For both terms, reflexes indicate wider reference than to food alone. In Polynesia they have come to refer more specifically to clothing or blankets.

PMP **kaput* 'close, cover' (Mills 1981)

POc **kapu(t)*, **kaput-i-* 'wrap, cover; cover food prior to cooking' (Lichtenberk has **apu*)

NNG: Manam	<i>avu</i>	'wrap up, bandage'
PT: Motu	<i>ahu</i>	'closed'
MM: Nakanai	<i>avu</i>	'wrap s.t. up (e.g. <i>avu-kalebu</i> -wrap up fish for cooking so that pieces of fish are separated by a layer of leaves)'
MM: Kara (East)	<i>yafute</i>	'cover'
SES: Lau	<i>?afu</i>	'wrap up; make a cigarette'
SES: To'aba'ita	<i>?afu</i>	'wrap s.t. (e.g. wrap fish—not pork—in a leaf for cooking)'
SES: 'Are'are	<i>?ahu</i>	'wrap, cover'
SES: Arosi	<i>ahui-</i>	'wrap up'
SES: E. Arosi	<i>ahu(nu)</i>	'broil on the embers in a leaf'
SES: Bauro	<i>(gin)ahu</i>	'wrap up in leaves'
NCV: Raga	<i>gavus</i>	'wrap, cover, cook on embers in wrapper'
PPn <i>*kafu</i> (N)		'clothing or covering for the body'; (V) 'cover the body'
Pn: Niuean	<i>kaputi</i>	'overspread, cover the whole surface'

Pn:	Tongan	<i>kafu</i>	'cover oneself; clothing'
Pn:	Samoaan	<i>?afu</i>	'draw (sheet + over the body)'; (N) 'fine mats for presentation'
Pn:	Tikopia	<i>kafu</i>	'blanket, traditionally of bark-cloth; clothing'
Pn:	Tahitian	<i>?ahu</i>	'cloth, clothing; bark-cloth'
Pn:	Hawaiian	<i>?ahu</i>	'covering (for the upper part of the body); fine soft mat often used as body covering'
Pn:	Maori	<i>kākahu</i>	'clothing'

POc **kopu* (V) 'wrap (food in a certain way (?) for cooking), bundle, wrap' (Lichtenberk)

MM:	Nakanai	<i>kobu</i>	'cigarette; leaves wrapped around pork to be cooked with it'
SES:	Gela	<i>ovu</i>	'crowd, heap, pile, flock; assemble, heap together, make a bundle; a bundle'
SES:	Lau	<i>ofu</i>	'be together'
SES:	Arosi	<i>?ohu</i>	'cook with hot stones; boil; put together, rake together (fire)'
Fij:	Wayan	<i>kovu</i>	'be covered, wrapped'
		<i>(i)kovu</i>	'parcel, bundle' (<i>i</i> - < POc <i>*i</i> - INS)
Fij:	Bauan	<i>kovu</i>	'tie up <i>vakalolo</i> (k.o. pudding) or fish in banana leaves'

PPn **kofu* (N) 'clothing; leaf-wrapped parcel of food'; (V) 'wrap food in leaves'

Pn:	Tongan	<i>kofu</i>	'wrap up; garment, clothing, dress'
		<i>kofu-kofu</i>	'parcel, bundle'
Pn:	Samoaan	<i>?ofu</i>	'garment, dress, clothes; food done up in a small bundle of leaves (for cooking in stone oven or for convenience)'
		<i>?ofu-?ofu</i>	'wrap food up in leaves ready for cooking'
Pn:	E. Futunan	<i>kofu-kofu</i>	'parcel of cooked food'
Pn:	W. Uvean	<i>kofu</i>	'garment'
Pn:	Rennellese	<i>kohu</i>	'package of roasted or baked food, with leaves'
Pn:	Tikopia	<i>kofu</i>	'make package in leaf or cloth, tied at top; leaf/cloth package usually containing soft food'

3.8 Uncooked food

Lichtenberk also considers terms for uncooked food. He proposes a general POc term **(a)mataq* for raw food (possibly excluding certain foodstuffs) which also refers to unripe foodstuff, such as fruit. Its reflexes in fact seem to reflect two forms, **mataq* and **qa-mataq*, the latter presumably derived from the former, but the function of **qa-* is unclear.

PAn **ma-qataq* 'raw, unripe' (ACD)

POc **mataq* 'raw, unripe, new, green' (ACD)

NNG:	Tami	<i>mata</i>	'green'
NNG:	Dami	<i>mata</i>	'green, unripe'
NNG:	Yabem	<i>mata?-mata?</i>	'green'
		<i>mata?</i>	'young'

NNG: Kairiru	<i>mataq</i>	'unripe, raw'
MM: Kara (East)	<i>matak</i>	'not ready, not ripe'
MM: Tabar	<i>magat(i)</i>	'raw'
MM: Madak	<i>makat</i>	'new' (metathesised)
MM: Siar	<i>metek</i>	'new'
MM: Roviana	<i>makata</i>	'unripe' (metathesised)
SES: Gela	<i>mata-mata</i>	'(domesticated animals +) wild, shy, timid'
SES: Kwaio	<i>maʔa</i>	'raw'
NCV: Paamese	<i>mete(s)</i>	'raw, uncooked'
NCV: Nguna	<i>mata</i>	'raw, unripe, (wood) green'
SV: Kwamera	<i>(a)mera</i> <i>(a)mri-mera</i>	'uncooked, raw; (land) fertile' 'green, light blue; raw, uncooked'
SV: Anejom	<i>mat</i>	'raw'
NCal: Xârâcùù	<i>mata</i>	'raw, green (not ripe), new (unused)'
Mic: Kiribatese	<i>mata</i>	'undercooked'
Fij: Rotuman	<i>mafa</i>	'raw, uncooked; green, undried'
Pn: Tongan	<i>mata</i>	'(fruit) green, unripe, or raw; (copra) undried; (timber) unseasoned, or not thoroughly seasoned'
Pn: Samoan	<i>mata</i>	'raw, unripe'

PAn **qamataq* 'raw, uncooked' (ACD)

POc **qamataq* 'not ready to be eaten (because unripe or raw)' (Lichtenberk)

NNG: Lukep (Pono)	<i>gamata-na</i>	
NNG: Manam	<i>amata-mata</i>	'raw, uncooked'
Mic: Kiribatese	<i>amata</i>	'not cooked enough, half raw; half-cooked food'
Mic: Ponapean	<i>amas</i>	'raw, uncooked'
Mic: Woleaian	<i>yemata</i>	'raw, not cooked; new'

PAn/PMP **maqataq* evidently consisted of **ma-* 'anticausative' (Ch. 2, §3.1.2) + *qataq* 'eat something raw'. The POc reflex **mataq* shows irregular loss of medial **-q-*. The unaffixed base also survived in POc, and is reflected, with meanings similar to **mataq*, in some Oceanic languages.

PAn **qataq* 'eat s.t. raw' (ACD)

POc **qata(q)* 'young, raw'

NNG: Dami	<i>ata</i>	'green'
NNG: Yabem	<i>ataʔ-ataʔ</i>	'green'
PT: Motu	<i>ata-ata</i>	'young'
NCal: Xârâcùù	<i>ata</i>	'new'

Alongside **qataq*, PAn also had a term **qetaq*, which retained its verbal use in POc, referring specifically to raw meat, fish and shellfish, and to the eating of such foods:

PAn **qetaq* 'eat s.t. raw' (ACD)

POc **(k,q)oda*, 'raw (meat, fish, shellfish); eat raw (meat, fish, shellfish)'

PT: Molima	<i>oda</i>	'(animals) eat raw food'
PT: Kilivila	<i>koda</i>	'eat s.t. uncooked'
MM: Roviana	<i>oda</i>	'eat fish without <i>baso</i> (relish) or vegetables; eat garden produce, of pigs'

SES:	Gela	<i>oda</i>	'eat raw; (animals) destroy a garden'
SES:	Kwaio	<i>oda</i>	'eat raw; (pig) eat a garden'
Mic:	Kiribatese	<i>ora-ora</i>	'act of eating fish or meat in a raw state'
Mic:	Kosraean	<i>oše</i>	'eat raw'
Mic:	Puluwat	<i>wor-</i>	'possessive classifier for raw food; raw seafood, meat (cooked or raw), eggs'
Fij:	Bauan	<i>koda</i>	'eat raw meat'
Pn:	Tongan	<i>?ota</i>	'raw, uncooked—mostly of meat, fish, shell-fish, or eggs; eat raw fish or shell-fish'
Pn:	Nanumean	<i>ota</i>	'raw fish or fruit; eat fish raw'
Pn:	Rarotongan	<i>ota</i>	'any raw flesh such as raw fish; raw, green, uncooked'

3.9 Food cooked or ripe

Similarly, the term for 'cooked' also meant 'ripe'; both glosses could be subsumed as 'ready to be eaten'.

PMP **(ma-)qesak* 'ripe, cooked, ready to eat' (ACD)

POc **ma-osak* 'ready to be eaten (because ripe or cooked)'

Adm:	Lou	<i>m^was</i>	'cooked'
PT:	Motu	<i>maeda</i>	'(things cooked) be done' (sporadic fronting of POc <i>*o</i>)
MM:	Nakanai	<i>maosa</i>	'cooked, done, ripe'
MM:	Bali	<i>mazaka</i>	'cooked, ripe'
MM:	Teop	<i>mahaka</i>	'cooked'
SES:	'Are'are	<i>mata</i>	'(fruit) ripe'
SES:	Gela	<i>mo-moha</i>	'(food) cooked'
SES:	Lengo	<i>matak</i>	'ready to be eaten, ripe, cooked, done'
NCV:	Paamese	<i>maso</i>	'cooked'
NCV:	Nguna	<i>māso</i>	'cooked', also 'cooked, burned'
Mic:	Marshallese	<i>mat^w</i>	'cooked'
Fij:	Rotuman	<i>ma-mosa</i>	'cooked, ripe'
Pn:	Tongan	<i>moho</i>	'cooked, fully cooked, done'

Another term with meaning similar to **maosak* stresses the good quality of the food:

POc **[ma]noka* 'be in good condition for eating: nicely ripe, well-cooked, soft'

NNG:	Manam	<i>noʔa</i>	'ripe, esp. when soft; overripe; done, cooked'
PT:	Kilivila	<i>monogu</i>	'ripe'
NCV:	Mota	<i>manoga</i>	'cooked, well-done'

4 Preserving

Lichtenberk (p.277) records two main ways of preserving food in Oceania. One is drying, either in the sun or above fire (the latter may involve smoking the food); the other is fermentation.

4.1 Drying, smoking

PAn **Capa* (V) 'smoke fish or meat for preservation' (ACD)

POc **tapa* (V) 'dry food by heat to preserve it; smoke food' (Lichtenberk)

MM: Roviana *tava* 'cook or dry (fish, copra +) by smoking or heating'

In addition, Blust offers the following:

PMP **pa[ka]-qasu* (V) 'smoke, fumigate' (ACD) (from **pa[ka]* 'causative' + PMP **qasu* (N) 'smoke, fumes, steam'); (V) '(fire) smoke'

POc **pa[ka]-qasu* (V) 'smoke, cure by smoking'

Mic: Trukese *āti* (V) 'smoke, steam; cause to be smoked or steamed (for curing)'

Fij: Rotuman *fak-asu* 'place in smoke'

Pn: Tongan *faka-ʔahu* 'preserve by smoking etc.'

Pn: Samoan *fāʔ-asu* (V) 'smoke (fish or meat); fumigate'

Malcolm Ross (pers.comm.) reconstructs:

PNGOc **pa(r,R)a* (V) 'dry by smoking'

NNG: Lukep *para*

NNG: Mangap *pāra*

PT: Iduna *vala-*

4.2 Fermentation

Fermentation of food is geographically much more restricted. Small islands, particularly atolls, are susceptible to food shortages as a result of drought or prolonged stormy weather which makes fishing impossible, and have greater need for food reserves. Food fermentation is practised primarily in those areas where sago is not available as a staple, the latter being easily stored for lengthy periods of time. Assuming that sago was available as a foodstuff in POc times (see Dutton 1994), Lichtenberk argues (p.278) that the nearly complementary distribution of sago as a staple and fermented foodstuff suggests that the presence of fermentation in Micronesia and Polynesia is due to independent developments. Also relevant, however, is the fact that fermented breadfruit is regarded as one of the few foods suitable for carrying on longer sea voyages, and thus a prime suspect, along with its term, for borrowing. Yen (1975) writes that in Melanesia fermentation appears to be practised only in Santa Cruz and ascribes its presence there to Polynesian influence. However, David Walsh has pointed out (pers.comm. with Lichtenberk) that fermentation is practised also in some areas in Vanuatu. (See the Namakir form *mada* below.) Ross (Food plants, vol. 3) points out that there is a curious cross-over between the reflexes of PEOc **mara* 'preserved breadfruit' and POc **madraR* 'grow ripe, overripe', **madraR-i-* 'grow ripe, overripe from (s.t.) (?)'. In scattered languages in Vanuatu, Fiji and Micronesia, a reflex of **madraR/ *madraR-i-* has taken over the 'preserved breadfruit' sense which we would instead expect to find associated with a reflex **mara*. Since closely related languages both in Vanuatu and in Micronesia disagree as to which term they reflect, Ross infers that the closeness of both form and meaning has led to confusion between the two terms, leading to more than one independent occurrence of crossover. POc **madraR* seems to have been applied specifically to breadfruit and bananas, both of

which become soft and mushy when overripe. Breadfruit and bananas are also the two foodstuffs which today are most commonly preserved by fermentation (Yen 1975). Chowning lists a Nakanai cognate which indicates that the original POc term may have meant simply 'be spoiled (of food or drink)', with its meaning narrowing in Eastern Oceanic.

POc **mara* 'be spoiled, foul (of food or drink)'

MM:	Nakanai	<i>mala/gari</i>	'not good to drink, of water' (<i>gari</i> 'bite into')
SES:	Kwaio	<i>malā</i>	'be spoiled, foul'
SES:	Lau	<i>marā</i>	'be spoiled, foul'
NCV:	Raga	<i>mara</i>	'preserved breadfruit'
NCV:	Uripiv	<i>na-mer</i>	'preserved breadfruit'
NCV:	Paamese	<i>a-mē</i>	'preserved breadfruit'
NCV:	Tamambo	<i>mara</i>	'preserved breadfruit'
SV:	Anejom	<i>na-marai</i>	'preserved breadfruit'
Mic:	Kosraean	<i>mær</i>	'core of a preserved breadfruit'
Mic:	Mokilese	<i>mar</i>	'preserved breadfruit'
Mic:	Trukese	<i>mara-</i>	'preserved breadfruit'
Mic:	Woleaian	<i>māza</i>	'preserved breadfruit'
Fij:	Rotuman	<i>mara</i>	'preserved starchy food'
Fij:	Wayan	<i>mara</i>	'stink, be rotten'
Pn:	Tongan	<i>mā</i>	'ensilage (for human consumption), usually plantain or banana, stored in pit'
Pn:	Mele-Fila	<i>mara</i>	'breadfruit, taro or banana preserved by fermenting in a pit'

POc **madraR* 'grow ripe, (breadfruit and bananas) be overripe', **madraR-i-* 'grow ripe, overripe from (s.t.) (?)'

Adm:	Mondropolon	<i>madra-n</i>	'ripe'
NNG:	Bilibil	<i>mad</i>	'ripe'
MM:	Tolai	<i>madar</i>	'ripe, overripe'
MM:	Nakanai	<i>malalaso</i>	'ripe, of fruit such as bananas'
SES:	Gela	<i>mada</i>	'ripe'
		<i>madari</i>	'(banana +) overripe'
SES:	Arosi	<i>mada</i>	'be ripe'
		<i>madari</i>	'grow ripe from'
NCV:	Namakir	<i>mada</i>	'preserved breadfruit, manioc +'
NCV:	Nguna	<i>na-madai</i>	'preserved breadfruit, manioc +'
Mic:	Marshallese	<i>mmer</i>	'(breadfruit only) very ripe, overripe'
Fij:	Wayan	<i>madra</i>	'(fruit) be very ripe, overripe but still good'
Fij:	Bauan	<i>madrai</i>	'Fijian bread, rolls/loaves of breadfruit buried in the ground for months'

Other terms which in parts of Polynesia refer to fermented breadfruit are derived from POc **maqasin*.

PAn **qasin* 'salty' (Zorc 1994)

POc **ma-qasin* 'be salty, sharp, of taste'

Adm:	Mussau	<i>masini</i>	'salty'
NNG:	Sengseng	<i>masi</i>	'tasty, sweet'

NNG: Gedaged	<i>mas</i>	'salt water, salt'
MM: Nakanai	<i>ma-masi</i>	'salty, stinging, as salt water in a wound'
Fij: Rotuman	<i>masi</i>	'salt'
Fij: Bauan	<i>masi(ma)</i>	'salt obtained by evaporation from seawater'
	<i>masi-masi(a)</i>	'prematurely spoiled by the south wind, of breadfruit'
Pn: Tongan	<i>mahi</i>	'sour, astringent'
Pn: Samoan	<i>masi</i>	'breadfruit left to ferment in a special pit'
Pn: Tahitian	<i>mahi</i>	'acid, fermented; breadfruit preserved by fermenting'

5 Food processing

5.1 Pounding

We have terms for the action of pounding or crushing, but have been unable to reconstruct any term for the implement or implements involved apart from PWOC **walu* 'sago beater' and POC **ike* 'bark-cloth' beater' (for the latter, see Ch. 4, §5.1).

PWOC **walu* 'sago beater' (Chowning 1991)

NNG: Kove	<i>walu</i>	
PT: Molima	<i>(e)wanu</i>	(<i>e</i> - < PPT <i>*kai</i> -INS)
MM: Nakanai	<i>ualu</i>	

Sago is pounded with an implement consisting of a head like a small adze, mounted on a long handle (Ann Chowning pers.comm.). Smaller wooden pestles are used for mashing foodstuffs like taro, banana and breadfruit, and for crushing nuts, particularly galip (*Canarium*) and betel (*Areca*) nuts. Sometimes stones are used, or wooden pestles with stone heads. Lithgow lists Muryuw (PT) *kilakil* 'stone-headed sago pounder', and Chowning (pers.comm.) records a Nakanai (MM) term *mulumu* 'pestle of wood or bone used for crushing almonds or areca nuts', from the verb *mumu* 'crush in a mortar'. Lichtenberk writes (p.277) that:

Pounded foods are widespread in Oceania (Yen 1975). In Pidgin and in English they are referred to as 'puddings' (although not all puddings require pounding). The usual main ingredient is tubers (taro, yam), cooked and pounded, mashed into a paste together with other ingredients such as coconut cream or nuts, and then usually recooked.

A large wooden bowl (POC **tabiRa*, PCP **kumete*, see Ch. 4, §2.2.1) was traditionally used as a mortar. Sago was pounded in a trough, stronger and heavier than a bowl, and designed so that water could run off from one end. Only isolated terms have been located (Muryuw *kas* 'trough for sago-making'; Loniū *kup^wi* 'trough in which sago is pounded').

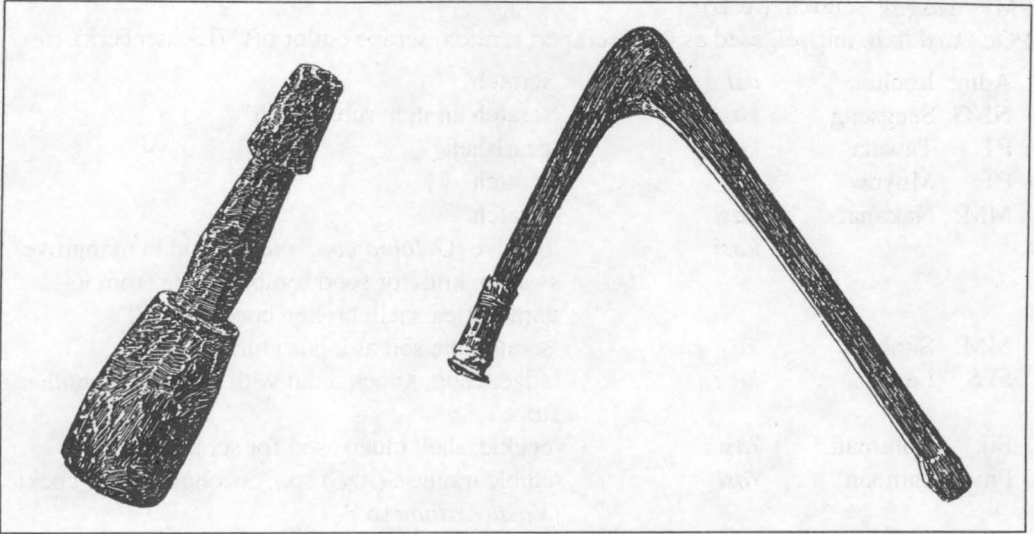


Figure 22: taro stamper (no reconstruction)
(from Nevermann 1934:192)

PWoc **walu* 'sago beater'
(from Nevermann 1934:174)

As Blust (ACD) notes, terms dealing with the action of pounding frequently contain the root **-tuk*. A number of reconstructions have been made which evidently refer to hitting, pounding, beating, breaking open, and so on, not just of foodstuffs, but with general application. Cognate sets for the following reconstructions are included in Chapter 9, §5.1: POc **tutuk* 'pound, mash by pounding, hammer, crack by hammering' (from PAn **tuqtuq*); POc **tuki-* 'pound'; POc **putu(k)* 'knock, pound, beat' (ACD) (from PMP **buTuk*); and POc **qatuŋ-i* 'strike from above, pound'.

5.2 Grating, scraping

Foodstuffs such as tubers and coconut meat are often grated before further processing. Tubers also need to be scraped to remove dirt. Both processes can be carried out with a shell such as a cockle, and the scraper/grater may be referred to by its shell name. Scrapers and graters are not always separately identified. The same implement may serve both functions, just as the same verb may refer to both actions.

PMP **kuDkuD* 'rasp, file' (Blust 1972b)

POc **kuku(r)* 'mussel; grater made of mussel shell'

NNG:	Takia	<i>kuk</i>	'kind of shellfish: <i>Anadara</i> , cockle shell'
NNG:	Kove	<i>kuku</i>	'a mussel'
Fij:	Bauan	<i>kuku</i>	'k.o. mussel (used as a grater)'
Pn:	Samoa	<i>?u?u</i>	'mollusc, the shell of which is used by women to split pandanus leaves'
Pn:	Marquesan	<i>kuku</i>	'prepare strips of pandanus for mats, hibiscus bark for cord'
Pn:	Tikopia	<i>kuku</i>	'grate (turmeric)'

PMP *gasgas 'scratch' (ACD)

POc *kasi 'k.o. mussel, used as food scraper; scratch, scrape out or off' (Lichtenberk)

Adm:	Loniu	<i>asi</i>	'scratch'
NNG:	Sengseng	<i>kas</i>	'scratch an itch; rub; to itch'
PT:	Tawala	<i>kahi</i>	'pearlshell'
PT:	Muyuw	<i>kas</i>	'scratch'
MM:	Nakanai	<i>kasi</i>	'scratch'
		<i>kasi</i>	'bivalve (<i>Geloina coaxana</i>), found in mangrove swamp; knife or food scraper made from its unmodified shell; broken coconut shell'
MM:	Simbo	<i>kasi-kasi</i>	'scratch the soil as a bush turkey'
SES:	Lau	<i>kasi</i>	'adze, chop; knock a nut with a stone on another stone'
Fij:	Rotuman	? <i>asi</i>	'cockle; shell much used for scraping'
Pn:	Samoaan	? <i>asi</i>	'edible mollusc (<i>Arca</i> sp.); coconut scraper cockle (<i>Vasticardium</i> sp.)'
Pn:	Tikopia	<i>kasi</i>	'bivalve mollusc (<i>Asaphis violascens</i> Forskal), possibly other related bivalves also; shell traditionally used as cutting or scraping implement, as food scraper for coconut, breadfruit'

PEOc *kaRi 'scraper; bivalve sp., used as a scraper' (Geraghty 1990)

SES:	Gela	<i>gali</i>	'species mollusc, pelecypod, <i>Asaphis deflorata</i> , eaten'
NCV:	Mota	<i>gar</i> (<i>vin</i>) <i>gar</i>	'cockle' 'cockle shell, used to cut yam vines and to scrape out meat from coconut' (<i>vin</i> from <i>viniu</i> 'skin, bark, husk, partic. of coconut')
Fij:	Bauan	<i>kai</i>	'generic name of bivalve shellfish, <i>Lamellibranchiata</i> '

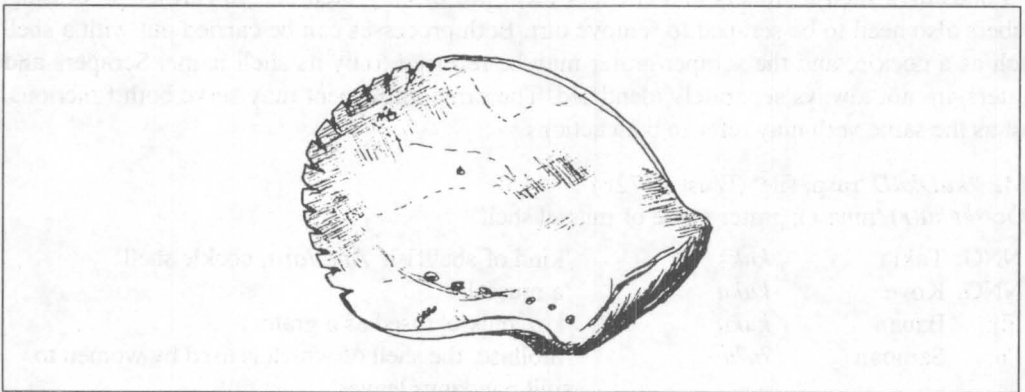


Figure 23: POC *kaRi, POC *koRi 'bivalve used as food scraper'

POc **kara(s)*, **karas-i-* 'peel or scrape skin off tubers' (Lichtenberk)

Adm: Mussau	<i>kalasi</i>	
MM: Kara (West)	<i>kaias</i>	
MM: Maringe	<i>ka-krasi</i>	'scrape off potato or taro skin, using a shell' (also <i>kekesi</i>)
SES: Arosi	<i>karasi</i>	'scrape, bruise, take off skin'
SES: Kwaio	<i>galā</i>	'peel skin off f (vegetable +)'
	<i>galasi-</i>	'peel a raw vegetable'
SES: To'aba'ita	<i>garasi</i>	'scrape (taro, sweet potato + to remove dirt after pulling it out of ground)'
SES: Sa'a	<i>kara, karasi</i>	'scrape, grate'
	<i>kara (uhi)</i>	'grate yams with a cockle shell' (<i>uhi</i> 'yam')

A number of formally similar terms have been reconstructed for the action of scratching, scraping and grating. Although the reference is often primarily to preparation of foodstuffs, such terms are often used to refer to any similar action such as scratching the skin or scraping the bottom of a canoe.

PMP **kari*s 'scratch mark' (ACD)

POc **kari(s)*, **karis-i-* 'scrape (tubers, coconuts)' (Lichtenberk); 'scratch a mark on s.t.'

NNG: Kove	<i>karisi</i>	'scrape one's skin'
NNG: Akolet	<i>karis</i>	'scratch (one's skin)'
NNG: Labu	<i>kalē</i>	'scratch'
PT: Motu	<i>ari-</i>	(V) 'mark, indent (bottom of canoe with stones +)'
MM: Bulu	<i>kari</i>	'scratch (one's skin)'
MM: Maringe	<i>kai-kari</i>	(VT) 'scrape off (e.g. mud from one's feet), remove with scraping action, usually with implement like a piece of bamboo'
SES: Gela	<i>kari</i>	'scrape off (dirt from a cut +); scrape out (white of coconut)'
	<i>karisi-</i>	'peel off (skin of stem of plant or stick); circumcise'
SES: Tolo	<i>karisi-</i>	'peel (with knife, shell +)'
SES: Arosi	<i>kari-kari</i>	'scrape off small roots with <i>waro</i> shell'
SV: Anejom	<i>(a)yreθ</i>	'scrape'
Mic: Carolinian	<i>xeri</i>	'scratch s.t., grate it'
Mic: Marshallese	<i>kar</i>	'scratch, scrape'
Fij: Wayan	<i>kari</i>	'be scraped'
	<i>(i)kari</i>	'grater' (<i>i-</i> < POc <i>*i-</i> INS)
Fij: Bauan	<i>kari-</i>	'scrape (coconut +)'

POc **ko(r,R)a(s)*, **ko(r,R)as-i-* 'scrape out (coconut meat); dregs of strained coconut scrapings'⁵

SES: Arosi	<i>?ora</i>	'scrape with a shell'
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⁵ See Chapter 9, §2.2 and accompanying footnote 2. Ross proposes PAn root **-ras* 'grate, scrape, scar', POc **kora(s)*, **koras-i-* 'scrape out (coconut meat +); dregs of strained coconut scrapings'.

SES:	Arosi	<i>?orasi</i>	'dregs of strained coconut scrapings'
NCV:	Mota	<i>goras</i>	'scrape out, grate, the hard meat of coconut with cockle shell (<i>vin-gar</i>)'
Mic:	Carolinian	<i>xiri</i>	'scrape or grate'
Fij:	Bauan	<i>kora</i>	'refuse of scraped coconut'

POc **gora(s)*, **goras-i-* 'scrape out (coconut meat +); dregs of strained coconut scrapings'

MM:	Maringe	<i>garosi</i>	'scrape, claw or scratch with one swipe' (metathesis)
SES:	Gela	<i>gola</i>	'scrape, plane'
SES:	Sa'a	<i>koras-i-</i>	'(rat +) scratch about'

POc **koRi* 'scraper; bivalve sp., used as a scraper; scrape with a shell'

NNG:	Manam	<i>?ori(η)</i> <i>?ori-?ori</i>	'scrape coconuts' 'pearlshell, traditionally used to scrape coconuts; coconut grater, scraper'
PT:	Dobu	<i>koli</i>	'scrape, as coconut, wood'
PT:	Motu	<i>ori</i>	'grate coconut, chew pandanus fruit'
MM:	Vitu	<i>kori</i>	'scratch (one's skin)'
MM:	Tabar	<i>kori-kori</i>	'scrape (coconut)'
SES:	Gela	<i>goli</i>	'scrape coconut with a <i>tue</i> (fresh water shell)'
NCV:	Nguna	<i>koi</i>	'grate (coconut)'
Fij:	Rotuman	<i>?oi</i>	'scrape, grate'
Fij:	Bauan	<i>koi</i> <i>(i)koi</i>	'scrape (breadfruit)' 'shellfish'

PEOc (POc?)⁶ **kori(s)*, **koris-i-* 'scrape (esp. coconuts), grate (esp. coconuts)'

NNG:	Kove	<i>ko-koli</i>	'scrape the exterior off food (trepang, taro)'
SES:	Gela	<i>goli</i> <i>gori</i>	'scrape coconut with a <i>tue</i> (fresh water shell)' 'shave the head'
SES:	To'aba'ita	<i>kori</i>	'scrape (coconuts +)'
SES:	Tolo	<i>kori-</i>	'scrape or grate coconut'
SES:	Arosi	<i>?oris-i</i>	'scrape'
NCV:	Lewo	<i>koli</i>	'scrape (e.g. coconut)'

PCEMP **isi* 'peel, strip off; scrape (coconut)' (ACD)

POc **isi* 'scoop out (flesh from coconut +); peel off (skin, bark +)'

NNG:	Poeng	<i>isi</i>	'strip bark from tree or vine'
PT:	Molima	<i>isi, isi-</i>	'grate (on a grater), rub (s.t.)'
PT:	Motu	<i>idi</i>	'prise meat from coconut, press or squeeze with an implement'
MM:	Nakanai	<i>isi</i>	'scrape, grate (coconut); scrape wood smooth'
Pn:	Rennellese	<i>isi</i>	'scoop, scrape (coconut meat from shell)'

⁶ Depending on whether the NNG term is ascribed to **koRi* or **kori(s)*, **koris-i-*.

POc **ras* 'grate, scrape (tubers, coconuts); scratch' (Lichtenberk: *(*r,R*)*asik*)

NNG: Manam	<i>ras</i> [?]	'grate (cassava +)'
NNG: Takia	<i>ras</i>	'scrape (coconut)'
MM: Banoni	<i>resi</i>	'scrape (coconut), coconut scraper'
MM: Kia	<i>rahi</i>	'grate, scratch (coconut, cassava)'
MM: Maringe	(<i>g</i>) <i>rahi</i>	'grate or scrape off (coconut or bark for making medicine +)'
NCV: Mota	<i>ras</i>	'rub, scrape, scratch'
	<i>rasa</i>	'scrape, scratch, rub, with straight motions backwards and forwards; so, sharpen by rubbing backwards and forwards on a stone'
NCV: Raga	<i>raha</i>	'grate, grind, sharpen'
NCV: Lonwolwol	<i>rehe</i>	'rub, scrape, grate, grind'

Yet another reconstruction is POc **asa(q)* 'grate, sharpen by grating or rubbing' from PAN **Sasaq* 'whet, sharpen' (see Ch. 4, §4.1.5).

Lichtenberk comments (pp. 280–281) on the recurring sound symbolism evident in these items, a feature which Blust has identified with PAN forms meaning 'rub, scrape, scratch'. Terms with similar sound symbolism readily undergo conflation. Lichtenberk also refers to the possibility that in POc or pre-POc times there was some kind of derivational relation among at least some of the forms, noting that unlike the other forms, **ko(r,R)as* took as its direct object a noun phrase referring to the stuff scraped off rather than the object being scraped (e.g. the coconut meat rather than the coconut). (See also Ch. 9, §2.2.)

PEOc **paro(s)*, **paros-i-* 'chafe (skin)'; 'scrape'

MM: Maringe	<i>poroji</i>	'chafe away the skin, e.g. tightly bound pig's feet'
SES: Lau	<i>faro</i>	'scraper for grating yams'
NCV: Nguna	<i>vāro</i>	'chafing of inner thighs'
	<i>varosi</i>	'grind (e.g. meat)'
Fij: Wayan	<i>varoki</i>	(VT) 'cut s.t. with a saw'
Fij: Bauan	<i>varo</i>	(V) 'file, saw, or rasp'
Pn: Maori	<i>faro, fa-faro</i>	'scrape'
	<i>faro-faro</i>	'scrape'

5.3 Peeling

Lichtenberk lists a number of terms for the action of peeling. The first is a transitive verb formed from the base **kulit* 'skin'. See also POc **supi* 'sharpen, shave, pare' (Ch. 9, §3.6) some of whose reflexes also mean 'peel'.

PAN **kulit* (N) 'skin'; (V) 'peel, remove skin of s.t.'

POc **kulit*, **kulit-i-* (N) 'skin'; (V) 'peel, remove skin of s.t., bark (a tree)'

NNG: Sengseng	<i>kul</i>	'remove a bandage or shoes; come undone, of s.t. wrapped'
NNG: Manam	<i>kuli</i>	'peel'
PT: Dobu	<i>kuli-kuli</i>	'rash on skin'
MM: Tolai	<i>kulit</i>	(V) 'peel off, remove bark, remove skin'

MM:	Simbo	<i>guli, guli-</i>	(V) 'skin, pare skin off'
SES:	Gela	<i>guli, guliti-</i>	(V) 'skin, bark (shin or a tree +); take the scab off a sore'
SES:	Arosi	<i>?uri</i>	(V) 'peel'
Fij:	Bauan	<i>kuli</i> <i>kulit-</i>	(N) 'skin, bark, peel' 'peel cooked taro or food cooked in water; strip off the skin or bark of a tree'

POc **sisi* 'scoop out (flesh from coconut +)'; 'peel off (skin, bark +)' (cf. Ch. 9, §3.7)

NNG:	Gedaged	<i>sisi</i>	'pull up (off), peel off, husk, take off (one's clothes)'
NNG:	Kove	<i>sisi</i>	'peel off bark or skin, strip leaves from frond, remove the midrib of a leaf'
NNG:	Manam	<i>sisi(?)</i>	(V) 'peel, pare (sweet potatoes, bananas +), bark (tree)'
NNG:	Numbami	<i>sisi</i>	'peel with teeth'
PT:	Dobu	<i>sisi</i>	'scrape baked food'
SES:	Gela	<i>hihi</i>	'scoop out the white flesh of a coconut; push out, prise out; open (tin +)'
NCV:	Mota	<i>sis</i>	'rub or knock off skin or bark, flay'
Fij:	Rotuman	<i>sisi</i>	'peel or strip off'
Fij:	Wayan	<i>ðiði</i>	'(coconut) have flesh cut out; (animal) be gutted'
Fij:	Bauan	<i>ðiði</i>	'be separated, of pulp from coconut'
Pn:	Tongan	<i>hihi</i>	'scoop out, gouge out (clams)'

POc **p^(w)ilit* 'peel by hand (fruit, cooked food)'

NNG:	Mangap	<i>pili</i>	(V) 'husk (corn, pitpit +)'
NNG:	Kairiru	<i>pil</i> <i>pili</i>	'peel skin off (cooked vegetable) by hand' (PL OBJ) 'peel skin off (cooked vegetable) by hand' (SG OBJ)
MM:	Notsi	<i>pili</i>	'peel (sweet potato +)'
NCV:	Mota	<i>wil</i>	'peel, turning the fruit over in peeling'
SV:	Anejom	<i>hujis</i>	'peel, skin'
SV:	Sye	<i>(a)vli</i>	'peel'
SV:	Ura	<i>(ala)vli</i>	'peel'
SV:	Kwamera	<i>(a)veri</i>	'peel'

5.4 Fish scaling

PMP **qunap* 'scales' (Dempwolff 1938)

POc **qunap-i-* (V) 'scale fish' (from POc **qunap* 'fish scale; turtle shell')

PT:	Motu	<i>unahi-</i>	'scale a fish'
SES:	Arosi	<i>unahi-</i>	'remove shell from turtle, scale a fish'
Pn:	Hawaiian	<i>unahi-</i>	'fish scales; scaly; (V) scale'

5.5 Husking

The following term may have referred both to the husking of coconuts and to the implement used. This was a sharpened stick, usually set firmly in the ground. The same term is sometimes used to refer to a digging stick.

POc **kojom-* (N) 'husking stick', **kojom*, **kojom-i* (V) 'husk (coconuts)'

Adm: Lou	<i>os</i>	'husk (coconuts)'
Adm: Titan	<i>kucum</i>	'husking stake'
Adm: Loniu	<i>kucum</i>	'short pointed stake stuck in the ground, for husking coconuts'
NNG: Manam	<i>?ozom</i>	'husk (coconuts)'
NNG: Wogeo	<i>kojo</i>	'coconut husking stick'
NNG: Kove	<i>koso</i>	'husk a coconut'
PT: Motu	<i>kodo</i>	'prick holes'
PT: Dobu	<i>gesoma</i>	'husk coconuts'
SES: Lau	<i>?oto, ?otomi</i>	'poke, thrust, jab; pierce, insert'
SES: Arosi	<i>koto</i>	(V) 'spear, crush (areca nut with pestle)'
NCV: Mota	<i>goso</i>	(V) 'husk a coconut with a pointed stick'
	<i>(i)goso</i>	'husking stick' (<i>i-</i> < POc <i>*i-</i> INS)
SV: Anejom	<i>(a)nhem</i>	'husk (coconuts)'
Mic: Mokilese	<i>kot</i>	'husking stick'
	<i>kotom</i>	(V) 'husk with a husking stick'
Mic: Kiribatese	<i>koro</i>	'stake, pointed stick used to take husk off coconuts; dart pointed at both ends; spur, horn'
Mic: Carolinian	<i>xoto</i>	'coconut husking stick'
Fij: Bauan	<i>(i)koso</i>	'thing to cut with' (<i>i-</i> < POc <i>*i-</i> INS)
Pn: Samoan	<i>?oso</i>	'digging stick'
Pn: Tokelauan	<i>koho</i>	'coconut-husking stake'
Pn: Maori	<i>koo</i>	'implement for digging or planting'
Pn: Hawaiian	<i>?oo</i>	'sharp-pointed stick, coconut husker, body pain'

POc **soka*, *soka-i-* (V) 'pierce; stab' (see Ch. 9, §4.1) (Lichtenberk has **joka*) and POc **potak* 'crack or split open (nuts, coconuts)' are also used of husking coconuts:

PMP **beTak* 'split, cleave' (Dempwolff 1938)

POc **potak*, **potak-i-* (VT) 'crack s.t. open, split s.t. open (such as nuts, coconuts)' (cf. Ch. 9, §3.8)

Adm: Loniu	<i>pot</i>	(VI) 'be broken, be chopped down'
Adm: Titan	<i>pot</i>	(VI) '(wooden objects) be broken'
NNG: Malasanga	<i>pota</i>	'split (wood)'
NNG: Manam	<i>ota?</i>	'crack s.t. open (coconuts, canarium nuts +)'
MM: Notsi	<i>pət</i>	'chop'
MM: Teop	<i>potā</i>	'cut open (pig belly); split (open)'
SES: Gela	<i>voti</i>	'break open (coconut +), split, split up'
SES: Sa'a	<i>hoa</i>	(VI) 'make an incision in; remove and separate'
	<i>hoai</i>	(VT)
SES: Arosi	<i>hoa</i>	(VI) 'divide, cleave asunder, separate'
	<i>hoai, hoari</i>	(VT)

NCV: Mota	<i>wota</i>	'knock, break by knocking'
SV: Anejom	<i>(a)htak(wai)</i>	'split'

5.6 Straining

The most common method of straining, necessary for processing such foodstuffs as sago and coconut cream, and also used in the production of kava, is by using the fibrous spathe of a coconut frond.

PMP **Runut* 'plant fibres' (Blust 1983–84a)

POc **Runut/ *nuRut* 'sheath around base of coconut frond, used as strainer'

NNG: Gitua	<i>run</i>	
NNG: Lukep	<i>rur</i>	'coconut cloth'
PT: Sariba	<i>lulusi</i>	
PT: Motu	<i>nuru</i>	
MM: Tolai	<i>nirut</i>	
NCV: Mota	<i>nir</i>	
SES: Sa'a	<i>unu</i>	'fibrous spathe of a coconut frond, used for straining cream from grated coconuts'
Mic: Kiribatese	<i>iŋ</i>	'coconut cloth'
Mic: Puluwat	<i>wɔn</i>	'coconut cloth'
Mic: Ulithi	<i>ɔl</i>	'coconut cloth'
Fij: Bauan	<i>unu</i>	'straining cloth for kava, traditionally a fibrous material made from coconut husk (and perhaps the spathe of a coconut frond)'
	<i>(i)unu</i>	'(kava) strainer' (<i>i</i> - < POc <i>*i</i> - INS)
Fij: Wayan	<i>unu</i>	'strainer used in preparing kava'
Pn: Samoan	<i>unu</i>	'strainer (used in making oil +); (V) strain'
Pn: Rennellese	<i>gunu</i>	'coconut fibre wringer'

Lichtenberk (1994) reconstructed PEOc **unu(p)* 'strainer, probably the fibrous spathe of a coconut frond', but it is reasonably certain that the reflexes attributed thereto should be combined with those above and attributed to **Runut/*nuRut* (Ross 1996d). Lichtenberk reconstructed final **-p* on the basis of Mota (NCV) *unuv* '(a fluid) sink in, be absorbed', but we take this not to be cognate. As Geraghty (1990) points out, Sa'a (SES) shows irregular loss of initial **R-*, but Rennellese (Pn) *gunu*, borrowed from a SES language, reflects Proto SES **lunu* (< POc **Runut*). Sa'a also shows loss of **R* in a few other items, so its loss here is not completely surprising.

5.7 Plucking

PAn **buCbuC* 'pull up (weeds +), pluck (feathers +)' (ACD)

POc **puti-* 'pick, pluck (feathers), pull out (weeds +)' (cf. Ch. 9. §6.1)

NNG: Sengseng	<i>put</i>	'pluck fur or feathers'
PT: Lala	<i>buku</i>	'pluck' (<i>b</i> for expected <i>p</i>)
MM: Tolai	<i>vut</i>	'weed, pluck as feathers of a fowl'
SES: Tolo	<i>vuti-</i>	'pull out, pluck out (of chicken feathers, grass +)'

NCV: Mota	<i>vut</i>	'dig, heaving up the soil as with digging stick'
NCV: Paamese	<i>huti</i>	'peel fruit; shell egg; pluck feathers from chicken or bird'
NCV: Raga	<i>(ha)vusi</i>	'pluck, as a fowl'
NCV: Tamambo	<i>(sa)buti</i>	'pluck, pull out (plant, tooth +)'
Mic: Ponapean	<i>us</i>	'pull out, pluck'
Fij: Bauan	<i>vuti-</i> <i>(ða)vuta</i>	'pluck hair or feathers; pull up weeds' (VT) 'pull up, eradicate'
Pn: Tongan	<i>fusi-?i</i>	'pull, tug, pull up or in; pluck a fowl'
Pn: Samoan	<i>futi</i>	'pull out (weeds, hair +); pluck (hen)'
Pn: Tahitian	<i>huti</i>	'pluck; pull up, out'

5.8 Wringing, squeezing

Lichtenberk includes several terms for squeezing or wringing:

PAn **peRes* 'squeeze out' (Blust 1972b)

POc **poRo(s)*, **poRos-i-* 'squeeze out, wring out (liquid)'

NNG: Gitua	<i>poro</i>	'wring'
NNG: Kove	<i>poho</i>	'squeeze, wring out; add coconut cream to food; make sago'
NNG: Kairiru	<i>furasi</i>	'wring, squeeze (e.g. in the preparation of coconut cream)'
MM: Nakanai	<i>volo</i>	'work sago flour, squeeze the water out'
NCV: Mota	<i>woro</i>	'squeeze, wring out juice of herbs, liquor of fruits, over food and things prepared for charms; add coconut sauce to <i>loko</i> (pudding of grated yam)'

PMP **pitpit* 'clamp, jam, pinch' (Dempwolff 1938)

POc **p^(w)i p^(w)i(t)* 'press, wring, squeeze s.t. (e.g. in order to extract liquid)' (cf. Ch. 9, §7)

NNG: Kove	<i>vivi</i>	'squeeze (grated coconut +)'
NNG: Poeng	<i>viv(pele-)</i> <i>(kam)vivi-</i>	'squeeze (grated coconut +)' 'squeeze (out liquid, i.e. coconut), squeeze (in the hand)'
NNG: Numbami	<i>pipi-</i>	'squeeze (grated coconut +)'
NNG: Gedaged	<i>pipi</i>	'squeeze (out), express, crush, pinch, strangle, compress'
NNG: Manam	<i>pipi</i>	'squeeze in order to extract the contents, wring out'
PT: Minaveha	<i>pipi</i>	'squeeze s.t.'
PT: Misima	<i>pi</i>	'squeeze; wring out (clothes)'
MM: Ramoaaina	<i>wi-wi(ŋ)</i>	'squeeze, wring clothes; strain juice through cloth'
SV: Lenakel	<i>(a)vət</i>	'squeeze'

cf. also:

PT: Gumawana	<i>bibi</i> <i>(vata)bibi</i>	'squeeze (boil +)' 'squeeze up against something'
SES: Arosi	<i>bibi</i>	'crush, squeeze, crowd'

PMP **pespes* 'squeeze, press out' (ACD: PWMP)POc **posi-* 'squeeze, wring (coconuts to extract cream +)' (cf. Ch. 9, §7)

PT:	Kilivila	<i>poli</i>	'squeeze, wring'
MM:	Kara (East)	<i>pas</i>	'squeeze (grated coconut +)'
MM:	Kandas	<i>pus</i>	'squeeze (grated coconut +)'
MM:	Nehan	<i>pos</i>	'squeeze (grated coconut +)'
MM:	Teop	<i>posi</i>	'wring, squeeze'
		<i>(i)posi</i>	'coconut strainer' (<i>i-</i> < POc <i>*i-</i> INS)
MM:	Maringe	<i>poji</i>	'squeeze, wring liquid, as in making coconut milk or medicine'
SES:	Bugotu	<i>poji</i>	'wring, squeeze, twist'
SES:	Gela	<i>poi-posi</i>	'squeeze and wring out coconut shavings'
		<i>podi</i>	'squeeze, as in shaking hands'
		<i>poi-podi</i>	'sieve or strainer of coconut fibre'
Pn:	Tongan	<i>fohi</i>	'remove skin, rind; peel'
Pn:	W. Futunan	<i>foi-</i>	'peel or skin (s.t.); peel where the skin is ready to come off (not e.g. taro)'

PMP **le(c,s)it* 'squeeze out, squirt out' (ACD)POc **losi(t)* 'squeeze, wring'

MM:	Roviana	<i>(li)lohi-</i>	'wring out (wet garment +)'
SES:	Gela	<i>(loi)losi</i>	'sponge'
SES:	Longgu	<i>losi-</i>	'squeeze s.t., wring s.t. out; squeeze milk out of scraped coconut meat immersed in water'
SES:	To'aba'ita	<i>losi</i>	'wring (clothes, grated coconut +) to extract liquid'
SES:	Sa'a	<i>(loi)loosi</i>	'squeeze, strain out coconut cream from hero (scraped coconut) with <i>unu</i> (fibrous spathe of a coconut frond)'
SES:	Arosi	<i>rosi</i>	'wring, twist, squeeze (coconut fibre in straining coconut scrapings +)'
Fij:	Bauan	<i>lose</i>	'squeeze, wring (chiefly of kava)'

Another reconstruction, POc **piri* 'twist, wrap around', whose reflexes refer typically to the manufacture of rope or twine (see Ch. 4, §3.2), has reflexes in some languages which refer to extracting coconut milk by squeezing it through coconut fibre (MM: Kia *piriki* 'wring, squeeze coconut milk', NCV: Tamambo *virī* 'twist, plait, braid; coconut milk'. See also SES: Arosi *biri-ŋi* 'squeeze coconut milk through fibre').

Lichtenberk writes (p.283):

It is not possible to determine fully what the distinctions were among the various terms for extracting liquid, but a number of contrasts can be postulated. Items **pipik*, **pisak*, **poji*, **losi* took as their direct object a noun phrase referring to the object out of which liquid is extracted, whereas **poRos* and **pirik* took as their direct object a noun phrase referring to the liquid extracted. **pipik* and **pisak* referred to squeezing by pressing, while **poji* and **losi* referred to squeezing by wringing. The item **pirik* referred specifically to a wringing action, while **poRos* may have been an unmarked term whose meaning subsumed both pressing and wringing. (As Ann Chowning has pointed out [pers.comm.] there are two

basic ways used to extract coconut cream: wringing coconut gratings through coconut 'cloth', or squeezing them in one's hands.)

5.9 Mixing

Finally, Lichtenberk lists terms for mixing or stirring:

POc **mo(n,ñ)o* 'knead'

NNG:	Mangap	<i>mōno</i>	'knead'
MM:	Roviana	<i>mono-</i>	'squeeze'
Fij:	Bauan	<i>mono</i>	'turn the taro pulp over and make it into a neat lump in preparation for pudding'

POc **(n,ñ)(a,o)tu* 'knead'

PT:	Kilivila	<i>notu</i>	'kneaded things'
Fij:	Bauan	<i>natu</i>	'knead with pestle and mortar'
Pn:	Tongan	<i>natu</i>	'mix by kneading'

PMP **palu* 'beat' (Dempwolff 1938)

POc **balur, *balur-i-* 'mix, stir'

NNG:	Manam	<i>balur, balur(a?)</i>	'stir (food) vertically, so that what was at the bottom is now at the top and vice versa' (-a? < *-aki)
Pn:	Tongan	<i>palu</i>	'mix and knead in water with hands'
Pn:	Samoan	<i>palu</i>	'mix (with the hands)'
Pn:	Hawaiian	<i>palu</i>	'thresh, beat; food or bait made of fish head, stomach, pounded'

Blust records another:

PMP **quli* 'knead, mix together' (ACD)

POc **quli* 'knead, mix together'

SES:	Sa'a	<i>uli</i>	'rub, massage'
SES:	Gela	<i>ule</i>	'stir up, stir in (powder into a liquid +)'
Fij:	Bauan	<i>uli</i>	'stir up dry things into a liquid'
		<i>(i)uli</i>	'stick f or stirring liquids' (i- < POc <i>*i-</i> INS)

7 *Canoes and seafaring*

ANDREW PAWLEY AND MEDINA PAWLEY

1 Introduction

1.1 Questions

Between 3000 and 1000 BC, speakers of Austronesian languages spread across Island Southeast Asia and western Melanesia and into the previously uninhabited islands of the Central Pacific.¹ By about 1000 AD they had colonised the whole of Polynesia and Micronesia and had settled Madagascar, more than half a world away.² This farflung maritime dispersal of closely related peoples, without parallel in human history until the West European expansion of the 15th-20th centuries AD, must have been based on a fairly efficient sailing technology. What was this technology? When and where did it develop? To what extent was it modified during the Austronesian diaspora?

There is already an extensive literature on these questions, much of it by culture historians who apply the typological comparative and distributional methods (discussed in §1.2) to sailing craft and sailing techniques. Our contribution will be to see what light can be thrown on these questions by comparing the vocabulary for watercraft and seafaring across the Austronesian family, using the genetic comparative method of historical linguistics. We will focus on the early phases of Austronesian expansion, that is, on cognate sets that probably go back more than 2,000 years. Little will be said here about the complex developments in boatbuilding which have taken place in Island Southeast Asia over the last couple of millennia,

¹ This is a slightly revised version of a paper which is included in Pawley and Ross, eds. 1994. Unlike other chapters in this volume, this chapter takes account of the Austronesian language family as a whole, rather than just of its Oceanic subgroup. We have done this because the topic of canoes and seafaring is, in an obvious way, intimately associated with the Austronesian dispersal, of which the Oceanic dispersal was simply the later part: to ignore the earlier part would be somewhat arbitrary.

We are grateful to many colleagues for help. Robert Blust, Charles Grimes, Ric Jackson, Jeff Marck and Bernd Nothofer provided corrections to many points of detail as well as additional evidence. Sander Adelaar, Wal Ambrose, Mark Donohue, Paul Geraghty, Geoff Irwin, Alan Jones, Nigel Oram, Lawrence Reid and Malcolm Ross also offered valuable comments or data.

² See e.g. Shutler and Marck (1975), Bellwood (1978, 1988), Pawley and Green (1973, 1984), Spriggs (1984, 1989, 1990) for discussion of the dating of the Austronesian diaspora, using C14 dating of archaeological assemblages that can be associated with Austronesian speakers.

well after the main Austronesian dispersal across and beyond this region, or about modifications in the design of craft that according to Haddon and Hornell (Haddon 1937, Haddon & Hornell 1938, Hornell 1936) have taken place in various regions of Oceania within the last millenium. An exhaustive study of material relevant to reconstructing terms for vessel design and seafaring at all stages in the history of the Austronesian family would take several years and fill a very large book.

1.2 Reconstructions based on comparative typology: methodological problems

Describing the sailing craft and navigation techniques in the Indo-Pacific region, and theorising about their origins and development have been popular pastimes among Western scholars since the first European explorers visited the region.³ The fairly close correlation between the distribution of outrigger canoes and that of the Austronesian language family has not escaped the attention of culture historians.

Those writers who have drawn conclusions about the nature of early Austronesian sailing craft and navigation have generally relied on the 'typological comparative method' of historical reconstruction. The typological method is a theory of structural types, making assumptions about how structural features are linked in systems, what kinds of changes are possible or likely, which types are logically prior to others, etc. The kinds of historical inferences this method can give, when applied to a range of contemporary systems, are probabilistic ones: for example, the inference that type X is more likely to have given rise to type Y than vice versa. The typological method is often allied to a distributional one. The assumption is that one can infer much about the antiquity of a given structural type or feature from its geographic distribution. For instance, the observation that a certain complex of cultural features is found among widely scattered peoples speaking related languages can be taken as evidence that the complex was present in a common ancestral culture. On the other hand, if such a complex has a more restricted but continuous geographic distribution it is likely to have been an innovation that diffused over this region after the dispersal of the ancestral population.

In his *Sailing Craft of Indonesia* Adrian Horridge (1986:2–3) employs a distributional argument when he writes:

The very wide distribution of their homogeneous cultural heritage shows that [the ancestral Malayo-Polynesians]⁴ had an excellent knowledge of outrigger canoes for transporting fire, family, pigs, chickens and dogs, not to mention dozens of useful plants, by sea.

Other passages in the same book present some fairly detailed conclusions about the design of the vessels. These are based partly on the logic of technology—what is possible and what is likely in the development of techniques, given certain equipment and natural resources, engineering knowledge, navigational knowledge, climatic conditions, etc.—and partly on

³ Among the scores of 20th century works on these subjects are Best (1923, 1925), Doran (1981), Finney (1979), Friederici (1933), Gladwin (1970), Golson (1972), Haddon (1937), Haddon and Hornell (1938), Hornell (1936), Horridge (1978, 1981, 1986), Hutchins (1983), Irwin (1989, 1992), Lewis (1972), Sharp (1956), Siers (1977), Thomas (1987).

⁴ Horridge recognizes the distinction that linguists now usually make between 'Austronesian', as the name of the entire language family, and 'Malayo-Polynesian', as the name for a putative subgroup that includes all Austronesian languages except those of Formosa.

distributional grounds.

The signs are that the original Malayo-Polynesian rig was a two-boom triangular sail fixed by the point (tack) in the bows of the boat and held up by a loose prop, with a rope to the outriggers to prevent it falling sideways. (p.56)

All Malayo-Polynesian rigs therefore had the fundamental property that the sail could be tilted fore and aft to balance the sail with reference to the balance of the hull and load on the steering paddle. In principle they could all be steered like a windsurfer, simply by tilting the sail fore and aft. These rigs, like the outrigger canoes for which they were adapted, were invented in Island South-East Asia, and spread with the Malayo-Polynesian expansion, although they may have been known in Indonesia before that time. (p.58)

The idea of a boat built from sewn planks was known to the Polynesian migrants into the Pacific, and perhaps came from mainland Asia before 5000 BC, but the idea of fixing the planks edge-to-edge with dowels seems to have spread later from the mainland, with the same distribution as the use of metal for boat-building tools... All the techniques needed to make a lashed-lug boat, sewn of course, were known to the earliest Polynesians, and the projecting lugs carved *in situ* are a feature of many traditional Polynesian, Micronesian and Melanesian boats. (pp.57–58)

In the following passage, Horridge combines structural and distributional arguments with archaeological evidence:

The earliest evidence of trading by boats that could beat against the wind is provided by pottery with a particular design, known as Lapita, that spread rapidly from Western Melanesia far into what is now Polynesia about 3000 years ago. The vessels carrying the potters were probably double canoes because nothing else in the region is sufficiently seaworthy. (p.4)

The strength of technology-based comparative studies is in the detailed historical inferences concerning design and construction which they yield. That is not to say such inferences are necessarily reliable. There are some serious methodological weaknesses associated with all reconstructions based purely on the logic of types and the distributional method.

Because innovations in material culture sometimes spread and replace older usages and because some innovations are made independently in different places, the widespread geographic distribution of a feature or even a complex of features does not guarantee its great antiquity. Nor does the restricted distribution of a feature guarantee that it is a recent innovation. The method of comparative typology is unable to distinguish in a reliable way between 'inherited' and 'borrowed' elements or features within a continuing community or cultural tradition, that is, between institutions which have been handed down from generation to generation within the community or tradition since a given point in time, and institutions that have entered the tradition from outside since that point in time. The method is also unable to distinguish reliably between 'retentions' and 'innovations' within the same tradition, that is, between features that have been part of a tradition since a given point in time and those that were developed later.

In Indonesia and contiguous regions of Island Southeast Asia the problems of distinguishing retentions, innovations and borrowings in sailing technology are particularly acute. There, the local sailing traditions of Austronesian-speaking communities have not only diversified and influenced one another but have been exposed to numerous alien traditions coming from mainland Asia. Horridge acknowledges this point:

The Malayo-Polynesians diversified as they spread, and from them are descended the specialized boat-building and boat-loving maritime groups of Indonesia, namely the Bajau

or Sea Gypsies, the Buginese from the Gulf of Bone, the Makassarese, the Mandar people from West Sulawesi, and the Butungese from South-east Sulawesi, and the Madurese...[and] the fishermen of the islands of Bawean, Masalembu and Sepudi in the Java Sea, the traders of Bonerate and Pulau Palu'e in the Flores Sea, the whalers of Lamalerap on Lomblen in the Timor Straits, the men of Luang in the Barat Daya Islands, and the numerous Buginese colonies which control a wide network of trade in miscellaneous goods. All these very diverse groups have inherited the Malayo-Polynesian seafaring tradition, and methods of building outrigger canoes *which over the past two millenia have been mixed with traditions from the Indian Ocean and the West to give the modern hotch-potch of boat and canoe styles.* (pp.3-4) [our italics: AP & MP.]

Horridge's remarks remind us that the testimony of central Pacific cultures is likely to be crucial in reconstructing early Austronesian sailing technology. The relative isolation of the peoples of the more remote Pacific islands may have allowed some of them to continue the early Austronesian sailing culture with fewer changes than most peoples in Island Southeast Asia.

A problem arises when students of comparative technology dabble in comparative linguistics without underpinning them by the careful studies of sound correspondences and subgroupings needed to distinguish between cognates, accidental resemblances and borrowings or to determine the relative chronology of linguistic innovations. The results of such dabbings will be largely worthless. Haddon and Hornell's (Haddon 1937, Haddon & Hornell 1938, Hornell 1936) admirable survey, *Canoes of Oceania*, is marred by a number of fanciful historical speculations which rest in part on naive readings of linguistic similarities. To a much larger extent, however, their fanciful historical inferences rest on a diffusionist interpretation of the comparative material culture, uninformed by systematic study of comparative vocabulary or by archaeological evidence.

1.3 The Genetic Comparative Method

There is a means of escape from the limitations of comparative typology. It is the special virtue of the comparative or genetic method of historical linguistics that it can, in principle, (a) define genetic continuity in certain parts of the vocabulary of each language in a language family, distinguishing resemblances due to common origin from resemblances due to borrowing, and (b) assign a relative chronology to innovations occurring within the languages of a linguistic family.⁵

However, linguists need not feel unduly smug about the genetic comparative method. It applies only to a restricted part of each language-culture system, namely the stock of morphemes that have cognates in genetically related languages. Often it happens that linguistics is silent in the face of competing hypotheses derived from comparative technology, say, about techniques of manufacture, because no distinctive terms can be reconstructed for the technological

⁵ It should be stressed that the genetic comparative method is not a discovery procedure that automatically yields correct interpretations of linguistic comparisons. There are invariably ambiguities in the evidence that require choice between two or more hypotheses. The method works best when (a) the number of putative cognate sets is large, (b) the witnesses (languages compared) have had little or no contact for a long time, (c) the number of such independent witnesses in the family is large, (d) the witnesses at each level fall into more than two subgroups.

elements in question. And while the genetic method often allows us to make strong inferences about the *presence* of some things in a reconstructed language-culture system, it does not tell us what was *absent*. That is to say, our inability to reconstruct a term for a particular element in protolanguage L is not conclusive proof that speakers of L lacked a term for that element. Within these limitations, the genetic comparative method remains a powerful tool.

1.4 Lexical sources

Many previous publications isolate Austronesian cognate sets referring to canoe parts and seafaring. However, works compiled by linguists only list such cognate sets as isolated items within a larger body of semantically unordered material. This chapter draws together published comparisons and extends them. Sources giving relevant cognate sets or sound correspondences relevant to determining cognation include Bender et al (1983), Biggs (1978, 1993),⁶ Blust (1970, 1972b, 1976a, 1978a, 1978b, 1980b, 1983–84a, 1986, 1989), Clark (1994), Collins (1983), Dahl (1973), Dempwolff (1938), Ferrell (1969), Geraghty (1983), Jackson (1983), Milke (1961, 1968), Pallesen (1985), Pawley (1972), Reid (1971), Ross (1988), Sneddon (1984) and Tryon (1976). We have also consulted dictionaries of many contemporary languages.

1.5 Organisation of reconstructions and cognate sets

Some fifty cognate sets will be discussed. These are ordered by semantic domains, such as type of vessel, beginning with types of vessels and hull construction and going on to outrigger structure, superstructure, sail and rigging, accessories, launching, beaching and anchoring and ending with terms for seafaring and seafarers.

Each reconstructed word or etymon is attributed to a certain level of the Austronesian family tree, the highest level justified by the distribution of the cognate set across subgroups. Below it are listed the cognates from contemporary languages. These are ordered according to subgroup, usually proceeding roughly in a west to east direction, e.g. Western Malayo-Polynesian cognates precede CMP cognates which in turn precede Eastern Malayo-Polynesian cognates. As well as giving the highest-level reconstruction we often give intermediate-level reconstructions for named interstages, especially when the the interstage reconstruction differs significantly in form or meaning from the highest-order reconstruction. When listing cognates we occasionally acknowledge sources when the evidence comes from Haddon (1937), Hornell (1936) or Haddon and Hornell (1938) or a source other than a published dictionary.

2 Types of vessel and hull construction

2.1 Types of vessel

Haddon and Hornell (1938:70–72) referred to ten or so putative cognate sets having the general sense of ‘canoe’ or ‘boat’ that go back to an early stage or stages of Austronesian. While early Austronesian speakers probably had several different named types of craft, most of Haddon and Hornell’s etymologies are false. Only one of their putative cognate sets can be

⁶ The version of POLLEX (= Biggs 1993) used here, in fact, dates from 1990.

attributed to an early Austronesian interstage—that pointing to PCEMP **waŋka*, POc **waga*.

POc **waga* (phonetically [wáŋga] with [ŋg] being a single phoneme) is widely reflected within Oceanic as a general term for a canoe or boat with a hull, as opposed to a raft. In many Oceanic languages, however, the reflex of **waga* refers chiefly to large sailing canoes and other large vessels, in contrast to dugout canoes and small outrigger canoes. This range of meanings, taken together with the cognate set under PMP **katiR*, suggests that **waga* may have had two senses in POc.

PCEMP **waŋka* ‘outrigger canoe’

CMP:	Buru	<i>waga</i>	‘boat, canoe’
CMP:	Komodo	<i>waŋka</i>	‘boat, canoe’
CMP:	Manggarai	<i>waŋka</i>	‘canoe’
IJ:	Mor	<i>waʔa</i>	‘canoe’
IJ:	Dusner	<i>wak</i>	‘canoe’
IJ:	Numfor	<i>wa(i)</i>	‘outrigger canoe’
IJ:	Waropen	<i>wa</i>	‘boat, canoe’

POc **waga* (1) ‘large sailing canoe’; (2) ‘canoe (generic)’

Adm:	Wuvulu	<i>wa</i>	‘canoe’
Adm:	Seimat	<i>wa</i>	‘canoe’
NNG:	Gedaged	<i>wag</i>	‘large canoe that goes out on the high seas, has one or two masts and a large platform, ship or boat’
NNG:	Gitua	<i>wanga</i>	‘canoe’
NNG:	Yabem	<i>waŋ</i>	‘canoe, boat, ship’
PT:	Dobu	<i>waga</i>	‘sailing canoe’
PT:	Molima	<i>waga</i>	‘canoe in general’
PT:	Kilivila	<i>waga</i>	‘generic term for all kinds of sailing craft’
PT:	Wedau	<i>waga</i>	‘large canoe’
NCV:	Mota	<i>aka</i>	‘canoe’
		<i>aka (paspasau)</i>	‘canoe with plank sides’
NCal:	Nyelâyü	<i>wanga-n</i>	‘his canoe’
NCal:	Xârâcùù	<i>kwā</i>	‘canoe’
Mic:	Kiribatese	<i>wā</i>	‘canoe’
Mic:	Marshallese	<i>wa</i>	‘canoe’
Mic:	Puluwat	<i>wā</i>	(1) ‘canoe, vehicle of any kind’; (2) ‘container, people in a canoe’
		<i>wā(herak)</i>	‘large sailing canoe able to face the high seas’
Mic:	Trukese	<i>wā</i>	‘canoe, boat, vehicle’
Mic:	Woleaian	<i>wa</i>	‘generic for all canoes’
Fij:	Bauan	<i>waga</i>	‘generic for boats (traditionally canoes) of all kinds’
Pn:	Tongan	<i>vaka</i>	‘boat (generic)’
Pn:	Samoa	<i>vaʔa</i>	‘boat (generic)’
		<i>vaʔa (folau)</i>	‘sailing boat (for long voyages)’
Pn:	Tokelauan	<i>vaka</i>	‘canoe, craft, boat’
Pn:	Tikopia	<i>vaka</i>	‘canoe (generic)’
		<i>vaka (tapu)</i>	‘consecrated voyaging canoe’
Pn:	Hawaiian	<i>waʔa</i>	‘canoe’

The primary sense of POc **waga* was perhaps ‘large sailing canoe’ in contrast to paddling canoes (dugouts and small outrigger canoes). This sense is widely reflected across subgroups of Oceanic. As the name of the largest and most prestigious type, **waga* would have been a natural choice as a generic term for all types of canoe and in a number of languages the generic sense has become primary. An example is from Kilivila, the language of the Kiriwina people of the Trobriand Islands (reported by Haddon (1937:267–269), based on Malinowski (1922) and correspondence with Malinowski). In Kiriwina there are four named types of canoes. The *kewoʔu* is a simple dugout with outrigger, used in the lagoon. The *kalipoulo*, a fishing canoe, is a larger dugout with several designs. These have in common a hull built up with a washstrake on each side, and transverse carved and painted breakwaters, and the hull usually has pointed ends, carved and painted. There is often a platform over the booms. The sail is a lateen. The *masawa* is a large trading canoe, similarly constructed to the *kalipoulo* but with two clinker-built washstrakes on each side and twenty or more booms covered by a continuous platform. It carries a large, elongated steering oar worked by two men. The *nagega* is larger and more seaworthy than the *masawa*, with higher sides and more carrying capacity and a central standing mast, as opposed to a leaning mast stepped within the hull and shored by a prop. The generic term for all these craft is *waga*. In another part of Papua, around Samarai, Abel (1902:62) reports that *vaga* is the generic for all kinds of sailing canoes, but evidently excluded canoes without outriggers or sails.

Cognates belonging to the set above are sometimes placed together with forms listed below:

WMP: Malay	<i>waŋkaŋ</i>	‘Chinese junk’
WMP: Javanese	<i>waŋkaŋ</i>	‘Chinese junk’
WMP: Ngaju Dayak	<i>waŋkaŋ</i>	‘Chinese junk’

and:

PAn **ba(ŋ)ka(q)ʔ* ‘outrigger canoe, dugout canoe’

Fma: Kuvalan	<i>baŋka</i>	‘canoe’ ⁷
WMP: Aklanon	<i>baŋca</i>	‘canoe’
WMP: Balangaw	<i>baŋka</i>	‘canoe’
WMP: Cebuano	<i>baŋkaʔ</i>	‘one-piece dugout between 5 and 15 metres, optionally with one or two masts and outrigger’
WMP: Ilongot	<i>baŋka</i>	‘canoe’
WMP: Tagalog	<i>baŋkaʔ</i>	‘canoe’
WMP: Tausug	<i>baŋkaq</i>	‘dugout canoe (without outrigger)’
WMP: Laiyolo	<i>biŋka</i>	‘canoe, boat’
WMP: Tolaki	<i>baŋga</i>	‘canoe’

PCEMP **ba(ŋ)ka* ‘canoe’

CMP: Larike	<i>haka</i>
CMP: S. Nuauulu	<i>haka</i>
CMP: Kola	<i>boka</i>

POc **paka* ‘ship’

MM: Roviana	<i>vaka</i>
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⁷ Obsolete term, cited by Ferrell (1969:42, 247); the only reported cognate in a Formosan witness.

SES:	Gela	<i>vaka</i>	'foreign vessel, European ship'
SES:	Sa'a	<i>haka</i>	

Although the forms in the above two sets show a striking resemblance to POc **waga*, they are not demonstrably cognate. In the first set, initial *w-* is irregular, suggesting that these are borrowed words, though the source of the borrowing is unclear (Alexander Adelaar, pers.comm.). In the second set, the uncharacteristic occurrence of the cluster *ŋk* in the Philippine and Formosan forms suggests borrowing from a Malayo-Javanic or Sulawesi source (Lawrence Reid, pers.comm.). Tagalog and Cebuano *b* are not the regular reflexes of PMP **w*. At present, most of the few coastal Austronesian-speaking communities left on Taiwan proper use large bamboo sailing rafts for fishing. However, there is evidence that in the nineteenth century other kinds of craft including double outriggers were in use. Scott (1982:337) cites an eighteenth century Chinese observer, Huang Shi-ching, describing a built-up dugout canoe called a *manka* [or *banka*] as follows:

A *manka* is a single tree trunk hollowed out, with wooden planks fastened on both sides with rattans; since they have no putty for caulking and water easily enters, the barbarians keep baling with a ladle.

It is likely (Mark Donohue, pers.comm.) that the Chinese characters in question are from the Hokkien dialect and should be read as *banka*, not *manka* as reported by Scott. The form **ba(ŋ)ka* is however reflected both in CMP and Oceanic, and must be attributed to their common ancestor, which Blust (1993) labels PCEMP.

The next term is reconstructable as far back as PMP. But note the disagreement between WMP and Oceanic witnesses as to its meaning.

PMP **katiR* ? '(small) outrigger canoe or canoe hull'

PWMP **katiR* 'outrigger float'

WMP: Malay *katir*

WMP: Madurese *kater*

WMP: Sundanese *katir*

WMP: Maranao *katig*

WMP: Tausug *katig*

WMP: Cebuano *katig*

(N) 'float of the outrigger'; (V) 'provide a boat with outrigger'

WMP: Sasak *katir* 'carry between two persons'

POc **kati(R)* '(small) outrigger canoe or canoe hull'

NNG: Manam *kati* 'outrigger canoe'

NNG: Kairiru *qat* 'outrigger canoe'

NNG: Tuam *kat* 'canoe platform'

PT: Motu *asi* (1) 'hull of large multi-hulled canoe (finished more roughly than single-hulled canoe)'; (2) 'large canoe'

asi-asi 'temporary small double canoe'

PT: Sinaugoro *gasi* 'outrigger canoe'

PT: Roro *ahi* 'canoe, hull'

MM: Lavongai *kati* 'large outrigger canoe 50 or more feet in length' (Haddon 1937:141)

Although the WMP cognates denote ‘outrigger float’, there is a much stronger candidate for that meaning in PMP, namely **(c,s)a(R)man* (§4.1). Therefore we conclude that **katiR* is unlikely to have meant ‘outrigger float’ in PMP and that the WMP cognates probably show semantic change. In Oceanic, reflexes of **katiR* are confined to Western Oceanic but are widely dispersed within that large group. The Western Oceanic comparisons strongly point to an earlier meaning such as ‘canoe hull’ or ‘small outrigger canoe’.

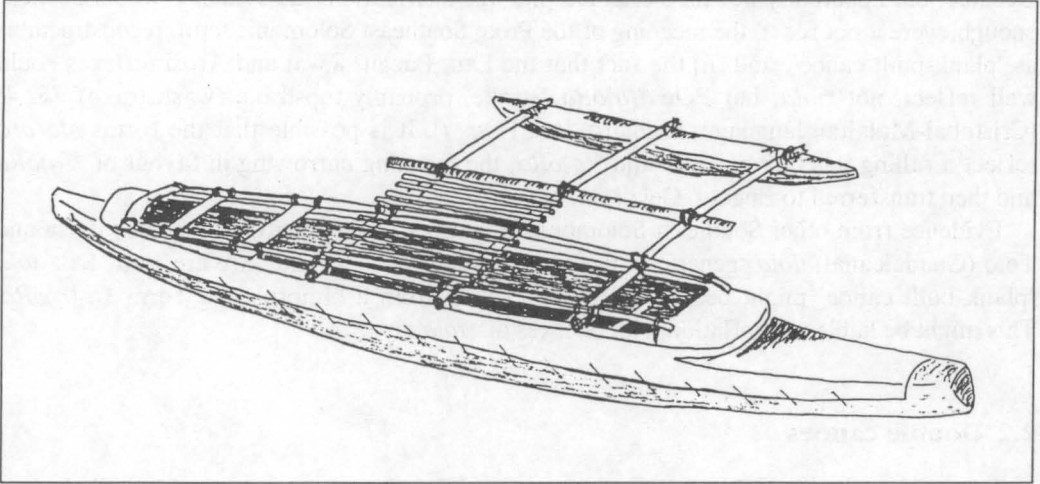


Figure 24: POc **waga* ‘canoe’ (after Koch n.d.:147)

POc **kati(R)* ‘(small) outrigger canoe or canoe hull’, POc **(q)oRa* ‘topstrake’, POc **soka(r)* ‘thwart’, POc **muri-* ‘stern’, POc **muqa-* ‘front, bow’, POc **patar* ‘platform, decking’, POc **saman* ‘outrigger float’, POc **kiajo* ‘outrigger boom’, POc **patoto* ‘connective sticks attaching float’

If POc **kati(R)* referred to a small outrigger canoe, then the following set may reflect a term for a large outrigger canoe (perhaps synonymous with **waga* in its narrower sense):

POc **tola* ‘large canoe’ (?)

Proto Eastern Admiralty **n-tol(V)* ‘large canoe’

Adm: Titan	<i>drol</i>	
Adm: Koro	<i>dual</i>	
Adm: Nali	<i>droi</i>	
Adm: Lele	<i>dol</i>	
Adm: Ere	<i>drual</i>	
Adm: Bohuai	<i>coal</i>	
Adm: Mondropolon	<i>col</i>	
Adm: Drehet	<i>kxoj</i>	‘canoe, boat’
Adm: Ponam	<i>hol</i>	
Adm: Loniū	<i>ton</i>	

Proto Southeast Solomonian **tola* ‘plank-built canoe’

SES: Bugotu	<i>tola</i>	
SES: Gela	<i>tola</i>	‘plank-built canoe with both ends turned up not very high’ (Haddon 1937:100)

SES:	Lau	<i>ola</i>	'plank-built canoe (built up from a plank centre keel, with bow and stern keels), with no outrigger'
SES:	Baegu	<i>ola</i>	'canoe'
SES:	Kwai	<i>ola</i>	'canoe'
SES:	Arosi	<i>ora</i>	

Evidence for the reconstruction occurs in two geographically separated primary subgroups of Oceanic, but apparently nowhere else. Despite this distribution, the evidence would be clear enough, were it not for (i) the meaning of the Proto Southeast Solomonian term, reconstructable as 'plank-built canoe', and (ii) the fact that the Lau, Baegu, Kwai and Arosi reflexes could well reflect, not **tola*, but POc **(q)oRa* 'strake, probably topstrake (washstrake)' (§2.4) (Cristobal-Malaitan languages regularly lose POc **t*). It is possible that the forms *ola/ora* reflect a falling together of **tola* and **(q)oRa*, the meaning narrowing in favour of **(q)oRa* and then transferred to Bugotu, Gela *tola*.

Evidence from other Southeast Solomonian languages further confuses the issue. Gela and Tolo (Guadalcanal) *tiola* 'generic term for plank-built canoes' and 'Are'are *iora*, Sa'a *iola* 'plank-built canoe' might be explained as deriving from a bimorphemic form **ti-(q)oRa*. This might be liable to conflation with reflexes of **tola* also.

2.2 Double canoes

It has been suggested (Roger Green, pers.comm.) that the ocean-going double-hulled canoe was an innovation of Oceanic speakers. He argues that it was large double canoes, stable and able to carry big loads while being sailed with traditional rig, that were the key to the transport of people, crops and domestic animals to the far-flung islands of Remote Oceania (the Pacific islands east and north of the New Guinea area, the Bismarck Archipelago and the main Solomon Islands chain).⁸ The design of double canoes varied in some details from place to place but the main structure consisted of two dugout hulls, placed parallel and usually one to two metres apart, joined by booms, with a platform built amidships. In the most efficient craft, represented by the Fijian *drua*, one hull was slightly smaller than the other. At the time of first European contact such craft were almost wholly confined to Remote Oceania, being present in New Caledonia and Fiji, in many parts of Polynesia and in a restricted region of the central Caroline Islands. In western Melanesia double canoes were made by the Mailu, of south-east coast Papua. The Mailu speak a non-Austronesian language but many of their canoe terms (and other parts of their vocabulary) are from Austronesian; it seems likely that the population of the Mailu area was once largely Austronesian-speaking. The Motu *layatoi*, a multi-hulled craft, can be derived from the double canoe.

No term for double canoe can safely be reconstructed for any very early Austronesian interstage. However, a number of Oceanic languages reflect the following form:

PEOc **paqurua* 'double canoe'

SES:	Lau	<i>foorua</i>	'outrigger canoe'
Mic:	Kiribatese	<i>baurua</i>	'large single outrigger voyaging canoe' ⁹
Fij:	Rotuman	<i>foulua</i>	'ship' (probably a Pn borrowing)

⁸ See Pawley and Green (1973), Green (1991b) for the terms 'Near Oceania' and 'Remote Oceania'.

⁹ *b* for expected *p*, possibly borrowed from a Polynesian source.

PPn **faʔurua* 'double canoe'

Pn: Niuean *faulua, foulua* 'ship'
 Pn: Rennellese *haʔugua* 'the double canoe in which the ancestor *Kaituʔu* sailed when he discovered Rennell and Bellona'

Pn: Tuvalu *foulua*¹⁰
 Pn: Maori *hourua*

cf. also:

Fij: Bauan *drua, waga drua* 'ocean-going double canoe'
 Pn: Samoan *fau-tasi* 'large whaleboat' (possibly a nineteenth century coinage)

Pn: Manihiki *waka tau-rua* 'double canoe'
 Pn: Hawaiian *waʔa kau-lua* 'double canoe' (vs *waʔa kau-kasi* 'single-hulled canoe')

PEOc **paqurua* is a compound formed from POc **paqu(s)* 'bind, lash; construct by tying together' (Ch. 9, §10) and **rua* 'two'. While it is possible that Lau *foorua* is borrowed from a Polynesian language, the details of form do not support this notion. Lau has the independent bases *foo* 'bind' and *rua* 'two'. Haddon (1937:77) reports Kinilaulau (Carteret Islands) *haulau, holua* 'outrigger canoe', but this term is probably borrowed from a Polynesian language believed to have been formerly spoken on the island or from nearby Takuu.

Friederici (1928:31) suggests that the double canoe of Oceania (or at least the type with smaller and finer-pointed port hull) originated from a canoe with a single outrigger, on the grounds that (a) in the double canoes of Polynesia and Fiji one of the two hulls is usually smaller, the smaller hull being called by the term for the outrigger float (e.g. *hama* in Tongan), and (b) the connecting poles between the hulls are also called by the word for the outrigger booms (*kiato* in Tongan). On the other hand, Haddon and Hornell (1938:43) argue that the most likely origin of the double canoe is from two dugouts lashed together or a short distance apart. They also note the possibility that the single outrigger canoe may ultimately be derived from the double canoe by reducing the port hull to form a float. As the smaller hull and the float and the connecting poles serve the same purpose in both types of vessels, the extension of terms seen in Tongan *hama* and *kiato* is natural. On logical grounds alone it is hard to choose between these historical interpretations. And in this case the linguistic evidence is relatively unhelpful.

Numerous other reconstructions, attributable to interstages lower than PMP or POc, can be made for types of craft. For example, the following doublets (distinct words coexisting in a language whose similar form and meaning suggest they ultimately trace back to the same source) can be reconstructed:

PWMP **padaw* 'kind of sailboat' (Blust 1983–84a:90)

WMP: Maranao *padao* 'sailboat'
 WMP: Malay *layar padau* 'storm sail'
 WMP: Cebuano *paraw* 'schooner, galleon'

PWMP **paraSu* 'boat' (Dempwolff 1938)

WMP: Toba Batak *parau*

¹⁰ Obsolete (Hornell 1936:302).

WMP: Javanese	<i>perau</i>
WMP: Malay	<i>perau</i>
WMP: Ngaju Dayak	<i>parau</i>

These forms have sometimes been compared with Oceanic forms represented by Tongan *folau* 'voyage, travel by sea', Fijian *volau* 'boat shed' (cf. **pa-laSud*, §9.2).

A PPN reconstruction for a small canoe used close to shore is well supported:

PPN **paopao* 'small outrigger or dugout canoe for inshore use'

Pn: Tongan	<i>pōpao</i>	'roughly made dugout canoe with two boom outrigger'
Pn: Samoan	<i>paopao</i>	'small outrigger canoe with two booms'
Pn: Tikopia	<i>paopao</i>	(1) 'craft made from log simply hollowed out, not built up'; (2) canoe, sea-going but not sacralised, in contrast to <i>vaka tapu</i> '
Pn: Nukuoro	<i>paopao</i>	'double-ended single outrigger with two booms'

A possible cognate occurs in a single Western Oceanic language, Mekeo of the Central Province of Papua. East Mekeo has *papao* (dialect *fafao*) 'small canoe for children, also used as a trough for feeding pigs'. Reduction of the first vowel cluster of a reduplicated word is characteristic of Mekeo (Alan Jones, pers.comm.). This comparison points to POC **paopao* 'small outrigger canoe', though it needs strengthening by further cognates beyond Polynesian.

Blust (1986:33) reconstructs the term **dakit*, noting a number of reflexes within the WMP region and a regular reflex in one Oceanic language, Motu. To these may be added many other Philippine and Northern Sulawesi reflexes (given in Reid 1971) and possible reflexes in CMP and Western Oceanic.

PMP **dakit* (N) 'raft'; (V) 'join along the length' (Blust 1986)

WMP: Aklanon	<i>gākit</i>	'raft'
WMP: Gaddang	<i>gakit</i>	'raft'
WMP: Isneg	<i>gākit</i>	'raft'
WMP: Ivatan	<i>dākit</i>	'raft'
WMP: Kankanay	<i>lakit</i>	'raft'
WMP: Malay	<i>rakit</i>	'raft'
WMP: Sangir	<i>hakiq</i>	'raft'
WMP: Sundanese	<i>rakit</i>	'raft'
WMP: Wolio	<i>rakii</i>	(V) 'join along the length'
WMP: Balangaw	<i>dakit</i>	'put very close'
WMP: Sika	<i>dakit (wii)</i>	'(earth, flour, resin) cleave, stick together'
WMP: Maloh	<i>da?it</i>	'raft'
	<i>dakit</i>	'join along the length'
CMP: Taliabo	<i>(ka)haŋki?</i>	'raft' (Charles Grimes, pers.comm.)

POC **raki(t)* ?raft; join outrigger, join two hulls'

PT: Motu	<i>rai</i>	'prepare a canoe for the sea; tie the outrigger on; tie two canoes to make an <i>irai</i> (double-hulled canoe)'
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Chowning (1985:59) gives the following as possible cognates, although the final vowel is problematic:

NNG: Kove	<i>laye</i>	'raft'
MM: Nakanai	<i>lage</i>	'raft'

2.3 Hull construction

In pre-European times three basic hull designs were found in Austronesian-speaking communities: (a) a dugout built from a single log; (b) a five-part canoe, composed of dug-out hull, with the sides raised by sewing one side piece or strake to each side, with forked, crutch-shaped pieces at each end; and (c) a built-up canoe, in which a number of planks or strakes are added to a keel. The keel may consist of a thick plank or a dugout underbody (or sometimes two or even three dugouts joined).

Ethnologists have argued on logical grounds that types (b) and (c) developed from the dugout prototype. In his account of Philippine boat-building in the sixteenth and seventeenth centuries, Scott (1982:337–338) sketches a theory of the evolution of the hull of Philippine boats:

In the ship-building technique [developed in China and Europe in the Middle Ages]...a rigid framework of keel and ribs is first constructed...and the wooden planking of the hull then nailed to it with metal spikes or wooden trenails. The older technique was to build the hull first, plank by plank carved to fit, and to fasten the ribs in afterwards. This technique is probably a natural development of the one-log dugout canoe by adding one board to each side to obtain higher freeboard.

By increasing the number of such additional planks, a fully developed boat or ship is produced. But as the sides of the canoe, or banca, are thinned, some transverse strengthening is required, and this can be provided by running strut-like thwarts across the vessel, securing them to the sides without nails by means of tambukos [lugs] and lashing. For this purpose a flexible rib can be pressed down across all of them and lashed securely to the matching tambukos carved on each plank. Finally a combination of such thwarts and ribs lashed together...produces a sturdy vessel whose hull and other structural parts are held firm under prestressed tension.

The question arises as to whether any or all of these features of hull design are attested in the vocabulary of PMP and other interstages.

2.4 Planking

The comparisons below and in §2.5 point to the use by speakers of PMP and its immediate descendants, of boats built up by planking and strengthened by thwarts:

PMP **papan* 'plank (of boat +), strake'

WMP: Malay	<i>papan</i>	
WMP: Madurese	<i>papan</i>	(Horridge)
WMP: Bajau	<i>papan</i>	(Horridge)
WMP: Buginese	<i>papan</i>	(Horridge)
CMP: Buru	<i>papa-n</i>	

POc **baban*, **bapan* (1) 'plank'; (2) 'canoe plank or strake'

PT: Molima	<i>baba</i>	(1) 'lower plank on canoe'; (2) 'put plank on canoe'
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PT:	Wedau	<i>papana</i>	'built-up canoe'
SES:	Lau	<i>baba</i>	'long side board of canoe'
SES:	Sa'a	<i>hapa</i>	(1) 'plank'; (2) 'thwart of canoe'
SES:	Bugotu	<i>pava</i>	'plank'
Mic:	Kosraean	<i>pæp</i>	'sides of canoe'
Mic:	Puluwat	<i>pāp</i>	'board; canoe planks'
Mic:	Trukese	<i>pape-n (wā)</i>	'canoe strake' (<i>pape-</i> 'plank', <i>-n</i> 'construct suffix', <i>wā</i> 'canoe')
Fij:	Bauan	<i>bava</i>	'washstrake or upper planks of canoe'
		<i>baba</i>	'side planks of canoe'
Pn:	Tongan	<i>papa</i>	'board, flat, hard surface'
Pn:	Hawaiian	<i>papa</i>	'flat, hard surface, board'

PMP **papan* evidently referred to any plank or board (see Ch. 3, §3.5). It might be argued that this term could have been independently applied to canoe strakes or planks by different daughter languages after the break-up of PMP. However, the fact that in diverse Malayo-Polynesian languages reflexes of **papan* are consistently used of canoe planks, even in cases when another general word for plank or board has developed, is a fairly strong indication that this application goes back to PMP times.

POc **(q)oRa* 'strake, probably topstrake (washstrake)'

MM:	Mono-Alu	<i>ora</i>	'median strake at each end, above keel strakes on a canoe with dugout underbody'
Pn:	Niuean	<i>oa</i>	'washstrake, grooved and drilled for lashing to the hull'
Pn:	Samoaan	<i>oa</i>	'gunwale and gunwale flange'
Pn:	Pukapukan	<i>oa</i>	'washstrake'
Pn:	Rarotongan	<i>oa</i>	'sideplank or planks of a canoe, lashed to the main body; the gunwale or seaboard of a canoe'
Pn:	Tokelauan	<i>oa</i>	'gunwale'
Pn:	Tikopia	<i>oa</i>	'top strake, gunwale'
Pn:	Maori	<i>oa</i>	'side boards of a canoe'

Possible cognates of **(q)oRa* occur in Cristobal-Malaitan languages of the Southeast Solomonic family: Arosi *ora*, Lau *ola* 'plank-built canoe (built up from a plank centre keel, with bow and stern keels), with no outrigger'. As noted in §2.1, however, their interpretation is difficult, as they could also reflect POc **tola* 'large canoe'.

The question of how planks were joined is connected to the question of whether early Austronesian communities used stone or metal tools, as the following remarks by Scott (1982:338–339) make clear:

Historically there are two methods by which the planks in [Philippine] plank-built boats are fastened together — sewing and edge-pegging. Sewing — or, better said, lacing — the boards together is done by drilling a matching row of holes through the two boards near their adjoining edges, and running rattan strips through them in the manner of lacing up a shoe or basketball. This is the older technique and it can be performed with even a simple stone or bone drill, as was still being done in remote Pacific islands...Stone tools are probably inadequate for drilling deep holes in the thin edges of boards, and it is therefore

not surprising that edge-pegging does not appear in those distant Pacific islands whose inhabitants presumably migrated there without metal.

We can reconstruct PMP **kiRam* ‘adze/axe’ and **taRaqi* (v) ‘adze, carve’ (Ch. 4, §4.1.1), with reflexes in Oceanic as well as in WMP witnesses, but there are no secure PMP or POc reconstructions for other equipment likely to have been used in boat-building.¹¹ The current consensus among archaeologists is that the introduction of metal in eastern Asia postdated the break-up of PAn and PMP. Although Blust (1976b) has pointed to comparisons between Formosan and WMP forms suggesting that PAn speakers may have had a knowledge of metal tools, it is likely that this knowledge spread after the break-up of PAn and PMP.

2.5 Thwart, cross-seat

PMP **seŋkar* ‘cross-seat in boat, thwart’ (after Blust 1972b)

WMP: Iban *seŋka*

WMP: Malay *seŋkar*

WMP: Tagalog *saŋkal*

POc **soka(r)* (1) ‘thwart’; (2) ‘bracing timber, crossbeam’ (cf. Ch. 3, §3.4)

Mic: Kiribatese *oka* ‘rafter of house going from horizontal beam to ridgepole’

Fij: Bauan *soka* ‘thwart’
(i)ðoka ‘collar-beam in house’ (i- < POc **i-* INS)

Pn: Tongan *hoka* ‘upright timber supporting ridgepole’

Pn: Samoan *soʔa* ‘collar beam of house’

2.6 Underbody, keel

There is no well-supported PMP reconstruction for ‘dugout underbody of canoe (to which planking is added)’ or for ‘keel of built-up canoe’ although **ba(ŋ)ka(q)* (§2.1) is a candidate for the former. Such a term is, however, clearly reconstructable for PCP:

PCP **takele* ‘keel or dugout underbody to which planking is added’

Fij: Wayan *takele*

Fij: Bauan (i)takele (i- < POc **i-* INS)

Pn: Tongan *takele*

Pn: Samoan *taʔele*

Pn: Tikopia *takele* ‘bottom of container, bilge of a canoe hull’

Pn: Rarotongan *takele* ‘dugout underbody when washstrakes are present’

Pn: Maori *takele*

Pn: Hawaiian *kaʔele* ‘canoe hull; inside bottom of a container’

¹¹ The fruit of the putty nut (*Parinarium laurinum*) is widely used to caulk or stop a vessel. In Proto Huon Gulf an identical term is reconstructable both for the nut and the glue that is made from it: Proto Huon Gulf **jimiR* ‘putty nut, caulking substance’ (Ross 1988:79); Tami *jim* ‘caulking substance’; Tuam *zimir* ‘caulk’; Numbami *dimil-a* ‘caulk’. The following set is of uncertain relation to **jimiR*: POc **jema* ‘caulk’ (Milke 1968); Motudema-ia ‘caulk’; E. Fijian *sema* ‘splice, join, patch’, *sema-ta* ‘to splice, join, patch s.t.’

2.7 Bilge, interior of hull

A PPn term for ‘bilge, interior of hull’ is well supported but cognates have not been noted elsewhere. In some Polynesian languages the same term refers to the interior of any container, such as a cup or basket.

PPn **liu* ‘bilge, interior of hull’

Pn:	Tongan	<i>liu</i>	‘bilge’
Pn:	Niuean	<i>liu</i>	‘inside of a cup, canoe’
Pn:	Samoaan	<i>liu</i>	‘bilge water’
Pn:	Rennellese	<i>giu</i>	‘bilge, interior of basket, bowl +’
Pn:	Tikopia	<i>riu</i>	‘inside of a container; bilge of a canoe’
Pn:	Maori	<i>riu</i>	‘bilge, valley, basin’

2.8 Bow and stern

Two well-attested POC locative nouns having the general sense of ‘rear, back part’, and ‘front, front part’, respectively, are reconstructable also with the specialised senses ‘stern’ and ‘bow’. The first of these terms goes back at least to PMP.

POc **muri-* ‘rear, stern’

Adm:	Mussau	<i>muri</i>	‘stern’
NNG:	Gedaged	<i>muzi-n</i>	‘rear, stern’
MM:	Nakanai	<i>mori</i>	‘stern’
MM:	Vitu	<i>muri</i>	‘stern’
SES:	Ghari	<i>muri-na</i>	‘stern of a boat, hindquarters’
SES:	Lau	<i>huri</i>	‘stern, rear’
SES:	Sa’a	<i>puri</i>	‘stern’

See also PPn **tau-muri* ‘afterdeck’ (§2.10)

POc **muqa-* ‘front, bow of boat’

Adm:	Mussau	<i>mua</i>	‘bow’
NNG:	Gedaged	<i>muga(η)</i>	‘front part, bow of boat’ ¹²
MM:	Roviana	<i>(ke)mua</i>	‘bow’
Fij:	Bauan	<i>mua</i>	‘tip, point, front’
		<i>mua (e liu)</i>	‘prow of boat’
Pn:	Tongan	<i>(tau-)mu?a</i>	(V) ‘steer for s.t.’; (N) (1) ‘prow’; (2) ‘aim, goal’
Pn:	Samoaan	<i>(tau-)mua</i>	‘bows of boats’

See also PPn **tau-mu?a* ‘foredeck’ (§2.10).

¹² Gedaged *g* for expected zero.

2.9 Carved projecting end-pieces

In many regions of Oceania larger canoes are constructed with a projecting headboard, part of it resting on the underbody abutting the washstrake, the rest sometimes extending several feet beyond. The end of such headboards usually consists of an elaborately carved figurehead, often a human or animal head or figure. There is a corresponding carved end-board at the stern, often standing more or less vertical. Such carved end-pieces are common, for example, in eastern Polynesia, the Solomon Islands, the Massim, the north coast of New Guinea and the Bismarck Archipelago. A POc reconstruction can be made for the name of the headboard:

POc **ijun* ‘projecting headboard of prow, often with ornately carved figurehead’

Adm:	Mussau	<i>uru(gila)</i>	‘beaklike projection on bow, in shape of bird’
MM:	New Georgia language (unspecified) (Haddon 1937:104, 106)		
		<i>(toto)ishu</i>	‘figurehead on canoe prow’
SES:	Sa’a	<i>?isu</i>	‘pieces erected on bow and stern’
SES:	Lau	<i>isu</i>	‘prow’
Pn:	Tikopia	<i>isu (fana)</i>	‘pointed end of canoe’
Pn:	Tongarevan	<i>isu</i>	‘projecting headboard’
Pn:	Manihiki	<i>ihu</i>	‘projecting headboard’
Pn:	Maori	<i>ihu (waka)</i>	‘carved figurehead on prow’ ¹³
Pn:	Tahitian	<i>ihu, ihu (va?a)</i>	‘projecting headboard on prow’
Pn:	Hawaiian	<i>ihu</i>	‘prow’
		<i>(la?au) ihu</i>	‘end-piece at head’ (vs <i>la?au hope</i> ‘end-piece at stern’)

PWOc **nuju* ‘carved prow’

PT:	Iduna	<i>mudu</i>	‘carved prow’
MM:	Roviana	<i>nuzu-nuzu</i>	‘figurehead of a tomoko war canoe’

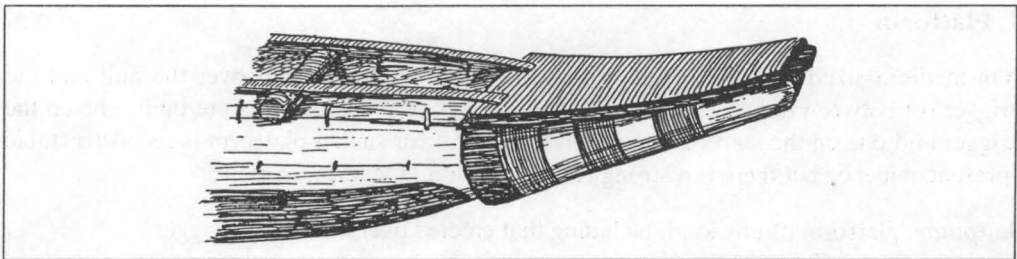


Figure 25: POc **ijun* ‘projecting headboard of prow’ (from Nevermann 1934:285)

The central meaning of POc **ijun* was ‘nose’ and that of **nuju* ‘beak, snout, mouth’. Reflexes of both commonly have the extended sense ‘projecting point’. The conjunction of Southeast Solomonic and Polynesian evidence suggests **ijun* as the more likely POc form carrying the sense ‘projecting headboard’. No widespread cognate set for the sternpiece has been noted.

¹³ Also called *tau ihu* vs *tau rapa* ‘carved ornament on stern’.

2.10 Bow and stern covers, end-decking

While outrigger canoes with simple dugout hull are suitable for inshore sailing, seaworthy canoes require at least 'end-decking', minimally a V-shaped piece covering the bow and stern of the dugout hull. The next comparison points to a PCP term for this piece; PCP **tau* may come from POc **taRu* 'cover up':

PCP **tau* 'end-decking, end-piece covering bow and stern of canoe hull'

Fij:	Rotuman	<i>fau</i>	(V) 'cover'; (N) 'cover'
Fij:	Bauan	<i>tau</i>	'triangular decking covering bow and stern'
Pn:	Tongan	<i>tau(-muʔa)</i>	'bow, foredeck'
Pn:	Samoan	<i>tau</i>	'deck'
		<i>tau(-mua)</i>	'bow, foredeck'
		<i>tau(-muli)</i>	'stern, afterdeck'
Pn:	Nukuria	<i>tau</i>	'bow-board, stern-board'
Pn:	Tikopia	<i>tau(-muli)</i>	'stern'
Pn:	Tokelauan	<i>tau</i>	'point at which the keel meets the curve of the bow or stern'
		<i>tau(-mua)</i>	'bow, forepart of boat'
		<i>tau(-muli)</i>	'stern'
Pn:	Maori	<i>tau(-rapa)</i>	'carved end-piece affixed to stern'
		<i>tau(-ihu)</i>	'carved figurehead affixed to prow'

Rick Jackson (pers.comm.) suggests Proto Trukic **tau* (?) 'thwart, cross-seat in canoe' based on Carolinian, Trukese *sō*, Puluwat *ho* 'thwart'. The above Polynesian comparisons also indicate PPn **tau-muʔa* 'foredeck' and **tau-muri* 'afterdeck'.

3. Superstructure

3.1 Platform

On medium-sized and large canoes a platform is sometimes built over the hull and the outrigger (or between the two hulls on double canoes); or two platforms are built, one on the outrigger and one on the starboard side. No PMP term for such a platform is reconstructable on present evidence but there is a strong candidate for a POc term, namely:

POc **patar* 'platform of any kind, including that erected over hull and outrigger framework' (cf Ch. 3, §3.5)

Adm:	Seimat	<i>paca</i>	'canoe platform' (Haddon)
PT:	Kilivila	<i>pita-patile</i>	'canoe platform'
PT:	Molima	<i>vata-vata</i>	'platform of any kind'
		<i>vata-vatala</i>	'canoe platform'
PT:	Suau (Daui)	<i>pata-patari</i>	'canoe platform of poles stretching across all the booms' (Haddon)
PT:	Motu	<i>pata</i>	'shelf, table'
MM:	Tolai	<i>vatar</i>	'bamboo or board platform on canoe'
SES:	Arosi	<i>hā</i>	'platform'

SES:	'Are'are	<i>hā</i>	'generic name for stage, shelf, small platform above fireplace'
SES:	Tolo	<i>pata</i>	'raft'
NCV:	Raga	<i>bata</i>	'canoe platform' (Haddon)
Fij:	Bauan	<i>vata</i>	'platform, shelf'
Pn:	Rennellese	<i>hata</i>	'platform, canoe platform'
Pn:	Samoaan	<i>fata</i>	'platform (over canoe +)'

3.2 Cabin, deck hut

A deck hut is often added to large outrigger canoes but no widespread cognate set distinctively denoting such a structure has so far been noted. In a number of languages, reflexes of PMP **balay*, POc **pale* 'hut, shed, open-sided house' (Ch. 3, §3.3) are used for a deck hut, for example, Fijian *vale waqa* (lit. 'canoe house'), and *valevale* 'hut' (Hornell 1936:323), and this may also have been the case in POc.

4. Outrigger structure

4.1 Outrigger float, outrigger side of canoe

The meaning 'outrigger float' can be attributed to PMP **(c,s)a(R)man*. This term is well attested in Oceanic and Central/Eastern Malayo-Polynesian, but rare in WMP. In many WMP languages it has been replaced in this meaning by a reflex of **katiR* (§2.1). In Oceanic languages the reflex of POc **saman* also has the sense of 'outrigger side of the canoe' in contrast to **katae* 'free side of canoe' (§4.4).

PMP **(c,s)a(R)man* 'outrigger float'

WMP:	Sangir	<i>saheman</i>	
WMP:	Tonsea	<i>sareman</i>	? 'paddle'
WMP:	Chamorro	<i>sakman</i>	'large canoe from Polynesia or Papua. No outrigger, capable of carrying over 100 people'

WMP: Ambonese Malay

		<i>seman</i>	'wooden strut which supports float'
CMP:	Buru	<i>seman</i>	'wooden strut which supports float'
CMP:	Larike	<i>simanu</i>	'wooden strut which supports float'
CMP:	Kola	<i>ama</i>	'wooden strut which supports float'
CMP:	Dobel	<i>yer?man</i>	'wooden strut which supports float'

POc **saman* 'outrigger float'

Adm:	Wuvulu	<i>tama-ne</i>
Adm:	Seimat	<i>cam</i>
Adm:	Mussau	<i>samana</i>
NNG:	Gedaged	<i>sam</i>

NNG:	Manam	<i>rama</i>	'outrigger' ¹⁴
MM:	Nehan	<i>haman</i>	'boom' (vs <i>niag</i> 'float')
NCV:	Mota	<i>sama</i>	(1) 'outrigger of a canoe'; (2) 'tack, lie on the other tack'
NCV:	Paamese	<i>a-sem</i>	'outrigger'
Mic:	Kiribatese	<i>rama</i>	
Mic:	Marshallese	<i>tam</i>	
Mic:	Puluwat	<i>tām</i>	
Mic:	Trukese	<i>tām</i>	
Fij:	Bauan	<i>ðama</i>	(1) 'outrigger float; (2) 'smaller hull of double canoe'
Pn:	Tongan	<i>hama</i>	(1) 'outrigger'; (2) 'smaller hull of outrigger'
Pn:	Tikopia	<i>ama</i>	'outrigger including float, always on port side'

Oceanic languages of the Papuan Tip subgroup reflect **sarima* rather than **saman* (e.g. Motu *darima*, Suau (Daui) *salima*, Dobu *salime*, Molima *salima*). The **sarima* forms possibly continue PMP **(c,s)a(R)man* with irregular insertion of *i*. A similar insertion occurs in the PMP verbal prefix **paR-*, continued as POC **paRi-*.¹⁵

4.2 Outrigger booms

The outrigger float is connected to the hull by booms, two or three in the case of small canoes but often five or more in larger, ocean-going canoes. A term for 'outrigger boom' can be constructed for POC but not for PMP:

POC **kiajo* 'outrigger boom'

Adm:	Mussau	<i>iaro</i>	
Adm:	Loniu	<i>kiec</i>	
NNG:	Wogeo	<i>kiajo</i>	
NNG:	Manam	<i>kiazo</i>	
NNG:	Gedaged	<i>aia</i>	
NNG:	Yabem	<i>kion</i>	
NNG:	Barim	<i>kiada</i>	
PT:	Kilivila	<i>kiaro</i>	
PT:	Aroma	<i>iaro</i>	'sticks connecting floats to boom' (Haddon)
NCV:	Nguna	<i>kiato</i>	'outrigger boom' (prob. Pn borrowing)
Mic:	Kiribatese	<i>kiaro</i>	
Mic:	Kosraean	<i>kiyes</i>	
Pn:	Tongan	<i>kiato</i>	
Pn:	Rennellese	<i>kiato</i>	
Pn:	Samoa	<i>?iato</i>	

Fijian *i-kaso* 'outrigger boom' (zero for **i* irregular) has sometimes been included in this set, but probably belongs to a separate set, along with such forms as Mota *gaso* 'rafter', Lau *?ato*

¹⁴ Gloss dubious. Probably should be 'outrigger float'.

¹⁵ See Pawley (1973:172).

'rafter', which derive from a well-established etymon PMP **kasaw*, POc **kaso* 'rafter' (Ch. 3, §3.4). However, the comparison with Lau *ato* 'outrigger boom' suggests that POc **kaso* probably had the general meaning 'connecting beam or brace', and as well as denoting crossbeams in a house may have been used as a synonym of **kiajo*.

4.3 Connective sticks attaching float

Three main methods of connecting the outrigger float to the booms can be distinguished: direct attachment, in which all of the booms are curved and lashed directly to the outrigger; indirect attachment, in which all of the booms are lashed to sticks that are implanted in or lashed to the float; and mixed attachment, in which some booms are attached directly and others indirectly. A great diversity of methods of indirect attachment is found.

A POc reconstruction for the connective sticks (stanchions, struts) was made by Milke (1968) and is well attested. A single cognate in the north-west New Guinea language, Numfor, allows tentative attribution of this etymon (with indeterminate final vowel) to Proto Eastern Malayo-Polynesian.

PEMP **patorV* 'connective sticks or stanchions attaching floats to booms'

IJ:	Numfor	<i>fakok</i>	(<i>k</i> for <i>*t</i> regular)
POc <i>*patoto</i> 'connective sticks attaching float'			
NNG:	Gedaged	<i>patot</i>	
NNG:	Tuam	<i>patot</i>	
NNG:	Mandok	<i>patot</i>	
NNG:	Kilenge	<i>patutu</i>	
PT:	Arifama	<i>batoto</i>	
MM:	Lihir	<i>hidudu</i>	
NCV:	Ambae	<i>batoto</i>	
Fij:	Bauan	<i>(i)vatoto</i>	(<i>i</i> - < POc <i>*i</i> - INS)

4.4 Starboard or hull side of outrigger canoe

A POc term can be reconstructed with the sense 'starboard or free side of the canoe, opposite the outrigger side (**saman*)'. In Central Pacific languages this term was also applied to the larger hull of a double canoe.

POc **katae*, **katea*¹⁶ 'free side of canoe, opposite the outrigger'

NNG:	Gedaged	<i>atai</i>	'projecting part of the canoe platform, opposite outrigger'
NNG:	Barim	<i>kat</i>	'platform of canoe'
NNG:	Manam	<i>ete?a</i>	'port side of canoe'
NNG:	Tami	<i>kataŋ</i>	
MM:	Vitu	<i>kata</i>	
NCV:	Mota	<i>gatae</i>	

¹⁶ Paul Geraghty (pers.comm.) argues that the POc form was **katae*, and that the form **katea* is a PPn innovation which has been borrowed by a few other languages.

Mic:	Kiribatese	<i>katea</i>	'leeward side of canoe'
Mic:	Marshallese	<i>kooca</i>	'lee side of canoe'
Mic:	Ponapean	<i>(pali)kasa</i>	'lee side of canoe'
Mic:	Trukese	<i>asa</i>	'lee side of canoe'
Mic:	Woleaian	<i>(i)geta</i>	'lee side of canoe'
Fij:	Bauan	<i>katā</i>	(1) 'starboard side of canoe'; (2) 'larger hull of double canoe'
Pn:	Tongan	<i>katea</i>	'larger hull, main part of canoe as distinct from the ham'
Pn:	Samoa	<i>atea</i>	'hull side of a canoe, as opposed to the ama'
Pn:	Tikopia	<i>katea</i>	
Pn:	Hawaiian	<i>?akea</i>	'starboard hull of double canoe'

No non-Oceanic cognates of this set are known.

5. Sail and rigging

The characteristic Oceanic sail types are: (a) a triangular sprit sail with apex downwards and a spar along each of the two sides stemming from the apex, and (b) the (crab) claw sail—a triangular sail with the foreside fixed to a vertical mast and the afterside to a strongly curved sprit, whose lower end is attached to the foot of the mast. In Indonesia a number of other types of sail are found. Both fixed masts and moveable masts or props are used in Indonesia and in the Pacific Islands. The pole is stepped in a socket or on a thwart amidships and can be rotated and raked towards either end by means of running stays.

We give here a further quote from Horridge (1986:56–57):

It is my belief, based on distribution, comparative vocabularies and engineering principles, that the fixed mast with a halyard spread into Malayo-Polynesian communities from the Indian Ocean along with the introduction of the pulley. A large sail of matting could not be raised at sea without a pulley unless it was pushed up by a loose pole. There are no signs that even the last Austronesian-speaking migrants to move out into the Pacific knew about the tripod mast, the tilted rectangular sail, the pulley or the quarter rudder lashed to a rudder support. All of these features also spread only a little way up the mainland coast towards China... The tilted rectangular sail seems to have spread from the Indian Ocean, perhaps even from...Egypt, and to have arrived in Indonesia about 2,000 years ago... It has spread eastwards about as far as the quarter rudder and the pulley.

On some of these points the linguistic evidence appears to be silent. However, several terms for parts of the rig are attributable to POc or to later interstages of Oceanic:

5.1 Sail

A PMP term for 'sail' (the object) is continued in all the major subgroups:

PMP **layaR* 'sail'

WMP: Malay	<i>layar</i>
WMP: Tagalog	<i>layag</i>
WMP: Maranao	<i>laiag</i>

WMP: Tausug	<i>layag</i>	
WMP: Cebuano	<i>layag</i>	(N) 'sail of a boat'; (V) 'put up the sail for a boat to sail'
CMP: Buru	<i>lā</i>	
POc <i>*layaR</i> 'sail'		
NNG: Gedaged	<i>lai</i>	
NNG: Barim	<i>lai</i>	
NNG: Yabem	<i>lac</i>	(N) 'sail of a boat, a canoe'; (V) 'sail, sail across, sail or steer a canoe towards a goal'
PT: Dobu	<i>naia</i>	
PT: Motu	<i>lara</i>	
NCV: Namakir	<i>na-la</i>	
NCV: Nguna	<i>na-lae</i>	
NCV: Paamese	<i>alā</i>	
Mic: Marshallese	<i>(wec)lay</i>	
Fij: Bauan	<i>laða</i>	
Pn: Tongan	<i>lā</i>	
Pn: Samoan	<i>lā</i>	
Pn: Maori	<i>rā</i>	

Traditional Oceanic sails are made of matting, woven from pandanus leaves or other plant fibres. It is therefore not surprising to find that reflexes of POc **qebal* 'pandanus mat' also have the meaning 'sail' in a few languages. Given that POc **layaR* 'sail' is well established, it is likely that **qebal* independently acquired the sense 'sail' in more than one daughter language. For the cognate set, see Ch. 4, §3.1.

5.2 Boom and yard of sail

The following form is well attested though its reflexes show a range of meanings:

POc **jila* 'boom or yard of (triangular) sail'

Adm: Seimat	<i>sil</i>	
	<i>sil</i>	'booms of triangular sail' (Haddon)
Adm: Penchal	<i>cil</i>	'sheet of sail'
Adm: Lou	<i>(e)sil</i>	
NNG: Tuam	<i>(na)sila</i>	
NCV: Mota	<i>(pane) sila</i>	
NCV: Paamese	<i>a-sil</i>	'mast; central trunk of tree that grows straight up'
Fij: Bauan	<i>sila</i>	'sheet of a sail'
Pn: Tongan	<i>sila</i>	(N) 'yard, for a sail to hang from'; (V) 'shorten the sheet of a sail'
Pn: Samoan	<i>tila</i>	(1) 'sprit or spar of sail' (<i>tila lalo</i> 'lower sprit' vs <i>tila tu</i> 'yard, upper sprit'); (2) 'mast'
Pn: Pukapukan	<i>tila</i>	'yard of sail'
Pn: Tikopia	<i>tira</i>	'mast or spar of sailing canoe'

Pn:	Raratongan	<i>tira</i>	'mast'
Pn:	Maori	<i>tira (tū)</i>	'yard of sail, upper sprit'

POc or PCP **jila* has commonly (e.g. Blust 1976a, Geraghty 1986, Ross 1988) been glossed 'sheet', referring to the rope fastened to the lower corner of a sail to hold it and control its angle. The weight of the evidence, however, suggests that the term referred in POc to the booms or poles used to extend and support a triangular sail, denoting either the upper pole (the yard) or the lower pole (the boom). The use of reflexes of **jila* to denote a fixed mast is confined to certain parts of Polynesia and this sense probably represents a post-PPn innovation. Most Oceanic craft with triangular sails do not use a fixed mast. In one kind of rigging (spritsail) the longer of the two poles extending the sail serves as the mast, with a mast-shore or stays to secure it, or with the apex of the two poles resting on the deck. In another kind of rigging (lateen), the mast is a separate moveable pole which pivots on a thwart in the dugout or on a socket on the deck and is supported by ropes (stays or sheets) tied to the hull or outrigger and sometimes by a mast-shore. The use of reflexes of **jila* for 'mast' and for 'sheet' in various Oceanic languages can thus be derived from the original functions of the booms as supporting and controlling the sail.

5.3 Mast or props supporting mast

PEOc **kaiu-tuqu(r)* (?) 'vertical supporting timber, prop supporting rig'

SES:	Arosi	<i>auu</i>	(1) 'centre post of house'; (2) 'mast'
Mic:	Carolinian	<i>ayu</i>	'mast'
Pn:	Tongan	<i>kau-tuʔu</i>	'yard on a mast'
Pn:	Samoaan	<i>?au-tū</i>	(N) 'core, centre, main theme'; (V) 'centre around, revolve around s.t.'
Pn:	Maori	<i>(rā) kau-tū</i>	'mast and sail' ¹⁷
cf. also:			
Adm:	Seimat	<i>kau ehu</i>	'mast'
PT:	Motu	<i>au tubua</i>	'mast, centre post of a house' (<i>au</i> 'wood, stick', <i>tubua</i> 'upright')

POc **kaiu-tuqu(r)* (evidently a compound of **kaiu* 'wood, stick, pole' and **tuqu(r)* 'stand; fixed') possibly referred to any main supporting timber including the prop or mast of a boat. This compound has reflexes in Southeast Solomonian, Polynesian and Nuclear Micronesian and possibly in Motu. It appears to have been already lexicalised in the immediate common ancestor of these groups.

PEOc **pana* (?) 'mast, boom stepped on foot of mast'

NCV:	Mota	<i>pane</i>	'boom with forked end stepped on the foot of the mast'
		<i>pane (sila)</i>	'projecting boom of a sail'
Fij:	Bauan	<i>(i)vanā</i>	'mast' (<i>i-</i> < POc <i>*i-</i> INS)

¹⁷ According to Best (1925:183), the term *ra kautu* [= *raa kautuu*] refers to a (triangular) sail with mast that is stepped upright in a cupped boss on the floor of the dugout.

Pn:	Tongan	<i>fanā</i>	'mast'
Pn:	Samoan	<i>fanā</i>	'mast'
Pn:	Tokelauan	<i>fanā</i>	'mast'

As the Central Pacific languages in this comparison are all in the Fiji – West Polynesia region and innovations in canoe design are known to have moved freely within this region, the PCP antiquity of **vanā* may be questioned. On the other hand, the correspondences Fijian *v*, Tongan, Samoan *f* are regular, unlike recent Fijian-Polynesian borrowings, where Fijian *v* has been borrowed as *v*. There is a possible cognate in Mota.

5.4 Mast stays

The following cognate set appears to be confined to Central Pacific:

PCP **tuku* 'running stay supporting sail'

Fij:	Bauan	<i>tuku</i>	
Pn:	Tongan	<i>tuku</i>	
Pn:	Samoan	<i>tuʔu</i>	'running stay from foredeck'
Pn:	Tokelauan	<i>tuku</i>	'guy rope of traditional sail, fastened to the outrigger'

These forms may be cognate with PCP **tuku* 'let go, slacken'. Again, the narrow geographic range of this cognate set makes it hard to rule out diffusion.

6. Steering oar

A PMP term for steering oar is well supported. Contemporary languages which retain this term now apply it to rudders, but there is no reason to believe that rudders were in use in PMP times. A verbal use 'steer (a boat from the stern)' can also be reconstructed. In many languages this verbal use has now generalised to any kind of steering of a vessel or vehicle.

PMP **quli(n,ŋ)* (N) 'steering oar'; (V) 'steer'

WMP:	Cebuano	<i>ulin</i>	(N) 'stern'; (V) 'steer (a boat from the stern)'
WMP:	Maranao	<i>olin</i>	'steer (a vessel); manage affairs of another'
		<i>olin(aq)</i>	'steering mechanism'
		<i>(paŋ)olin</i>	'rudder'
WMP:	Bajau	<i>uli</i>	'steer from the stern'
WMP:	Sangir	<i>ulin</i>	(N) 'rudder'; (V) 'steer'
WMP:	Wolio	<i>uli</i>	'rudder'
CMP:	Roti	<i>uli</i>	(N) 'rudder'; (V) 'steer'

POc **qulin* (N) 'rudder'; (V) 'steer'

Adm:	Lou	<i>kuli(p)</i>	'steering oar'
NNG:	Tami	<i>gul</i>	'steering oar'
NNG:	Gedaged	<i>ulu(m)</i>	'rudder, steering'
NNG:	Yabem	<i>(ŋa)golin</i>	'rudder'
PT:	Molima	<i>kuliga</i>	(N) 'steering oar'; (V) 'steer'

PT:	Kilivila	<i>kuliga</i>	'steering oar'
Fij:	Bauan	<i>uli</i>	(N) 'steering oar, rudder, helm'; (V) 'steer'
Pn:	Tongan	<i>?uli</i>	'steer' (<i>fohe ?uli</i> 'rudder, steering oar')
Pn:	Samoa	<i>uli</i>	'steer' (<i>fa?a-uli</i> 'steer, helmsman'; <i>foe uli</i> 'rudder')

7. Accessories

Under this heading fall objects used or carried on board, such as cargo, anchor, paddles, punting pole, bailer and Triton shell for use as a trumpet.

7.1 Cargo

A single base can be reconstructed, used both as a verb '(boat +) be loaded, carry a cargo' and as a noun 'cargo, load'. However, it occurs in the form of a doublet, with and without initial **l-*.

PMP **lujan, *ujan* (V) 'load (a vessel)'; (N) 'load, cargo' (Blust 1986)

WMP:	Tagalog	<i>lulan</i>	'load, cargo, capacity of a vessel or vehicle'
WMP:	Makassarese	<i>luraŋ</i>	(V) 'load'

POc **ujan, *ujan-i-, *lujan* (V) 'load (a boat)'; (N) 'cargo, freight'

Adm:	Nauna	<i>us</i>	'load as cargo in a boat'
Adm:	Seimat	<i>uxan-i</i>	'load as cargo in a boat'
PT:	Dobu	<i>usana</i>	'load a canoe'
PT:	Sinaugoro	<i>ɣura(udi)</i>	'load a canoe'
PT:	Motu	<i>uda-uda</i>	'load a canoe'
SES:	Gela	<i>luda</i>	'load a vessel'
SES:	Bugotu	<i>luja</i>	'load a vessel' (<i>j</i> for <i>*d</i> unexplained)
SES:	Lau	<i>luda</i>	'load a vessel'
SES:	Kwaio	<i>luda</i>	'load a vessel'
Mic:	Puluwat	<i>wutan</i>	(V) 'loaded'; (N) 'cargo, load'
Fij:	Bauan	<i>usa</i>	'carry a cargo'
Pn:	Tongan	<i>uta</i>	(V) 'carry a cargo'; (N) 'cargo, freight'
Pn:	Samoa	<i>uta</i>	(V) 'carry a cargo'; (N) 'cargo, freight'

7.2 Paddles, paddling and punting

There are two well-established PMP terms to do with paddling, **be(R)(c,s)ay* and **pa-luja*:

PMP **be(R)(c,s)ay* (N) '(canoe) paddle'; (V) 'paddle'

WMP:	Aklanon	<i>bugsay</i>	(N) 'paddle'
WMP:	Cebuano	<i>bugsay</i>	'paddle or row a boat'
WMP:	Ngaju Dayak	<i>besei</i>	(V) 'paddle'
WMP:	Buginese	<i>wise</i>	(N) 'paddle'
WMP:	Wolio	<i>bose</i>	(N) 'paddle'
CMP:	Taliabo	<i>bose</i>	(N) 'paddle'

CMP: Buru	<i>sai</i>	(V) 'paddle'
	<i>sahi-n</i>	(N) 'paddle'
POc <i>*pose</i> (N) '(canoe) paddle', (V) 'paddle'		
NNG: Manam	<i>ore</i>	(N) 'paddle'
PT: Motu	<i>hode</i>	(N) 'paddle'
PT: Suau	<i>wose</i>	(N) 'paddle'
MM: Roviana	<i>vose</i>	(N) 'paddle'
SES: Gela	<i>vohe</i>	(N) 'paddle'
SES: Lau	<i>fote</i>	(N) 'paddle'
SES: Sa'a	<i>hote</i>	'paddle'
NCV: Mota	<i>wose</i>	(N) 'paddle'
Fij: Bauan	<i>voðe</i>	(V) 'paddle'
	<i>(i)voðe</i>	(N) 'paddle' (<i>i</i> - < POc <i>*i</i> - INS)
Pn: Tongan	<i>fohe</i>	(N) 'paddle'
Pn: Samoan	<i>foe</i>	(N) 'paddle'
Pn: Hawaiian	<i>hoe</i>	'paddle'
PMP <i>*pa-luja</i> (V) 'paddle'; (N) 'paddle'		
WMP: Nias	<i>aluxa</i>	(N) 'paddle'
WMP: Sichule	<i>luga</i>	(N) 'paddle'
	<i>feluxa</i>	(V) 'paddle'
WMP: Toba Batak	<i>luga</i>	(V) 'row'
WMP: Isneg	<i>piloxa</i>	'oars and paddles of a canoe'
POc <i>*paluca</i> (V) 'paddle'; (N) 'paddle'		
Adm: Likum	<i>heluh</i>	
MM: Roviana	<i>valusa</i>	'bonito fishing'
SES: Arosi	<i>haruta</i>	(V) 'paddle'
SES: Lau	<i>falita, faluta</i>	(V) 'paddle', (N) 'canoe'
NCV: Lonwolwol	<i>faloh</i>	(V) 'paddle', (N) 'paddle'
NCV: Paamese	<i>valis, valus</i>	'row, paddle'
Mic: Kiribatese	<i>arina</i>	'paddle' (metathesis)
Mic: Mokilese	<i>patil</i>	'paddle' (metathesis)
Mic: Ponapean	<i>patil</i>	'paddle' (metathesis)
SV: Anejom	<i>aheleθ</i>	'paddle'

It is not clear whether PMP **be(R)(c,s)ay* and **paluja* differed in meaning. As the Sichule comparisons show, PMP **paluja* probably derives from a root **luja* denoting a paddle, with the verb 'paddle' derived by adding the causative prefix **pa-*. **paluja* is now widely reflected, meaning both 'a paddle' and 'to paddle', but it may be that its use as a noun developed independently in various languages.

A third form attributable to PEOc, **sua(C)*, also has some reflexes glossed 'to paddle'. However, the meanings associated with its putative reflexes are quite varied. These meanings include (i) 'scull, in which a standing person holds the oar vertically', (ii) 'punt or pole a boat in shallow water', (iii) 'to paddle', (iv) 'a paddle' and (v) 'to steer'. The range of meanings suggests an original reference to a standing person using an oar or pole to propel or to steer a boat. (cf. also PCP **sua* 'tack', §9.2.)

PEOc **sua(C)* (V) 'scull, row with oar held vertically'

SES:	'Are'are	<i>sua(hi)</i>	'paddle against the wind'
SES:	Lau	<i>sua(la)</i>	'punt, push a canoe with a pole'
		<i>sua(li)</i>	'push against'
NCV:	Mota	<i>sua</i>	(V) 'paddle, make a canoe voyage'
		<i>sua(va)</i>	(N) 'paddling, canoe voyage'
NCV:	Raga	<i>hua</i>	(V) 'paddle'
NCV:	Tangoa	<i>sua</i>	(V) 'paddle'
Fij:	Rotuman	<i>sua</i>	'scull, paddle, oar'
Fij:	Bauan	<i>sua</i>	'scull, row, put an oar in two transversal poles lashed across the crossbeams near the deck of a canoe to help in rowing'
Pn:	Rennellese	<i>sua</i>	'ceremonial paddle with wide blade; go to a ship at anchor (? by paddling)'
Pn:	Maori	<i>hua</i>	'steer, paddle'
cf. also:			
Fij:	Wayan	<i>due</i>	'scull, propel a boat by putting an oar or pole vertically into the water and twisting it about'
		<i>i-due</i>	(N) 'paddle, oar'
Pn:	Samoaan	<i>sua(ti)</i>	'balance pole of canoe'
Pn:	Tikopia	<i>sua(ti)</i>	'balance pole of sailing canoe'
Pn:	W. Uvean	<i>hua(ge)</i>	'balance pole of sailing canoe'

7.3 Punting pole

PMP **teken* 'pole, staff' was evidently continued in POC both as a noun **tokon* and as a transitive verb **tokon-i-* (V) 'punt or pole (a boat)':

POC **tokon* 'staff, punting pole'; **tokon-i* 'punt or pole (a boat)'

NNG:	Gedaged	<i>tok</i>	'pole, stick, staff'
NNG:	Tuam	<i>to</i>	'punting pole'
NNG:	Barim	<i>to</i>	'punting pole'
PT:	Motu	<i>do, doa</i>	(V) 'pole (a canoe)'
		<i>to</i>	'stay of house, prop of fence, brace'
SES:	Ghari	<i>togon-i</i>	'stick for stirring stones'
Fij:	Wayan	<i>(i)toko</i>	'staff, punting pole' (<i>i-</i> < POC <i>*i-</i> INS)
		<i>tokon-i</i>	'punt a boat'
Fij:	Bauan	<i>(i)toko</i>	'staff, punting pole' (<i>i-</i> < POC <i>*i-</i> INS)
		<i>tokon(a)</i>	'punt a boat'
Pn:	Tongan	<i>toko</i>	'punting pole, to punt'
Pn:	Samoaan	<i>to^oo</i>	'punting pole, to punt'
Pn:	Rennellese	<i>toko</i>	'punting pole, to punt'
Pn:	Tuvalu	<i>toko</i>	'punting pole, to punt'

cf. also:

WMP:	Sangir	<i>tekinj</i>	'staff'
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WMP: Malay	<i>teken</i>	'lean on, pressure'
WMP: Javanese	<i>teken</i>	'cane, walking stick'

7.4 Bailer, bailing

Three terms to do with bailing water from a vessel can be reconstructed at the PMP level, all of which are continued in PWMP, POc and PCP.

PMP **limas* 'bailer'

WMP: Cebuano	<i>limas</i>	(1) 'bailer'; (2) 'bilge water'; (3) 'bail water out'
WMP: Tagalog	<i>limas</i>	'bailer'
WMP: Hova	<i>dima</i>	'bailer'
CMP: Boano	<i>limate</i>	'bailer'

POc **lima(s)*, **nima(s)* 'bailer'

NNG: Kilenge	<i>na-lima</i>	'bail'
NNG: Mangseng	<i>lima</i>	'bail'
Mic: Kiribatese	<i>a-nima</i>	'bailer'
Mic: Puluwat	<i>niim</i>	'bailer'
Fij: Bauan	<i>(i)nima</i>	'bailer' (<i>i</i> - < POc * <i>i</i> - INS)
	<i>nimat(a)</i>	'bail it out (canoe)'

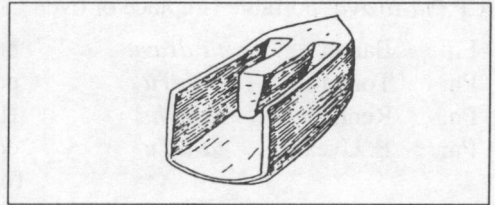
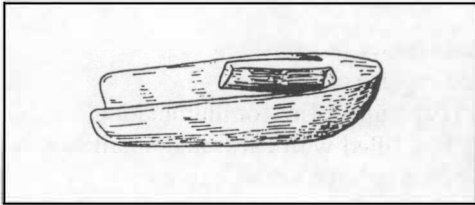


Figure 26: POc **lima(s)* or **nima(s)*, POc **asu* 'bailer'

The following PMP reconstruction is given by Blust (1978b:94). Although 'scoop or ladle out' was probably the basic meaning, a number of Oceanic languages use the reflex of **asu* to denote a bailer.

PMP **aŋsu* 'scoop or bail out'

WMP: Javanese	<i>aŋsu</i>	'draw water'
CMP: Buru	<i>asu-k</i>	'scoop, dip or bail (water) with a scooper'

POc **asu* (V) 'scoop or ladle out'; (N) 'ladle, bailer'

Adm: Wuvulu	<i>atu</i>	'bailer, spoon, ladle'
Adm: Aua	<i>atu</i>	'bailer, spoon, ladle'
NNG: Gedaged	<i>yasi</i>	'scoop or ladle out'
NCV: Nguna	<i>na-asu</i>	'canoe bailer'
	<i>(m)asi</i>	'bail'
NCV: Raga	<i>ahu(a)</i>	'bail water, scoop up'
Fij: Bauan	<i>yaðu</i>	(V) 'ladle, scoop'
Pn: Tongan	<i>ohu</i>	'ladle or bail out liquid'

Pn:	Samoaan	<i>asu</i>	(V) 'scoop, ladle or bail out liquid'
Pn:	Maori	<i>ahu</i>	'bailer'

The next comparison shows a PPn term for 'bailer' and 'bail', derived from a PMP form which may have had a more restricted use.

PPn **tatā* (V) 'bail out'; (N) 'bailer'

Pn:	Tongan	<i>tatā</i>	'bail out'
Pn:	Samoaan	<i>tatā</i>	'bail, scoop; anything used as a bailer'
Pn:	Tokelauan	<i>tatā</i>	'bail, scoop; anything used as a bailer'
Pn:	Rarotongan	<i>tatā</i>	'bail, scoop; anything used as a bailer'
Pn:	Maori	<i>tatā</i>	'bail, scoop; anything used as a bailer'

Compare WMP: Cebuano *tata* 'empty a container by turning it upside down'. This suggests PMP **tata* 'empty water from something'.

7.5 Portable fireplace

Seagoing canoes in many places carry a heap of sand, or an old clay pot or wooden basin filled with sand or earth, for use as a fireplace. A reconstruction for such an apparatus can be made only at PCP level:

PCP **tā-dravu* 'portable fireplace or oven'

Fij:	Bauan	<i>tā-dravu</i>	'portable fireplace or oven'
Pn:	Tongan	<i>tā-lafu</i>	'portable fireplace or oven'
Pn:	Rennellese	<i>tā-ŋahu</i>	(N) 'fire'; (V) 'build a fire for illumination'
Pn:	E. Uvean	<i>ta-lafu</i>	'cooking box filled with earth and small stones, formerly used in large sailing canoes'
Pn:	Tokelauan	<i>tā-lefu-lefu</i>	'ashtray'

cf. also:

SES:	Arosi	<i>dohu</i>	'white ashes, a fireplace'
NCV:	Mota	<i>tarowo</i>	'white ashes'

The PCP form can be analysed into two elements: the second is clearly **dravu* 'fireplace, hearth', which reflects POc **rapu(R)* 'hearth, fireplace; ashes' (Ch. 6, §2.4). The origin of **tā* is less clear.

8. Launching and beaching, anchoring, sheltering vessels

Outrigger canoes are normally launched from beaches and hauled ashore rather than anchored when not in use. Anchors are not carried on small canoes (which may be left to drift or tethered to the reef while fishing) but stone anchors were commonly carried aboard larger vessels.

8.1 Rollers or skids

A PMP term for canoe rollers or skids is well attested, with reflexes in Philippine, Maluku and Oceanic languages.

PMP **lanen* ‘rollers, skids or blocks to move or raise a boat’

WMP: Maranao	<i>lanen</i>	‘rollers’
CMP: Asilulu	<i>lane-t</i>	‘rollers’
CMP: Buru	<i>lane</i>	‘rollers’
POc * <i>lanon</i> (N) ‘rollers’; (V) ‘place rollers under a canoe’		
SES: Arosi	<i>(i)raŋo</i>	(N) ‘roller for canoe’; (V) ‘place rollers under a canoe’ (<i>i-</i> < POc * <i>i-</i> INS)
Mic: Kiribatese	<i>naŋo</i>	‘rollers for canoe’
Mic: Marshallese	<i>l^uaj</i>	‘rollers for canoe’
Mic: Woleaian	<i>laŋo</i>	‘rollers for canoe’
Fij: Bauan	<i>laŋo</i>	‘place rollers (for canoe +)’
	<i>laŋoni ni waga</i>	‘canoe rollers’
Pn: Tongan	<i>laŋo</i>	‘supporting block or beam’
Pn: Samoan	<i>laŋo</i>	(N) ‘support, prop, pillow, bolster’
Pn: Rennellese	<i>gaŋo</i>	‘coaster (butt ends of coconut fronds or sticks) for dragging a canoe over the beach’
Pn: Tikopia	<i>raŋo</i>	(N) ‘canoe skid or block’; (V) ‘support (canoe +)’

8.2 Anchoring

There are two fairly well-supported PMP reconstructions to do with anchoring. In the following comparison the WMP terms refer to an anchor while the Oceanic terms support a verbal reconstruction ‘be anchored or moored’.

PMP **sauq* ? (N) ‘anchor’; (V) ‘be anchored’

WMP: Tagalog	<i>sawoq</i>	‘anchor’
WMP: Toba Batak	<i>sawo</i>	‘anchor’
WMP: Malay	<i>sauh</i>	‘anchor’
WMP: Ngaju Dayak	<i>sauh</i>	‘anchor’
CMP: Buru	<i>sau</i>	‘anchor (possibly borrowed from Malay)’
IJ: Numfor	<i>sau</i>	‘anchorage’
POc * <i>jau(q)</i> ‘be anchored or moored, come to anchor or rest’		
SES: Arosi	<i>dau</i>	‘(canoe) come to rest’
SES: Lau	<i>dau</i>	‘come to anchor; alight, be stationary, at rest’
SES: Sa’a	<i>deu</i>	‘(canoe) settle, be stationary’
Pn: Tongan	<i>tau</i>	‘anchor or moor a boat, park a car’
Pn: Samoan	<i>tau</i>	‘moor, anchor’
Pn: Rennellese	<i>tau</i>	‘come to land’
Pn: Tikopia	<i>tau</i>	‘(vessel) fetch up, come in to land’
Pn: Maori	<i>tau</i>	‘come to anchor, ride at anchor, lie to’

8.3 Passage or channel, landing place

The PMP and POc term **saway* or **sawaq* appears to have been the conventional name for a channel for boats to pass through or to land, or an area of calm water giving safe anchorage. Blust (1983–84a:113) reconstructs **sawaq* ‘channel’.

PMP **sawa(η,q)* ‘opening used by boats to pass through, channel or strait, safe passage or anchorage’

WMP: Chamorro	<i>sagwa?</i>	‘channel, inlet of water, narrow passage in reef’
WMP: Malay	<i>saway</i>	‘breakwater’

POc **saway* ‘channel in reef giving passage to boats, landing place, anchorage’

Adm: Lou	<i>(mara)sa</i>	‘channel, passage between islands’
Adm: Titan	<i>(mata)ca</i>	‘channel, passage between islands’
Adm: Wuvulu	<i>tawa</i>	‘channel, passage between islands’
NNG: Yabem	<i>sawa</i>	‘space, empty area’
PT: Motu	<i>dava</i>	‘lagoon in atoll, water in chasm or ditch’
MM: Roviana	<i>savaŋa</i>	‘strait between two islands’
SES: ‘Are’are	<i>tawa</i>	‘channel in reef, landing place’
SES: Sa’a	<i>tawa</i>	‘landing place’
Mic: Kiribatese	<i>rawa</i>	‘channel in reef’
Mic: Marshallese	<i>tew</i>	‘channel in reef’
Mic: Ponapean	<i>dāw</i>	‘channel in reef’
Mic: Trukese	<i>tāw</i>	‘channel in reef’
Mic: Woleaian	<i>tāwa</i>	‘channel in reef’
Fij: Rotuman	<i>sava</i>	‘passage or opening in a coral reef’
Fij: Wayan	<i>(mata)ḍawa</i>	‘beach’
Fij: Bauan	<i>(mata)sawa</i>	‘landing place’
Pn: Niuean	<i>ava</i>	‘harbour, opening in reef, channel’
Pn: Samoan	<i>ava</i>	‘channel, passage in reef; anchorage’
Pn: E. Futunan	<i>ava</i>	‘anchorage’
Pn: Maori	<i>awa</i>	‘channel, landing place for canoes’

cf. also:

Pn: Tongan	<i>ava</i>	‘hole, aperture’
	<i>vaha</i>	‘space between, strait, channel’

There is clear evidence for a POc compound consisting of **mata* ‘opening, entrance; focal point’ plus **saway*, with the sense ‘landing place for boats’. The Southeast Solomonian and Kiribatese forms suggest the POc compound had the form **mata-ni-saway*, or **mata-qi-saway*, with one of the two POc genitive particles **ni* or **qi* (Hooper 1985) linking the two nouns. However, the Admiralty Islands and Fijian forms do not reflect the genitive.

POc **mata-saway* or **mata-ni/qi-saway* ‘landing place, channel in fringing reef giving passage to boats’

Adm: Lou	<i>mara-sa</i>	‘channel, landing place’
Adm: Titan	<i>mata-ca</i>	‘channel, landing place’
SES: Arosi	<i>maeta-wa</i>	‘boat landing, landing place where the sea is calm’
SES: Kwaio	<i>maa-li-takwa</i>	‘landing place, salt water’ (the Kwaio are an inland people)

SES:	Sa'a	<i>maa-li-tawa</i>	'opening in shore reef, land place'
SES:	'Are'are	<i>ma-ri-tawa</i>	'landing place, channel'
Mic:	Kiribatese	<i>mata n rawa-rawa</i>	'channel, gap in reef'
Fij:	Wayan	<i>mata-ðawa</i>	'beach'
Fij:	Bauan	<i>mata-sawa</i>	'landing place'

8.4 Boatshed

While boatsheds, for building and sheltering boats, are common in the Malayo-Polynesian speaking region, no really widespread cognate set for such a building has been noted outside the Central Pacific group. Some Oceanic languages use a simple term reflecting PMP **balay* 'house or building, probably with open sides' as Lou (Admiralties) *pal* 'boatshed'. Others use a compound nominal whose components, as in English, are the words for 'boat' and 'house'. It may be that speakers of PMP used such a compound but it is hard to rule out the possibility of independent parallel developments in the daughter languages. However, there is good evidence for a distinctive PCP term for boatshed, evidently incorporating the term for 'make a sea voyage' (see POC **palau(r)*, §9.2):

PCP **(a)valau* 'boatshed'

Fij:	Wayan	<i>volau</i>	'boatshed'
Fij:	Bauan	<i>volau</i>	'boatshed'
Pn:	Tongan	<i>alafolau</i>	'boatshed' (first <i>-l-</i> unexpected; cf. <i>ala folau</i> 'fit to go to sea')
Pn:	Niuean	<i>afolau</i>	'temporary shelter'
Pn:	Samoaan	<i>āfolau</i>	'long house, used for e.g. receiving guests'
Pn:	Tikopia	<i>aforau</i>	'canoe shed'
		<i>(mata) aforau</i>	'canoe yard for sacred canoes'
Pn:	Maori	<i>farau</i>	(1) 'temporary shed or booth'; (2) 'canoe shed'

9. Seafaring terms

A number of terms can be reconstructed at PMP or lower levels for concepts to do with going to sea and navigation. The following is not an exhaustive list.

9.1 Embark, ride

PMP **sakay* 'embark, be aboard, ride (on a vessel +)'

WMP:	Cebuano	<i>sakay</i>	'travel by sea, embark, ride on (a boat +)'
WMP:	Ilokano	<i>sakay</i>	'ride in a boat'
WMP:	Bikol	<i>(mag)-sakay</i>	'ride in a boat'
WMP:	Sangir	<i>sakaen</i>	'boat' (from PMP <i>*sakay-an</i> lit. 'thing to ride on')
CMP:	Asilulu	<i>saka</i>	'ascend, climb'
CMP:	Selaru	<i>sai</i>	'climb, go up, ride, mount'

POc **sake* 'embark, ride on a canoe' (prefix to numerals denoting number of crew carried by a canoe)

SES:	Lau	<i>tae</i>	'embark'
SES:	'Are'are	<i>taʔe</i>	'ride, embark' (prefix in <i>taʔe taʔai</i> 'one-man canoe', <i>taʔe rua</i> 'two-man canoe +')
NCV:	Mota	<i>sage</i>	'prefix with numerals when men on board a canoe are numbered'
Mic:	Mokilese	<i>tak</i>	'ride on (a vessel +)'
Mic:	Ponapean	<i>take</i>	'ride'
Mic:	Carolinian	<i>tāta</i>	'ride on s.t.'
Mic:	Woleaian	<i>tagē(a)</i> (<i>tet</i>) <i>tag</i>	'ride on it, sail in it'
Fij:	Wayan	<i>ḍake</i>	'embark, go aboard'

This was the PMP/POc term for 'ascend, climb, mount'.

9.2 Voyaging

In the following set the Central Pacific forms clearly refer to long-distance sailing. There is some question whether the WMP forms are cognate with the Oceanic.

PMP **pa-laSud* 'go down to the sea or coast'

WMP:	Cebuano	<i>palawud</i>	'go to sea'
WMP:	Ilokano	<i>palaud</i>	'go to the west, go down to the coast'
WMP:	Tukang Besi	<i>henaʔu</i>	'descend, go seawards, go west'

POc **palau(r)* 'go to sea, make a sea voyage'

SES:	Tolo	<i>vola-volau</i>	'run, race'
NCV:	Raga	<i>walau</i>	'guide, steer, direct'
NCV:	Mota	<i>wala-walau</i>	'paddle all together'
NCV:	Nguna	<i>wo-wolau</i>	'steer canoe'
Mic:	Kiribatese	<i>borau, bo-borau</i>	'travel by sea' (prob. borrowed from a Pn source)
Fij:	Bauan	<i>volau</i>	(V) 'make a sea voyage'; (N) 'boat house'
Pn:	Tongan	<i>folau</i>	'voyage, travel by sea'
		<i>folau(ʔaŋa)</i>	'boat in which one voyages' (-ʔaŋa < NOM)
		<i>folau(ʔia)</i>	'be constantly visited by ships'
Pn:	Rennellese	<i>hogau</i>	(1) 'ocean voyage'; (2) 'canoe making an ocean voyage'
Pn:	Samoa	<i>folau</i>	'travel by sea, make a voyage; depart, sail'
		<i>fōlau(ŋa)</i>	'voyage' (-ŋa < NOM)
		<i>folau(vaʔa)</i>	'sailor'
Pn:	Tikopia	<i>forau</i>	'voyage overseas, travel abroad'
Pn:	Maori	<i>farau</i>	(1) 'travel, particularly by water'; (2) 'company of travellers'

cf. also:

SES:	Gela	<i>vinau</i>	'go by sea'
Pn:	Nukuoro	<i>balia</i>	'expert navigator'

Lawrence Reid (pers.comm.) suggests that the Malayo-Polynesian forms derive from a PAN phrase whose constituents were **pa* 'go, towards' and **laSud* 'sea, ocean', giving the meaning 'seawards (from inland)', contrasting with **daya* 'landwards, towards the interior (from the sea or coast)'. In some languages, reflexes of **pa-laSud* are opposed to a phrase or parallel structure meaning 'go inland, go to the mountains'. POc continued **laSud* as **lau(r)* in its original sense (e.g. Mota *lau* 'seawards, coastwards') but evidently reanalysed the sequence **pa-lau(r)* as a single morpheme.

Blust (1978a:216) offers the following:

PEMP **ta(d,R)i* 'steer a course (in navigating)'

IJ:	Numfor	<i>kar</i>	'row (while facing one's destination)'
POc	<i>*taRi</i> ? 'steer a course'		
PT:	Motu	<i>tari</i>	(N) 'rudder, steer oar'; (V) 'steer a canoe'

The sound correspondences are regular, but one would like further cognates to strengthen the comparison. Lau *tari* 'steer, keep straight on' and 'Are'are *tari/ro-ro* 'steer a canoe (the steersman drawing the paddle towards himself with big strokes)' show a superficial likeness but are not demonstrably cognate, because *t* in Malaitan languages derives from POc **s*. Rick Jackson (pers.comm.) reconstructs Proto Western Micronesian **taraki* 'sail, travel by sea' with reflexes in Trukese, Ponapean and Marshallese but again the resemblance to PEMP **ta(d,R)i* seems to be superficial.

PMP **biluk* (?) 'tack, sail to windward'

WMP:	Javanese	<i>biluk</i>	'tack'
WMP:	Malay	<i>belok</i>	'tack'
WMP:	Ngaju Dayak	<i>biluk</i>	'tack'
WMP:	Tausug	<i>biluk</i>	'tack'
POc	<i>*pilu(k)</i> 'tack'		
SES:	Sa'a	<i>hilu-hilu</i>	'zigzag'
PCP	<i>*sua</i> 'tack'		
Fij:	Rotuman	<i>sua</i>	'tack about, change tack'
Pn:	Tongan	<i>hua</i>	'(boat) change from one tack to another'

9.3 Expert sailor or fisherman

The following reconstruction consists of a compound with **tau* 'person, expert, owner' as the first element and **tasi(k)* 'sea' as the second.

PEOc **tau-tasik* 'expert fisherman or sailor, mariner'

SV:	Sye	<i>ntoy</i>	'sailor'
SV:	S.W. Tanna	<i>tahik</i>	'sailor'
Mic:	Trukese	<i>sowu-set</i>	'master fisherman'
Mic:	Carolinian	<i>sou-lē-set</i>	'skilled fisherman'
Pn:	Tongan	<i>toutai</i>	'mariner, sailor; go fishing'
		<i>toutai(?i)</i>	'steer or pilot (a fishing boat)'
Pn:	Rennellese	<i>tautai</i>	'go fishing in the sea'
Pn:	Samoan	<i>tautai</i>	'master fisherman, captain of a boat or ship'

Pn:	Tikopia	<i>tautai</i>	'skilled seaman, expert fisherman'
Pn:	Tokelauan	<i>tautai</i>	'master fisherman, skipper or captain of a boat'
cf. also:			
MM:	Tolai	<i>te-na ta</i>	'sailor' (lit. 'one belonging to the sea')

9.4 Boat owner or captain

In the following set the first element is again **tau* 'person, owner'. The agreement between Polynesian and Papuan Tip languages may be the result of parallel development. However, in both groups the formation of compounds with **tau* is no longer productive, so the chances are that the compounds in question are quite old.

POc **tau (ni) waga* 'owner of a boat'

PT:	Molima	<i>to ni waga</i>	'canoe owner or captain'
PT:	Muyuw	<i>ta-ga-ni-wag</i>	'canoe owner or captain'
Fij:	Bauan	<i>tau-kei ni waga</i>	'boat owner'
Pn:	Rennellese	<i>tau baka</i>	'canoe owner, act as a captain'
Pn:	Tikopia	<i>tau vaka</i>	'canoe owner'

10. Conclusions

Upwards of twenty terms to do with watercraft and seafaring can be reconstructed for PMP. The comparative lexical evidence allows the following inferences. PMP speakers were familiar with outrigger sailing canoes. Various clues indicate that craft could be quite large. Hulls could be built up with planking. Skids or rollers were used to move vessels on land. A steering paddle was used. Large canoes probably carried anchors. Cargo and paddles, punting poles and bailers were carried on board.

Virtually all the reconstructable PMP canoe and seafaring terms were continued in POc and PCP. In addition, around ten terms can be attributed to POc and PCP that have not so far been reconstructed for PMP. While these figures are impressive, they probably represent only a small proportion of the total body of terms for canoes and seafaring used by the speech communities in question. In contemporary societies where large sailing canoes remain in use, it is usual for a language to have over one hundred terms for parts of the vessel alone.

Some of the POc and PCP terms which do not have known sources in PMP may be formal innovations. It seems likely, however, that in most cases the innovative forms replaced functionally equivalent PMP terms whose forms are not recoverable on present evidence. This conclusion rests on logical grounds: the presence of certain terms strongly implies that other functionally connected terms also existed. Thus, while we cannot reconstruct with certainty a PMP name for 'outrigger sailing canoe', we can reconstruct PMP terms for 'outrigger float', 'outrigger boom', 'sail' and other relevant parts and equipment. It can therefore safely be inferred that PMP speakers were familiar with outrigger sailing canoes. Furthermore, it seems that all Oceanic languages have a general name for outrigger sailing canoes (as well as, usually, a variety of terms for specific types). It would be very surprising if such a name did not exist in PMP, even if it was not cognate with the term **wanjka/*waga* that has been reconstructed for PEMP and POc. The same reasoning applies, say, to 'canoe

platform', though with slightly less force. A term for such a platform, placed amidships over hull and outrigger booms, is well supported for POc (**patar*) but not for PMP. However, a PMP term for 'load a vessel' and 'cargo, load carried by a vessel' is reconstructable and it is therefore likely that PMP speakers built platforms on their larger, cargo-carrying outrigger canoes. Although a PMP term for 'strake, plank (of canoe +)' is recoverable, implying familiarity with built-up canoes, no term for the end-decking of a built-up canoe—minimally, triangular end-pieces abutting the topstrake fore and aft—is attributable to PMP. But as end-decking of some sort is a functional necessity in built-up seagoing outrigger canoes, it is unlikely that PMP seagoing canoes would have lacked these essential parts.

Further work will undoubtedly add to the body of relevant lexical reconstructions. However, it is unlikely to fill all the gaps. Often the lexical evidence is not fine-grained enough to allow us to recover certain details of vessel design. For example, the lexical reconstructions for the sailing rig do not indicate whether the sails used by PMP speakers were triangular, crab claw or rectangular or whether their vessels had fixed or moveable masts (or both). Nor do the lexical reconstructions tell us whether PMP speakers made canoes with single or double outriggers (or both). There is another reason why it is sometimes difficult to trace changes in technological details through comparative linguistic evidence: whereas we can safely infer knowledge of certain things by the presence of terms for them, we cannot so readily infer ignorance from the lack of reconstructable terms. Consider the double-hulled canoe. A term for double canoe can be attributed to PPn but not to POc. Can we therefore conclude that such a craft was unknown to POc speakers? Certainly not. Inability to reconstruct a term for a certain referent in Proto X does not prove that the referent itself, and a term for it, were unknown to speakers of Proto X. The term may have been lost in all or most daughter languages and its former existence obscured.

The moral we might draw at this point is a rather obvious one: that for doing culture history several disciplines are, ultimately, better than one. Linguistics and comparative technology need each other, just as both need archaeology and comparative ethnography, to corroborate each other's evidence on certain questions and to provide testimony on points where the other disciplines are mute. It is, of course, important that each field of study contribute its own independent witness before synthesis is attempted. The challenge then becomes how to combine judiciously the evidence from different disciplines.

Abstract. This paper discusses the role of the environment in the development of the Austronesian languages of the Pacific. It examines the relationship between the environment and the linguistic features of these languages, including the use of natural materials for shelter, clothing, and tools. The paper also discusses the impact of the environment on the social organization and cultural practices of these societies. The environment is shown to be a major factor in the development of the Austronesian languages of the Pacific, and its influence is evident in many of the linguistic features of these languages.

The Austronesian languages of the Pacific are a group of languages that are widely spoken in the region. They are characterized by a number of features, including the use of natural materials for shelter, clothing, and tools. This paper discusses the role of the environment in the development of these languages, and how the environment has influenced their social organization and cultural practices.

The environment has played a major role in the development of the Austronesian languages of the Pacific. The use of natural materials for shelter, clothing, and tools is a common feature of these languages, and it is a reflection of the environment in which they were developed. The environment has also influenced the social organization and cultural practices of these societies, and this is reflected in many of the linguistic features of these languages.

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8 *Fishing and hunting implements*

MEREDITH OSMOND

1 Introduction

This chapter takes a close look at terms for fishing and hunting implements and processes attributable to Proto Oceanic (POc), with a view to reconstructing a small portion of the culture of POc speakers.¹ There is ample linguistic evidence that these people were fishermen and seafarers. The Oceanic Lexicon Project has collected cognate sets supporting POc reconstructions for over eighty fish names and an additional forty terms for shellfish (see vol. 3). This paper adds a further twenty terms for various fishing techniques used, both for deep-sea fishing requiring line and hook capture and for coastal, reef or river fishing where netting, spearing, poisoning or fish-trapping could suffice. We also know that a number of animals, birds and reptiles were hunted for food, and terms for many of these have been reconstructed. Here we attempt to establish terms for the hunting implements and techniques used.

2 Nets

Most Oceanic languages have a wide range of terms for different kinds of nets. These include terms for hand nets, casting nets, seine nets, long-handled nets for catching flying fish, and so on. Many languages have terms for nets for catching birds and occasionally larger animals, such as pigs and wallabies. Presumably there were POc terms for a wider range of nets than the four we have reconstructed.

¹ An earlier version of this chapter is included in Lynch and Pat, eds, (1996). I am grateful to Andrew Pawley and Malcolm Ross who have contributed substantially to the preparation of this chapter, to Atholl Anderson for his comments and to Jean Kennedy for drawing my attention to P.H. (Holly) McEldowney's thesis (1995), which contains a wealth of information on fishing techniques in the Admiralties.

PMP **puket* (N) 'dragnet'; (V) 'surround, engulf' (Blust 1972b)POc **pukot* 'fishing net, seine'

Adm: Andra	<i>hu</i>	'large rectangular net, used in pairs' (McEldowney)
NNG: Kove	<i>puo</i>	'seine net'
PT: Gumawana	<i>uwosi</i>	'net for fishing and for trapping turtle' (final <i>-i</i> suggests a borrowing from Suauic)
PT: Motu	<i>huo</i>	'kangaroo net'
MM: Nakanai	<i>vuo</i>	'seine net'
MM: Bali	<i>vuyoto</i>	'fishing net'
SES: Arosi	<i>hu^o</i>	'large net, seine net'
SES: Sa'a	<i>hu^o</i>	'seine net'
Mic: Kiribatese	<i>ikot-</i>	'bring together, gather, collect'
Mic: Mokilese	<i>uk</i>	'round net'
Mic: Woleaian	<i>uxo</i>	'fish net'

Reflexes of **pukot* meaning specifically 'seine' occur in both WOc (Kove, Nakanai) and EOc (Arosi Sa'a) witnesses. This suggests the strong possibility that **pukot* denoted 'seine' in POc. The more generalised meanings of other witnesses do not rule out this implication.

POc **reke* 'fishing net'

PT: Balawaia	<i>leke</i>	'fishing net'
PT: Motu	<i>reke</i>	'fine fishing net, seine'
PT: Roro	<i>re^e</i>	'fishing net'
MM: Vitu	<i>neke</i>	'fishing net, fish trap' (<i>n-</i> for expected ** <i>r-</i>)

PCP **dreke* 'recess, cavity, pocket of a seine net' (Biggs 1965)

Fij: Wayan	<i>dreke</i>	'hold of a boat'
Fij: Bauan	<i>dreke</i>	'hollow or cavity in a thing'
Fij: Rotuman	<i>reke</i>	'pocket of a seine net'
Pn: Tongan	<i>leke</i>	'small room or recess'
Pn: Rarotongan	<i>reke</i>	'end of a net'

**reke* perhaps also referred to a seine net, but its Eastern Oceanic reflexes imply that it may have referred to an end or pocket of the net.

PMP **lawa*(*n,q*) 'k.o. fishnet' (ACD)POc **lawa*((*n,q*)) 'k.o. fishnet'

Adm: Loniū	<i>law</i>	'k.o. long narrow fishnet'
Adm: Andra	<i>lau</i>	'long medium-mesh barrier net, held upright by floats and weights and secured by men at intervals' (McEldowney)
SES: Arosi	<i>rawa</i>	'small net'
SES: Sa'a	<i>lawa</i>	'the name of a creeper from which twine for nets is made'
Fij: Bauan	<i>lawa</i>	'fishing net'
Fij: Wayan	<i>lawa</i>	'fishing net'

POc **kup*^(w)*ena* ‘fishing net’ (Blust 1981)

Adm: Mussau	<i>uena</i>	
Adm: Loni	<i>kup^wen</i>	‘long rectangular fish net’
MM: Tolai	<i>ubene</i>	‘fish net; any net or net-like thing; spider’s web’
SES: Arosi	<i>?ubena</i>	‘large net’
NCV: Nguna	<i>kup^wena</i>	
SV: Lenakel	<i>na-kapun</i>	
Pn: Tuvalu	<i>kupeŋa²</i>	‘large heavy net for communal fishing’
Pn: Tongan	<i>kupeŋa²</i>	‘fishing net: generic’
Pn: Rennellese	<i>kupeŋa²</i>	‘net: generic’ (usually refers to fishing net)

The fourth term, **kup*^(w)*ena*, is the most widespread term of the four, and arguably the best bet for a POc generic term for fishing nets. Our files list more than forty cognates from all major subgroups. In Tuvalu (Koch n.d.:30) the *kupeŋa* is “a primitive kind of net...large and heavy and knotted from rolled coconut fibre twine...affixed to two poles tied together at one end forming an acute angle; large cowrie shells are fixed under the edge of the third side”. Two men hold the poles, and the net is tilted so the fish can swim into it. In parts of Polynesia, the term is used as a generic. On Niuaotupapu (Tonga), *kupeŋa* is the term used for all netting techniques, as opposed to *tau* (angling) or *uku* (diving) (Dye 1983:252–254). Dye lists *kupeŋa fakamamaha* ‘netting with the ebbing tide’; *kupeŋa ?ava* ‘netting for ?ava (milkfish)’; *kupeŋa hokohoka*, in which a handled net is used in rough surf; *kupeŋa sili pulou*, where the common throw net, about three metres across, is used to catch bait fish; and so on. In Rennell, the term evidently subsumes all kinds of nets. Although Elbert (1975) defines *kupeŋa* as ‘fine-meshed fishing net’, he includes *kupeŋa tape peka* ‘flying fox snaring net’, as well as six kinds of fishing nets labelled with compound terms beginning with *kupeŋa*. The same general term *kupeŋa* ‘net, traditionally of hibiscus fibre’ is found in Tikopia, with particular types named as compounds (*kupeŋa tā save* ‘pole net for flying fish’, *kupeŋa fukifuki* ‘pole net for reef work’) and *mata kupeŋa* referring to net mesh.

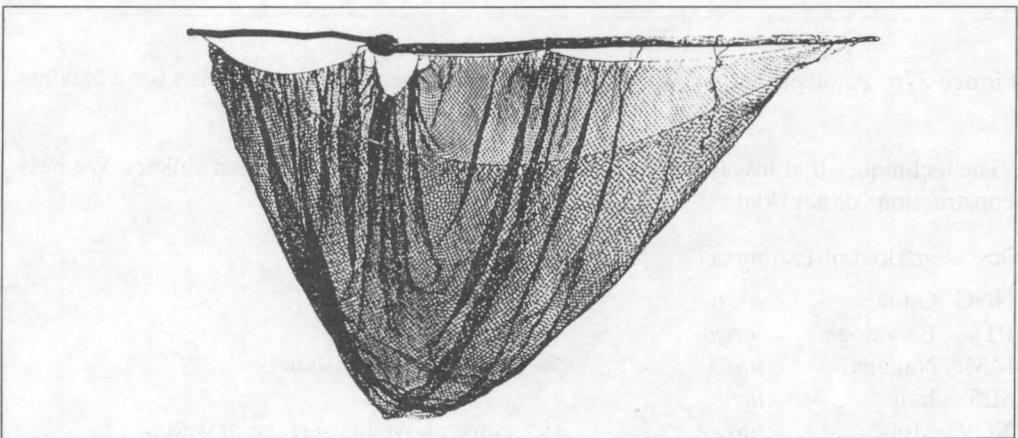


Figure 27a: POc **kup*^(w)*ena* ‘fishing net’ – generic term.
(from Nevermann 1933:89)

² *ŋ* for expected *n*.

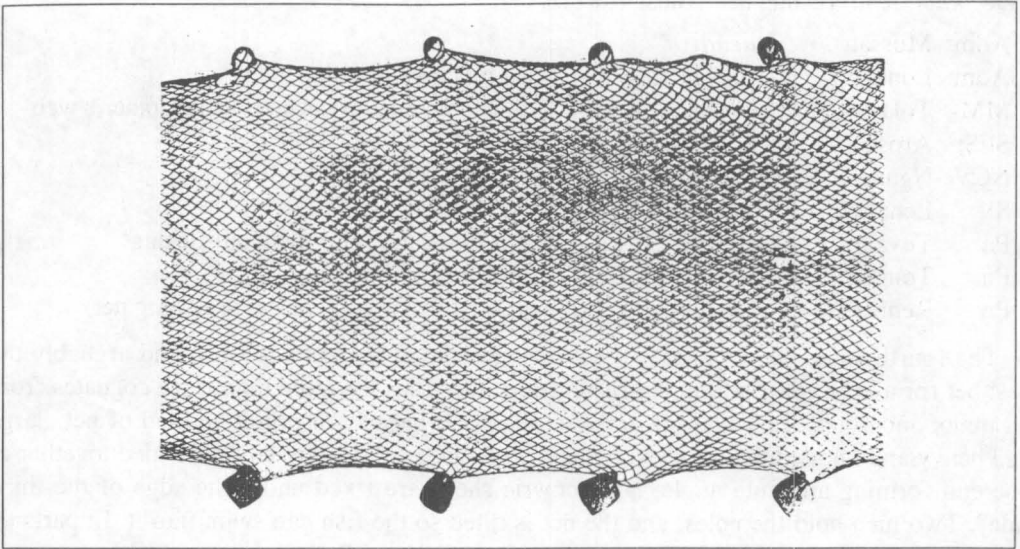


Figure 27b: Possibly POC **pukoi* ‘a seine net’, with wooden floats (POC **uton*) and stone sinkers (POC **patu*) (from Nevermann 1933:89)

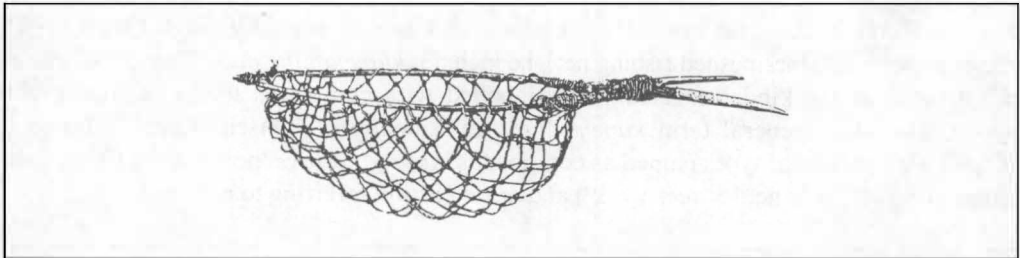


Figure 27c: Another kind of **kup^wena*. We lack a specific reconstruction for a handnet. (from Nevermann 1933:89)

The techniques that involve large nets usually require use of floats and sinkers. We have a reconstruction for net float:

POC **uton* ‘float of fishing net’

NNG:	Gitua	<i>uton</i>	
PT:	Bwaidoga	<i>utoya</i>	
MM:	Nakanai	<i>uto</i>	‘handle or stick of fish net’
SES:	Lau	<i>uo</i>	
NCV:	Mota	<i>uto</i>	(v) ‘come above the surface in water’
Mic:	Ponapean	<i>ūs</i>	
Mic:	Satawalese	<i>wūs, wuso-</i>	‘any kind of wood that floats well’
Fij:	Bauan	<i>uto-uto</i>	
Fij:	Rotuman	<i>ut</i>	
Pn:	Tongan	<i>uto</i>	
Pn:	Rarotongan	<i>uto</i>	

There is also a competing form that co-exists with **utoŋ* in the Central Pacific, PCP **vuta* (Rotuman *hufa* ‘float on a fishing net’, Tikopia *futa* ‘net float’).

The only terms I can locate for sinker are reflexes of POc **patu* ‘stone’, or the name of the cowrie shell which is sometimes used as a sinker:

PMP **buliq* ‘cowrie shell’ (ACD)

POc **buli(q)* ‘cowrie shell; cowrie shell used as net sinker’

SES: Sa’a *puli*

Pn: Tuvalu *pule*

Other reconstructions that can be included within the vocabulary of nets are:

POc **sika* ‘netting needle’

PT:	Kilivila	<i>(va)sia</i>	‘needle’
Mic:	Kiribatese	<i>rika</i>	
Fij:	Rotuman	<i>siʔa</i>	
Fij:	Bauan	<i>sika (ni lawa)</i>	
Pn:	Tongan	<i>hika</i>	‘mesh needle, used in making nets’
Pn:	E. Futunan	<i>sika</i>	‘shuttle used for net-making’
Pn:	Hawaiian	<i>hiʔa</i>	‘shuttle or needle for making nets’

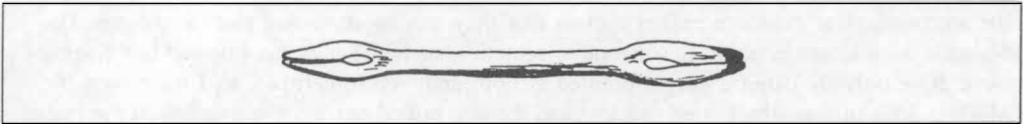


Figure 28: POc **sika* ‘netting needle’

POc **mata-* ‘mesh of net’

NNG:	Kove	<i>mata</i>	‘net gauge’
PT:	Molima	<i>mata-</i>	‘net gauge’
SES:	Arosi	<i>mā</i>	‘hole; opening; mesh of net’
SES:	Kwaio	<i>mā</i>	‘k.o. fish weir; space through which birds frequently fly, where traps are set up’
Pn:	Maori	<i>mata</i>	‘mesh of net’
Pn:	Hawaiian	<i>maka</i>	‘mesh of net’

POc **mata-* and its reflexes in many contemporary languages extend to a range of concepts that carry the idea of an opening, a doorway, something allowing access, and thus the mesh of a net. Evidence is that it is used in connection with nets in both Western Oceanic, as ‘net gauge’, and Eastern Oceanic, as ‘mesh of net’. Presumably the POc term embraced the idea of ‘mesh of net’ in both places, but in WOc languages reflexes now refer to the instrument used to maintain uniform mesh when net-making. Another term for net gauge is found in Eastern Oceania:

PCP **qava* ‘net gauge’

Fij:	Bauan	<i>yava (ni lawa)</i>	
Pn:	Samoa	<i>afa</i>	‘mesh stick’
Pn:	Rennellese	<i>?aha</i>	

3 Scareline

Some communities use a scareline for fishing, in which leaves are tied to a long rope which is drawn through the water. A term for this has been reconstructed to PCP level, although it is possible that cognates are derived from POc **raun* 'leaf':

PCP **rau* 'dragline, scareline, made from rope and coconut leaves'

Fij:	Wayan	<i>rau (sole)</i>	'barrier of leaves used in a <i>sole rau</i> or <i>ara-rau</i> fish drive'
Pn:	Tongan	<i>au</i>	'long fishing net made of rope and coconut leaves'
Pn:	Tikopia	<i>rau</i>	'sweep with a net'

However, in Andra (Admiralties) a leaf sweep is called *you*, pointing to POc **Rau(C)* rather than **raun*.

4 Angling implements

Use of fishhooks was evidently not an automatic 'given' in western Oceanic communities. Ann Chowning (pers.comm.) has commented that

at the time of European contact, a number of societies did not use fish hooks, even though the archaeological evidence makes it clear that they can be attributed to POc culture. The Nakanai were a case in point. In some other societies, such as Sengseng, line and bait fishing were done only by using a gorge, pointed at both ends, or sometimes, as I have seen the Molima do, bait was simply tied to a line and the fish pulled out when it swallowed the bait. In many places fishing with hook and line is a post-contact phenomenon.

Nonetheless, the linguistic evidence leaves us in no doubt that POc speakers were familiar with the technique.

PMP **hopen* 'fishing line' (ACD)

POc **apon* 'fishing line' (ACD)

Adm:	Drehet	<i>cap</i>	
MM:	Petats	<i>ahon</i>	'string'
SES:	Gela	<i>(rau ni) avo(lo)</i>	'leaf kite for fishing'
Mic:	Kiribatese	<i>ao</i>	'fibre of coconut husk, fishline, twine'
Mic:	Kosraean	<i>æ</i>	'string, fishing line, rope, thread, cord'
Fij:	Bauan	<i>ðavo</i>	(V) 'fish with rod (and line)'
Pn:	Tongan	<i>afo</i>	'cord, fishing line'
Pn:	Samoan	<i>afo</i>	

PMP **kawil* 'hook' (Blust 1972a), 'fish hook' (Dahl 1973)

POc **kawil* (N) 'hook; fishhook'

Adm:	Baluan	<i>kow</i>	
NNG:	Kairiru	<i>qawil</i>	
MM:	Tangga	<i>auil</i>	
MM:	Roviana	<i>gaili</i>	'fishhook made from pearlshell and turtle shell, used in trolling'
SES:	Arosi	<i>?awi</i>	

NCV: Mota	<i>gau</i>	'fishhook'
SV: Anejom	<i>in-yowoc</i>	
Fij: Wayan	<i>kau</i>	'fishhook of any kind'
Pn: Tuvalu	<i>kau</i>	'fishhook, generic'

POc **kawil* is widely attested. I have over fifty reflexes containing specific reference to fishhooks, occurring in all major subgroups. In Tuvalu it is used as a generic, followed by the name of the fish for which it is appropriate—*kau galata*, *kau palu*, etc. It has an obvious formal and semantic relationship with **kawi(t)*, **kawit-i-* (V) 'hook, catch hold of; fruit crook' (Ch. 5, §10), but the origin of this relationship is not understood.

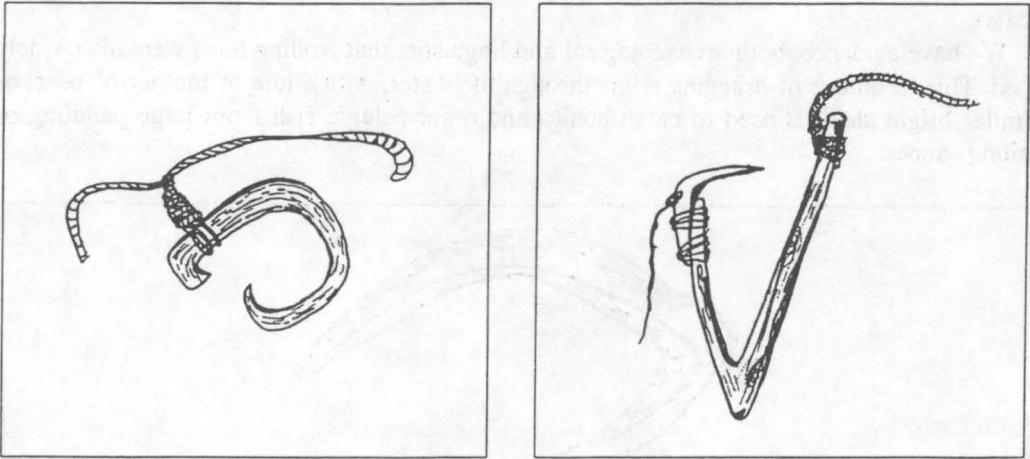


Figure 29: POc **kawil* 'fish hook', POc **ta(g,k)o* '(barbless?) fish hook'. On the left is a coconut shell fish hook; on the right is a wooden two-piece fish hook

POc **ta(g,k)o* '(barbless?) fishhook'

MM: Bola (Harua)	<i>toga</i>	'fishhook'
MM: Maringe	<i>t'ayo</i>	'fishhook'
SES: Bugotu	<i>tayo</i>	'fishhook'
SES: Lau	<i>a'o</i>	'fishing rod'
Pn: Rarotongan	<i>toko</i>	'an old type of wooden fishing hook (no barb)'

The extension of a meaning from a material to something made from that material is very common across languages (viz. English *glass/a glass*, *cork/a cork*). Examples occur in Oceanic languages as well (Bauan *gasau* 'a reed; an arrow', Tolai *vat* 'a stone, a sinker'). POc speakers evidently made fishhooks from a variety of shells, and in some daughter languages the term for a particular shell has become the term for a fishhook (made from that shell?). For instance, POc **kima* 'clamshell' is reflected in some Central Papuan languages as *kimai* 'fishhook' (Ross 1994a:404). A similar example is:

PMP **qunap* 'scales' (Dempwolff 1938)

POc **qunap* 'turtle shell, fishhook'

NNG: Rauto	<i>a-una</i>	'fishhook'
MM: Tinputz	<i>unā</i>	'hook; fishhook'
SES: Longgu	<i>ūnai</i>	'fishhook'

SES:	Ghari	<i>unua-na</i>	'turtle scales (not turtle shell)'
SES:	Arosi	<i>una-na</i>	'tortoiseshell' (<i>una</i> 'fish scales')
Pn:	Rennellese	? <i>una</i>	'outer shell (of turtle +)'
Pn:	Samoaan	<i>una</i>	'scale; scale of hawk's bill turtle, i.e. tortoise-shell'
Pn:	Tuvalu	<i>una</i>	'turtle shell'
Pn:	Tikopia	<i>una</i>	'carapace of marine turtle'
Pn:	Hawaiian	<i>una</i>	'shell of turtle'

Final **-p* is reconstructed because this item is almost certainly identical to POc **qunap* 'fish scales'. The Arosi (SES) verb derived from this term, *unahi-* 'remove shell from turtle, scale a fish' (see Ch. 6, §5.4), reflects **-p* and refers to the removal of both turtle shell and fish scales.

We have evidence, both archaeological and linguistic, that trolling lures were also widely used. This technique of dragging a line through the water, with a lure of mother-of-pearl or similar bright shell, is used to catch bonito and other pelagic fish from large paddling or sailing canoes.

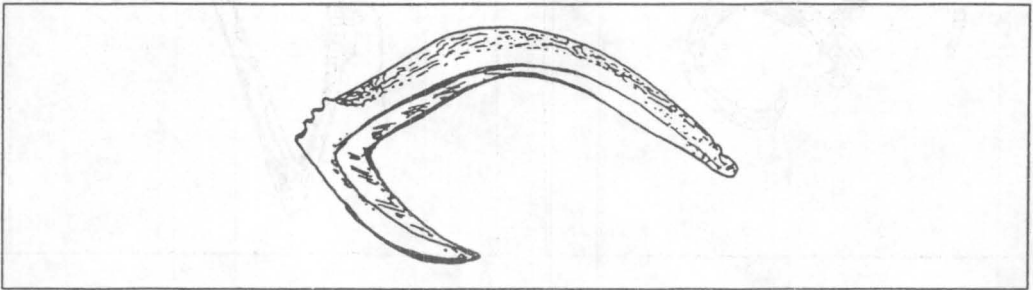


Figure 30: POc **bayan* 'trolling lure, trolling hook'

POc **bayan* 'fish bait, trolling lure, trolling hook'

MM:	Ramoaina	<i>bain</i>	'bait'
MM:	Teop	<i>beana</i>	'bait'
MM:	Mono-Alu	<i>beana</i>	'bait'
SES:	'Are'are	<i>pasa</i>	'a barbless bonito fishhook'
		<i>pā</i>	'fish bait'
SES:	Sa'a	<i>pasa</i>	'bonito lure of clamshell'
		<i>pā</i>	'bait'
SES:	Arosi	<i>bā</i>	'bait for fish, food to entice into a trap'
NCV:	Mota	<i>pea</i>	'bait; to entice by a bait'
SV:	Lenakel	<i>nə-pien</i>	'bait'
SV:	Kwamera	<i>nə-piien</i>	'bait'
SV:	Anejom	<i>ne-pyañ</i>	'bait'
Fij:	Wayan	<i>bā</i>	'trolling line with lure'
		<i>baya</i>	'earthworm (earthworms are used for bait)'
Fij:	Bauan	<i>bā</i>	'Tongan variety of fishhook' (<i>vakasavu bā</i> 'troll')
		<i>baða</i>	'worm (hence bait for fishing)'
Pn:	Tongan	<i>pā</i>	'fish hook, especially for catching bonito'
Pn:	Samoaan	<i>pā</i>	'pearlshell lure; spinner including lure and hook'

Pn:	Tuvalu	<i>pā</i>	'bonito lure, generally made from mother-of-pearl shell'
Pn:	Tokelauan	<i>pā</i>	'generic term for trolling hook (<i>pa si malau, pa si aseu</i> etc.). All are made with pearlshell shanks and turtle-shell points'

It would appear that in some Southeast Solomonic languages and also in Fiji, reflexes of POC **bayan* have split into doublets, evidently to distinguish 'bait' from 'trolling lure'. Because there is crossover of meaning, with the long-vowel form referring to bait in one region and trolling lure in the other, it is assumed that the two splits occurred independently. Nor can the possibility of borrowing be discounted.

John Lynch (pers.comm.) points out that the final *-ñ* of Anejom *ne-pyañ* reflects earlier **-ni*, implying POC ***bayani*. However, a number of the forms above reflect a loss of final **-n* which would not have occurred if the form had been ***bayani*. It is possible, however, that Anejom *ne-pyañ* reflects a conflation of **bayan* and **bani* (below), forms which are similar but, it appears, not cognate.

PCEMP **paniŋ* 'bait; fodder' (ACD)

POc **bani* 'bait'

NNG:	Gitua	<i>bani</i>	
PT:	Tawala	<i>bani</i>	
PT:	Molima	<i>bani</i>	(v) 'fish with hook and line' ³
MM:	Ramoaina	<i>ban</i>	'bait; use for bait'
Mic:	Ponapean	<i>pān</i>	'bait, lure'

A form PMP/POc **baŋi* 'bait', is reconstructable on the basis of Javanese *baŋi* 'bait' and the obsolete Samoan *paji* 'coconut bait for flying fish'. Its relationship to the reconstructions above is unclear.

5 Fish trap

PAn **bubu* 'conical bamboo basket trap for fish' (ACD)

POc **pupu* 'basketry fish trap'

Adm:	Lou	<i>pup</i>	'bamboo basket trap for fish'
MM:	Nakanai	<i>vuvu</i>	'k.o. fish trap'
SES:	Arosi	<i>huhu</i>	'large wickerwork eel trap'
Mic:	Kiribatese	<i>ū</i>	'trap for moray eel'
Mic:	Puluwat	<i>wū</i>	'fish trap'
Fij:	Bauan	<i>vuvu</i>	'long narrow fish trap made of bamboo'

³ Chowning (pers.comm.) points out that the Molima, and also the inhabitants of Goodenough Island, traditionally made their fish hooks out of the leg of a phasmid insect. This presumably combined the functions of hook and bait.

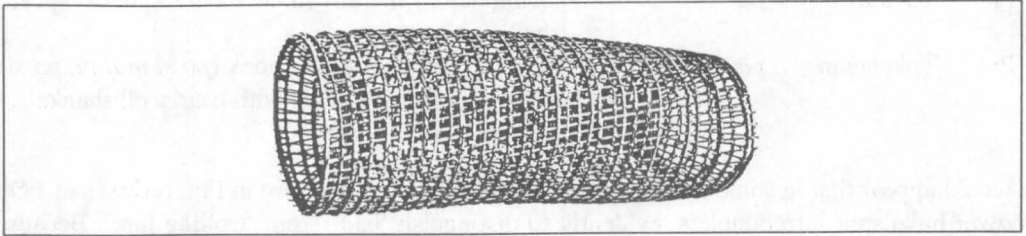


Figure 31: POc **pupu* ‘basketry fish trap’ (from Nevermann 1934:226)

The term is widely attested. It is noteworthy that we have no Polynesian cognates. Instead we find PPn **finaki* (Tongan *finaki*, Rarotongan ?*inaki* ‘fish trap’; Hawaiian *hūnaʻi* ‘k.o. basket fish trap’).

6 Fish weir

POc **baRa* ‘fence, wall, enclosure’

Adm:	Mussau	<i>bala-bala</i>	‘fence’
Fij:	Wayan	<i>bā (ni ika)</i>	‘fish weir’
Pn:	Tongan	<i>pā</i>	‘fence, wall, enclosure, especially for fish trap, made of stone or sticks’
Pn:	Rarotongan	<i>pā</i>	‘fish weir of stone walls’

The POc term **baRa* ‘fence, wall, enclosure’ (Ch. 3, §3.6) has evidently acquired an additional specialised meaning in the Central Pacific, where it refers to a fish trap made of stone or sometimes of sticks. (The Lou (Admiralties) term *pas* ‘stone fish corral’ has unexplained *-s*, and at this stage cannot be accepted as a cognate.) In Oceania, walls of stone or coral are constructed across channels in the reef to catch fish on a falling tide. In the Cook Islands (Rarotonga), *pā* has become a generic. Buck (1927:298) writes that:

Most of the *pa* are very old, having been laid down far back in pre-European times. The channels were studied and the course taken by fish observed. The lines of the walls were laid down with such skill and accuracy that any departure from them ends in failure. The walls are made of loose coral rock. The most important weirs are named, and are owned by particular families. No outsider can use a weir without permission from the hereditary owners.

He describes various types of weirs, for example, *pa kiokio* (roughly Z-shaped), *pa tute* (temporary), and *pa tuakirua* (V-shaped with opening towards the sea).

7 Fish poison

PMP **tuba* ‘Derris fish poison’ (Dempwolff 1938)

POc **tupa* ‘Derris fish poison’

NNG:	Aria	<i>tuva</i>
NNG:	Kove	<i>tuva</i>
PT:	Molima	<i>tuva</i>

PT:	Kilivila	<i>tuva</i>	'poisonous root used for fishing'
PT:	Motu	<i>tuha</i>	
MM:	Vitu	<i>tuva</i>	
MM:	Tigak	<i>tua</i>	
MM:	Teop	<i>suva</i>	
SES:	Gela	<i>tuva</i>	
SES:	Sa'a	<i>uha, uhe</i>	
NCV:	Uripiv	<i>na-tuv</i>	'fish poison vine'
Fij:	Wayan	<i>tuva</i>	

POc **puna* 'vine used for fish poison'

Adm:	Lou	<i>pun</i>	'vine used for fish poison'
MM:	Tolai	<i>vun</i>	'root with which fish are poisoned; to kill or benumb fish with poison of this name'
MM:	Roviana	<i>buna</i>	'littoral vine (macerated and thrown into rock pools, it stupefies fish)'
SV:	Lenakel	<i>no-un</i>	'fish poison'

From North New Guinea and New Ireland we have been able to reconstruct a lower-level term:

PWOC **maRi* 'Derris root'

NNG:	Gitua	<i>(waro)mali(ŋ)</i>
MM:	Nalik	<i>mal-mal</i>

The method of stunning fish by throwing pounded *Derris* root into pools is widespread, and the three terms seem to have identical reference, although *Derris elliptica* is not mentioned specifically in relation to **puna*. Describing the technique used by Sa'a speakers, a Southeast Solomons language, Ivens (1927 (reissued 1972):389) writes that:

...fish in streams are poisoned by a preparation. The bark of the edible *Barringtonia* tree, the one with red flowers, is stripped off and heated in the fire to bring out its bitter qualities. It is then beaten into shreds with stones in water and thrown into the place chosen. Along with it they use the grated nuts of the *barringtonia speciosa* [sic.], a littoral tree. A third ingredient is made from pounded sections of a creeper called *uhe*, the juices of which are very bitter.

The last ingredient is obviously a variant of *uha*, a reflex of POc **tupa*.

The kernel of the fruit of *Barringtonia asiatica* (POc **putun*) is used for poisoning water in Samoa, while the Fijians use the outer portion of the same fruit (Blackwood 1935:354–355), but I have not been able to reconstruct a term for this.

8 Torch fishing

PMP **damaR* 'resin, torch, light' (Dempwolff 1938)

POc **(d)rama(R)* (N) 'torch'; (V) 'fish at night with torch'

Adm:	Lou	<i>(ka)ram</i>	'torch'
		<i>ram-ram</i>	'fish at night by torchlight'
Fij:	Bauan	<i>rama-rama</i>	'lamp of coconut shell filled with oil'

Pn:	Tongan	<i>ama</i>	(V) 'fish at night by torch-light; torch made of coconut spathes bound together'
Pn:	Samoaan	<i>lama</i>	'torch (made of dry coconut leaflets +); fishing with torches'
Pn:	Maori	<i>rama</i>	'torch; eeling with torches'

Night-fishing is still a popular and widespread activity throughout the region. To attract the fish, a torch is used which consists of dried coconut fronds or spathes bound together to burn slowly over a long period. In many languages the same term refers both to the torch and to the activity. In Tonga, *lama* can simply be prefixed to the names of other fishing techniques to indicate that it is carried out at night (e.g. *lama fakasiosio* 'go spear-fishing at night'). (The ambiguity of the initial consonant *(d)r- is touched on in Chapter 2, §3.1.3.)

9 Pointed weapons

Most Oceanic languages contain a number of terms for spear, and it is probable that POC was no exception. There are various ways in which spears can be physically distinguished. There may be a distinction between fishing, fowling and fighting spears. Often, but not always, fishing spears have three or more prongs. Shorter spears can be used for thrusting, longer spears for hurling. Spears can be multi-barbed, have a single barb, or be barbless. They can be made with a head that separates from the shaft. Every language community will name its spears according to combinations of these and possibly other properties. Although we have been able to reconstruct perhaps six POC terms, it has been difficult to distinguish between them, other than to single out **tara* and **kuj(u,i)r* as probably fish spears. At the generic level—and that is itself a flexible category which can include arrows, and possibly other pointed weapons such as darts and spikes—**qio(r,R)* seems to have the widest distribution, although it does not occur east of Vanuatu. For the Central Pacific, **sao(t)* seems the most likely generic term. In POC times, some spears would have had obsidian heads, and the term used for these was evidently **koto* 'obsidian head of spear' (Ch. 4, §4.1.3).

PMP **saet* (N, V) 'spear' (ACD)

POc **sao(t)* (N) 'spear'

SV:	Sye	<i>sau</i>	
Fij:	Wayan	<i>sā</i>	'spear; harpoon'
Fij:	Rotuman	<i>jao</i>	
Pn:	Tongan	<i>tao</i>	'spear; javelin'
Pn:	Rennellese	<i>tao</i>	'spear or dart for fishing, fighting, fowling'
Pn:	Hawaiian	<i>kao</i>	'dart; fish spear; javelin; spike as on the tail of a stingray'
Pn:	Rarotongan	<i>tao</i>	'short throwing spear'

POc **qio(r,R)* 'spear, arrow' (Ross 1994a:464)

NNG:	Lukep	<i>yu</i>	'arrow; spear traditionally used for pig hunting and fighting'
NNG:	Kaiwa	<i>ī</i>	'arrow'
NNG:	Manam	<i>io</i>	'long lance, whose wooden spear point has prongs on four sides'
NNG:	Uvol	<i>io</i>	'arrow'

PT:	Anuki	<i>io</i>	'spear'
PT:	Bwaidoga	<i>yio</i>	'spear'
PT:	Kalokalo	<i>gio</i>	
PT:	Tawala	<i>iyola</i>	'fish spear'
PT:	Balawaia	<i>gio</i>	'spear'
PT:	Motu	<i>io</i>	'spear'
MM:	Konomala	<i>iu</i>	'shoot; arrow'
MM:	Tangga	<i>iu</i>	'fish spear'
SES:	Lau	<i>io</i>	'a war arrow; a poisoned spear'
NCV:	Nguna	<i>na-io</i>	'spear'

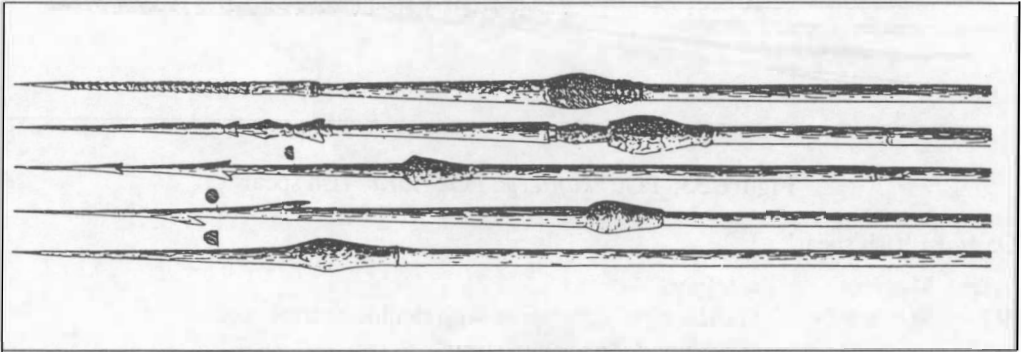


Figure 32: POc **qio(r,R)*, POc **sao(t)*, POc **bako* all 'spear' or 'k.o. spear'
(the above are Admiralty spears from Nevermann 1934:345)

As a subset of the above, certain NNG languages have inserted a medial consonant derived from epenthetic glides: Kove *ido* 'spear'; Bariai *ido* 'arrow'; Gitua *izo* 'spear'; Wogeo *owo* 'spear'. This appears to be a local feature, but not attributable to a common protolanguage.

PMP **bankaw* 'barbless spear' (ACD)

POc **bako* 'spear'

MM:	Hoava	<i>ba-bao</i>
SES:	Malango	<i>bao</i>
SES:	W. Quad.	<i>bao</i>

(In all these languages, **k* is regularly lost.)

POc **kuj(u,i)r* 'fish spear' (based on Ross (1994a))

PT:	Kalokalo	<i>kudila</i>	
PT:	Iduna	<i>hudila</i>	
PT:	Motu	<i>udi</i>	
MM:	Nakanai	<i>kusi</i>	'multi-pronged fish spear'
MM:	Notsi	<i>kucil(a)</i>	'arrow'
MM:	Siar	<i>kusur</i>	
MM:	Meramera	<i>kusul(u)</i>	
MM:	Kandas	<i>(kabo)kusur</i>	
MM:	Laghu	<i>kuroho</i>	'spear'

SV:	Kwamera	<i>kahar-kahar</i>	'type of arrowhead made of three prongs, used for spearing fish'
Pn:	Tuvalu	<i>koho</i>	'thrusting spear' (Nanumaga dialect) (<i>u > o</i> unexpected)

There is sufficient consistency among the glosses of this set to suggest that the POc form indeed referred to a multi-pronged fish spear.

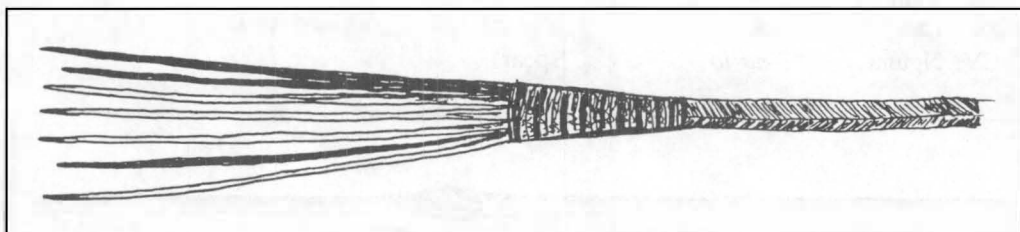


Figure 33: POc **kuj(u,i)r*, POc **tara* 'fish spear'

POc **tara* 'fish spear'

Adm:	Mussau	<i>tala(ɲai)</i>	
PT:	Molima	<i>tala(beya)</i>	'spear with double or triple point'
		<i>tala(dabadaba)</i>	'k.o. spear'
MM:	Tolai	<i>ta-tara</i>	
Pn:	Niuean	<i>tala</i>	'sharp-pointed object; barb; prong'
Pn:	Rapanui	<i>tara</i>	'horn; thorn; spur'
Pn:	Mangareva	<i>tara</i>	'spine; horn; thorn'
Pn:	Anutan	<i>tara</i>	'fishhook barb'

It seems from Western Oceanic and Mussau glosses that the original POc meaning of **tara* is probably 'fish spear'. Pn glosses indicate a later narrowing of meaning to 'barb' or 'prong'.

POc **sua* (N, V) 'spear (weapon retained in the hand)'

NNG:	Manam	<i>sua(pu)</i>	'fish spear'; (V) 'spear'
NNG:	Poeng	<i>sue</i>	'bone, needle'
SES:	Gela	<i>sua</i>	'spear without barbs'
SES:	Longgu	<i>sua</i>	(N) 'spear'
		<i>sua-</i>	(VT) 'pull out (spear, stick +)'
SES:	Lau	<i>sua</i>	'spear'
SES:	Kwaio	<i>sua</i>	'spear'
Fij:	Bauan	<i>sua(k)</i>	'stab; pierce with a spear (retaining hold of the weapon); husk a coconut'
Pn:	Samoan	<i>sua</i>	'thrust'

Other terms used to describe the action of spearing are derived from POc **soka*, *soka-i-* (V) 'pierce; stab, poke hole in (s.t.)' (Ch. 9, §4.1).

The following is a lower-level reconstruction for spear:

PEOc *saRi 'k.o. spear'

NCV: Tamambo	<i>sari</i>	'spear'
Fij: Wayan	<i>sai-sai</i>	'arrow or spear with three or more prongs, used for fish, bats +'

The bow, although evidently not as widespread as the spear, is used both for fighting and, in a smaller version, for shooting birds and other small game. It seems that *pusuR was the POc term for the bow and arrow, *p^(w)anaq more probably for the act of shooting.

PAn *busuR 'hunting bow' (Dempwolff 1938, ACD)

POc *pusuR 'bow and arrow'

NNG: Kis	<i>us</i>	'arrow'
PT: Kuni	<i>budu</i>	'arrow'
MM: Petats	<i>husul</i>	'bow'
NCV: S.E. Ambrym	<i>his</i>	
Fij: Wayan	<i>vuðu</i>	'bow'

PMP *panaq 'shoot' (Dempwolff 1938)

POc *p^(w)anaq 'bow', *p^(w)anaq, *p^(w)anaq-i- 'shoot'⁴

NNG: Tuam	<i>paneg</i>	'bow'
NNG: Mapos Buang	<i>vaneh</i>	'shoot'
NNG: Medebur	<i>pan</i>	'bow'
MM: Tolai	<i>panak</i>	'bow for shooting'
SES: Gela	<i>vanahi-</i>	'shoot at'
SES: Kwaio	<i>fana</i>	'hunt'
NCV: Mota	<i>vene</i>	'shoot with a pointed arrow'
NCV: Tamambo	<i>(i)vine</i>	'arrow'
NCV: Fortsenal	<i>vinai-</i>	'shoot (with arrow)'
Mic: Kiribatense	<i>pana</i>	'shoot at fish with band of rubber and long arrow'
Fij: Bauan	<i>vana</i>	'shoot with arrow or gun'
Pn: Tongan	<i>(kau)fana</i>	'bow'

With regard to the reconstruction of *p^(w), see Chapter 2, §2.1.

POc *tib^wa(ŋ) 'dart, arrow (not a fighting weapon)' (Ross 1994a:464), *tib^waŋ-i- 'shoot with dart, arrow'

PT: Dobu	<i>tupu</i>	'bow, arrow'
PT: Tawala	<i>diba</i>	'small pretend spear'
PT: Taboro	<i>diba</i>	'spear, fish spear'
PT: Motu	<i>diba</i>	'arrow'
MM: Notsi	<i>tipi</i>	'shoot'
MM: Roviana	<i>tupi</i>	'arrow or dart' (vowel metathesis)
NCV: Mota	<i>tig^wa</i>	'blunt arrow for birds; shoot (not in fighting)'
	<i>tig^waŋ</i>	'shoot and hit'
NCV: Tamambo	<i>tibua</i>	'shoot an arrow'
NCV: Raga	<i>tib^wa</i>	'shoot'

⁴ Tuam, Medebur, Tolai, Kiribatense *p-*, which normally reflects POc *b or b^w, is unexplained.

NCV:	Atchin	<i>cip</i>	'blunt arrow'
NCV:	Paamese	<i>a-tuvo</i>	'arrow'
		<i>tuvo</i>	'shoot'
NCV:	Nguna	<i>na-tip^wa</i>	'arrow, (fish) spine, (pine) needle'
		<i>tipe-</i>	'shoot with bow'
Fij:	Bauan	<i>tiga</i>	'reed dart, used in game of <i>veitiqa</i> '
Fij:	Wayan	<i>tig^we</i>	'throw reed or dart horizontally controlled by end of forefinger, with aim of making dart skip up when it hits ground'
Pn:	Tikopia	<i>tika</i>	'k.o. arrow thrown in game'
Pn:	Maori	<i>teka</i>	'dart used in a traditional game'
Pn:	Hawaiian	<i>ke?a</i>	'dart, bow; shoot with bow and arrow'

The glosses of the reflexes of POc **tib^wa(ŋ)* suggest strongly that it referred prototypically to small, arrow-like objects or darts that did not have a killing function. The initial-consonant voicing of the PT forms (other than Dobu *tupu*, which may not be cognate) is unexplained.

PAn **deles* 'bowstring' (ACD)

POc **lolo(s)* 'bowstring'

SES:	'Are'are	<i>i-roro</i>	
SES:	Sa'a	<i>i-lolo</i>	
Fij:	Wayan	<i>lolo</i>	'bend, flex; bent, flexed'
Fij:	Bauan	<i>(ka)lolo</i>	'bent to one side by excessive burden on shoulder'
Pn:	Tikopia	<i>(ka)roro</i>	
Pn:	Tahitian	<i>(a)roro</i>	'stay to mast of canoe'

The Fijian and the Tahitian cognates have strayed semantically, yet still retain the idea of something held so tautly that it distorts.

10 Club

Across the Pacific, the kind of weapon that is labelled 'club' varies from the great knobbed, obsidian-studded roots that can be seen in the Bishop Museum in Honolulu, to the flat round stone clubs of the Motu (*gahi*), to the smaller, lighter throwing clubs of Fiji (*i ula*: Clunie 1977), and to the Kiribatese *kati-popuki*—about four feet long, pointed at both ends, used for warding off a spear, making a thrust, or wielding as a club (Hudson 1841, quoted in Koch 1986:249), which might equally be classified as a shield or lance. I consider these to be more or less marginal examples of what is basically a blunt, heavy instrument, wielded in the hand for bludgeoning.

In the Southeast Solomons, Fiji and Polynesia at least (I have little information from Western Oceania), clubs have an importance beyond that of simply weapons. They often carry ceremonial weight. Many are heirlooms with names and magical powers. Special reverence is accorded the war club. To the extent that it is possible to distinguish war clubs from hunting clubs, I do not intend to delve further into the culture and terminology of the former. It is my guess that hunting clubs would have carried less cultural significance, and as a result,

been labelled more broadly. Two terms have been reconstructed.⁵ In each case I have included all known cognates. It will be apparent that neither reconstruction is particularly soundly based. Nor do their cognates provide much information as to the shape, material or specific function of each club:

POc **paru* (N, V) 'club'

PT:	Molima	<i>pulu(mai)</i>	'war club, wooden and flat-sided, used to kill by hitting throat or back of neck'
MM:	Teop	<i>varu</i>	
NCV:	Paamese	<i>vau(lev)</i>	
SV:	Lenakel	<i>ne-perāu</i>	'club wielded by the leader of various dances in a <i>nekoviār</i> (dance cycle)'
Fij:	Bauan	<i>ravu(ta)</i>	'club s.o. or s.t.' (metathesis)

and an even more questionable reconstruction, in view of irregular final vowels:

POc **gapi* '(stone?) club'

PT:	Motu	<i>gahi</i>	'flat stone club'
SES:	Fagani	<i>ɣafe</i>	'club'
SES:	Lau	<i>afui</i>	'k.o. club'

11 Slingshot

POc **maga* 'stone; slingshot'

MM:	Vitu	<i>(ta)maga</i>	'slingshot' (<i>maga-maga</i> 'sand')
MM:	Bulu	<i>(ta)maga</i>	'slingshot'
MM:	Nakanai	<i>(tu)maga</i>	'sling made of bark-cloth, used for hunting birds and bats'
SES:	Talise	<i>maka(ra)</i>	'stone'
Pn:	Tongan	<i>maka(tā)</i>	'sling' (<i>maka</i> 'stone, rock', <i>tā</i> 'hit')
Pn:	Tikopia	<i>maka</i>	'stone for sling; sling for hurling stones'
Pn:	Rarotongan	<i>maka</i>	(V) 'throw; hurl; sling'; (N) 'sling, stone'
Pn:	Tahitian	<i>ma?a</i>	(N, V) 'sling'

POc **kalo* 'sling; to turn round and round'

MM:	Bilur	<i>alo</i>	'slingshot'
SES:	Arosi	<i>?aro(rabu)</i>	(N) 'sling' (<i>?aro</i> 'turn round and round', <i>rabu</i> (V) 'strike or knock s.t.')

⁵ A putative third construction, POC **nalanalā*, 'club' (from Motu *tanala* 'egg-shaped stone club', Tolai *nalnal* 'battle axe', Maringe *nalanalā* 'wooden club', Longgu *nalanalā* 'club') is discounted on the basis of evidence that it is a borrowing from the Pidgin spoken along the east coast of Australia last century, this in turn deriving from *nalanalā* 'a hardwood club used in fighting and hunting', a term from the language spoken around Sydney at the time of the first settlement (Jaki Troy, pers.comm.). The term *nalnal* still exists in Bislama (Ross Clark, pers.comm.).

Slingshots would have been used for hunting birds, flying foxes and perhaps the cuscus.⁶ Although it is assumed that ordinary well-shaped stones were used, Green (1979:39) has documented a pointed-end *Tridacna* shell slingstone from Main Reef Islands circa 1000 BC.

12 Trail and pitfall spikes

PMP **suja* 'bamboo trail or pitfall spike' (Blust 1976b)

POc **suja* 'sharpened stake set in ground to stop or wound animals or enemies'

MM:	Sursurunga	<i>sus</i>	'sharp-pointed stick, used in traps or for breaking coconuts open; make holes in'
SES:	Arosi	<i>suda</i>	'stake set slanting and sharpened in a pit for the enemy'

The setting of sharp spikes or slivers of wood or bamboo, hardened in the fire, either directly into a path, or at the bottom of a pit, is also known in Fiji (Bauan *soki*, 'spike'; *lovosa* 'pitfall man trap'), but I cannot locate any other Oceanic reflexes of PMP **suja*. Nonetheless, given the external evidence, the reconstruction must stand. It may be that this was primarily a warfare technique, and that a different term was used for the pit-trapping without spikes of pigs and smaller ground animals like lizards.

13 Snare trap

Birds are caught for food throughout the region, often by netting or by ground snares, fashioned from a spring-laden twig and a noose. Although I can locate many terms which refer to snare, noose and bird trap, the cognate sets collected are few. The following term was both a noun and a verb. Terms reflecting ***piti* in MM and SES languages seem to be local inventions formed from a noun ***pit* (after loss of POc *-a) with the addition of the transitive suffix *-i-.

POc **p^wita*, **p^wita-i-* (N) 'snare', (V) 'tie by encircling, ensnare'

NNG: Lukep	<i>wit</i>	'tie by encircling'
	<i>wit(kala)</i>	'tie together'
	<i>pit</i>	'snare, trap; to trap'
NNG: Mangap	<i>mbit</i>	'tie up with rope, fasten'
	<i>(na)pit-pit</i>	'snare, trap for rats, pigs, bandicoot' (<i>na-</i> indicates a borrowing from Kilenge)
NNG: Poeng	<i>(sam)pite</i>	'tie securely, tighten'
	<i>(bago)pita</i>	'fasten (to help it to float)'
NNG: Takia	<i>pite(lak)</i>	'tie on (as grass-skirt)'
MM: Sursurunga	<i>puti</i>	'tie together'
MM: Ramoaaina	<i>pita</i>	'hang up in the house; tie to the end of anything'
	<i>pit'</i>	'tie'

⁶ Chowning (pers.comm.) comments that slings were also used for warfare in some places, as among the Tolai and in the D'Entrecasteaux, including the Dobu area. The Molima say they were particularly popular for fighting from canoes.

MM:	Ramoaina	<i>pit-pit</i>	‘line, snare’
		<i>piti</i>	(V) ‘snare’
SES:	Gela	<i>piti-</i>	‘tie’
SES:	W. Guad.	<i>piti</i>	‘tie’
SES:	Longgu	<i>piti-</i>	‘trap an animal’s leg; tie s.t. around ankle or wrist’
Pn:	Tokelau	<i>fi-fita</i>	‘(garments) be too tight’
Pn:	Maori	<i>φita</i>	‘firm, secure, fast’

With regard to the reconstruction of *p^(w), see Chapter 2, §2.1.

PEOc **taRi* ‘noose, snare’

NCV:	Mota	<i>tar</i>	(V) ‘lay (net +)’
Fij:	Bauan	<i>dai</i>	‘snare or trap for catching animals’
Fij:	Wayan	<i>tai</i>	‘snare or trap for catching animals’

14 Birdlime

Another widespread method of catching birds involves the use of birdlime. Hooley describes the technique used by Mapos Buang speakers in the Huon Gulf region of New Guinea:

The sap of this tree (*dagΣem*) is used as birdlime for catching birds. The sap is collected in a length of bamboo and is then heated over a fire. When it is boiling a stick is dipped in and twisted and the sap adhering to it is chewed to make it soft and then wrapped in cordyline leaves. The sap is then spread on a suitable tree branch so that when birds come to eat the fruit of that tree they are caught. (from word list held on computer file at ANU)

Blust (1983–84a) has reconstructed Proto WMP **pikat* or **piket* ‘birdlime’ and **mamikat* or **makiket* ‘snare birds with birdlime’, but I have not been able to locate any Oceanic reflexes. The reconstruction given below evidently refers generally to gum or resin, although in one instance, in Arosi, it is the first element in a compound, *buruhasi*, meaning ‘bird trap’. The second element, *hasi*, means ‘adhere’.

PMP **bulit* or **pulit* ‘caulk, fill up a hole or crack with viscous material’ (ACD)

POc **bulit* ‘gum; resin’

MM:	Tolai	<i>bulit</i>	‘gum of any tree, especially that used for putty or gum’
MM:	Nakanai	<i>bulubulu(aga)</i>	‘plant with sticky fruit used for catching birds’
SES:	Arosi	<i>buru(hasi)</i>	‘bird trap; gum of banyan or other tree put at intervals along a pole’
SV:	Lenakel	<i>(noua-neha)p^wit</i>	‘sap, glue’
Fij:	Bauan	<i>bulu-bulut(i)</i>	‘(soil) sticky, cloggy’
Fij:	Rotuman	<i>pulu</i>	‘gum; sap’
Pn:	E. Uvean	<i>pulu</i>	‘resin’

15. Archaeological evidence

Evidence comes both directly from the existence of artefacts themselves in archaeological sites—the fishhooks, trolling lures, stone fish traps, spear tips and so on—and indirectly

through analysis of remains in Lapita middens, which provide evidence of Lapita people's diet and (indirectly) for food procurement techniques.

Spriggs (1997a:114) summarises non-vegetable food traces from an Eloaue site on Mussau, east of the Admiralties, believed to have been occupied between about 3,500 and 2,500 years ago. (Eloaue is a low, flat, coral island south-east of the high island of Mussau.)

Large quantities of shell midden occurred in the site...The three Oceanic domesticates, pig, dog and chicken, were present but only in small numbers. 95 per cent of the bone was of fish, mainly inshore species, and turtle. Present too in small quantities were porpoise, reptiles, birds, rats and also the phalanger *Spilogiscus maculatus* (p.117).

A similar range of fauna to Mussau's occurs in the Lapita sites in the Arawe Islands, off the south-west of New Britain, with the addition of a wallaby, *Thylogale browni* and the flightless cassowary as introduced species (p.120). A site on Watom, off the north-east tip of New Britain, adds bandicoot to the faunal repertoire (p.124). Lapita sites from the Solomons provide little evidence, while the Reef-Santa Cruz Islands, next in line as one moves east, show a decline in the range and diversity of animal life available for food, a decline that increases as one moves progressively further out into the Pacific. Spriggs records that "hunting took place of what local species of birds, bats and sea creatures such as turtles and dugongs there were, as well as collecting of reef and lagoon fish and shellfish". (p.135)

Artefacts are considered alongside the linguistic evidence. With regard to angling, we have the following POc reconstructions:

*apon	'fishing line'
*kawil	'fishhook'
*ta(g,k)o	'barbless (?) fishhook'
*qunap	'turtle shell; fishhook'
*bayan	'trolling lure'
*bani, *bani	'bait; fodder'

Of these items, fishhooks have proved the most useful in developing local culture sequences. One-piece fishhooks made from several kinds of shell are now well documented from a number of Lapita sites, ranging from Talepakemalai (Mussau) to Lolokoka (Niuatoputapu, Tonga), one site at the latter dating back to about 2800 BP. "Most of the Mussau hooks are fairly large (about 5 cm in shank length) and were probably designed for hand-lining from canoes, in order to catch larger benthic species such as groupers. A few hooks are smaller, however, and could have been used for taking smaller species on reefs and along coastlines." (Kirch 1997:200). Most hooks so far found are of *Turbo*, *Trochus* and pearlshell. Linguistic evidence supports clamshell and tortoiseshell. Presumably all of these were used, as well as the less durable coconut shell, bone and *Pemphis acidula* wood, which are in use today. Also from Mussau sites come examples of carefully crafted lures made from *Trochus* shell. These trolling lures "are streamlined for hydrodynamic lift in the water, and have finely carved grooves for attaching both the line and hackles (probably feathers or pig bristles) near the recurved point". (pp.200–201)

More elaborate two-piece fishhooks with separate shank and point were apparently a later development, appearing in Eastern Polynesia and possibly originating in the Marquesas Islands (Bellwood 1987:58).

A pertinent observation on the connection between present-day fishing techniques and those of the early Lapita settlers is made by Kirch and Yen (1982) in their study of the prehistory of Tikopia (initial settlement dates to around 2875–2750 BP). They have assembled

a collection of one-piece fishhooks and three distinctive early trolling hooks made from trochus shell, which are associated with Lapita sites. They note (p.243) that:

While we must be cautious in interpreting archaeological fishhooks on the basis of ethnographic observations of the use of modern metal hooks, the data are suggestive that Tikopia utilised a similarly broad range of angling strategies in prehistoric times. Group I hooks would have been best suited to catching small fry on the fringing reefs. Group II hooks, the most varied, were likely used for more than one strategy, and towline and bottom-fishing techniques, among others, seem likely. The largest specimens, Group III, would seem to have been intended for towline capture of carnivorous pelagic fish or bottom fishing for large groupers, *Ruvettus*, and the like. Such an interpretation of the angling gear is consistent with the range of fish taxa identified in the Tikopia faunal material.

We have eight POC terms that relate to netting:

* <i>pukot</i>	'fishing net, seine'
* <i>reke</i>	'fishing net, seine net'
* <i>lawa((n,q))</i>	'k.o. fishnet'
* <i>kup^(w)ena</i>	'net, generic term (?)'
* <i>utoŋ</i>	'net float'
* <i>buli(q)</i>	'cowrie shell used as net sinker'
* <i>sika</i>	'netting needle'
* <i>mata-</i>	'mesh of net'

Although netting itself will not endure, we have limited physical evidence of dragnetting from Tikopia in the form of cowrie shell net weights. Kirch and Yen (p.245) have been able to identify shells and stones from a Lapita site as net weights and line sinkers:

Tikopia women frequently scour the reef flats with small two-handled dip nets, *te kuti*, the edge of which is weighted with small *Cypraea* shells. Such shells have the dorsum removed to facilitate lashing...Two line sinkers were [also] found, each consisting of a natural cobble...with an artificially pecked groove running laterally round the stone. Such grooved cobbles are still used on occasion by Tikopia fishermen.

It is unlikely that the remainder of our fishing terminology, with the possible exception of the stone fish weirs, can ever be supported by archaeological evidence:

* <i>pupu</i>	'basketry fish trap'
* <i>baRa</i>	'fence' ('fish weir' only in PCP)
* <i>iupa</i>	'derris fish poison'
* <i>puna</i>	'vine used for fish poison'
* <i>(d)rama(R)</i>	(N) 'torch'; (V) 'fish at night with torch'

The pointed weapon terminology consists of:

* <i>sao(t)</i>	(N, V) 'spear'
* <i>sua</i>	(N, V) 'spear, weapon retained in the hand'
* <i>soka, *soka-i-</i>	'pierce; stab'
* <i>qio(r,R)</i>	'spear'
* <i>bako</i>	'spear'
* <i>kuj(u,i)r</i>	'fish spear'
* <i>tara</i>	'fish spear'
* <i>koto</i>	'obsidian head of spear'
* <i>pusuR</i>	'bow and arrow'
* <i>p^(w)anaq, p^(w)anaq-i-</i>	'bow'; (V) 'shoot'

- **tib^wa(ŋ)*, **tib^waŋ-i-* 'dart, arrow; shoot with dart, arrow'
 **lolo(s)* 'bowstring'

The only archaeological evidence we have for spears, bows and arrows, darts, etc. would seem to be obsidian and bone spear points. Triangular-sectioned obsidian blades are an artefact form produced only in the Manus Group and were almost certainly spearpoints (Spriggs 1997a:163). They were manufactured in the vicinity of the main obsidian sources in the Lou Island area by 2100 BP (pp.162–164). Green (1979:39) documents a bone spear-point from Main Reef Islands circa 3100 BP.

I can find no archaeological evidence for any kind of club, our two (weakly supported) terms notwithstanding:

- **paru* (N, V) 'club'
 **gapi* 'stone? club'

However, for the slingshot we have pointed-end tridachna shell slingstones from Main Reef Islands documented by Green (1979:39):

- **maga* 'slingshot; stone'
 **kalo* 'sling; turn round and round'

The trail and pitfall spikes, the snare trap and the birdlime lack any supporting evidence from archaeology.

- **suja* 'sharpened stake set in ground'
 **p^wita*, **p^wita-i-* (N, V) 'snare'
 **bulit* 'gum, resin (birdlime?)'

Although we can look to archaeology to confirm the hypothesis that durable artefacts will be found in sites associated with Oceanic-speaking communities, there is little hope of archaeological recovery of the perishable artefacts in question. Here, linguistics adds an extra dimension to research on the prehistory of Oceania.

9 *Acts of impact, force and change of state*

MALCOLM ROSS, ROSS CLARK AND MEREDITH OSMOND¹

1 Introduction

The theme of this volume is material culture, and it is perhaps inevitable that a majority of the reconstructions in the preceding chapters are of nouns denoting objects—mostly utensils and some manufactured objects, especially buildings and seagoing vessels. A number of reconstructions are of verbs denoting actions performed with these utensils or on the materials of which objects are made. In many cases, however, the relevant verbs have meanings which transcend the subthemes of individual chapters, and so we have decided to bring them together here and to consider them in relation to each other in order to gain a better understanding of their meanings. This leads to a certain amount of repetition, but we have thought it more convenient for the reader to have much of the data assembled here than to have to pursue cross-references to earlier chapters. In the interests of space, however, we have generally not repeated here those verbs whose meanings fit neatly enough under the subtheme of another chapter, and we have sometimes reduced the cognate sets given as supporting evidence.

Some system of classification was necessary to give coherence to our work, and we started with a classification based on what we thought were sensible but somewhat *ad hoc* semantic classes. Interestingly, as work progressed and the glosses of cognate set members gave us pointers to the meanings of our reconstructions, so the meanings of the reconstructions themselves led us to reshape our classification and to recognise semantic divisions which were not part of our original classification. In this way, we believe we have gained some insight into the semantic classification of acts of impact, force and change of state used by POC speakers.

The final classification of reconstructions, with section numbers, is as follows:

¹ Ross Clark did the initial collation and classification of data, Meredith Osmond wrote the first draft, also collating reconstructions drawn from other chapters, and Malcolm Ross refined and added reconstructions, partially reorganised the chapter and rewrote much of it.

- 2 Abrasion and friction
 - 2.1 File, rasp, sharpen, grind
 - 2.2 Scratch, scrape, grate
 - 2.3 Rub
 - 2.4 Brush, sweep
- 3 Cutting, peeling, separating, splitting and tearing
 - 3.1 Cut off, sever
 - 3.2 Cut into two or more pieces
 - 3.3 Shape by cutting
 - 3.4 Incise the skin, circumcise
 - 3.5 Other cutting verbs
 - 3.6 Sharpen, pare, shave
 - 3.7 Separate flesh from shell, skin from fruit, bark from tree, leaves from branch or midrib
 - 3.8 Split into two or more sections
 - 3.9 Tear
- 4 Penetration with a pointed object
 - 4.1 Pierce
 - 4.2 Drill, bore
- 5 Forceful impact
 - 5.1 Hit, beat, strike
 - 5.2 Break, smash, shatter
- 6 Removal of object from source by hand
 - 6.1 Pluck, pick
 - 6.2 Break off, snap off
 - 6.3 Pinch, nip
 - 6.4 Unhook, hook
- 7 Wringing and squeezing
- 8 Twisting, plaiting, braiding
- 9 Bending and folding
- 10 Fastening and lashing together
- 11 Applying heat and burning

Possibly the most interesting categories that emerged were 'separate flesh from shell, skin from fruit, bark from tree, leaves from branch or midrib' and 'split into two or more sections'. Perhaps the first of these could be more quintessentially expressed as something like 'separate one naturally occurring layer of an object from the rest'. In each case the conceptual focus seems to be on the separation itself, not the manner in which it is done. Because of this focus, we found ourselves impelled to combine different manners of separation—cutting, peeling, separating, splitting and tearing—into a single higher-order grouping, as they seem not to have been as important for classifying actions in POc as they are in European languages.

The formal categories of POc verbs are particularly salient in this chapter. They are explained in greater detail in Chapter 2, §3.1.1. Many verbs can be reconstructed with both an intransitive and a transitive alternant. Two patterns commonly occur. They are illustrated

by the first two reconstructions in §2.1. In the first pattern, the intransitive has two syllables and ends in a consonant (shown in brackets if it is not reflected in the supporting data), and the transitive alternant has an added *-i-. e.g. POc *asa(q), *asaq-i- 'grate, sharpen by grating or rubbing'. The hyphen on the transitive means that it was usually followed by an enclitic object pronoun. In the second pattern, represented by POc *kiri[-] 'file, rasp, saw', there is no final consonant, and the intransitive and transitive are identical, with two syllables. The hyphen in square brackets indicates that nothing follows the intransitive alternant, but that an enclitic object pronoun follows the transitive.

With verbs of the first pattern, we sometimes present the intransitive and transitive alternants separately with their supporting data if these form long lists, and sometimes together.

There is a third pattern represented in the reconstructions in this chapter. Here, the intransitive consists of a single-syllable 'root' with a reduplication of the initial consonant-vowel sequence, as in POc *toto(k) 'cut, chop' (§3.2), where the root is *tok. The transitive consists of the root with added *-i- as in POc *toki.

Sometimes, as explained in Chapter 2, §3.1.1, we are unable to determine from the cognate set what verb class a given intransitive verb belonged to. This means that the glosses of intransitive verb reconstructions are sometimes vague, because we do not know whether the actor or the undergoer was the subject.

Another alternation that occurs, but has nothing to do with transitivity, is between a reconstruction with an oral-grade initial consonant, like POc *kiri[-] 'file, rasp, saw', and one with a nasal-grade initial consonant, like POc *giri[-] 'file, rasp'. Where such an alternation is reconstructed, the alternant reconstructions are labelled (1) and (2). The possible origins of this alternation are discussed in Chapter 2, §3.1.3.

A practical problem in the analysis for this chapter was that it is often necessary to reconstruct two or more formally similar verbs. There are some quite principled reasons for this, and some which are more *ad hoc*. The more principled explanations are that (i) a verb may have intransitive and transitive alternants, as noted above; (ii) verbs with similar meanings often contain the same PAn monosyllabic root, as described in Chapter 2, §3.1.3; (iii) as mentioned in the previous paragraph, verbs with corresponding oral-grade and nasal-grade consonants must sometimes be reconstructed. Once verbs with similar forms and meanings exist alongside each other, the conflation of two forms to make a new one is quite possible or phonaesthetic motives may lead to the creation of new but similar forms. In §2.2, appeal is made to a sporadic sound change which occurs in Oceanic languages in order to explain some of the similarities among verbs of scratching and scraping. It is probable, though, that phonaesthetic motives have also operated here as they appear to in English *scratch*, *scrap*, *scrape*, *scrawl*, *scribble*, *scrimp*.

2 Abrasion and friction

The verbs in this section refer to continuously repeated contact between an implement and an object to affect the surface of that object in some way, either by removing some of the substance of the object itself (file, rasp, sharpen, grind, scratch, scrape, grate) or by removing another substance from its surface (rub, brush, sweep).

2.1 **File, rasp, sharpen, grind**

The generic term for any kind of wearing down by friction was POc **asa(q) *asaq-i-* (Ch. 4, §4.1.5). While it is possible to reconstruct several terms that refer just or primarily to the grating of foodstuffs, it has proven more difficult to reconstruct a term referring specifically to the sharpening of cutting edges. POc **kiri/*giri* is our most likely contender.

PAn **Sasaq* 'whet, sharpen' (ACD)

POc **asa(q), *asaq-i-* 'grate, sharpen by grating or rubbing'

POc **i-asa(q)* 'grater; anything used to grate, grind' (Lichtenberk 1994)

Adm:	Loniu	<i>yasa(y)</i>	'sharpen a cutting edge'
NNG:	Manam	<i>ara</i>	'grate, sharpen, rub'
NNG:	Kairiru	<i>yas</i>	'sharpen s.t.'
MM:	Teop	<i>aha</i>	'grate (tapioca +); scrub (floor +)'
		<i>(i)aha</i>	'grater (for tapiok)' (<i>i-</i> < POc <i>*i-</i> INS)
MM:	Maringe	<i>jaha</i> or <i>zaha</i>	'sharpen (knife, axe +); grate (tapioca, sweet potato)'
MM:	Roviana	<i>asa-i-</i>	'grind (very blunt axe +); grate (sweet potato, taro +)'
SES:	Bugotu	<i>(a)aha</i>	'grate, rub down (taro +) on a stone, sharpen by rubbing'
SES:	Arosi	<i>ata</i>	'scrape, rub, sharpen with rubbing'
NCV:	Mota	<i>asa</i>	'rub, wash with rubbing'
NCV:	Raga	<i>raha</i>	'grate, grind, sharpen'
SV:	Kwamera	<i>(ə)rasi</i>	'grate, as coconut meat; scrape, as ash from a tuber; sand smooth, as wood of axe handle'
Mic:	Carolinian	<i>(m)asa</i>	'(knife, axe +) blade'
Mic:	Ponapean	<i>ete</i>	'sharpen, put an edge on s.t.'
Fij:	Bauan	<i>yaða-</i>	'grate, of taro, tapioca +; grind, of blade on stone'
		<i>(i)yaða</i>	'grater, grindstone' (<i>i-</i> < POc <i>*i-</i> INS)
Pn:	Maori	<i>aha-aha</i>	'saw-like instrument of shark teeth set in a wooden mount'

PMP **kirkir* (V) 'file, rasp' (Blust 1977)

(1) POc **kiri[-]* 'file, rasp, saw'

NNG:	Roinji	<i>kiri-</i>	'bore (hole)'
NNG:	Manam	<i>kuiri-</i>	'bore (hole)'
PT:	Iduna	<i>kili-li</i>	'pumice stone'
PT:	Motu	<i>iri</i>	(N) 'saw'
		<i>iri-ri</i>	'file'
Pn:	Tongan	<i>kili</i>	'saw, file'
Pn:	Tokelauan	<i>kili</i>	(V) 'file, rasp'

(2) POc **giri[-]* 'file, rasp'

NNG:	Mangseng	<i>kir</i>	'rub, file'
		<i>kir(oŋa)</i>	(N) 'file' (<i>-oŋa</i> NOM)

SES:	Gela	<i>gi-giri</i>	(N) 'rasp; a saw'
SES:	Lau	<i>giri-giri</i>	'roughen, as a stick with notches or in making a file'

cf. also:

NNG:	Takia	<i>riri</i>	'grate, pulverise by rubbing against s.t. rough; rasp'
PT:	Motu	<i>riri</i>	'grate (yams +)'

2.2 Scratch, scrape, grate

Various activities are subsumed under this heading. They include the separation of coconut meat from the shell, the grating of foodstuffs (coconut meat, cassava etc.), the scraping of tubers to remove dirt and ash, and the scratching of a (non-food) surface, sometimes with the intention of leaving a mark. Distinguishing reflexes of some of our reconstructions has proved difficult because some are formally quite similar. Distinguishing which term was used for which activity is also problematic, since it would appear that often communities see these activities as essentially describable by the same term, in that they are using the same action of moving an implement, typically a cockle shell or similar bivalve, to and fro to affect the surface of an object. Sometimes the name of the shell suffices to describe the activity.

POc **karu(t)*, **karut-i-* seems to have referred to scratching with fingernails or claws, and thus not to have been used of food preparation:

PAn **karut* 'scrape, rasp' (ACD)

POc **karu(t)*, **karut-i-* 'scratch with fingernails or claws', PWOC **karo*

NNG:	Kove	<i>kaho</i>	'scratch oneself'
PT:	Lala	<i>(viʔa)ʔalo</i>	'scratch oneself'
PT:	Motu	<i>ya-yaro</i>	'scratch'
MM:	Bali	<i>yaro</i>	'scratch oneself'
SES:	Tolo	<i>karu-karu(ha)</i>	'thorny'
SES:	Sa'a	<i>karu</i>	'scratch with the fingernails; to clutch; to hollow out a log'
SES:	Lau	<i>ka-karu</i>	'scratch on the wall from outside to frighten'
NCV:	Mota	<i>kar, karu</i>	'scratch'
NCV:	Nguna	<i>karuti</i>	(VT) 'scratch'
Mic:	Marshallese	<i>kar</i>	'scratch, scrape'
Fij:	Bauan	<i>kadru</i>	'scratch'
Pn:	Tongan	<i>(v)aku</i>	'scratch, scrape, dig up'
Pn:	Rarotongan	<i>raku</i>	'scratch with fingernails or claws'
Pn:	Tahitian	<i>raʔu-raʔu</i>	'scratch'

Lichtenberk (1994) rightly comments on the formal similarity of terms used for scraping (data below) and on its phonaesthetic basis:

- 1) POc **kara(s)*, **karas-i-* 'peel or scrape (skin off tubers)'
 POc **ko[r,R]a(s)*, **ko[r,R]as-i-* 'scrape out (coconut meat +); dregs of strained coconut scrapings'

- 2) POc **kari(s)*, **karis-i-* 'scrape (tubers, coconuts)'
PEOc **kori(s)*, **koris-i-* 'scrape (esp. coconuts), grate (esp. coconuts)'
- 3) PEOc **kaRi* 'scraper; bivalve sp., used as a scraper'
POc **koRi[-]* 'scraper; bivalve sp., used as a scraper; scrape with a shell'
- 4) POc **kasi[-]* 'k.o. mussel, used as food scraper; scrape out or off'
POc **kosi[-]* 'scrape, scratch (to mark s.t.)'

However, it is notable that the reconstructions above form pairs which can be accounted for by a sporadic sound change whereby /a/ becomes /o/ after /k/ in many Oceanic languages, perhaps especially in frequently used words. This change occurs independently in different places, presumably through velarisation of the vowel. Thus in Chapter 6, §3.7, we find POc **kapu(t)* and POc **kopu*, both reflecting PMP **kaput* and referring to wrapping food for cooking, and in Chapter 6, §2.7, POc **kapit* 'tongs' with Tongan and W. Futunan reflexes where the root is *kofi* rather than *kafi*. In certain Papuan Tip languages the POc pronoun **kamiu* 'you (PL)' is reflected with /o/ for *a (Iduna *omi*, Dobu ?*omi*, Duau, Suau *komi*, Misima *komiu*). This implies that each pair may represent only one POc form, as shown below. We incorporate Lichtenberk's (1994:280–281) insight that these verbs differ according to whether the object is stuff scraped off (e.g. coconut meat) or the object of scraping (e.g. coconut shell):

- 1) POc **karas*, **karas-i-* 'peel or scrape off (stuff scraped off); itch'
- 2) POc **kari(s)*, **karis-i-* 'scrape (object of scraping)'
- 3) PEOc **kaRi[-]* 'scraper; bivalve sp., used as a scraper; scrape with a shell'
- 4) POc **kasi[-]* 'k.o. mussel, used as food scraper; scrape out or off (stuff scraped out or off); scratch'

We retain the pairs of forms below, because this interpretation is not conclusive: POc **kosi* may reflect PAN **keskes*.

PAN root **-ras* 'grate, scrape, scar'²

- (1) POc **kora(s)*, **koras-i-* 'scrape out (coconut meat +); dregs of strained coconut scrapings' (Lichtenberk 1994)

SES:	Arosi	? <i>ora</i>	'scrape with a shell'
		? <i>orasi</i>	'dregs of strained coconut scrapings'
NCV:	Mota	<i>goras</i>	'scrape out, grate, the hard meat of coconut with cockle shell (<i>vin-gar</i>)'
Mic:	Carolinian	<i>xiri</i>	'scrape or grate'
Fij:	Bauan	<i>kora</i>	'refuse of scraped coconut'

² To our knowledge this PAN root has not been reconstructed elsewhere, but is supported by this POc reconstruction, by POc **rasi* 'grate, scrape (tubers, coconuts); scratch' (in this section), reflecting putative PMP **rasras*, and by PMP **biras* and **kiras*, both 'scar', and by PWMP **paras* 'shaved off, made smooth' (all ACD).

(2) POC *gora(s), *goras-i- 'scrape out (coconut meat +); dregs of strained coconut scrapings'

MM:	Maringe	<i>garosi</i>	'scrape, claw or scratch with one swipe' (metathesis)
SES:	Gela	<i>gola, golahi</i>	'scrape, plane' (l for expected r)
SES:	Sa'a	<i>korasi-</i>	'(rat +) scratch about'

POc *kara(s), *karas-i- 'peel or scrape skin off tubers'

Adm:	Mussau	<i>kalasi</i>	
MM:	Kara (West)	<i>kaias</i>	
MM:	Tiang	<i>kes</i>	
MM:	Maringe	<i>ka-krasi</i>	'scrape off potato or taro skin, using a shell'
SES:	Arosi	<i>karasi</i>	'scrape, bruise, take off skin'
SES:	Kwaio	<i>galā</i> <i>galasi-</i>	
SES:	To'aba'ita	<i>garasi</i>	'scrape (taro, sweet potato + to remove dirt after pulling it out of ground)'
SES:	Sa'a	<i>kara, karasi</i> <i>kara uhi</i>	'scrape, grate' 'grate yams with a cockle shell' (<i>uhi</i> 'yam')

cf. also:

PT:	Dobu	<i>kwakwara</i>	'scratch, scrape (as cleaning inside of cooking pot, removing old paint)'
MM:	Maringe	<i>k^haraji</i>	'scrape, damaging the skin or surface'

PMP *kari(s) 'scratch mark' (ACD)

POc *kari(s), *karis-i- 'scrape (tubers, coconuts)' (Lichtenberk 1994); 'scratch a mark on s.t.'

NNG:	Kove	<i>karisi</i>	'scrape (one's skin)'
NNG:	Akolet	<i>karis</i>	'scratch (one's skin)'
NNG:	Mindiri	<i>kar-kari</i>	'scratch (one's skin)'
PT:	Motu	<i>ari-</i>	(V) 'mark, indent (as bottom of canoe with stones)'
MM:	Bulu	<i>kari</i>	'scratch (one's skin)'
MM:	Maringe	<i>kai-kari</i>	(VT) 'scrape off (e.g. mud from one's feet), remove with scraping action, usually with implement like a piece of bamboo'
SES:	Gela	<i>kari</i>	'scrape off (dirt from a cut +); scrape out (white of coconut)'
		<i>karisi-</i>	'peel off (skin of stem of plant or stick); circumcise'
SES:	Tolo	<i>karisi-</i>	'peel (with knife, shell +)'
SES:	Arosi	<i>kari-kari</i>	'scrape off small roots with <i>waro</i> shell'
Mic:	Carolinian	<i>xeri</i>	'scratch s.t., grate it'
Mic:	Marshallese	<i>kar</i>	'scratch, scrape'
Mic:	Ponapean	<i>rakih</i>	'scratch with the fingernails, to claw'
Fij:	Wayan	<i>(i)kari</i>	'grater' (<i>i-</i> < POC *i- INS)

Fij:	Bauan	<i>kari-</i>	'scrape (coconut +)'
SV:	Anejom	<i>(a)yreθ</i>	'scrape'

PEOc **kori(s)*, **koris-i* 'scrape (esp. coconuts), grate (esp. coconuts)'

SES:	Gela	<i>gori</i>	'shave the head'
SES:	Tolo	<i>kori-</i>	'scrape or grate coconut'
SES:	To'aba'ita	<i>kori</i>	'scrape (coconuts +)'
SES:	Lau	<i>gori</i>	'scrape with shell, scrape off and out, shave'
SES:	Arosi	<i>?oris-i</i>	'scrape'
NCV:	Lewo	<i>koli</i>	'scrape (e.g. coconut)'

Note that **kori(s)* may have occurred in POC, but its WOC reflexes would be indistinguishable from those of **koRi* below unless the final **-s* were reflected. The only WOC reflex which may fulfil this criterion is Tangga (MM) *kois* 'grater made from a hemisphere of coconut shell'.

PEOc **kaRi* 'scraper; bivalve sp., used as a scraper' (Geraghty 1990)

SES:	Gela	<i>gali</i>	'species mollusc, pelecypod, <i>Asaphis deflorata</i> , eaten'
NCV:	Mota	<i>gar</i> <i>(vin)gar</i>	'cockle' 'cockle shell, used to cut yam vines and to scrape out meat from coconut' (<i>vin</i> from <i>viniu</i> 'skin, bark, husk, partic. of coconut')
Fij:	Bauan	<i>kai</i>	'generic name of bivalve shellfish, <i>Lamellibranchiata</i> '

POc **koRi[-]* 'scraper; bivalve sp., used as a scraper; scrape with a shell'

NNG:	Manam	<i>?ori(η)</i> <i>?ori-?ori</i>	'scrape coconuts' 'pearlshell, traditionally used to scrape coconuts; coconut grater, scraper'
NNG:	Kove	<i>ko-koli</i>	'scrape the exterior off food (trepang, taro)'
PT:	Dobu	<i>koli</i>	'scrape, as coconut, wood'
PT:	Motu	<i>ori</i>	'grate coconut, chew pandanus fruit'
MM:	Vitu	<i>kori</i>	'scratch (one's skin)'
MM:	Tabar	<i>kori-kori</i>	'scrape (coconut)'
SES:	Gela	<i>goli</i>	'scrape coconut with a <i>tue</i> (fresh water shell)'
NCV:	Nguna	<i>koi</i>	'grate (coconut)'
Fij:	Rotuman	<i>?oi</i>	'scrape, grate'
Fij:	Bauan	<i>koi</i> <i>(i)koi</i>	'scrape (breadfruit)' 'shellfish' (<i>i-</i> < POC <i>*i-</i> INS)

PMP **gasgas* 'scratch' (ACD)

POc **kasi[-]* 'k.o. mussel, used as food scraper; scratch, scrape out or off' (Lichtenberk 1994)

Adm:	Loniw	<i>asi</i>	'scratch'
PT:	Tawala	<i>kahi</i>	'pearlshell'
PT:	Muyuw	<i>kas</i>	'scratch'

MM:	Nakanai	<i>kasi</i> (<i>la</i>) <i>kasi</i>	'scratch' 'broken coconut shell; mussel or clam; mussel shell used as knife'
MM:	Tolai	<i>ka</i>	'scrape, grate or scratch, scrape out, as the flesh of a coconut'
MM:	Simbo	<i>kasi-kasi</i>	'scratch the soil as a bush turkey'
SES:	Lau	<i>kasi</i>	'adze, chop; knock a nut with a stone on another stone'
		<i>ka-kasi</i>	'split open'
Fij:	Rotuman	? <i>asi</i>	'cockle; shell much used for scraping'
Pn:	Samoaan	? <i>asi</i>	'edible mollusc (<i>Arca</i> sp.); coconut scraper cockle (<i>Vasticardium</i> sp.)'
Pn:	Tikopia	<i>kasi</i>	'bivalve mollusc (<i>Asaphis violascens</i> Forskal), possibly other related bivalves also; shell traditionally used as cutting or scraping implement, as food scraper for coconut, breadfruit'

cf. also:

PT:	Motu	<i>ka-kasi</i>	'scratch, scrape'
MM:	Maringe	<i>ke-kesi</i>	(VT) 'scrape roasted potato, taro or yam skins'
SES:	Lau	<i>kesi</i>	'scrape off burnt outside after roasting taro; strike a match'

PAn **keskes* 'scratch, scrape' (ACD)

POc **kosi*[-] 'scrape, scratch (to mark s.t.)'

SES:	Gela	<i>kohi</i>	'scrape'
Pn:	Tongan	<i>kohi</i>	'scratch with a sharp point'
Pn:	Samoaan	? <i>osi</i>	'scratch'
Pn:	E. Uvean	<i>kohi</i>	'cut lightly, scratch'

There are three other reconstructions which overlap semantically with those above. They are:

POc **rasi*[-] 'grate, scrape (tubers, coconuts); scratch'

PEOc **saqalo* 'scrape, clean by scraping; rub smooth'

PEOc **paro(s)*, **paros-i* 'chafe, of skin; scrape'

POc **rasi*[-] 'grate, scrape (tubers, coconuts); scratch'

NNG:	Manam	<i>rasi</i> (?)	'grate (cassava +)'
NNG:	Takia	<i>rasi</i>	'scrape (coconut)'
MM:	Banoni	<i>resi</i>	'scrape (coconut), coconut scraper'
MM:	Kia	<i>rahi</i>	'grate, scratch (coconut, cassava)'
MM:	Maringe	(<i>g</i>) <i>rahi</i>	'grate or scrape off (coconut or bark for making medicine +)'
NCV:	Mota	<i>ras, rasa</i>	'scrape, scratch, rub, with straight motions backwards and forwards; so, sharpen by rubbing backwards and forwards on a stone'

NCV:	Raga	<i>raha</i>	'grate, grind, sharpen'
NCV:	Lonwolwol	<i>rehe</i>	'rub, scrape, grate, grind'

Lichtenberk (Ch. 6, §5.2) reconstructs this verb as **(r,R)asik*, but if the Raga and Lonwolwol items are indeed cognate, then the initial consonant is diambiguated and the verb was **rasi*.

The two PEOc items below straddle the semantic divide between this section and the one below, in that they refer to actions in which rubbing is sufficient to remove substance from the surface of the object.

PEOc **saqalo* 'scrape, clean by scraping; rub smooth'

SES:	Arosi	<i>taro(hi)</i>	(VT) 'brush off dirt, clean yam tubers; rub, massage'
Fij:	Bauan	<i>(i)sakaro</i>	'a shell, used for scraping coconuts' (<i>r</i> for exp. <i>l</i>) (<i>i-</i> < POC <i>*i-</i> INS)
Pn:	Tongan	<i>haʔalo</i>	'make clean and smooth by scraping'
Pn:	Samoan	<i>sālo</i>	'rub smooth with scraper'
Pn:	Tikopia	<i>sāro</i>	'scrape, grate up, scratch, sweep'
Pn:	Emae	<i>sāro</i>	'scrape pandanus leaves for making mats'
Pn:	Maori	<i>hāro</i>	'remove outer skin of flax leaves by scraping with a shell, to scutch'
Pn:	Hawaiian	<i>halo</i>	'rub, polish'

PEOc **paro(s)*, **paros-i-* 'chafe (skin); scrape'

MM:	Maringe	<i>poroji</i>	'chafe away the skin, e.g. tightly bound pig's feet'
SES:	Lau	<i>faro</i>	'scraper for grating yams'
NCV:	Nguna	<i>vāro</i>	'chafing of inner thighs'
		<i>varosi</i>	'grind (e.g. meat)'
Fij:	Wayan	<i>varoki</i>	(VT) 'cut s.t. with a saw'
Fij:	Bauan	<i>varo</i>	(V) 'file, saw, or rasp'
Pn:	Maori	<i>faro, fa-faro</i>	'scrape'
		<i>faro-faro</i>	'scrape'

2.3 Rub

Rubbing in Oceanic languages is roughly divisible into two semantic categories: rubbing in which abrasion is to the fore, as for example in making a fire, and rubbing for the purpose of making smooth. The generic term for abrasive rubbing was apparently POC **usuq*, whilst **suka* referred to friction to make a fire. The POC term for 'rub smooth' was **quju(r)*, **qujur-i-*. Although it is sometimes difficult to distinguish the reflexes of **usuq* and **quju(r)*, they were clearly separate verbs in POC. POC **pulu* evidently referred to rubbing in association with washing.

PMP **usuq* 'rub, wipe' (ACD)

POC **usu(q,p)*, **usu(p)-i-* 'rub abrasively'

PT:	Motu	<i>udu-</i>	'rub a stick to make fire'
MM:	Nakanai	<i>huru</i>	'remove outside of shell by rubbing'

MM:	Tolai	<i>ū</i>	(VT, VI) 'wipe'
SES:	Gela	<i>uhu</i>	'rub, rub fire, scrape off skin by rubbing, cut design on forehead'
SES:	Sa'a	<i>usu</i>	'rub, scrape, grate' (<i>usu ?ei</i> 'a firestick')
SES:	Lau	<i>usu, usufi-</i>	'rub, wipe, rub off'
Mic:	Mokilese	<i>it</i>	'start a fire using sticks'

 POc **suka, *suka-i-* 'make fire with fire-plough'

Adm:	Lou	<i>sok</i>	'rub a friction stick against wood to make fire'
MM:	Nakanai	<i>suka</i>	'the making of fire with the fire-plough; a fire-plough'
MM:	Tolai	<i>uk</i>	'bore through, bore into'
SES:	Lau	<i>su-sukai</i>	'bore'
		<i>su-suka</i>	'a gimlet'
Fij:	Rotuman	<i>si?a</i>	'make fire by friction'
Pn:	Rennellese	<i>sika</i>	'make fire by the fire-plough'
Pn:	Samoaan	<i>si?a</i>	'light a fire by friction; apparatus (fire-plough) as a whole; base wood of fire-plough'
Pn:	Tikopia	<i>sika</i>	'rub in groove, frictionate'

Note the unexplained fronting of the vowel in Central Pacific languages. For a similar example, see **supi* 'sharpen, shave, pare' (§3.6).

 POc **quju(r), *qujur-i-* 'rub, make smooth by rubbing'

Adm:	Titan	<i>ucu(e)</i>	'rub, scrape, smooth'
NNG:	Lukep	<i>wuru</i>	'rub smooth (leaves when making mat)'
SES:	Gela	<i>yuduri-</i>	
SES:	Lengo	<i>yuji</i>	
SES:	Longgu	<i>?usuri-</i>	'rub, wipe (e.g. with a towel)'

 PMP **bulu* 'wash' (Dempwolff 1938)

 POc **pulu[-]* 'rub to make clean, wash'

SES:	Lau	<i>fulu, fulu-</i>	'clean, wipe, rub off dirt, wash away earth (of rain)'
SES:	Tolo	<i>vuli(a)</i>	'wash (hands, clothes +)'
Fij:	Bauan	<i>vulu-vulu</i>	'wash the hands'
Pn:	Tongan	<i>fu-fulu</i>	'wash'
Pn:	Rennellese	<i>hugu</i>	'anoint or rub, as with perfume or tumeric'
Pn:	Tikopia	<i>furu</i>	'cleans, as by rubbing'

2.4 Brush, sweep

Of the verbs reconstructed below, POc **salap* refers to the action performed with a broom, in Melanesia often made by tying together a bunch of palm-leaf midribs; POc **sapu(r)*, **sapur-i-* refers to brushing or wiping dirt or dust from something; and POc **tapi* meant something similar to **sapu(r)*, but perhaps with focus on the movement involved. We do not have enough information about POc **saRo* to pin down its meaning.

POc **salap*, **salap-i-* 'sweep, broom'

NNG:	Yabem	<i>salep</i>	'broom, originally the fruit stem of the nipa palm'
NNG	Gedaged	<i>salai</i>	'inflorescence of coconut'
PT:	Misima	<i>hala</i>	'sweep'
SES:	Lau	<i>ta-tala</i>	'broom made from midribs of sago palm'
		<i>talafi</i>	'sweep (s.t.)'
SES:	'Are'are	<i>tā-tara</i>	'sweep the house'
SES:	Sa'a	<i>tala</i>	'sweep the house with a bunch of leaves or grasses'
SES:	Arosi	<i>tara</i>	'rake, sweep, gather; a broom'
		<i>ta-tarahi</i>	'sweep (s.t.)'

POc **sapu(r)*, **sapur-i-* 'brush (dirt +) off (s.t.)' (where 's.t.' is the object)

Adm:	Titan	<i>sap^wi</i>	'wipe, wipe off'
NNG:	Mapos Buang	<i>rvu</i>	'wipe, dry, clean'
PT:	Muyuw	<i>(katu)sap</i>	'brush dirt off'
PT:	Misima	<i>hapul</i>	'brush down (e.g. with coconut husk); brush; brush off'
PT:	Motu	<i>dahu</i>	'rub, wipe'
MM:	Bulu	<i>ravu</i>	'wipe'
MM:	Nakanai	<i>savul(a-taro-a)</i>	'brush away'
MM:	Patpatar	<i>sah</i>	'sweep'
MM:	Tolai	<i>avu(lar)</i>	(VT) 'brush or wipe off, as dust with the hand'
SES:	Talise	<i>savu(lano)</i>	'rub'
SES:	Lau	<i>tafu</i>	'brush off, brush against'
SES:	Longgu	<i>tavuri-</i>	'flick or brush something off'
Pn:	Samoan	<i>safu</i>	'broom'

POc **tapi[-]* 'dust off, brush lightly'

PT:	Motu	<i>tahi-</i>	'dig out; (fowls +) scratch'
PT:	Minaveha	<i>tapi-</i>	'dust off (ashes from food +)'
MM:	Sursurunga	<i>tahi</i>	'sweep out, clean out'
MM:	Tolai	<i>tavi(e)</i>	'broom'
Fij:	Wayan	<i>tavi</i>	'be brushed lightly, swept'
Fij:	Bauan	<i>tavi</i>	'slap, pat, push with the hand'
Pn:	Tongan	<i>tafi</i>	'sweep'
Pn:	Samoan	<i>tafi</i>	'clear away, remove, brush off, rub off'
Pn:	Tikopia	<i>tafi</i>	'brush lightly, stroke, smear'
Pn:	Maori	<i>tahi</i>	'sweep'

POc **saRo[-]* 'wipe, sweep'

PT:	Motu	<i>darō</i>	'sweep; adze a plank'
PT:	Lala	<i>dalo</i>	'sweep'
MM:	Nakanai	<i>salo</i>	'rub or wipe (excrement only)'
SES:	Tolo	<i>salo</i>	'broom, brush' (<i>salo-a</i> 'sweep')

3 Cutting, peeling, separating, splitting and tearing

Prior to the introduction of steel blades, cutting of timber would have been achieved by stone axe or adze (replaced with *Tridacna* shell blade when suitable stone was unobtainable), and of softer materials by sharpened shell or piece of bamboo, or a piece of obsidian or flint. In some languages, terms for the implement serve as a base for various cutting activities. For instance, Iduna, a Papuan Tip language, has dozens of cutting terms which are compounds with *-tala-* 'chop, cut (of tree, boat), shave (of beard), peck (with beak)', a reflex of POc **taRa(q)* 'adze'. They include:

<i>-tala-kehi-</i>	'cut small (of wood, with a knife)'
<i>-tala-kelikeli-</i>	'cut long grooves or scratches (with knife)'
<i>-tala-kowa-</i>	'take a cutting'
<i>-tala-k^waili-</i>	'take leaf out (of coconut frond)'
<i>-tala-k^wane-k^wane-</i>	'cut one after another, chip at holding adze vertically'
<i>-tala-lukuwe-</i>	'cut into'
<i>-tala-muhu-muhu-</i>	'cut into tiny pieces (of wood)'
<i>-tala-bwa[?]e-bwa[?]e-</i>	'chip round marks with sharp edge of knife'
<i>-tala-dobo-</i>	'break with knife (of food, wood)'
<i>-tala-done-</i>	'cut into'
<i>-tala-golohi-</i>	'cut off, chop off (branches), (cause to) tear by cutting'

The evidence suggests that **taRa(q)* 'adze' already had a corresponding verb **taRa*q*-i-*, in POc.

PMP **(t,T)aRa*q** 'hew, plane' (Blust 1972b)

POc **taRa(q)* (N, V) 'adze'; **taRa*q*-i-* 'chop with adze'

NGG:	Takia	<i>tare</i>	(VT) 'cut, hew, as with an axe'
NGG:	Manam	<i>tara</i>	'cut down (branches)'
PT:	Motu	<i>tarai-</i>	(V) 'adze, chop, cut wood'
PT:	Iduna	<i>tala-</i>	'chop, cut (of tree, boat), shave (of beard), peck (with beak)'
PT:	Dobu	<i>tala</i>	(VT) 'fell a tree, cut out a canoe; lance flesh'
PT:	Gapapaiwa	<i>tara</i>	'cut, chop' (used in many compounds to describe specific manner of cutting)
MM:	Tabar	<i>tara</i>	'chop'
MM:	Minigir	<i>(ta)tara</i>	'adze'
SES:	Lau	<i>ala</i>	'split across'
SES:	Arosi	<i>arai-</i>	'chop, cut, cut down a tree'
NCV:	Mota	<i>tara</i>	'hew, chop, cut'
NCV:	Paamese	<i>tāta</i>	'adze'
SV:	Lenakel	<i>(a)rai</i>	'cut'
SV:	Anejom	<i>(a)tai</i>	'slice, cut without raising knife'
Mic:	Kiribatese	<i>ta-tā</i>	(V) 'adze'
Mic:	Carolinian	<i>sār</i>	'knife'
Fij:	Bauan	<i>tā</i>	'chop with knife or axe'
Pn:	Tongan	<i>tā</i>	'hit, strike, beat'
		<i>tā[?]i</i>	'chop, cut or carve (canoe +)'

Pn:	Niuean	<i>tā</i>	'strike, kill, adze'
Pn:	Hawaiian	<i>kā</i>	'hit, strike, hack, thrust'

The POc term for an obsidian blade was apparently **koto* (Ch. 4, §4.1.3) and this is used as a verb in some languages. It is possible that the verb **koti* (§3.1) is derived from this, but we cannot be sure.

POc **koto[-]* 'obsidian head of spear, obsidian knife or blade; cut (across)'

NNG:	Dami	<i>oto</i>	'spear'
NNG:	Lukep	<i>koto</i>	'cut across grain'
NNG:	Wab	<i>kot</i>	'cut'
NNG:	Sissano	? <i>ot</i>	'chop'
PT:	Motu	<i>oto</i>	'a slice or strip'
MM:	Tigak	<i>koto</i>	'cut off'
MM:	Ramoaina	<i>koto</i>	'obsidian; used to make scars or to shave'
MM:	Tolai	<i>koto</i>	'piece of stone (obsidian) or shell used as a lance'
MM:	Roviana	<i>koto(a)</i>	'cut or trim hair, shrubs +'
SES:	Kwaio	? <i>oto</i>	'hit and perforate'
SES:	Arosi	<i>koto</i>	(V) 'spear'
		<i>oto</i>	'arrow without barbs'
NCV:	Mota	<i>koto</i>	'nip, snap'
NCV:	Nguna	<i>koto(vi)</i>	'break, cut (a long thing); separate, away'
NCV:	Lonwolwol	<i>kote, gote</i>	'across, through'

There are a large number of reconstructable POc terms for 'cut' (and many more in various smaller Oceanic groups). Some of these can be given a reasonably precise gloss, whilst others we gloss simply as 'cut' as their more exact use is lost to us.

3.1 Cut off, sever

A number of verbs referring to cutting something off or severing it can be reconstructed. In some cases it is reasonably clear that they were distinguished by the kinds of object which were cut. In other cases it is difficult to reconstruct semantic distinctions. Reconstructable verbs are:

POc	<i>*utu(s), *utus-i-</i>	'sever, separate'
POc	<i>*kutu[-]</i>	'cut'
POc	<i>*ma-utus, *motus</i>	'become, be broken off, severed'
POc	<i>*muju</i>	'be clipped off'
	<i>*mujuki-</i>	'clip off (protruding growth close to the surface)'
POc	<i>*koti[-]</i>	'cut off (hair, taro tops +)'
POc	<i>*paRi[-]</i>	'cut or lop off branches'
POc	<i>*p^wuti[-]</i>	'cut off'
POc	<i>*siba</i>	'cut, slice'
PEOc	<i>*polos, *polos-i</i>	'cut across, sever'

POc **utu(s)*, **utus-i-* appears to have been a generic verb of severing or separating. POc **ma-utus/*motus* does not strictly belong here, as it is an inceptive or stative verb, not a verb of action. It is included because of its formal relationship with **utus* and because there are certain formal problems associated with POc **utu(s)*, **kutu*, **ma-utus* and **muju*. The first of these is that some of the reflexes attributed to **utu(s)* may in fact reflect **kutu* (this is true, e.g., of Mangseng and Gumawana *utu*).

PMP **utus* 'break under tension, as a rope' (ACD)

POc **utu(s)*, **utus-i-* 'sever, separate'

Adm:	Loniu	<i>utu</i>	'split open, as coconut'
NNG:	Kilenge	<i>utu</i>	'cut (sticks)'
NNG:	Mangseng	<i>ut</i>	'cut leaves; cut to relieve pain'
PT:	Gumawana	<i>utu</i>	'cut off branches'
PT:	Motu	<i>utu</i>	'cut off, sever'
PT:	Lala	<i>uku</i>	'cut off, rub'
MM:	Nakanai	<i>utu</i>	'cut, as with a knife, cut off'
SES:	Gela	<i>utu-utu, utuhi</i>	'break, be severed, of a rope'
SES:	Bugotu	<i>utu-utu</i>	'clip, crop, cut short'
		<i>utuhi</i>	(VT) 'sever, cut off, cut in two'
NCV:	Mota	<i>ut</i>	'cut or break across'
Fij:	Rotuman	<i>ufu</i>	'pull apart, pull in two, sever (lit. and fig.), esp. to break (string, rope, net +) or to divorce'

POc **kutu[-]* 'cut'

NNG:	Singorakai	<i>kuta</i>	
NNG:	Kis	<i>(a)kuto</i>	'cut (meat +)'
MM:	Vitu	<i>yutu(valayi)</i>	'split (wood)'
MM:	Sursurunga	<i>kut(i)</i>	'cut, slice'
MM:	Ramoaina	<i>kutu</i>	'cut, separate; cut off the retreat of a party in war'
SES:	W. Guad.	<i>kuti</i>	'cut (string)'
cf. also			
MM:	Maringe	<i>kusu</i>	'sever, cut off, break (rope-like object)'
Fij:	Bauan	<i>gutuv, gutuv(a)</i>	'cut off, sever'

In the following set, the occurrence of stative perfective glosses like 'torn', together with the Nakanai form **ma-utu*, points to a reconstruction derived by prefixing **ma-* to **utus* above: the function of **ma-* was to derive neutral (inceptive and stative) intransitive verbs (Ch. 2, §3.1.2). The hypothesis that the form **ma-utus* occurred is supported by the derived transitive Longgu, Sa'a *mousi* below, but the widespread presence of reflexes of **motus* suggest that it occurred as an alternant in POc:

POc **ma-utus, *motus* 'become, be broken off, severed'

Adm:	Loniu	<i>mot</i>	(VI) 'be broken, break'
PT:	Motu	<i>motu</i>	'break, as a string' (not applicable to e.g. pottery, a spear)
MM:	Nakanai	<i>ma-utu</i>	'torn'

MM:	Tolai	<i>mutu</i>	(VT) 'cut out, as a canoe etc.; to cut up as timber; to cut down'
SES:	Bugotu	<i>(ka)moto</i>	(ADJ) 'cut off, broken off short'
SES:	Lau	<i>mū</i>	(VI) 'cease, be discontinued; separated, severed'
		<i>moi</i>	'broken'
SES:	Sa'a	<i>mou</i>	(VI) 'be broken off'
NCV:	Mota	<i>mut</i>	'maimed in foot or hand'
		<i>mwot</i>	'cut, break, stop'
NCV:	Raga	<i>mosi</i>	'broken'
NCV:	Lewo	<i>musu</i>	'broken, cut off'
Pn:	Tongan	<i>motu</i>	'break, become separated'
Pn:	Samoan	<i>motu</i>	'severed'
Pn:	Mangareva	<i>motu</i>	'be severed'
Pn:	Tahitian	<i>motu</i>	'be cut, severed'
Pn:	Hawaiian	<i>moku</i>	'sever, cut'

Note that the Malaita-Makira languages of SES have formed a new transitive verb **motus-i* 'break off' from the intransitive **ma-utus*:

SES:	Longgu	<i>mousi-</i>	'cut, break, pull in two; cut clean away, cut right off'
SES:	Sa'a	<i>mousi</i>	(VT) 'break off'
SES:	Arosi	<i>mosi</i>	'break'
SES:	Lau	<i>mūsi</i>	(VT) 'tear, tear off, separate, sever, cut or break off'

Although the forms attributed to POc **muju* 'be terminated' look remarkably similar to those attributed to **ma-utus*, the differences in form and meaning are consistent enough to require a separate reconstruction:

POc **muju* 'be clipped off', **mujuki-* 'clip off (protruding growth close to the surface)'

Adm:	Lou	<i>mut</i>	'cut'
SES:	Lau	<i>mu-mudu</i>	'a fragment, portion, crumb, scrap, chip'
SES:	Arosi	<i>modu</i>	'cut off the end'
Fij:	Wayan	<i>musuki-</i>	'cut s.t. short; cut or break s.t. off in the middle, curtail, interrupt' (OBJ what is cut off)
Fij:	Bauan	<i>musu</i>	'be broken crosswise, be cut crosswise'
		<i>musuk(a)</i>	'break crosswise, cut crosswise'
Pn:	Tongan	<i>mutu</i>	'cut off'
Pn:	Samoan	<i>mutu</i>	'cut off'
Pn:	Mangareva	<i>mutu</i>	'cut off, interrupted, be silent'
Pn:	Tahitian	<i>mutu</i>	'cut off, ended'
Pn:	Hawaiian	<i>muku</i>	'cut off, ended'

cf. also

Fij:	Wayan	<i>mudu</i>	'be cut off, amputated, severed, cut short'
		<i>muduki-</i>	(VT) 'cut s.t. off, amputate; bring s.t. to an end' (also <i>muduvi</i> , but in less common use)
Fij:	Bauan	<i>mudu</i>	'be cut off, ceased, ended, amputated'
		<i>muduk(a)</i>	(VT) 'cut off, cause to cease'

POc *koti[-] 'cut off (hair, taro tops +)'

NNG:	Manam	?oti(ŋ)	'cut off taro tops for planting'
MM:	Nakanai	koti	'cut or shave off hair (with obsidian)'
MM:	Siar	kot	'cut'
MM:	Nehan	kot	'cut'
SES:	Gela	goti	'cut off, as taro head in planting'
SES:	Bugotu	yotihi	'break s.t. off'
SES:	Arosi	?oi	'cut off taro tops for planting; to scrape off or peel with a shell; break, as the point of a spear'
SES:	Lau	?oi	'break off'
SES:	Kwaio	?oi	'break'
SES:	Sa'a	o?i	'break' (<i>mao?i</i> 'broken in two')
NCV:	Kiai	koti(a)	'cut'
SV:	Lenakel	(a)kəs	'cut (hair)'
Mic:	Woleaian	xos	'cut a tuber top'
Fij:	Wayan	koti(vi)	'clip, shear, cut s.t. short (hair, cloth +)'
Fij:	Bauan	koti	'clip, shear, cut off small things (esp. with a shell or sliver of bamboo)'
Pn:	Niuean	koti	'pinch, snip'
Pn:	Hawaiian	?oki	'cut, clip'

POc *paRi[-] 'cut or lop off branches' (ACD)

NNG:	Mangseng	var	'cut, clip'
MM:	Nakanai	vali	'cut, as wood or a leaf from a tree; remove all the limbs from a tree'
SES:	'Are'are	hari	'lop off branches, cut off a bunch of bananas, betelnuts'
SES:	Sa'a	hali	'lop off branches'
SES:	Arosi	hari	'tear, tear off, pull off a cluster of fruit'
Fij:	Rotuman	fai	'cut or chop down (tree or branch)'

 POc *p^wuti[-] 'cut off'

NNG:	Malai	(i)but	'cut (meat +)'
NNG:	Megiar	(i)futi	'chop'
MM:	Madak	pit	'cut (meat +)'
MM:	Halia (Haku)	putu	'chop'
MM:	Babatana	puti	'cut (string)'
SES:	Gela	pusi	(VT) 'cut off'
SES:	W. Guad.	vusi	'cut (string)'
SES:	Longgu	pusi-pusi	'cut (hair with scissors)'

PEOc *polos, polos-i 'cut across, sever' (ACD)

SES:	Lau	folo	'across; cross over; cut across, sever'
SES:	Kwaio	folosi(a)	'cut crosswise, across'
SES:	Sa'a	holo, holosi	'cross, divide; cut a piece off, sever a pig's head'
SES:	'Are'are	horosi(a)	'cross'
SES:	Arosi	horo, horosi	'divide, sever, cut off'
NCV:	Mota	wolos	'cut across, cut, chop in lengths'

POc **siba* 'cut, slice'

MM:	Nakanai	<i>sipa</i>	'cut, of hair; shred leaves for greens'
NCV:	Mota	<i>sipa</i>	'slice, pare (e.g. pumpkin, breadfruit)'
NCV:	Raga	<i>hiba</i>	'peel with knife'
Mic:	Woleaian	<i>tefa(li)</i>	'cut it, slice it'
Mic:	Carolinian	<i>tip</i>	'piece, slice, chunk'
Mic:	Ponapean	<i>dipe</i>	'slice, as breadfruit or taro'
cf. also			
Fij:	Wayan	<i>ðebe(ti)</i>	'cut s.t. open (esp. soft or flexible things), cut s.t. off or up, slice s.t., dissect'
Fij:	Bauan	<i>ðebe(ta)</i>	'cut in thin slices (bread, cake); cut in two (cloth, rope, stem of bunch of bananas); circumcise, superincise (polite term)'

3.2 Cut into two or more pieces

The reconstructions below are separated from those of splitting in §3.8 largely because their meaning entailed cutting rather than other modes of separation.

PAn **tektek* 'hack off' (Blust 1977)POc **toto(k)* 'cut, chop'

NNG:	Lukep	<i>tota</i>	'cut'
NNG:	Takia	<i>tut-</i>	'pound, knock to bits, cut bush, cut off'
NNG:	Poeng	<i>toto</i>	'cut (meat)'
NNG:	Bam	<i>tuot</i>	'cut (meat +)'
PT:	Iduna	<i>toto(na)</i>	'cut (hair, grass skirt, string, pandanus +)'
MM:	Nakanai	<i>toto</i>	'cut across'

POc **toki* 'cut, chop'

NNG:	Tuam	<i>to-togi</i>	'cut (meat +)'
NNG:	Manam	<i>to-toki</i>	'cut down, cut off'
MM:	Tolai	<i>tok</i>	'cut a chip'
NCV:	Nguna	<i>took</i>	'axe'
Fij:	Wayan	<i>toki</i>	'cut small pieces out of s.t. with a hoeing or pecking movement (OBJ: what is cut)'
Pn:	Tongan	<i>toki</i>	'adze, axe'
Pn:	Samoan	<i>toʔi</i>	'adze, axe'
Pn:	Maori	<i>toki</i>	'adze, axe'

POc **p^(w)asi[-]* 'cut up, cut off, cut lengthwise'

Adm:	Mussau	<i>pasi</i>	'cut (meat +), split (wood)'
NNG:	Takia	<i>pasi</i>	'cut away tree branches'
MM:	Torau	<i>pa-pasi</i>	'chop'
SES:	Bugotu	<i>pahe</i>	'cut, cut off'
Fij:	Wayan	<i>vasi</i>	(VT) 'cut s.t. to a point; cut off the bark'
Fij:	Bauan	<i>vasi</i>	'split firewood'

Pn:	Rennellese	<i>hasi</i>	'pearlshell used as spoon; to cut with such'
Pn:	Takuu	<i>vasi</i>	'split, cut lengthwise'
Pn:	Nukuria	<i>hasi</i>	'cut off taro corm from stalk'

cf. also:

PT:	Motu	<i>vasiga</i>	'flint used as a knife'
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PMP **peka* 'separate, disconnect' (ACD)

POc **poka* 'divide, separate, cut up'; PMM 'cut up (pig +)'

Adm:	Drehet	<i>p^wok</i>	'(glass, wood +) crack open, split open'
MM:	Bulu	<i>poka</i>	'cut (meat +)'
MM:	Tolai	<i>poka, poko</i>	'cut, cut up (pig +)'
MM:	Sursurunga	<i>pok(o)</i>	'cut up (pig +)'
MM:	Tangga	<i>pok</i>	'cut' (e.g. <i>pok suaak</i> 'cut down bamboo'; <i>pok-pa</i> 'cut off'; <i>pok-pukti</i> 'cut in half'; <i>pok kalut</i> 'cut wood')
MM:	Nehan	<i>pok</i>	'cut (meat +)'
SES:	Gela	<i>voka</i>	'divide, separate, divorce'
SES:	Tolo	<i>poha</i>	(VT) 'hammer, smash (with a stone)'

cf. also:

Fij:	Wayan	<i>boka(ti-)</i>	'split or cut s.t. in half with a blow; cut s.t. up in this way (e.g. coconut, breadfruit, wood)'
Mic:	Carolinian	<i>pax</i>	(VI) 'be cut, split'

The two items below, POc **taba(s)*, **taba(s)-i-* 'cut' and POc **tapa(s)*, **tapas-i-* 'cut into, incise', both appear to reflect PMP **tabas* 'chop down, cut away'. Although both are formally good reflexes of PMP **tabas* (Ch. 2, §2.4), it is very rare to find two POc reflexes of a PMP item which differ from each other in the voicing of their medial consonant, and we are unable to explain this.

PMP **tabas* 'chop down, cut away'³

POc **taba(s)*, **taba(s)-i-* 'cut'

NNG:	Adzera	<i>rab-</i>	'chop, hew, cut down'
PT:	Dobu	<i>daba</i>	
MM:	Tolai	<i>taba</i>	'cut out of wood, carve as an image'
Mic:	Kiribatese	<i>tapa</i>	'cut, split'
Mic:	Ponapean	<i>sap</i>	'cut into pieces'
Mic:	Woleaian	<i>tapa</i>	'cut (usually leaves)'
Pn:	Rennellese	<i>tapasi(a)</i>	'be cut, have a cut (as feet on coral)'
Pn:	Rarotongan	<i>tapai</i>	'split, cleave lengthwise'
Pn:	Tuamotuan	<i>tapahi</i>	'cleave apart, sunder, cut'
Pn:	Maori	<i>tapahi</i>	'cut, chop'

³ Blust (ACD) reconstructs PWMP **tabas* 'cut away underbrush'. The reconstruction of PMP **tabas* is supported both by the Oceanic reflexes listed here and by Buru (CMP) *taha* 'fell s.t., cut down s.t. that is standing vertically'.

POc **tapa(s)*, **tapas-i-* 'cut into, incise'

NNG:	Bing	<i>tafa(hat)</i>	'break in the middle'
PT:	Muyuw	<i>tav</i>	'cut down the middle'
MM:	Patpatar	<i>tahe</i>	'split open (nuts with stone, knife +)'
MM:	Teop	<i>tava-tava</i>	'scar from decorative cuts, tattoo'
SES:	Gela	<i>tavahi</i>	'castrate'
SES:	Lau	<i>afa</i>	'cut, incise, mark, notch'
SES:	Arosi	<i>aha</i>	'cut, sever, score, notch'
NCV:	Mota	<i>tov</i>	'begin cutting a canoe into shape'
NCV:	Raga	<i>tava</i>	'cut'
Mic:	Woleaian	<i>tefa</i>	(VT) 'cut, slice'
Mic:	Trukese	<i>safeti</i>	'peel or take the skin from a roasted breadfruit'
Fij:	Bauan	<i>tavā</i>	'(of flesh of living or dead body) make a long but superficial cut' (Milner); (VT) 'cut with a knife, as meat from a carcass' (Capell)
Pn:	Tongan	<i>tafa</i>	'cut open, incise (boil, abscess)'
Pn:	Samoaan	<i>tafa</i>	'lance, cut open (a boil); cut into portions, carve'

3.3 Shape by cutting

The two verbs below refer to cutting wood or shell to shape it or carve it in the production of artefacts such as canoes or shell inlays in carvings.

The reconstruction of POc **sap^wi*, as distinct from **sapi* (§3.7), is justified by the semantic contrast between the two sets, and by unambiguous reflexes of POc **-p^w-* (Tawala, Dobu, Tolai, Bauro *-p-*, Port Sandwich *-v^w-*).

POc **sap^wi[-]* 'carve into shape, trim (with axe or adze), whittle'

Adm:	Loniu	<i>sah</i>	(VT) 'chop, carve, sharpen, whittle'
		<i>sehi</i>	(VT) 'chip, carve, sharpen, whittle'
		<i>sehi-sah</i>	(VI) 'carve, whittle'
NNG:	Mangap	<i>sap</i>	'chop, hew'
NNG:	Adzera	<i>saf-</i>	'cut'
NNG:	Mapos Buang	<i>sap</i>	'cut, slice, slash; to cut across the grain at an angle with an adze or knife'
PT:	Tawala	<i>hapi</i>	'chop, hew'
PT:	Dobu	<i>sapi</i>	'make rough cuts on log before shaping it for canoe planks'
PT:	Muyuw	<i>sav</i>	'cut bushes with a bush knife'
MM:	Tolai	<i>api</i>	(VT) 'dress wood by chipping it; to level'
SES:	Bauro	<i>tapi-</i>	'cut (wood)'
NCV:	Port Sandwich	<i>sav^wi</i>	'carve, cut flat with axe, trim, sharpen'
NCV:	Paamese	<i>(mu)sahi</i>	'carve, cut into shape'
NCal:	Nemi	<i>t^havi</i>	'chop, hew'

POc **kala(s)*, **kalas-i-* 'shape s.t. by cutting, cut s.t. out'

MM:	Tolai	<i>kala</i>	(VT) 'cut out as a canoe'
SES:	Tolo	<i>kala</i>	'cut, as with a knife, chop'

SES:	Longgu	<i>kalasi-</i>	‘whittle, cut off little bits of wood with a knife’
SES:	Sa’a	<i>kala</i>	‘cut shell (for inlay, fish hook +)’
SES:	Arosi	<i>kara</i>	‘cut, as pieces of nautilus shell for inlay’

3.4 Incise the skin, circumcise

The two verbs below referred to cutting into parts of the human body. The PEOc term **tepe* almost certainly referred to circumcision. If Motu *se-sehai* is cognate, then the term is of POc antiquity, but both its form and meaning become less clear.

POc (?) **tepa-i-* ‘slice (flesh), circumcise’

PT:	Motu	<i>se-sehai</i>	‘bore or pierce under the surface’
SES:	Gela	<i>teve</i>	‘cut out a piece of flesh, flay’
NCV:	Mota	<i>teve</i>	‘cut with a drawing motion’
NCV:	Raga	<i>teve(na)</i>	‘penis’
NCV:	Paamese	<i>teve</i>	‘cut, slice; circumcise’
SV:	Anejom	<i>(a)thi(i)</i>	‘cut s.t. off s.t. else’
Fij:	Bauan	<i>teve, tevek(a)</i>	‘circumcise’
Pn:	Tongan	<i>tefe</i>	‘circumcise’
Pn:	Samoaan	<i>tefe</i>	‘circumcise’
Pn:	Tahitian	<i>tehe</i>	‘superincise, circumcise’

PEOc **soni, *sonit-i-* ‘incise, cut into’

SES:	Arosi	<i>tonji</i>	‘prick a boil’
Fij:	Wayan	<i>soni(ti)</i>	‘cut s.t. open, make a small cut in (body part)’
Fij:	Bauan	<i>soni(ta)</i>	‘make a small incision, as for piercing a boil’
Pn:	Tongan	<i>soni</i>	‘make a small incision, lance’
Pn:	Samoaan	<i>soni</i>	‘chop, cut up’
Pn:	Tahitian	<i>ho-honi</i>	‘nibble, bite’
Pn:	Tuamotuan	<i>honi</i>	‘nibble, bite, scrape out with teeth’

3.5 Other cutting verbs

The two verbs reconstructed below referred to cutting, but the glosses of their reflexes do not allow us to reach clear conclusions about the kinds of cutting they were used for.

PMP **qiris* ‘cut, slice’ (ACD)

POc **qiri(s)* ‘cut’

PT:	Misima	<i>il</i>	‘strip (bark from wood, leaves from frond)’
MM:	Vitu	<i>yiri</i>	‘cut (string +)’
		<i>yiri(via)</i>	‘cut (string +)’
MM:	Nakanai	<i>hili(li)</i>	‘strip off (leaves)’
SES:	Gela	<i>yiri</i>	‘cut with sawing motion’
SES:	Lau	<i>?iri</i>	‘chop, cut’
SES:	Arosi	<i>kiri</i>	‘slice, cut open’

PMP **kelej* (dbl. **gelej*) 'cut into pieces' (Blust 1989)POc **kolo(ŋ)* 'cut'

MM:	Nakanai	<i>olo, ololo</i>	'cut, scarify' (common tattoo word)
SES:	Longgu	<i>olo(?ia)</i>	'cut (string)'
SES:	Lau	<i>?olo(fita)</i>	'cut up (fruit +)' (<i>fita</i> 'split, divide')
SES:	'Are'are	<i>oro(ia)</i>	'cut the head off'
SES:	Sa'a	<i>olo</i>	(VT) 'cut the ends off' (<i>olo pwau</i> 'cut hair')
SES:	Arosi	<i>?oro</i>	'cut up, as for planting'
cf. also			
PT:	Motu	<i>koro</i>	'break off twigs or blaze trees to mark the road; to notch, carve'

3.6 Sharpen, pare, shave

POc **supi[-]* 'pare, shave, sharpen'

Adm:	Mussau	<i>supi</i>	'sharpen the point (of a stick +)'
NNG:	Kove	<i>supi-</i>	'sharpen (stick)'
NNG:	Takia	<i>sup</i>	'peeler, made by grinding a hole in a shell until the edge of the hole is razor sharp'
		<i>suwi-</i>	'chop, or chip away; pare, as in paring a piece of fruit with a knife'
NNG:	Mapos Buang	<i>ruv</i>	'sharpen, whittle, peel with knife'
PT:	Motu	<i>duhi</i>	'pare; prepare yams + for cooking'
PT:	Dobu	<i>sui</i>	'shave head, face'
MM:	Nakanai	<i>suvi</i>	'peel (taro)'
MM:	Tabar	<i>cip</i>	'peel'
MM:	Tolai	<i>ip</i>	'peel, as taro'
MM:	Nehan	<i>hui</i>	'peel'
SES:	Lau	<i>sufi</i>	'shave with a razor, cut hair'
SES:	Kwaio	<i>sufi</i>	'shave, cut hair'
SES:	'Are'are	<i>suhi-</i>	'shave the head, beard; scrape'
SES:	Sa'a	<i>suhi</i>	'shave'
NCV:	Fortsenal	<i>zivi</i>	'knife'
Fij:	Wayan	<i>suvi(ti)</i>	'cut s.t. into pieces, esp. food'
Fij:	Bauan	<i>suvi</i>	'cut in pieces, chiefly of yams and breadfruit, generally lengthwise, but also of other food'
		<i>sivi</i>	'cut out with an adze'
		<i>divi</i>	'cut or pare off, sharpen a stick or pencil'
Pn:	Niuean	<i>hifi</i>	'shave off hair, clip (s.t.)'
Pn:	Tongan	<i>hifi</i>	'cut up, carve, slice, pare, trim edges of wood'
Pn:	Tikopia	<i>sifi</i>	'make shavings, whittle'

For similar unexplained fronting of the vowel in Central Pacific languages see also POc **suka* 'make fire with fire-plough' (§2.3).

PAn **tazim* 'sharpen'

POc **tajim*, **tajim-i-* 'sharpen to a point, trim (wood)'

Adm:	Nauna	<i>tic</i>	'sharpen'
NNG:	Malalamai	<i>tazim</i>	'sharpen (stick)'
NNG:	Wogeo	<i>taji</i>	'sharpen (stick)'
NNG:	Kairiru	<i>(ma)taj</i>	'sharp'
SV:	Anejom	<i>(a)tes</i>	'chip'
Mic:	Woleaian	<i>taim(i)</i>	'sharpen'
Mic:	Marshallese	<i>jem-jem</i>	'sharpen'
Mic:	Carolinian	<i>seimi</i>	'sharpen a blade or other object'
Fij:	Bauan	<i>tasi</i>	'scrape, shave, peel food (chiefly tapioca), before cooking'
Pn:	Tikopia	<i>tasi</i>	'cut, shave'
Pn:	Tuamotuan	<i>tāhi</i>	'scrape'
Pn:	Maori	<i>tahi</i>	'trim wood'

3.7 Separate flesh from shell, skin from fruit, bark from tree, leaves from branch or midrib

This set of meanings is dealt with together because we often find Oceanic verbs with two or more meanings from this list. That is, POc seems to have verbs whose meaning was essentially 'separate one layer or part of an object from another', where the object was usually a plant, fruit or vegetable.

Not surprisingly, there is an overlap between these meanings and some of those of verbs in other sections of this chapter. For example, POc **kara(s)*, **kara-s-i-* 'peel or scrape skin off tubers' (§2.2) and POc **supi* 'pare, shave, sharpen' (§3.6) also refer to peeling.

We may divide the verbs in this subsection into three groups:

- 1) POc **kulit*, **kulit-i-* 'skin', derived from the noun **kulit* in a way analogous to the English verb *to skin*;
- 2) the three formally similar verbs **isi*, **sisi* and **Risi(q)*;
- 3) verbs with meanings related to those in (2), namely:

POc	<i>*sali</i>	'strip leaves from branch, frond'
PEOc	<i>*sapi</i>	'strip (leaves); pluck (fruit, nuts)'
POc	<i>*papak</i>	'peel bark'
POc	<i>*kati</i>	'husk with the teeth'; PEOc <i>*keti</i>
POc	<i>*p^(w)jili</i>	'peel by hand (fruit, cooked food)'

POc **tosi* 'score, split, pull apart lengthwise' is included here because it denotes an act preparatory to the splitting of, e.g., pandanus leaves, an action denoted by reflexes of some of the verbs listed above.

PAn **kulit* (N) 'skin'; (V) 'peel, remove skin of s.t.'

POc **kulit*, **kulit-i-* (N) 'skin'; (V) 'peel, remove skin of s.t., bark (a tree)'

NNG:	Sengseng	<i>kul</i>	'remove a bandage or shoes; come undone, of s.t. wrapped'
NNG:	Manam	<i>kuli</i>	'peel'

PT:	Dobu	<i>kuli-kuli</i>	'rash on skin'
MM:	Tolai	<i>kulit</i>	(V) 'peel off, remove bark, remove skin'
MM:	Simbo	<i>guli, guli-</i>	(V) 'skin, pare skin off'
SES:	Gela	<i>guli, guliti-</i>	(V) 'skin, bark (shin or a tree +); take the scab off a sore'
SES:	Arosi	<i>?uri</i>	(V) 'peel'
Fij:	Bauan	<i>kuli</i>	(N) 'skin, bark, peel'
		<i>kulit-</i>	'peel cooked taro or food cooked in water; strip off the skin or bark of a tree'

The three items below have obvious formal and semantic similarities. The reconstructed forms and meanings are:

- POc **isi[-]* 'scoop out (flesh from coconut +); peel off (skin, bark +)
 POc **sisi[-]* 'scoop out (flesh from coconut +); peel off (skin, bark +)
 POc **Risi(q)* 'remove by tearing, tear or peel off (bark +) in long narrow strips'

Blust (ACD) notes CMP cognates of POc **isi* (Roti *isi* 'peel onion +, scale fish', Kei *isi(n)* (VT) 'skin, peel off'), supporting the gloss 'peel off (skin, bark +)'. PAN had a noun **isi?* whose meanings included 'flesh (of humans, animals, fruits, tubers); contents; blade of a knife; inhabitants'. It is possible that POc **isi*, at least in its meaning 'scoop out (flesh from coconut +)', was derived from this noun. Thus **isi* is fairly well supported by external evidence, as well as the Oceanic reflexes listed below. Since coconut flesh is grated straight out of the shell, the Molima and Nakanai reflexes are easily derived semantically from 'scoop out (flesh from coconut +)'.

POc **Risi(q)* is also supported by external (Philippine) cognates with meanings associated with tearing. POc **sisi* and **isi* are supported by CMP cognates. Since POc **isi* and **sisi* appear to be reconstructable with the same meaning, we suspect that the latter is simply derived from the former by reduplication. However, several of their reflexes have glosses associated with stripping bark from a tree, and we wonder whether there has been some conflation with reflexes of **Risi(q)*, which clearly meant 'remove by tearing, tear or peel off (bark +) in long narrow strips' (in SES languages, reflexes of **Risi(q)* have undergone a meaning shift to 'cut a piece off s.t.').

Of the Polynesian reflexes, we have, on grounds of meaning, attributed Rennellese *isi* 'scoop, scrape (coconut meat from shell)' to POc **isi* but Samoan *isi* etc to POc **Risi(q)*.

PCEMP **isi* 'peel, strip off; scrape (coconut)' (ACD)

POc **isi[-]* 'scoop out (flesh from coconut +); peel off (skin, bark +)'

NNG:	Poeng	<i>isi</i>	'strip bark from tree or vine'
PT:	Molima	<i>isi, isi-</i>	'grate (on a grater), rub (s.t.)'
PT:	Motu	<i>idi</i>	'prise meat from coconut, press or squeeze with an implement'
MM:	Nakanai	<i>isi</i>	'scrape, grate (coconut); scrape wood smooth'
Pn:	Rennellese	<i>isi</i>	'scoop, scrape (coconut meat from shell)'

PCEMP **sisi* 'peel off (skin, bark +)'⁴

POc **sisi*[-] 'scoop out (flesh from coconut +); peel off (skin, bark +)'

NNG:	Gedaged	<i>sisi</i>	'pull up (off), peel off, husk, take off (one's clothes)'
NNG:	Kove	<i>sisi</i>	peel off bark or skin, strip leaves from frond, remove the midrib of a leaf'
NNG:	Manam	<i>sisi</i> (?)	(V) 'peel, pare (sweet potatoes, bananas +), bark (tree)'
NNG:	Numbami	<i>sisi</i>	'peel with teeth'
PT:	Dobu	<i>sisi</i>	'scrape baked food'
MM:	Maringe	<i>hihi</i>	'pry apart, separate by prying (e.g. copra, tin can)'
SES	Gela	<i>hihi</i>	(VT) 'scoop out the white flesh of a coconut; push out, prise out; open (tin +)'
NCV:	Mota	<i>sis</i>	'rub or knock off skin or bark, flay'
Fij:	Rotuman	<i>sisi</i>	'peel or strip off'
Fij:	Bauan	<i>ðiði</i>	'separate pulp from coconut'
Pn:	Tongan	<i>hihi</i>	'scoop out, gouge out (clams)'

PMP **Risi*[*q*] 'tear, split, cut' (Blust 1983–84a, ACD)

POc **Risi*(*q*) 'remove by tearing, tear or peel off (bark +) in long narrow strips'

NNG:	Mangap	<i>ris</i>	'draw a line, engrave with an instrument'
MM:	Maringe	<i>ri-rihi</i>	'strip or tear off (making narrow strips), esp. stripping bark for making string'
SES:	Lau	<i>lisi, lisi-</i>	'cut short, cut fingernails'
SES:	Arosi	<i>risi</i>	'cut off, cut up (tobacco), shave'
SES:	Sa'a	<i>lisi</i>	(VT) 'cut off a piece or section'
Fij:	Bauan	<i>isi(a)</i>	'tear out in small pieces (of paper, leaf +); cut lengthwise, (as bamboo, hibiscus bark fibre); split into long narrow strips with the hands (pandanus leaves in mat-making)'
Pn:	Samoan	<i>isi</i>	'split'
Pn:	Niuean	<i>ihi</i>	'split, divide, rip open'
Pn:	Takuu	<i>isi</i>	'remove skin or bark in long strips'
Pn:	Nukuria	<i>isi</i>	'peel off in long thin strips'
Pn:	Maori	<i>ihi</i>	'split, divide; separate; strip bark off a tree'
Pn:	Hawaiian	<i>ihi</i>	'strip, peel, as bark or fruit; tear off, remove'

POc **tos*i was evidently used of the action of scoring something with a pointed instrument, e.g. as a preliminary to splitting (i.e. **Risi*(*q*) above) pandanus leaves.

⁴ Evidence for reconstructing a PCEMP etymon in addition to POc is Buru (CMP) *sisi-k* 'cut, peel bark off for further use'.

PAAn **testes* 'tear, tear up' (Blust 1977)

POc **tosi*[-] 'score, split, pull apart lengthwise'

SES:	Arosi	<i>osi</i>	'cut, score'
SES:	Lau	<i>osi</i>	'pull to pieces, as a house'
Fij:	Wayan	<i>toði-</i>	'cut (e.g. pandanus leaves) into fine strips, trim, cut thorns off'
Fij:	Bauan	<i>toði(a)</i>	'remove thorns of <i>voivoi</i> pandanus leaves with a shell; split <i>voivoi</i> leaves in long narrow strips with a shell; plane board or plank away from oneself with a sharp blade or edge used endwise'
Pn:	Emae	<i>tosi(a)</i>	'split pandanus leaves for weaving'
Pn:	Tongan	<i>tohi</i>	'make mark or design on'
Pn:	Samoaan	<i>tosi</i>	'score, scratch, mark; tear in strips without quite separating'
Pn:	Tahitian	<i>tohi</i>	'score, chisel'
cf. also			
MM:	Maringe	<i>tohi</i>	'peel off skin with a knife, as in peeling potato; cut back and forth with a knife, as in cutting bread'

POc **sali*[-] 'strip leaves from branch, frond'

NNG:	Lukep	<i>sali</i>	'strip leaves from a branch or palm frond'
SES:	Gela	<i>sali</i>	'tear downwards'
SES:	Arosi	<i>tari</i>	'strip off'
SES:	Sa'a	<i>tari (sao)</i>	'split the sides of sago palm leaves (<i>sao</i>), leaving the rib for use as a bird arrow'
NCV:	Paamese	<i>sali</i>	'trim leaves from cane'

The contrast between PEOc **sapi* and POc **sap*^w*i* 'carve into shape, trim (with axe or adze), whittle', is referred to in §3.3. Note, however, that Gela *sapi* formally reflects **sap*^w*i* rather than **sapi*, and is included below on semantic grounds:

PEOc **sapi*[-] 'strip (leaves); pluck (fruit, nuts)'

SES:	Gela	<i>sapi</i>	'pluck fruit from a bunch; strip off leaves'
SES:	Lau	<i>tāfi</i>	'lop off; take off midrib of sago palm leaf'
SES:	'Are'are	<i>tahi</i>	'strip off leaves; cut into slices'
SES:	Sa'a	<i>tahi</i>	'pluck hanging vines'
SES:	Arosi	<i>tahi</i>	'cut, cut off; strip off'
NCV:	Mota	<i>sav</i>	'pluck (hair, feathers)'
Fij:	Wayan	<i>savi</i>	'remove s.t. by a blow'

PMP **bakbak* 'peel off, of skin; remove bark of tree'

POc **papak* 'peel bark'

MM:	Tolai	<i>papak</i>	'peel off bark, skin (also applied to peeling off lime, paint +)'
SES:	Gela	<i>papa</i>	'chip, chips'

PMP *gatgat 'chew up' (Blust 1977)

POc *kati[-] 'husk with the teeth'

Adm:	Titan	<i>at</i>	'chew, bite'
NNG:	Kaiwa	<i>ati</i>	'bite'
MM:	Tolai	<i>kat</i>	'gnaw, pull the husk of a coconut or betelnut with the teeth'
SES:	Tolo	<i>yeti(a)</i>	'bite off the husk of betelnut'
Mic:	Woleaian	<i>gei-gei</i>	'bite with teeth, husk coconut husks into smaller layers'
Fij:	Boumaa	<i>?ati[-]</i>	'bite'
Pn:	Niuean	<i>eti</i>	'bite off, as rind of sugarcane +'
Pn:	Rennellese	<i>?eti</i>	'husk a coconut'
Pn:	Mangareva	<i>eti</i>	'tear with teeth'

The item above shows a sporadic change from POc **a* to PEOc **e*. This resembles the change found in some reflexes of POc **kali*, **keli* 'dig' (Ch. 5, §5.4), but in the latter case forms with both vowels must be reconstructed for POc.

POc **p*^(w)*ilit* 'peel by hand (fruit, cooked food)'

NNG:	Mangap	<i>pili</i>	(v) 'husk (corn, pitpit +)'
NNG:	Kairiru	<i>pil</i>	'peel skin off (cooked vegetable) by hand' (PL OBJ)
		<i>pili</i>	'peel skin off (cooked vegetable) by hand' (SG OBJ)
MM:	Notsi	<i>pili</i>	'peel (sweet potato +)'
NCV:	Mota	<i>wil</i>	'peel, turning the fruit over in peeling'
SV:	Anejom	<i>hujis</i>	'peel, skin'
SV:	Sye	<i>(a)vli</i>	'peel'
SV:	Ura	<i>(ala)vli</i>	'peel'
SV:	Kwamera	<i>(a)veri</i>	'peel'

3.8 Split into two or more sections

There are a number of verbs of splitting, apparently distinguished by the exact nature of the action, which in turn is often dependent on the texture of the object being split. POc **p*^(w)*olaq*/**p*^w*alaq* seems to have been the generic term for splitting or sometimes tearing something into two. It was evidently the verb used of splitting a log for firewood. POc **potak*, **potak-i-* was the verb used of splitting something, e.g. a coconut, open. POc **kakas*, **[ka]kas-i-* and **p*^(w)*asi* were perhaps more generic terms for 'split', but it is difficult to be sure of this from the available reflexes. Its Longgu and Bauan reflexes suggest that POc **pisak* may have referred to splitting wood finely. POc **wakaq* has few reflexes, but they refer to splitting or cutting up items less hard than wood. Reflexes of POc **Risi(q)* (§3.7) sometimes also mean 'split', but this was not its primary meaning.

PMP **belaq* 'split (s.t.); part of something split' (ACD)POc **p^wolaq*, **p^wola(q)-i-* 'split (wood +)'

PT:	Motu	<i>pola(i)</i>	(VT) 'split a log into two or four pieces'
MM:	Nakanai	<i>(sulu)pola</i>	'split (wood)'
MM:	Meramera	<i>(val)pole</i>	'split (wood)'
MM:	Nehan	<i>polaka</i>	'split'
SES:	Lau	<i>fola</i>	'split, break in two, tear in two'
SES:	Arosi	<i>horo</i>	'divide, sever, cut off'
Fij:	Bauan	<i>kola, kola(a)</i>	'split wood with wedges, break open a seed pod'

cf. also:

Fij:	Wayan	<i>bola</i>	'be cut open, split down the middle (e.g. melon, shellfish); have a long incision made (in surgery)'
Fij:	Bauan	<i>bola(a)</i>	'cleave with an axe'

POc **p^walaq* 'split (wood +)'

NNG:	Kove	<i>(i)pala</i>	'split (wood +)'
NNG:	Gitua	<i>pala</i>	'chop'
NNG:	Mangap	<i>paala</i>	(VT) 'break, cut, split into two'
NNG:	Lukep	<i>pala</i>	'split' (NB <i>-rau-pala, -sis-pala, -tara-pala</i> : different manners of splitting)
NNG:	Gedaged	<i>fale</i>	'split, cleave, chop open, divide'
NNG:	Poeng	<i>pale</i>	(VT) 'split into strips'
PT:	Misima	<i>p^wal</i>	'strip (sago or coconut leaves from main leaf stem)'
MM:	Vitu	<i>(yutu)valay(i)</i>	'split (wood)'
MM:	Bilur	<i>parak</i>	'split (wood)'
MM:	Bola	<i>pala</i>	'cut (meat +)'
MM:	Patpatar	<i>paa-pal</i>	'cut grass'
SES:	Longgu	<i>pala-</i>	'cut cloth; cut straight across'
		<i>pala-pala(i)</i>	'straight line of cloth which has been cut'
SES:	Sa'a	<i>p^wā</i>	'break, crack; hatch'
Mic	Woleaian	<i>fela</i>	(VT) 'cut, hew with an axe'
Mic:	Carolinian	<i>fala</i>	(VT) 'chop, split, cut wood or other relatively large objects with machete, axe or hand'
		<i>fal</i>	(VI) 'carve, do adze work'

The forms above suggest the following history. The POc form was (on MP evidence) **polaq*. Initial **po-* first became **p^wo-* through spread of lip-rounding from vowel to consonant, then **p^wo-* dissimilated to **p^wa-*. Either each of these forms occurred in the speech of the POc community, or (less plausibly) independent parallel changes occurred in various daughter languages. Bauan *bola* also points to a POc doublet **bolaq* (Ch. 2, §3.1.3).

PMP **beTak* 'split, cleave' (Dempwolff 1938)(1) POc **potak*, **potak-i-* 'crack open, split open (nuts, coconuts +), make incision'

Adm:	Loniu	<i>pot</i>	(VI) 'be broken, be chopped down'
Adm:	Titan	<i>pot</i>	(VI) '(wooden objects) be broken'

NNG:	Malasanga	<i>pota</i>	'split (wood)'
NNG:	Manam	<i>ota?</i>	'crack s.t. open (coconuts, canarium nuts +)'
MM:	Notsi	<i>pət</i>	'chop'
MM:	Teop	<i>potā</i>	'cut open (pig belly); split (open)'
MM:	Varisi	<i>pota</i>	'cut (string)'
SES:	Bugotu	<i>fota</i>	'break, smash up, be broken'
SES:	Tolo	<i>vota</i>	'separate (e.g. strings of rattan)'
SES:	Sa'a	<i>hoa</i>	(VI) 'make an incision in; remove and separate'
		<i>hoai</i>	(VT)
SES:	Arosi	<i>hoa</i>	(VI) 'divide, cleave asunder, separate'
		<i>hoai, hoari</i>	(VT)
NCV:	Mota	<i>wota</i>	'knock, break by knocking'
SV:	Anejom	<i>(a)htak(wai)</i>	'split'

(2) POC **botak, *botak-i-* 'crack open, split open (nuts, coconuts +), make incision'

PT:	Motu	<i>bota(i)</i>	'beat, thrash'
Fij:	Wayan	<i>bote(ki)</i>	'split or crack s.t. open'
cf. also:			
SES:	Gela	<i>voti</i>	'break open (coconut +), split, split up'
Fij:	Bauan	<i>bete</i>	'break brittle things'

POC **kakas, *[ka]kas-i-* 'split'

NNG:	Malalamai	<i>(i)kasa</i>	'split (wood)'
MM:	Ramoaaaina	<i>kai</i>	'scrape; point; scratch; chop up small (taro, coconut)'
SES:	Lau	<i>kasi</i>	'adze, chop'
		<i>kakasi</i>	'split open'
SES:	'Are'are	<i>kakā</i>	'tear, split wood'
SES:	Sa'a	<i>kaka</i>	'be torn, to be split'
		<i>kakasi</i>	(VT) 'tear, split'
SES:	Arosi	<i>kaka, kakasi</i>	'split'

cf. also:

SES:	Lau	<i>kakari</i>	'split, chip'
Mic:	Marshallese	<i>kek</i>	'cracked, split'

PMP **biseqak* 'split' (ACD)

POC **pisa(k), *pisak-i-* 'split'

PT:	Dobu	<i>pisa(ri)</i>	'smash'
SES:	Longgu	<i>vita?(ai)</i>	'split (firewood, kindling)'
SES:	Lau	<i>fita</i>	'split, divide'
SES:	'Are'are	<i>hita</i>	'split, hit, struck'
SES:	Sa'a	<i>hite</i>	(VI) 'split; to hit, strike, arrive at'
SES:	Arosi	<i>hita</i>	'lightning; thunder; to split; to hit, strike' (<i>ma-hita</i> 'split, broken')
Fij:	Bauan	<i>vida(a), vidak(a)</i>	'split, divide by hand' (of thin compact objects)

For other possible reflexes of POC **pisa(k), *pisak-i-* 'split', see §7 below.

PMP **wakaq* 'split' (ACD)POc **waka(q)* 'cut, split into sections, as yams for planting'

PT:	Iduna	<i>waʔa(na)</i>	'peel off completely (bark, skin)'
SES:	'Are'are	<i>waʔa</i>	'split, cut in sections; yam section'
SES:	Sa'a	<i>waʔa</i>	'be split, cut into sections; to split, divide fish; shred, cut up yams for planting' (N 'yam sets')
SES:	Arosi	<i>waʔa</i>	'split' (<i>waka</i> 'sliced portion of yam for planting')

3.9 Tear

Verbs of tearing refer basically to forcible separation.

POc **saRe(k)* 'become, be torn up, uprooted', **saRek-i-* (VT) 'tear off, uproot' (French-Wright 1983: **saRe* 'tear')

NNG:	Manam	<i>sare</i>	'tear'
		<i>sereki</i>	(VT) 'tear, cut up'
PT:	Motu	<i>dare</i>	'tear'
MM:	Tolai	<i>are, re</i>	'clear away, as a house or fence'
NCV:	Mota	<i>sare</i>	'tear'
Mic:	Kiribatese	<i>tae</i>	'stripped, extracted, drawn out, defeated, cracked'
		<i>taek(a)</i>	'detach by pulling, uproot'
Mic:	Marshallese	<i>car</i>	'torn off'
Mic:	Ponapean	<i>san-sara-sarek</i>	'uprooted'
			'uproot, peel, pry'
Mic:	Woleaian	<i>tāri(ŋa)</i>	(VT) 'rip, tear'
Fij:	Rotuman	<i>sae</i>	'open out, separate'
Fij:	Wayan	<i>sei, seiti-</i>	'break (cut, tear) s.t. into two portions'
Fij:	Bauan	<i>se</i>	'rend, tear in two; split, cut or saw lengthwise'
Pn:	Tongan	<i>hae</i>	'tear'
Pn:	Rennellese	<i>sae</i>	'tear, strip, as bark'
Pn:	Maori	<i>hae</i>	'slit'
Pn:	Hawaiian	<i>hae</i>	'tear'

POc **sir(i,e)* 'tear in two, tear into strips'

Adm:	Lou	<i>sir</i>	'tear'
NNG:	Takia	<i>sila-sile</i>	'tear in two'
PT:	Misima	<i>hil</i>	'cut into strips; tear into strips'
MM:	Nakanai	<i>sile</i>	'strip off bark; shred leaves; tear; cut (hair); pull down'
MM:	Tolai	<i>ir</i>	'split, of small things'
MM:	Teop	<i>siri</i>	'tear, rend'
MM:	Tinuputz	<i>sī</i>	'tear clothes, leaves'
SES:	Lau	<i>siri</i>	'peel, as a sweet potato'
NCV:	Mota	<i>sur</i>	'shave, cut close'
NCV:	Paamese	<i>sili</i>	'shave'

POc **sika* ‘split, tear (in strips)’

PT:	Dobu	<i>siʔa</i>	‘split, tear into strips’
MM:	Patpatar	<i>sik</i>	‘strip (bark, skin)’
MM:	Tangga	<i>sia(n)</i>	‘split down’
SES:	Lau	<i>seka</i>	‘tear, rend’

cf. also:

SES:	Arosi	<i>sigo</i>	‘tear, strip off’
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4 Penetration with a pointed object

4.1 Pierce

The terms listed below entail formal and semantic overlaps to a seemingly embarrassing degree. However, there is evidence that all these terms occurred in POc: **(su)suRi* and **s(u,i)ri*, for example, are supported by the existence of contrasting reflexes in Mussau, *sui* and *suli*. Reflexes of the first three are used to refer to sewing, but the POc verb which specifically referred to that activity was none of these, but **saqit* (Ch.4, §3.2.1). POc **(su)suRi* and POc **sua* referred respectively to a bone needle (Ch.4, §3.2.1) and a spear (Ch. 8, §9), but are included here because of their verbal uses and their potential for confusion with the other terms.

POc	<i>*(su)su(k)</i>	‘anything used to pierce, prick; (V) pierce, prick, sew’; <i>*suki-</i> ‘pierce, prick, sew (mats)’
POc	<i>*tuRi[-]</i>	‘sew, thread, string together’
POc	<i>*(su)suRi[-]</i>	‘bone (needle); sew’
POc	<i>*s(u,i)ri[-]</i>	‘pierce, poke’ (Blust 1998)
POc	<i>*soka, soka-i-</i>	(V) ‘pierce; stab, poke hole in (s.t.)’
POc	<i>*sua</i>	(N, V) ‘spear (weapon retained in the hand)’

PMP **cukcuk, suksuk* ‘skewer’ (ACD)

POc **(su)su(k)* ‘anything used to pierce, prick’; (V) ‘pierce, prick, sew’

NNG:	Gitua	<i>zuzu</i>	‘sharpened stick used like cooking fork’
PT:	Motu	<i>dudu</i>	‘prod with a stick’
MM:	Nakanai	<i>susu(tola)</i>	‘pierce the footprint (kind of sorcery)’
SES:	Gela	<i>susu(ihu)</i>	‘hole in septum in nose; nose stick; strengthening sticks through thatch of house ridge’ (<i>ihu</i> ‘nose’)
SES:	Lau	<i>susu</i>	(V) ‘point, prick, impale, pierce, poke out with a stick, sting, darn’
NCV:	Mota	<i>sus</i>	‘pierce, run through’
Fij:	Rotuman	<i>susu</i>	‘sew, prick’

POc **suki[-]* ‘pierce, prick, sew (mats)’

Adm:	Titan	<i>sus, su-suwi</i>	‘sew up, stitch, plait’
Adm:	Mussau	<i>sui</i>	‘sew’
NNG:	Bing	<i>suk</i>	‘throw (a spear)’
MM:	Siar	<i>suk</i>	‘sew’

MM:	Tolai	<i>uk</i>	'thread (beads, tabu +)'
MM:	Maringe	<i>su-suki</i>	'sew with needle and thread'
SES:	Bugotu	<i>suki</i>	'pierce, impale, prick'
		<i>su-suki</i>	'sew, thread (fish teeth, money beads +)'
SES:	Longgu	<i>suki(boro)</i>	'sew (hem)'
SES:	Lau	<i>sugi, sugi-</i>	'pierce'
SES:	Arosi	<i>su-su?i</i>	'prick, pierce, sew'
NCV:	Nguna	<i>suki</i>	'pierce'
Fij:	Bauan	<i>ðuki(ta)</i>	'loosen ground with a stick'
Pn:	Tongan	<i>hū-hūki(a)</i>	'pricked in many places, having many small holes as if pricked'
		<i>hūki(a)</i>	'pricked'
Pn:	Samoaan	<i>su?i</i>	'pierce, sew'
Pn:	Tahitian	<i>hu?i</i>	'pierce'

PA_n *CuSuR 'string together (beads +)' (ACD)

POc *tuRi[-] 'sew, thread, string together'

PT:	Motu	<i>turi</i>	'plait an armlet, sew, string fish together'
PT:	Magori	<i>turi</i>	(V) 'thread, sew'
PT:	Lala	<i>kuli(kuli)</i>	'sew (with thread)'
MM:	Vitu	<i>turi</i>	'sew'
MM:	Tolai	<i>tur, turu</i>	'pierce, as spear or arrow'
NCV:	Uripiv	<i>(o)turi</i>	'sew'
SV:	Lenakel	<i>til</i>	'sew, string, put on a string'
SV:	Kwamera	<i>(a)tiri</i>	'sew, weave, string beads, shuffle'
Fij:	Bauan	<i>tui</i>	'lift up with a string'
		<i>tui-tui-(vaka)</i>	'string together'
Pn:	Tongan	<i>tui</i>	'put in, insert (hand into pocket +); thread (needle, beads +)'
Pn:	Tahitian	<i>tui</i>	'thread, string (pierced objects)'
Pn:	Hawaiian	<i>kui</i>	'string (pierced objects, as flowers in a <i>lei</i> , or fish); thread (beads)'

POc *(su)suRi[-] 'bone (needle); sew'

Adm:	Mussau	<i>sui</i>	'sew (mats), thatch'
MM:	Roviana	<i>susuri(na)</i>	'bone'
SES:	Sa'a	<i>suli(teru)</i>	'bone needle' (<i>suli</i> 'bone')
SES:	Arosi	<i>suri(ao)</i>	'needle for sewing thatch' (<i>suri-suri</i> 'bone', <i>ao</i> 'sago palm')
NCV:	Mota	<i>su-sur</i>	'sew, prick'

POc *s(u,i)ri[-] 'pierce, poke' (Blust 1998)

Adm:	Mussau	<i>suli</i>	'sew (mats), thatch'
Adm:	Lou	<i>sur</i>	'pierce'
NNG:	Mangseng	<i>sir</i>	'poke, puncture, drill'
PT:	Misima	<i>huli</i>	'point; poke (e.g. with spear) sand'
Mic:	Trukese	<i>tir</i>	'be inserted, put in between'
Mic:	Woleaian	<i>tiri(-fegiri)</i>	'pierce with it'

PCEMP *seka 'pierce, stab'⁵

POc *soka, soka-i- (VT) 'pierce; stab, poke hole in (s.t.)'

Adm:	Lou	<i>sok(mat)</i>	'shoot'
		<i>sok(tep)</i>	'throw spear, sticks into ground'
NNG:	Kove	<i>soka-soka</i>	'sharpened stake set where a pig jumps'
NNG:	Sio	<i>soe</i>	
NNG:	Takia	<i>sue</i>	
NNG:	Kairiru	<i>uq</i>	
SJ:	Tarpia	<i>sok</i>	
PT:	Misima	<i>howa</i>	'spear, pierce'
MM:	Notsi	<i>coka</i>	
MM:	Tabar	<i>co-coka</i>	'shoot (fish)'
MM:	Sursurunga	<i>so(i)</i>	(VT) 'poke hole in (s.t.): spear, strike, hit; sow, plant, break ground'
MM:	Tangga	<i>sok</i>	'spear s.o.'
SV:	Lenakel	<i>suk</i>	'spear (generic: for war, fishing, hunting)'
Mic:	Woleaian	<i>toga-tog</i>	'stick s.t. into (a young coconut), pierce, stab'
Fij:	Bauan	<i>ðoka</i>	'pierce, usually with a spear; husk coconut'
Pn:	Niuean	<i>hoka</i>	'pierce, poke'
Pn:	Samoaan	<i>soʔa</i>	'spike, transfix'
Pn:	Rennellese	<i>soka</i>	'pierce'
Pn:	Maori	<i>hoka</i>	'pierce'

POc *sua (N, V) 'spear (weapon retained in the hand)'

NNG:	Manam	<i>sua(pu)</i>	'fish spear; (V) spear'
NNG:	Poeng	<i>sue</i>	'bone, needle'
SES:	Gela	<i>sua</i>	'spear without barbs'
SES:	Longgu	<i>sua</i>	(N) 'spear'
		<i>sua-</i>	(VT) 'pull out (spear, stick +)'
SES:	Lau	<i>sua</i>	'spear'
SES:	Kwaio	<i>sua</i>	'spear'
Fij:	Bauan	<i>sua(k)</i>	'stab; pierce with a spear (retaining hold of the weapon); husk a coconut'
Pn:	Samoaan	<i>sua</i>	'thrust'

4.2 Drill, bore

Drilling or boring was performed by rotating a harder implement, e.g. one with a shark's tooth head, on softer material. Reflexes of drilling terms are occasionally used of igniting a fire by rotating one object against another. Five verbs of drilling and boring have been reconstructed:

POc *puru(k), *puruk-i- 'pierce, bore (hole)'

POc *buru[-] 'pierce, bore (hole), drill'

⁵ Buru *seka* 'stab, instrument not leaving hand' is an external cognate, supporting reconstruction of PCEMP *seka.

PWOc	<i>*b^waR(i,e)[-]</i>	'pierce, bore (hole)'
POc (?)	<i>*paRo[-]</i>	'drill through, pierce, perforate'
POc	<i>*wiri(t)</i>	'twist, turn, revolve' (see §8 for supporting evidence)

None of the first three reconstructions is particularly well supported by the evidence, and their formal similarity leaves us questioning whether there is a derivational relationship between them. However, the evidence does not at this stage allow us to combine them. They all refer to actions which entail turning an instrument in order to make a hole.

(1) POc **puru(k)*, **puruk-i-* 'pierce, bore (hole), drill'

PT:	Motu	<i>(a)uru</i>	(ADV) 'clean through' (as compound in verbs) (zero for expected <i>h</i> as reflex of POc <i>*p</i>)
MM:	Tolai	<i>vuru(e)</i> <i>vur</i>	(VT) 'turn, bore' (VT) 'tattoo by boring pits in the skin, into which the sap of young coconuts or lime is injected; to bore pits into anything, esp. into taro as a private mark'
SES:	Tolo	<i>vuru-</i> , <i>vuruki-</i>	'pierce, make holes in'

(2) POc **buru[-]* 'pierce, bore (hole), drill'

NNG:	Dami	<i>borū</i>	'stab'
NNG:	Poeng	<i>bulo</i>	'pierce'
MM:	Tangga	<i>bur-bur</i>	'pump drill, using a shark's tooth as the drill head; used for drilling turtle shell, dog's teeth, thin shell breast ornaments +'
MM:	Maringe	<i>bi-biru</i>	'drill or dig out a small hole, such as preparing a coconut for drinking'
Mic:	Carolinian	<i>b^wura</i> <i>b^wuru-b^wur</i>	'bore holes in wood (esp. of insects)' 'make a fire by generating friction with a traditional drill'

cf. also:

PT:	Tawala	<i>buhu</i>	'bore' (< PPT <i>*busu</i>)
PT:	Motu	<i>budu-</i> <i>(i)budu</i>	'make a hole through the eye of a coconut; to bore a hole' (< PPT <i>*busu</i>) 'brace (instrument for boring a hole)'

PWOc **b^waR(i,e)[-]* 'pierce, bore (hole)'

NNG:	Bing	<i>buod</i>	'drill a hole, gouge out a hole' (- <i>d</i> for expected - <i>r</i>)
NNG:	Patep	<i>b^yey</i>	'throw, thrust (spear +), pierce, shoot'
PT:	Duau	<i>b^ware</i>	
MM:	Lihir	<i>bual</i>	
MM:	Tolai	<i>bari</i>	(VT) 'bore'
MM:	Ramoaina	<i>bari</i>	'bore (with gimlet +)'

The following item may be reconstructable only for PEOc. The two WOc items have phonological difficulties: Poeng *paro* has *r* for expected *l*, Simbo *vala-vala* final -*a* for -*o*.

PA*n* **buNuq* 'throw at, hit with a projectile' (ACD)

PMP **bunuq* 'throw at, hit, strike with a sharp object; kill; extinguish (a fire)' (ACD)

POc **punu(q)*, **punuq-i-* 'hit, strike, fight, kill'

Adm:	Titan	(<i>pa</i>) <i>un</i>	'fight, make war'
NNG:	Mangseng	<i>pun</i>	'shoot, spear, bite, fight, hit'
		<i>pun(pel)</i>	'fight each other'
NNG:	Poeng	<i>pune</i>	'kill by sorcery'
NNG:	Mangap	<i>pun</i>	'hit'
NNG:	Takia	<i>fini</i>	'hit her/him'
NNG:	Manam	<i>uŋ</i>	'fight'
		<i>uni</i>	(VT) 'hit'
SJ:	Sobei	<i>fun</i>	'kill'
MM:	Tigak	<i>punuk</i>	'kill'
SES:	Longgu	<i>puni</i>	'beat, best (s.o.)'
SES:	Kwaio	<i>funu</i>	'fight (each other)'
NCV:	Mota	<i>pun</i>	'dash out by hand or foot, rub out, as fire or anything written on a slate'
NCV:	Paamese	<i>vinu</i>	'die (in large numbers)'
		<i>vini(i)</i>	'kill'
NCV:	Nguna	<i>punu(e)</i>	'kill, extinguish, turn off [in compounds]'

POc **qubu*, **qub^wi-* 'hit with fist or with a weapon'

Adm:	Nyindrou	<i>ub^wiy</i>	'hit, beat'
Adm:	Titan	<i>up^wi</i>	'hit, strike, spank, punch'
Adm:	Drehet	? <i>up^wi(p)</i>	'hit'
Adm:	Mussau	<i>ubi</i>	'kill; fight'
PT:	Iduna	? <i>ubu(na)</i>	'punch, hit with clenched fist'
MM:	Vitu	<i>yubi</i>	'kill'
		(<i>vari</i>) <i>yubi</i>	'fight'
MM:	Bola	<i>ubi</i>	'hit; kill'
		(<i>va</i>) <i>ubi</i>	'fight'
MM:	Nakanai	<i>ubi</i>	'strike, beat, spear (fish), pierce, catch with claws'
		<i>ub-ubi</i>	'shoot'
		(<i>va</i>) <i>ubi</i>	'fight (each other) with spears; war'
MM:	Sursurunga	<i>ubi</i>	'hit; kill'
MM:	Patpatar	<i>ubu</i>	'hit; fight'
MM:	Minigir	<i>ubu</i>	'fight'
MM:	Ramoaina	<i>um</i>	'fight'
MM:	Halia (Selau)	<i>ib</i>	'chop'
MM:	Hahon	<i>ibi</i>	'hit'
MM:	Tinputz	<i>ip</i>	'kill'

The morphological relationship between intransitive **qubu* and transitive **qub^wi-* does not conform to any of the patterns described in Chapter 2, §3.1.2. Transitive **qub^wi-* appears to be derived from intransitive **qubu* plus transitive suffix *-i-, but intransitive roots ending in a vowel other than *-a- did not take the transitive suffix, so the history of this pair remains unclear.

PMP **ra(m)buk* 'knock, pound, beat'

POc **rapu(t)*, **raput-i-* 'hit with hand or stick, slash'

NGG:	Bariai	<i>rau</i>	'kill'
NGG:	Tuam	<i>ravu</i>	'hit'
NGG:	Lukep	<i>rau</i>	'hit'
NGG:	Mangap	<i>(-po)rou</i>	'fight, struggle'
NGG:	Kilenge	<i>lau(e)</i>	'hit'
NGG:	Numbami	<i>lapa</i>	'hit'
PT:	Gumawana	<i>lau(i)</i>	'hit; strum a guitar'
PT:	Iduna	<i>lau(na)</i>	'hit, beat (with stick)'
		<i>lau(tafi)</i>	'cut grass using grass knife' (PL SUBJ)
PT:	Ubir	<i>rabi-</i>	'hit'
PT:	Tawala	<i>lau(ni)</i>	'hit, shoot'
MM:	Lavongai	<i>rau(ŋ)</i>	'kill'
MM:	Sursurunga	<i>raps(i)</i>	'hit, spank, beat'
MM:	Ramoaaaina	<i>rapu</i>	'hit (with a stick +)'
MM:	Teop	<i>ravu-ravu</i>	'pound, mash'
MM:	Mono-Alu	<i>lapu</i>	'kill'
MM:	Teop	<i>rapisi</i>	'knife; hit, beat, scourge'
MM:	Tinputz	<i>rapis</i>	'bush knife'
SES:	Gela	<i>labu(a)</i>	'hit; kill'
SES:	Bugotu	<i>ðabu</i>	'hit; kill'
		<i>ðabusi</i>	'hit; kill'
SES:	Talise	<i>labu</i>	'hit'
		<i>labusi-</i>	'kill'
SES:	Longgu	<i>rabusi-</i>	'hit hard with hand or stick'
SES:	'Are'are	<i>rapu</i>	'strike, hit'
		<i>rapusi-</i>	'hit'
SES:	Arosi	<i>rabu</i>	'strike, knock, hit; knock in a nail'
		<i>rabusi-</i>	'hit'
NCV:	Uripiv	<i>revci</i>	'hit'
Fij:	Nadroga	<i>ravusi-</i>	'hit, beat'
Fij:	Wayan	<i>ravu</i>	'be hit, beaten, struck with a blow from hand or instrument; be killed; hit, strike'
		<i>ravuti-</i>	'hit, beat s.t.'
Pn:	Tahitian	<i>rapu</i>	'kneaded, mixed to a pulp; earth, dirt'
Pn:	Maori	<i>rapu</i>	'squeeze (in working food to a pulp)'

The mismatch in root-final consonants between PMP **ra(m)buk* and POc **rapu(t)* above suggests that their resemblance may be due to chance. The SES items reflect medial **-b-* where reflexes in other language groups agree on **-p-*, whilst the Guadalcanal-Gelic subgroup of SES reflects a form **(l,R)abu*, **(l,R)abut-i-*.

The items below, POc **tutuk*, **tuki-* and **putu(k)/*butu(k)*, **butuk-i-* are onomatopoeic, with a basic reference to hammering, and are derivationally related.

PAN **tuqtuq* (V) 'hammer, pound, crush' (ACD)POc **tutuk* 'pound, mash by pounding, hammer, crack by hammering'

Adm:	Titan	<i>tut</i>	'(rain) beat down'
		<i>tutu(wi)</i>	'beat, strike, hit'
NNG:	Gitua	<i>tutu</i>	'pound, beat, knock'
NNG:	Mangap	<i>tut</i>	'pound, hit'
NNG:	Manam	<i>tutu?</i>	'mash, crush'
NNG:	Sengseng	<i>tut</i>	'strike; beat out barkcloth'
NNG:	Kove	<i>tutu</i>	'beat, as a drum; pat a baby's bottom (a device to make it stop crying)'
PT:	Molima	<i>tutu</i>	(V) 'tap, break open a nut, pound, strike'
PT:	Muyuw	<i>tut</i>	'crush betelnut'
PT:	Minaveha	<i>tutu</i>	'pound to crack, used of mapa nuts'
MM:	Nakanai	<i>tutu</i>	'tap, as a tattooing needle; strike, as with knuckles; to bump heads; produce a loud noise by hitting a buttress root'
MM:	Tolai	<i>tut</i>	(V) 'hammer, strike with a stone, pound up'
		<i>tu-tutuk</i>	(N) 'hammer'
MM:	Roviana	<i>tutu</i>	'large stick (used for mixing native puddings); small pestle (used for mixing betel nut + in a mortar)'
MM:	Maringe	<i>tutu</i>	'hit, pound (nuts +), hammer'
SES:	Tolo	<i>tutuku</i>	'pound with a stick-like object to soften, mash or crush (food, nuts, lime)'
SES:	Gela	<i>tutu</i>	'pound, crush (yams +)'
NCV:	Mota	<i>tut</i>	'beat with fist, thump; break off with blows of the fist'
NCV:	Raga	<i>tutui</i>	'hit'
Fij:	Wayan	<i>tatuki</i>	'make a sharp knocking sound; tap, bang, knock'

POc **tuki-* (V) 'pound'

Adm:	Loniu	<i>tuku(wey)</i>	'break open (coconut +)'
Adm:	Lou	<i>tuk</i>	'beat'
NNG:	Sengseng	<i>tuk</i>	'beat taro against a tree in order to soften it'
MM:	Vitu	<i>tuyi</i>	'hit'
MM:	Babatana	<i>tuki</i>	'crack nuts with a stone and remove shells; kick, punch'
MM:	Maringe	<i>tuge</i>	(V) 'hammer, pound, esp. food in a bowl with a mallet'
		<i>t^huge</i>	'lump of mashed food made by pounding ingredients in a bowl'
NCV:	Kiai	<i>tui</i>	'hit (with thrown stone)'
NCV:	Nguna	<i>tuki-</i>	(V) 'hammer, pound, hit with stone'
Mic:	Marshallese	<i>cuk-cuk</i>	'pound breadfruit or taro'
Mic:	Mokilese	<i>cuk</i>	(V) 'pound'

Fij:	Bauan	<i>tuki-</i> <i>tuki(vatu)</i>	'strike at, knock at, hammer, pinch' 'variety of pudding or roasted breadfruit beaten quickly under water with a stone' (<i>vatu</i> 'stone, rock')
Pn:	Tongan	<i>tuki</i>	'knock, hit, pound, hammer, punch'
Pn:	Tuvalu	<i>tuki</i>	'heavy wooden mallet, used for pounding both taro corms and pandanus leaves'

POc **putu(k)* and **butu(k)*, morphological variants of the same verb (Ch. 2, §3.1.3), referred to the sound of repeated knocking, rather than the action of hammering.

PMP **buTuk* 'knock, pound, beat' (ACD)

(1) POc **putu(k)* 'repeatedly knock, pound, beat'

MM:	Tinupuz	<i>vut-vuit</i>	'heartbeat'
SES:	Arosi	<i>(u)hu?i</i>	'crush'
Fij:	Bauan	<i>vutu</i> <i>(i)vutu</i>	'pound with pestle and mortar' 'pestle for pounding'
Mic:	Marshallese	<i>lwūc</i> <i>(pen)-lwūc</i>	'mallet, hammer' 'pound with mallet' (<i>penpen</i> (V) 'tap')

(2) POc **butu(k)*, **butuk-i-* 'repeatedly knock, pound, beat'

PT:	Iduna	<i>(-lu)butu-butu</i>	'knock (at door)'
PT:	Dobu	<i>(sa)butu</i>	'smash sago pith prior to extracting the sago from it'
MM:	Nakanai	<i>butu, butu-butu</i>	(V) 'sound a slitgong, especially to beat it loudly and call out at the same time'
SES:	Longgu	<i>butu-butu</i>	'(heart) beat; do things to show that you are looking for a fight (e.g. stamping feet, to prepare to punch someone)'
Fij:	Wayan	<i>butu</i> <i>butuki-</i>	'be assaulted and knocked about by a number of people, be beaten up by a group' 'stamp or tread on s.t., trample s.t.'

The verbs reconstructed below denote a variety of kinds of hitting:

POc **qatu(ŋ)*, *qatuŋ-i-* 'strike from above, pound' (ACD: **qatu*)

NNG:	Kove	<i>watu</i>	'break a nut by hitting it with a stone' (<i>watu ŋani patu</i>)
NNG:	Malalamai	<i>atu</i>	'hit'
PT:	Tawala	<i>yatu</i>	'sago chopper, adze for chopping sago'
PT:	Kilivila	<i>katu-</i>	'strike (from above)'
PT:	Motu	<i>atu</i> <i>(he)atu</i>	'press pottery into shape (using wooden beater on stone); to tattoo' 'fight (each other)'
MM:	Nehan	<i>tunŋ</i> <i>(weli)atuŋ</i>	'fight' 'fight (one another)'
MM:	Halia (Haku)	<i>yatuŋ</i> <i>(he)atuŋ</i>	'kill' 'fight (each other)'
MM:	Banoni	<i>cum</i>	'hit'

MM:	Maringe	<i>aknu</i>	'hit, beat'
SES:	Lau	<i>sau(kata)</i>	'pound in a mortar'
SES:	Baegu	<i>sauni-</i>	'kill'
SES:	'Are'are	<i>rauni-</i>	'kill'
SES:	Sa'a	<i>sau</i>	'kill, pound (taro), ram, (wind) blow strong; pound (taro and canarium nuts at a feast)'
SES:	Arosi	<i>sau</i>	'strike down; crush food in a bowl with a pole or coconut frond'
NCV:	Mota	<i>atu</i>	'give single strokes in drumming while the other performer is using both drum sticks'
NCV:	Nguna	<i>atunji</i>	'hit with stick or club; kill'
SV:	Lenakel	<i>aru</i>	'hit, strike'
Mic:	Woleaian	<i>siu-siu</i>	'pound (breadfruit +)'
Mic:	Mokilese	<i>wossou</i>	'pound soaking breadfruit in preparation for making <i>mar</i> '

PMP **pakpak* 'clap, slap, beat the wings'

POc **baba(k)* 'strike one against another, knock'

PT:	Motu	<i>papa</i>	'burst, of blossom; hatch, of eggs'
SES:	Arosi	<i>bā</i>	'strike one upon another, as firewood in breaking it'
SES:	Arosi	<i>bwabwa</i>	'knock off e.g. bark of tree, shell of nut'
Pn:	Tongan	<i>pā</i>	'touch, hit, knock against; collide with; slap (esp. on the head); burst, explode'
Pn:	Niuean	<i>pā</i>	'slap, strike, touch; clap'
Pn:	Tahitian	<i>pā</i>	'hit, of wind'
Pn:	Hawaiian	<i>pā</i>	'touch'

POc **baki-* (VT) 'strike one against another, knock, clap'

Mic:	Ponapean	<i>pak</i>	'be smashed, as of fallen ripe fruit'
Mic:	Carolinian	<i>paxu</i>	(VT) 'cut s.t., sever, prune, amputate, split in half'
Pn:	Pukapukan	<i>paki</i>	'clap hands, strike'
Pn:	Tahitian	<i>paʔi</i>	'slap, pat, touch'
Pn:	Hawaiian	<i>paʔi</i>	'slap'

PMP **tu(m)buk* 'pound'⁶

POc **tupu(k), tupu(k)-i-* 'knock against, knock over, stub (toe), stumble against'

Adm:	Drehet	<i>tup^wi(yi)</i>	'push; knock over; set loose, adrift'
NNG:	Mangseng	<i>tup</i>	'stub, hit'
PT:	Gumawana	<i>tupu(we)</i>	'knock someone down with force'
MM:	Nakanai	<i>tubu</i>	'stick to; hit with spear; hit a mark'
NCV:	Mota	<i>tipa</i>	'knock, strike downwards, beat one stone on another, knock roughly'
NCV:	Lonwolwol	<i>teb^wi-</i>	'kick, kick against, stumble over'

⁶ Murut *manumbuk*, Minagkabau *tumbuʔ*, Sikka *tubi*, all 'pound with fist'.

NCV:	Nguna	<i>tip^wa(e)</i>	'hit with fist, fight, be against'
		<i>tim^wa-tim^wa</i>	'knock'
SV:	Kwamera	<i>(i)rup^wi</i>	'clap, applaud, pat'

A number of Eastern Oceanic items reflect a PEOc form **tip^wa*, and it is just possible that this is descended from a separate POc etymon.

POc **p^wasa(r,R)*, **p^wasa(r,R)-i-* 'slap, hit'

Adm:	Mussau	<i>posala</i>	'hit'
MM:	Sursurunga	<i>posar, posri</i>	'slap, clap, hit with the open palm'
MM:	Patpatar	<i>pasar</i>	'slap; beat drum'
MM:	Minigir	<i>pasari</i>	'hit'
MM:	Nehan	<i>posar</i>	'hit lightly'
MM:	Solos	<i>pasan</i>	'hit'
NCV:	Mota	<i>wosa</i>	'slap, smack, clap'
NCV:	Tamambo	<i>voja(i)</i>	'strike, slap'
NCV:	Port Sandwich	<i>voč(i)</i>	'strike with the hand, slap'
NCV:	Nguna	<i>wosa(e)-</i>	'clap (hands or flat objects)'
Fij:	Wayan	<i>voða</i>	'slap s.t. with the open hand or hands together'

PMP **sa(m)puk* 'collide, bump into' (ACD: PWMP)

POc **sapu(k)*, **sapu(k)-i-* 'hit'

PT:	Gumawana	<i>sap(i)</i>	'slap'
MM:	Kara (West)	<i>saup</i>	'fight'
MM:	Nalik	<i>sop</i>	'kill'
MM:	Notsi	<i>cap</i>	'kill; fight'
MM:	Tabar	<i>copu(i)</i>	'dehusk (coconut)'

PCP **sau*, **sauti-* 'strike, beat, chop'

Fij:	Rotuman	<i>jau</i>	'beat, strike' (see Geraghty 1986)
Fij:	Wayan	<i>sauti-</i>	'crack or break s.t. open; cut off or trim vegetation'
Fij:	Bauan	<i>sau</i>	'cut reeds, bamboo and some other things; break, as a coconut for drinking'
Pn:	Tongan	<i>hau</i>	'strike, beat, chop'
Pn:	Rennellese	<i>sau</i>	'strike, beat, slash, as weeds with a stick'
Pn:	Tongareva	<i>sau</i>	'cut with knife, slice, carve meat'
Pn:	Hawaiian	<i>hau</i>	'strike, beat, chop'

The final item is reconstructable only for PCP and appears to be derived from a noun:

PCP *(*v,b*)*asu* 'a drum'; (V) 'drum, thump'

Fij:	Bauan	<i>vaðu</i>	'punch with the fist'
Pn:	Niuean	<i>pahu</i>	'drum'
Pn:	Tongan	<i>pahu</i>	'thump'
Pn:	Rarotongan	<i>paʔu</i>	'drum formed from a hollowed block and covered with sharkskin'
Pn:	Tahitian	<i>pahu</i>	'drum; thumping blow'

Pn:	Hawaiian	<i>pahu</i>	'drum'
Pn:	Maori	<i>pahu(u)</i>	'wooden gong'

5.2 Break, smash, shatter

The first two reconstructions below, POc **p^wosa(k)*, **p^wosak-i-* and POc **p^wara(s)*, **p^waras-i-*, refer to the breaking of brittle objects, among them the shell of an egg when a chick hatches. It is possible that these were intransitive verbs in POc and that their subject was the breaking object, e.g., the egg. POc **p^(w)oga(q)* (VI) 'burst open, split open' and POc **momo(k)* 'break into small pieces' similarly seem to have been intransitive, and the latter may also have been used to refer to potsherds, crumbs, and so on.

The remaining verbs in this subsection all appear to have been used transitively, with an agent subject and a patient object. It is possible that the forms without final **-i-* were used intransitively with the patient (rather than the agent) as their subject. That is, they meant 'break spontaneously' or 'be broken', belonging to the neutral verb class (Ch. 2, §3.1.1).

POc	<i>*pita(k)</i> , <i>*pitak-i-</i>	'break, split'
POc	<i>*piti(k)</i> , <i>*pitik-i-</i>	'(crack)'
POc	<i>*pu(q)a(R)</i> , <i>*pu(q)aR-i-</i>	'break (s.t. hard), smash'
PEOc	<i>*pora(k)</i> , <i>*porak-i-</i>	'break, damage'
POc	<i>*rabo(k)</i>	'break, smash'

PMP **pesak* 'break into several large pieces; hatch' (Blust 1986)

POc **p^wosa(k)* (VI) 'break, shatter, crack open; (egg) hatch', **p^wosak-i-* (VT) 'break, shatter, crack open'

MM:	Teop	<i>(va)bō-bōha</i>	'hatch (egg)'
MM:	Mono-Alu	<i>posai</i>	'break (egg +)'
MM:	Maringe	<i>boha</i>	'crack (spherical or bulbous object such as ground round sweet potato mounds)'
SES:	Gela	<i>boha</i>	(VT) 'burst; break, smash s.t. brittle, as a shell or china'
		<i>ta-boha</i>	(PASS) 'broken, smashed, burst'
SES:	Bugotu	<i>poha</i>	'burst, of boil; to crack, be cracked; to break, of day or surf'
SES:	Longgu	<i>(ma)bota</i>	'be smashed (usually of something that is hollow)'
SES:	Lau	<i>(a)bota</i>	'break, as an egg when chicken hatches out; broken'
		<i>bo-bota</i>	'break one thing on another'
SES:	Sa'a	<i>pota, pota-pota</i>	'break by knocking one thing against another'
SES:	Arosi	<i>bota</i>	'break by knocking on s.t. else'
NCV:	Mota	<i>(ta)wosa</i>	'coming open, apart (e.g. hatching egg)'
NCV:	Raga	<i>voha</i>	'break or crack canarium nut with stone'
NCV:	Port Sandwich	<i>poc</i>	'explode'
SV:	Lenakel	<i>ho</i>	'hit, strike'
SV:	Anejom	<i>(a)wod</i>	'hit, strike'

POc **p^wara(s)*, **p^waras-i-* '(egg) hatch; hatch out (chick), break (coconut +)'

PT:	Sudest	<i>v^wara</i>	'hatch, break (egg, coconut)'
MM:	Nakanai	<i>(tutu)pola</i>	'(egg) hatch, be broken'
		<i>(vali)pola</i>	'hatch out (chick)'
MM:	Sursurunga	<i>puras</i>	'hatch'
SES:	Arosi	<i>(ha[?]a)horas(i)</i>	'distend'

PMP **benkaq* 'split in two' (Dempwolff 1938)

POc **p^woga(q)* (VI) 'burst open, split open'

Adm:	Drehet	<i>p^wok</i>	'crack, split open (s.t. hard)'
NNG:	Mangap	<i>pok</i>	'burst forth into the open, appear, come into view, break'
NNG:	Takia	<i>puk</i>	'erupt, break through, break with noise, burst open, crack'
MM:	Sursurunga	<i>pu-puk</i>	'break open a mumu'
		<i>puki</i>	'broken through, as when shoots have appeared in the garden'
MM:	Patpatar	<i>puk</i>	'break off stem end from a leaf'
MM:	Ramoaina	<i>puek</i>	'burst'
SES:	Gela	<i>poga</i>	'burst, as a boil; rend, split, as a sail; split, of large seeds; grow'
		<i>voga</i>	'be split, rent, as a sail by the wind; to split, crack, rend, as glass or wood or cloth; to be cracked, of glass'
		<i>vaga</i>	'split, from the heat of the sun'
SES:	Longgu	<i>poga</i>	'burst, explode, erupt'
SES:	Lau	<i>foga</i>	'split, rend, burst; to be split, rent, burst'
SES:	Kwaio	<i>foga</i>	'cracked, split'
SES:	Arosi	<i>hoga</i>	'come apart'
SES:	Sa'a	<i>hoka</i>	'burst open, come apart'
		<i>hokai, hokasi</i>	(VT) 'burst, split open'

PMP **mekmek* 'broken to bits' (ACD)

POc **momo(k)* 'break into small pieces'

NNG:	Mangap	<i>mumu</i>	'break into small pieces, crumble'
PT:	Motu	<i>momo</i>	'rubbish; the placenta'
SES:	Sa'a	<i>momo</i>	'sweepings, rubbish'
SES:	Arosi	<i>momo</i>	'a bit of food fallen'
Fij:	Bauan	<i>momo</i>	'break into small pieces'
Pn:	Tongan	<i>momo</i>	'a little bit, crumb, fragment'
Pn:	Samoaan	<i>momo</i>	'broken remnants'

PMP **bitak* 'break, split'

POc **pita(k)*, **pitak-i-* 'break, split'

NNG:	Lukep	<i>pit</i>	'break'
NNG:	Mangap	<i>pit(ηana)</i>	'knock, tap, snap off, break off'
NNG:	Mangseng	<i>(mo)pit</i>	'chipped, broken'
NNG:	Poeng	<i>pite</i>	'squeeze, press (s.t. to break it)'

NNG:	Takia	<i>fite</i> (<i>gi</i>) <i>fte</i>	(VT) 'break up, break open, split' 'split, as result of sharp blow'
MM:	Patpatar	<i>pit</i>	'break away a part; slice open belly of pig to remove bowels'
SES:	Longgu	<i>vita?</i> (<i>ai</i>)	'split firewood, kindling'

POc **piti(k)*, **pitik-i-* 'crack'

PT:	Gumawana	<i>visi</i>	'break, crack (pots +)'
PT:	Misima	<i>vihi</i>	'be cracked'
Fij:	Wayan	<i>viti</i> <i>vitiki-</i>	'(rigid object) be broken off, snapped' 'break s.t. off (OBJ: what is broken off)'

POc **pu(q)a(R)*, **pu(q)aR-i-* 'break (s.t. hard), smash'

PT:	Iduna	<i>fua</i>	'crush'
PT:	Motu	<i>huari</i>	'smash, as pottery'
MM:	Tolai	<i>puar</i>	'break (cup, glass +)'
Fij:	Bauan	(<i>ma</i>) <i>voa</i>	'be injured, wounded, hurt, damaged, ruined, smashed'
Pn:	Tongan	<i>foa</i>	'break stone, cup, coconut; be knocked on head'
Pn:	Samoa	<i>foa</i>	'break rock or shell'
Pn:	Rennellese	<i>hoa</i>	'crack, split, smash; break (as egg, nut)'
Pn:	Tikopia	<i>foa</i>	'thump, strike heavily, break open by striking'
Pn:	Hawaiian	<i>hoa</i>	'strike with stick or club'

PEOc **pora(k)*, **porak-i-* 'break, damage'

MM:	Simbo	<i>poraki</i>	(VT,VI) 'break; breaking'
SES:	Tolo	<i>vora(na)</i>	'cut, scratch, sore, wound'
SES:	Lau	<i>fora</i>	'split'
NCV:	Mota	<i>wora</i>	'divide, cleave asunder, split'
NCV:	Raga	<i>bora</i>	'divide, split'
Fij:	Wayan	<i>voro</i> <i>voroki</i>	(VI) 'break, crack, fracture, be broken' (VT) 'break or crack s.t. brittle'
Fij:	Bauan	<i>vorok(a)</i>	'break, smash (brittle things, e.g. glass, stone, bone)'

cf. also:

MM:	Tolai	(<i>vata</i>) <i>bora</i>	(VT) 'break, of brittle things'
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PMP **ra(m)bek* 'strike, break' (ACD) (cf. **rabuk* 'knock, pound')POc **rabo(k)* 'break, smash'

SES:	Gela	<i>rabo</i>	'break, smash'
SES:	Arosi	<i>rabo(asi)</i> <i>rabo(a)</i>	(VT) 'explode' '(china +) broken'

6 Removal of object from source by hand

6.1 Pluck, pick

The verbs reconstructed in this subsection fall into two formal and semantic sets, according to the PAN roots they reflect. Thus the first set reflects the PAN root **-buC* ‘weed, pull, pluck out’ (Ch. 2, §3.1.3):

POc <i>*pupu(t)</i> , <i>*puti</i>	‘pick (fruit +), pluck (feathers +)’
POc <i>*sapu(t)</i> , <i>*saput-i-</i>	‘pull out, pull up, pluck (fruit, nuts)’
POc <i>*tapu(t)</i> , <i>*taput-i</i>	‘strip (crops), pull off’

PPn **lohu* ‘fruit-plucking pole, hook something with a pole’ (Biggs 1993), probably also reflects PAN **-buC* via an otherwise unattested POc ***loput*.

The second set also seems to reflect a single PAN root, namely **-pak* ‘break, crack, split’, although their POc meanings both refer to plucking leaves off a branch by hand. POc **paki* has only Fijian and Polynesian reflexes, but is reconstructed for POc on the basis of the reconstructable PAN root:

POc <i>*sapaki</i>	‘pluck off, break off (leaves) with the hand’
POc <i>*paki</i>	‘pluck, break off (leaves) with the hand’

PAN **buCbuC* ‘pull up (weeds +), pluck (feathers +)’ (ACD)

POc **pupu(t)* ‘pick (fruit +), pluck (feathers +)’

PT:	Motu	<i>huhu-</i>	‘break off bananas singly’
PT:	Dobu	<i>(lo)pupu</i>	‘pluck feathers from a bird’
PT:	Gapapaiwa	<i>pu(i)</i>	‘pluck feathers from a bird’
PT:	Tubetube	<i>pupu</i>	‘pull off (leaves from tree +)’
PT:	Sudest	<i>vu</i>	‘pick; harvest a fruit’
SES:	Lau	<i>fufu</i>	‘pick fruit’
SES:	Arosi	<i>huhu</i>	‘pluck fruit’
SES:	Sa’a	<i>huhu</i>	‘pluck, pick off’
Fij:	Bauan	<i>vuvu</i>	‘root up entirely’
Pn:	Niuean	<i>fufu</i>	‘strip off (leaves, bark +)’

POc **puti-* ‘pick, pluck (feathers), pull out (weeds +)’

NNG:	Numbami	<i>uti</i>	‘pluck, pull out, dig out’
NNG:	Sengseng	<i>put</i>	‘pluck’
PT:	Gapapaiwa	<i>pu(i)</i>	‘pluck (chicken +)’
PT:	Lala	<i>buku</i>	‘pluck’ (<i>b</i> for expected <i>p</i>)
MM:	Patpatar	<i>hut</i>	‘pluck (feathers)’
MM:	Tolai	<i>vut</i>	‘weed, pluck as feathers of a fowl’
MM:	Ramoaina	<i>ut</i>	‘clean away the fibre from coconut; pluck (chicken feathers)’
SES:	Bugotu	<i>vuti</i>	‘pluck out by roots’
SES:	Lau	<i>fusi</i>	‘pluck leaves, flowers, fruit; twitch off fruit with a pole’
		<i>fu-fusi</i>	‘pluck’
SES:	Sa’a	<i>hu-husi</i>	‘pluck, pick off’

NCV:	Mota	<i>vut</i>	'dig, heaving up the soil as with digging stick'
NCV:	Port Sandwich	<i>püüči</i>	'pluck'
NCV:	Paamese	<i>huti</i>	'peel fruit; shell egg; pluck feathers from chicken or bird'
Mic:	Marshallese	<i>wic</i>	'pull out of ground, uproot'
Mic:	Ponapean	<i>us</i>	'pull out, pluck'
Fij:	Wayan	<i>vuti</i>	(VI) 'be plucked, picked' (VT) 'pick or pluck things, do the picking or plucking'
Fij:	Bauan	<i>vuti-</i>	'pluck hair or feathers, pull up weeds'
Pn:	Tongan	<i>fusi</i>	'pull or tug; pull or haul in; pull up or hoist (a flag); pull up or weigh (an anchor); pluck'
		<i>f u-fusi</i>	'pull roughly or forcibly or too hard or without due care; overstretch'
Pn:	Samoan	<i>futi</i>	'pull off (weeds, hair +); pluck (hen +)'
		<i>f u-futi</i>	'play a fish (in reeling it in)'

POc **puti-* above bears a close formal resemblance to POc **p^wuti[-]* 'cut off' (§3.1), but we reconstruct them separately on the basis of (i) the difference in initial correspondence sets (cf. Ch. 2, §2.1) and (ii) the consistently different sets of meanings.

PAn root **-buC* 'weed, pull, pluck out' (Blust 1988:86–87)

POc **sapu(t)*, **saput-i-* 'pull out, pull up, pluck (fruit, nuts)'

PT:	Molima	<i>sabu</i>	'pull up taro or grass'
SES:	Arosi	<i>tahu</i>	'take by force'
NCV:	Raga	<i>havusi</i>	'pluck, as a fowl'
NCV:	Tamambo	<i>sabuti</i>	'pluck, pull out (plant, tooth +)'
Fij:	Wayan	<i>ðavu</i>	'(tooth, root +) be pulled out, extracted, removed from a fixed position'
		<i>ðavuti-</i>	'pull s.t. out, remove s.t.'
Fij:	Bauan	<i>ðavu</i>	'pull up, eradicate'
		<i>ðavut(a)</i>	(VT) 'pull up, eradicate'
Pn:	Tongan	<i>hafu(le)</i>	'strip the dry leaves from sugarcane, pandanus, banana and plantain plants'

cf. also

MM:	Roviana	<i>zapu</i>	'pull coconuts from a tree'
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PAn root **-buC* 'weed, pull, pluck out' (Blust 1988:86–87)

POc **tapu(t)*, **taput-i* 'strip (crops), pull off' (French-Wright 1983: **tapu*)

NNG:	Lukep	<i>tau(rai)</i>	'pick' (- <i>rai</i> < POc <i>*(r,R)aki</i>)
PT:	Bwaidoga	<i>tavu(na)</i>	'harvest bananas'
PT:	Motu	<i>tapusi</i>	'pull strongly, with jerk of a string, and possibly break it'
MM:	Nakanai	<i>tavu</i>	'grasp, capture'
MM:	Simbo	<i>tapu</i>	'pull off, as husk off canarium nut'
SES:	Arosi	<i>ahu</i>	'(coconut +) fall; strip completely (garden of food); gather fruit'
Fij:	Bauan	<i>tavu</i>	'knock down and beat'

PEOc **tau(s,t)*, **tau(s,t)-i-* below appears to represent an irregular development of the etymon above, with loss of medial **-p-*.

PEOc **tau(s,t)*, **tau(s,t)-i-* 'pluck (fruit, leaves)' (French-Wright 1983)

SES:	Gela	<i>tou</i>	'knock off fruit with a stick'
Fij:	Bauan	<i>tau</i>	'be plucked (fruit, leaves)'
		<i>tauc(a)</i>	'pluck some fruits, esp. papaya and mango'

PAn root **-pak* 'break, crack, split' (Blust 1988:135–136)

POc **sapaki* 'pluck off, break off (leaves) with the hand' (French-Wright 1983)

NNG:	Manam	<i>sapa?</i>	'pluck off'
MM:	Kara (East)	<i>sapak</i>	'cut, gather; sago leaves for roofing'
MM:	Patpatar	<i>sapak</i>	'cut meat of animal into edible portions; break'
MM:	Sursurunga	<i>sapki</i>	'pull apart; pick (leaves, not fruit)'
MM:	Tolai	<i>apak</i>	'break off leaves from a tree, as for cooking or ornament'
Mic:	Woleaian	<i>tepagi</i>	'cut (leaves)'
	cf. also		
Mic:	Ponapean	<i>sapak</i>	'harvest (bananas)'

PAn root **-pak* 'break, crack, split' (Blust 1988:135–136)

POc **paki* 'pluck, break off (leaves) with the hand'

Fij:	Rotuman	<i>ha?i</i>	'pluck (feathers), pull out'
Pn:	Tongan	<i>faki</i>	'pick, pluck, esp. banana, coconut'
Pn:	Samoaan	<i>fa?i</i>	'break off, snap off, pick'
Pn:	Tikopia	<i>faki</i>	'gather (breadfruit +)'

cf. also:

NNG:	Sengseng	<i>pak</i>	'collect bedpoles by breaking off long straight branches or trunks'
PT:	Motu	<i>baki</i>	'break, of bread, sago +'
Pn:	Tongan	<i>paki</i>	'break or break off, esp. with the hand; pick or pluck'

6.2 Break off, snap off

POc **pati[-]* 'break, snap s.t. off'

Adm:	Loniu	<i>hat</i>	'break up (firewood), pick or break off (corn, but not fruit)'
SES:	Arosi	<i>hai(maromoromo)</i>	'broken to bits' (<i>maromoromo</i> 'broken into small fragments')
Pn:	Niuean	<i>fati</i>	'break off, snap'
Pn:	Samoaan	<i>fati</i>	'break'
Pn:	Tokelauan	<i>fati</i>	'break, snap off'
Pn:	Tahitian	<i>fati</i>	'(to be) broken off'
Pn:	Hawaiian	<i>haki</i>	'broken'

PMP **lepak* 'break, crack off' (Blust 1989)POc **lopa(k)* 'break'

MM:	Maringe	<i>lopa</i>	'break off, cut piece of reed or sugarcane'
SES:	Arosi	<i>roha</i>	'break s.t. brittle'

6.3 Pinch, nip

PMP **kinit* 'pinch, nip, pluck' (ACD)(1) POc **kinit*, **kinit-i-* 'pinch off with fingers, nip with fingernails'

Adm:	Mussau	<i>kiniti</i>	'pinch'
NNG:	Poeng	<i>kini-</i>	'pluck, pull up, fold'
NNG:	Lukep	<i>kin</i>	'pick by pinching (greens, betel pepper)'
NNG:	Mangap	<i>kin</i>	'pluck off'
NNG:	Takia	<i>kitini</i>	'pinch' (metathesis)
PT:	Motu	<i>kini</i>	'nip with fingernails'
MM:	Sursurunga	<i>kinit, kinti</i>	'pinch'
MM:	Simbo	<i>kiniti</i>	(VT) 'pinch'
SES:	Gela	<i>yini</i>	'pinch'
SES:	Longgu	<i>ini-</i>	'pull off, pick the betel nut leaf'
SES:	Lau	<i>?ini</i>	'pinch'
		<i>?ini(fi)</i>	(VT) 'pinch, pick or pluck, e.g. betel leaf'
SES:	Arosi	<i>?ini</i>	(VT) 'pinch, nip, hold with fingers'
NCV:	Mota	<i>ginit</i>	'pinch, nip off'
NCV:	Paamese	<i>initi</i>	'pinch, pluck guitar strings; pick bush vegetables'
NCV:	Tamambo	<i>hiniti</i>	'pinch, nip'
Mic:	Ponapean	<i>kinih</i>	'pinch'
Mic:	Marshallese	<i>kinjiy</i>	'pinch with fingernails'
Mic:	Ulithian	<i>xilisi-</i>	'pluck it, pick it'
Fij:	Wayan	<i>kini</i>	'(leaves) be pinched off with the fingers'
		<i>kiniti-</i>	'pinch s.t., pick leaves off by pinching them'
Fij:	Bauan	<i>kini</i>	'pinch with the nails'
Pn:	Samoaan	<i>?ini</i>	'pinch with nails, nip'
Pn:	Maori	<i>kini</i>	'nip, pinch'

(2) POc **ginit*, **ginit-i-* 'pinch off with fingers, nip with fingernails'

PT:	Gumawana	<i>ginisi</i>	'pinch s.o.'
SES:	Lau	<i>gini-gini</i>	'pinch off with the nails'

6.4 Unhook, hook

PEOc **suqi[-]* 'take s.t. down (from a hook or branch)'

SES:	Gela	<i>hui</i>	'take down from or off, as off a peg on the wall; to unclothe'
SES:	Bugotu	<i>hui</i>	'take down, let down; cease'

Fij:	Rotuman	<i>sui</i>	'unloose, undo, untie, unbind; disentangle; take off clothes'
Pn:	Tongan	<i>huʔi</i>	'detach, take off, slip off; pick by the bunch'
Pn:	Samoan	<i>ui</i>	'take down, take off (s.t. hanging); free from restriction or taboo'
Pn:	Anutan	<i>ūi</i>	'gather pandanus fruit or betel nut'
Pn:	Nukuoro	<i>ui</i>	'pick pandanus'

The verb below appears to be derived from a noun PMP/POc **kawit* 'hook'. This noun bears a remarkable resemblance to PMP/POc **kawil* 'hook, fish hook' (Ch. 8, §4), and we take it that the latter may well represent an irregular offshoot of the former at some time in the distant past.

PMP **kawit* 'hook' (Dempwolff 1938)

(1) POc **kawit*, **kawit-i-* 'hook, to catch hold of; fruit crook' (from French-Wright 1983)

NNG:	Manam	<i>?aut</i>	'pluck fruit with a fruit crook'
MM:	Tolai	<i>kait</i>	'catch, as clothes on thorns'
SES:	Gela	<i>kauti</i>	'drag off fruit with a hook'
SES:	Sa'a	<i>i-kau</i>	'hooked stick for fruit-picking'
SES:	Arosi	<i>kau</i>	'catch and hold, as a shirt in a nail; a crook for pulling down fruit'
		<i>?awi</i>	'hook'
NCV:	Mota	<i>kaut</i>	'catch hold and pluck, twitch'
		<i>i-kau</i>	'the cleft bamboo used to twitch off almonds, breadfruit +'
Mic:	Kosraean	<i>kai</i>	'catch with a hook'
Fij:	Wayan	<i>kau</i>	'fishhook (generic term)'
		<i>kauti-</i>	'hook s.t., catch s.t. on a hook'

(2) POc **gawit*, **gawit-i-* 'hook, to catch hold of; fruit crook'

NNG:	Lukep	<i>gaot</i>	'pick (breadfruit)'
PT:	Dobu	<i>geuta</i>	'hook fruit, fruit hook'
SES:	Lau	<i>gau</i>	'pluck fruit with a bamboo or crook'

7 Wringing and squeezing

POc evidently had a substantial number of verbs used of squeezing or wringing something to extract liquid. The substance to which this probably applied with the greatest frequency was grated coconut which had been soaked in water, from which coconut 'cream' is extracted by squeezing. The last two items listed here referred to squeezing something by holding it tight. There are several formal overlaps among the items in this section, and these are discussed below.

POc	<i>*p^(w)ip^(w)i(t)</i> , <i>*p^(w)iti-</i>	'press, wring, squeeze s.t. (e.g. in order to extract liquid)'
POc	<i>*popo(s)</i> , <i>*pos-i-</i>	'squeeze, press out'
PNNG	<i>*p^(w)isa(k)</i> , <i>*p^(w)isak-i-</i>	'squeeze (grated coconut +)'
POc	<i>*poRo(s)</i> , <i>*poRos-i</i>	'squeeze out, wring out (liquid)'
POc	<i>*momo(s)</i>	'squeeze'

POc	<i>*losi(t)</i>		'squeeze, wring'
PEOc	<i>*gugu(m), *gumi-</i>		'grasp in fist, clench fist'
POc	<i>*gumu(t), *gumut-i-</i>		'hold tight'

PMP **pitpit* 'clamp, jam, pinch' (Dempwolff 1938)

POc **p^(w)i p^(w)i(t)* 'press, wring, squeeze s.t. (e.g. in order to extract liquid)'

NNG:	Kove	<i>vivi</i>	'squeeze (grated coconut +)'
NNG:	Poeng	<i>viv(pele-)</i> <i>(kam)vivi-</i>	'squeeze (grated coconut +)' 'squeeze (out liquid, i.e. coconut), squeeze (in the hand)'
NNG:	Numbami	<i>pipi-</i>	'squeeze (grated coconut +)'
NNG:	Gedaged	<i>pipi</i>	'squeeze (out), express, crush, pinch, strangle, compress'
NNG:	Manam	<i>pipi</i>	'squeeze in order to extract the contents, wring out'
PT:	Minaveha	<i>pipi</i>	'squeeze s.t.'
PT:	Misima	<i>pi</i>	'squeeze; wring out (clothes)'
MM:	Ramoaina	<i>wi-wi(ŋ)</i>	'squeeze, wring clothes; strain juice through cloth'
SV:	Lenakel	<i>(a)vət</i>	'squeeze'
cf. also:			
PT:	Gumawana	<i>bibi</i> <i>(vata)bibi</i>	'squeeze (boil +)' 'squeeze up against something'
SES:	Arosi	<i>bibi</i>	'crush, squeeze, crowd'

POc **p^(w)i ti-* 'press, wring, squeeze s.t. (e.g. in order to extract liquid)'

Adm:	Lou	<i>pit</i>	'squeeze juice out'
Adm:	Drehet	<i>peh</i>	'squeeze'
NNG:	Kis	<i>piti-ti</i>	'squeeze (grated coconut +)'
NNG:	Ali	<i>wic</i>	'squeeze (grated coconut +)'
NNG:	Poeng	<i>pite</i>	'press, exert pressure, squeeze, press (s.t. to break it)'
MM:	Tolai	<i>pi-pit(e)</i>	'wring the milk out of grated coconuts through a fibre, squeeze, wring clothes (-e < POc <i>*-aki</i>)'
Mic:	Woleaian	<i>fiy(ā)</i>	'squeeze'
SV:	Sye	<i>(a)vsi</i>	'squeeze (liquid from)'
SV:	Anejom	<i>(i)vidi(ñ)</i>	'squeeze (liquid from)'

PMP **pespes* 'squeeze, press out' (ACD: PWMP)

POc **popo(s)* 'squeeze, wring (coconuts to extract cream +)'

Adm:	Mussau	<i>poso-, poposo</i>	'squeeze (grated coconut +)'
MM:	Patpatar	<i>pupus(ane)</i>	'squeeze with wringing motion; squeeze with hands, as of fruit'
MM:	Siar	<i>pupus</i>	'squeeze grease from coconut'

POc **posi*- 'squeeze, wring (coconuts to extract cream +)'

PT:	Kilivila	<i>poli</i>	'squeeze, wring'
MM:	Kara (East)	<i>pas</i>	'squeeze (grated coconut +)'
MM:	Kandas	<i>pus</i>	'squeeze (grated coconut +)'
MM:	Nehan	<i>pos</i>	'squeeze (grated coconut +)'
MM:	Teop	<i>posi</i>	'wring, squeeze'
		<i>(i)posi</i>	'coconut strainer' (<i>i</i> - < POc * <i>i</i> - INS)
MM:	Maringe	<i>poji</i>	'squeeze, wring liquid, as in making coconut milk or medicine'
SES:	Bugotu	<i>poji</i>	'wring, squeeze, twist'
SES:	Gela	<i>poi-posi</i>	'squeeze and wring out coconut shavings'
		<i>podi</i>	'squeeze, as in shaking hands'
		<i>poi-podi</i>	'sieve or strainer of coconut fibre'
Pn:	Tongan	<i>fohi</i>	'remove skin, rind; peel'
Pn:	W. Futunan	<i>foi-</i>	'peel or skin (s.t.); peel where the skin is ready to come off (not e.g. taro)'

Blust (ACD) has also reconstructed PMP **pe(R)cit* and **becit*, both 'squeeze, squirt out', from which the items attributed to **pos-i* could, on the face of it, alternatively be derived. However, if PMP **pe(R)cit* or **becit* were the source of the Oceanic forms, we would expect the POc pair ***posi(t)*, ***posit-i-*, and the latter is reflected nowhere. Instead, we can reconstruct the pair **popo(s)* and **posi-*, and it is accordingly more likely that the set above is derived from the latter.

Also reconstructable is PNNG **p^(w)isa(k)*, **p^(w)isak-i-* 'squeeze (grated coconut +)'. It seems probable that this is a reflex of POc **pisa(k)*, **pisak-i-* 'split' (§3.8) which has undergone a change in meaning (essentially from 'split a coconut to obtain its flesh' to 'squeeze the coconut flesh to obtain its sap'). The partial formal similarity of this item to those above may have abetted this shift.

PNNG **p^(w)isa(k)*, **p^(w)isak-i-* 'squeeze (grated coconut +)'

NNG:	Gitua	<i>pisa</i>	'squeeze'
NNG:	Kilenge	<i>pise</i>	'squeeze (grated coconut +)'
NNG:	Atui	<i>pis</i>	'squeeze (grated coconut +)'
NNG:	Mangap	<i>pizi</i>	'wring, squeeze'
NNG:	Lukep	<i>pisi</i>	'squeeze with hands'
NNG:	Bing	<i>pis-is</i>	'squeeze (grated coconut +)'
NNG:	Manam	<i>pisa</i>	'squeeze, wring'
		<i>pisaki</i>	'squeeze (grated coconut +)'
NNG:	Kairiru	<i>fis</i>	'squeeze (grated coconut +)'

cf. also

NNG:	Mangap	<i>bi-bizi</i>	'squeeze, be tight, tighten'
		<i>(-par)bi-bizi</i>	'squeeze oneself into, crowd together into'

PAn **peRes* 'squeeze out' (Blust 1972b)POc **poRo(s)* 'squeeze out, wring out (liquid)'

NNG:	Gitua	<i>poro</i>	'wring'
NNG:	Kove	<i>poho</i>	'squeeze, wring out; add coconut cream to food; make sago'

NNG:	Kairiru	<i>fuor</i>	'squeeze (grated coconut +)'
MM:	Nakanai	<i>volo</i>	'work sago flour, squeeze the water out'
MM:	Ramoaina	<i>pur</i>	'squeeze coconut milk onto food'
MM:	Maringe	<i>foro</i>	'squeeze (grated coconut +)'
NCV:	Mota	<i>woro</i>	'squeeze, wring out juice of herbs, liquor of fruits, over food and things prepared for charms; add coconut sauce to <i>loko</i> (pudding of grated yam)'

POc **poRos-i-* 'squeeze out, wring out (liquid)'

NNG:	Kairiru	<i>furasi</i>	'wring, squeeze (e.g. in the preparation of coconut cream)'
MM:	Tigak	<i>pagosi</i>	'squeeze (grated coconut +)'
MM:	Tabar	<i>poroc(an)</i>	'squeeze (grated coconut +)'
MM:	Siar	<i>poros</i>	'squeeze (grated coconut +)'

It seems likely that in some languages reflexes of POc **poRo(s)* 'squeeze out, wring out (liquid)' and POc **piro[-]* 'twist together' or PEOc **pilo(s)*, **pilos-i-* 'make a cord by twisting fibres on the thigh' have been conflated. Thus the items below have meanings usually associated with reflexes of **poRo(s)* but their forms reflect **piro* or **pilo(s)*, **pilos-i-*:

PT:	Iduna	<i>vil-</i>	'twist, wring (of clothes)'
SES:	Kwaio	<i>filo, filo-</i>	'squeeze, wring'
SES:	'Are'are	<i>hirosi</i>	'wring, twist, roll'
Fij:	Wayan	<i>vil-</i>	'be squeezed and strained through a cloth, as in preparing kava or coconut cream; be wrung out, dried by wringing with the hands'
		<i>vilodi-</i>	'squeeze and strain s.t.; wring out wet clothes'

Note that the reflexes of **poRos-i-* above are all WOc, whilst those of **pilos-i-* are EOC. This distribution suggests that conflation occurred in PEOc, with reflexes of POc **piro[-]* 'twist together' and POc **poRo(s)* 'squeeze out, wring out (liquid)' becoming conflated both formally and semantically, giving rise to *pilos-i-* in place of **poRos-i-*.

PMP **mesmes* 'squeeze' (Blust 1983–84a)POc **momo(s)* 'squeeze'

SES:	Sa'a	<i>momo</i>	'squeeze, press on each side'
SES:	Arosi	<i>momo</i>	'clasp in hand and squeeze'

PMP **le(c,s)it* 'squeeze out, squirt out' (ACD)POc **losi(t)* 'squeeze, wring'

MM:	Roviana	<i>(li)lohi-</i>	'wring out (wet garment +)'
SES:	Gela	<i>luhi-</i>	'squeeze'
		<i>(loi)losi</i>	'sponge'
SES:	Talise	<i>losi-</i>	'squeeze'
SES:	Longgu	<i>losi-</i>	'squeeze s.t., wring s.t. out; squeeze milk out of scraped coconut meat immersed in water'
SES:	To'aba'ita	<i>losi</i>	'wring (clothes, grated coconut +) to extract liquid'

SES:	Lau	<i>losi</i>	'wring, squeeze'
SES:	Sa'a	<i>(loi)lōsi</i>	'squeeze, strain out coconut cream from hero (scraped coconut) with <i>unu</i> (fibrous spathe of a coconut frond)'
SES:	Arosi	<i>rosi</i>	'wring, twist, squeeze (coconut fibre in straining coconut scrapings +)'
Fij:	Bauan	<i>lose</i>	'squeeze, wring (chiefly of kava)'

The derivational relationship between the pair of verbs below, PEOc **gugu(m)*, **gumi-i* 'grasp in fist, clench fist', evidently still subsists in some Pn languages. Although PEOc **gugu(m)* is to our knowledge only reflected in Pn languages, this relationship persists and must go back to PEOc and probably to POc. There is an obvious historical relationship between this pair and Dempwolff's reconstruction of PMP **gemgem* 'make a fist', but the reconstructable POc/PEOc vowel is 'wrong': **u* for expected **o*.

PMP **gemgem* 'make a fist' (Dempwolff 1938)

PEOc **gugu(m)* 'grasp in fist, clench fist'

Pn:	Tongan	<i>kuku</i>	'grasp, grip, clutch, hold on to; embrace, cuddle'
Pn:	Samoa	<i>ʔuʔu</i>	'take hold of, grasp'

PEOc **gumi-* 'grasp in fist, clench fist'

Fij:	Wayan	<i>gumi-</i>	'grasp s.t. in the hand or claw, hold s.t. tightly in the hand'
Fij:	Bauan	<i>gumi-</i>	'clench the fist'
NCV:	Raga	<i>ʔgu-ʔgum</i>	'clench fist'
NCV:	Tangoa	<i>ku-kumi</i>	'take in the hand'
NCV:	Lonwolwol	<i>gum</i>	'hold by a grip around'
NCV:	Paamese	<i>kumi</i>	'squeeze, wrestle'
NCal:	Nemi	<i>kom^wi</i>	'knead'
Pn:	Tongan	<i>kuumi(a)</i>	'clench, grasp in fist' (durational of <i>kuku</i>)
Pn:	Samoa	<i>ʔu-umi(a)</i>	passive of <i>ʔuʔu</i> 'hold, grip, clutch'
Pn:	Tahitian	<i>ʔu-ʔumi</i>	'squeeze, wring'

The vowel is also 'wrong' (except perhaps in the Arosi reflex) in the pair below, which, despite its formal and semantic similarity to the pair above, seems to have a different PMP origin. Similarity has apparently ensured that no language reflects both forms of each pair. Indeed, I suspect that some forms above are historical confluents of reflexes of PEOc **gumi-* and **gumu* (from POc **gumu(t)*).

PMP **kemes* 'take in the hand, clasp, grasp' (ACD)

POc **gumu(t)*, **gumut-i-* 'hold tight'

NNG:	Yabem	<i>gamuʔ</i>	'knead'
SES:	Arosi	<i>gomo</i>	'squeeze, hold tight, clutch'
Pn:	Tahitian	<i>ʔumu</i>	'express, wring out'
Pn:	Maori	<i>kumu-, kumuti-</i>	'clench, close (as hand), carry in the hand; hold breath'

8 Twisting, plaiting, braiding

The verbs in this section have to do with twisting, plaiting and braiding in general, and more specifically with twisting or rolling fibres to make various kinds of string or cord. The reflexes of some of these verbs overlap in their semantics with those in §7. Other verbs are used of plaiting and weaving to make artefacts such as mats and baskets. They are the following, presented in Chapter 4, §3.2:

POc	<i>*patu(R)</i> , <i>*patuR-i-</i>	'tie, plait, weave (mats, baskets +)'
POc	<i>*aña</i>	'woven, braided'
POc	<i>*paus</i> , <i>*paus-i-</i>	'weave, plait'
POc	<i>*iiki[-]</i> (V)	'plait (mat +)' (ACD)
POc	<i>*pai</i>	'weave'

PMP **piri(c,t)* 'twist, plait' (Blust 1970)

POc **piri[-]* 'plait a cord, twist, wrap around'⁷

Adm:	Mussau	<i>iri</i>	'tie, bind by wrapping around'
NNG:	Gedaged	<i>pili</i>	'weave (mats, sails +), (V) braid, knot (the strands of grass skirts)'
PT:	Kilivila	<i>vili</i>	'turn; make grass skirts; be twisted'
PT:	Molima	<i>vili</i>	'make a skirt, roll a cigarette, put a headdress round the head'
PT:	Motu	<i>hiri</i>	'fasten by twisting round and round; tie up (a parcel, bundle), twisting string all round it; kill (pig) for visitors'
MM:	Tolai	<i>pir</i>	'plait (basket, mat +)'
MM:	Nakanai	<i>viri</i>	'twist, wind up, wind around'
MM:	Simbo	<i>viri</i>	'plait, make a basket'
SES:	Sa'a	<i>hiri</i>	(V) 'lap with string, bind spears or arrows'
SES:	Arosi	<i>hiri</i>	'twist, twine round, (snake) coil, wind (a line) round'
NCV:	Mota	<i>vir</i>	'twist, wring, squeeze with a twist, plait'
NCV:	Tamambo	<i>viri</i>	'twist, plait, braid; coconut milk'
SV:	Sye	<i>(e)vi</i>	'weave (basket)'
NCal:	Nemi	<i>fili</i>	'braid'
Mic:	Ponapean	<i>pir</i>	'turn, spin, twist'
Mic:	Kosraean	<i>pir(aki)</i>	(V) 'braid, plait'
Fij:	Rotuman	<i>hiri</i>	'plait three strands of sennit, hair +, and the 'tail' of a basket or floor-mat made of coconut-leaf, this tail itself being called a <i>hiri</i> '
Fij:	Bauan	<i>viri</i>	'lash (fence, raft +)'
Pn:	Samoan	<i>fili</i>	'plait, braid (sennit, hair +)'

⁷ Oceanic reflexes of **wiri(t)* 'rotate, drill, bore' are not to be confused with phonetically and semantically similar forms reflecting POc **piri* 'twist'.

cf. also:

PT:	Gumawana	(<i>ki</i>) <i>pili</i>	'twist s.t., unscrew a lid'
MM:	Tolai	<i>pir</i>	'plait (basket, mat +)'

PEOc **piri-piri* 'twine round and round; thing made by braiding'⁸

SES:	Sa'a	<i>hiri-hiri</i>	'plaited spear'
SES:	Arosi	<i>hiri-hiri</i>	'twist, twine round, (snake) coil, wind a line round; a thread for tying a hook to a line'
Pn:	Samoaan	<i>fili-fili</i>	'chain'
Pn:	Hawaiian	<i>hili-hili</i>	(V) 'braid, plait, string'

cf. also:

Mic:	Woleaian	<i>piri-pir</i>	'tie, twist, fold, lash (as in twisting ropes)'
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Reduplication was regularly used to form intransitive verbs from verbs which were implicitly transitive (Ch 2, §3.1.2).

The two terms below have undoubtedly been conflated in some languages, but the data justify separate reconstructions. With regard to the origin of PEOc **pilo(s)*, **pilos-i*, see the discussion associated with POC **poRo(s)*, **poRos-i*- above (§7).

POc **piro[-]* 'twist together' (Bethwyn Evans pers.comm.)

PT:	Gapapaiwa	(<i>tura</i>) <i>viro(a)</i>	'twist'
PT:	Molima	<i>vil-</i>	'twist'
PT:	Iduna	<i>vil-</i>	'twist, wring (of clothes)'
SES:	Lau	<i>firo, firo-</i>	
SES:	Kwaio	<i>filo, filo-</i>	'squeeze, wring'
SES:	Arosi	<i>hiro</i>	'revolve, spin'
NCV:	Mota	<i>viro</i>	'turn, go round, change, turn out of the way'
Fij:	Bauan	<i>viro-viro-</i>	'(timber) cross-grained'
Pn:	Tongan	<i>fio</i>	(VI) 'mix, mingle'
Pn:	Nukuoro	<i>hilo-</i>	'mix, braid strands of sennit'
Pn:	Rarotongan	<i>iro-</i>	'mix together, mix up, blend'

cf. also

PT:	Gapapaiwa	<i>piro</i>	'tangle; braid'
SES:	Arosi	<i>piro</i>	'plait the edge of a bag'
Mic:	Marshallese	<i>piro</i>	'twins; double; grown together; joined; two pandanus keys joined together'

PEOc **pilo(s)*, **pilos-i* 'make a cord by rolling fibres on the thigh' (Bethwyn Evans pers.comm.)

SES:	Lau	<i>filo</i>	'twist together (strands)'
		<i>filosi-</i>	'twist round'
SES:	Kwaio	<i>filosi</i>	'twist, wring'
SES:	'Are'are	<i>hirosi</i>	'wring, twist, roll'
SES:	Arosi	<i>hirosi</i>	'revolve, spin'

⁸ Oliver (1974:139) describes cord making from "the flax-like *piripiri* (*Cenchrus echinatus*)" in Tahiti, quoting from Hendy (1927).

NCV:	Port Sandwich	<i>vlösi</i>	'roll on one's thigh'
NCV:	Paamese	<i>vilesi</i>	(VT) 'turn around, turn over'
Fij:	Wayan	<i>vilo</i>	'be squeezed and strained through a cloth, as in preparing kava or coconut cream; be wrung out, dried by wringing with the hands'
		<i>vilödi-</i>	'squeeze and strain s.t.; wring out wet clothes'
Fij:	Bauan	<i>vulo</i>	'twist a thread on the knee'
Pn:	Tongan	<i>filo, filohi</i>	'thread; spin, make thread, string, rope'
Pn:	Niuean	<i>filo</i>	'twist (as a rope); string, thread, reel of cotton'
Pn:	Takuu	<i>filo</i>	'roll rope on thigh'
Pn:	Mangareva	<i>hiro</i>	'make threads by rolling filaments on the thigh'
Pn:	Hawaiian	<i>hilo</i>	'twist, braid, spin; twisted, braided'

cf. also

NNG:	Poeng	<i>bulosi</i>	'bore'
MM:	Nakanai	<i>pulo</i>	'squeeze (grated coconut +)'
MM:	Meramera	<i>pule</i>	'squeeze (grated coconut +)'
SES:	Sa'a	<i>pulo</i>	'turn over, twist'
SES:	Lau	<i>bulo-bulo</i>	'twist'
Pn:	Ifira-Mele	<i>polösi(a)</i>	'twist'

An unrelated PPN term has been reconstructed for the same process, **amo* 'prepare fibres for string-making (by rubbing between hands or on thigh); prepared fibre' (Biggs 1993)

POc **loqi* 'make thread by rolling fibres on the thigh' (Chowning 1991: **loi* 'thread made ...')

MM:	Nakanai	<i>loi</i>	'rub between the hands'
MM:	Tolai	<i>loe</i>	(V) 'twist, coil'
		<i>lo-loi</i>	(V) 'roll or coil (strips of shell money)'
SES:	Kwaio	<i>loi</i>	'weave a net, knit'
NCV:	Nguna	<i>lo-lo</i>	'thread'
Pn:	Maori	<i>roi(roki)</i>	'secured, tied up; knot, bind'

PWOC **m^wali[-]* 'braid large ropes (for use with canoes +)' (Chowning 1991)

NNG:	Lukep	<i>mol-</i>	'twist into a loop'
NNG:	Manam	<i>moli</i>	'plait'
PT:	Sudest	<i>m^wana(basi)</i>	'twist (s.t.)'
MM:	Nakanai	<i>mali</i>	'plait (mat)'

POc **piji(r)*, **pijir-i-* 'braid, twist together'

NNG:	Takia	<i>pide</i>	'braid'
NNG:	Mangseng	<i>pit</i>	'twist off, pick off'
NNG:	Mapos Buang	<i>bij</i>	'squeeze'
MM:	Patpatar	<i>hidi</i>	'plait'
MM:	Nduke	<i>piduri-</i>	'squeeze'
SES:	Bugotu	<i>pijiri</i>	'plait with three or four strands'
SES:	Gela	<i>pidiri</i>	'intertwine the strands of a rope; a fishing line'
Mic:	Kiribatese	<i>bira</i>	'braid'
Mic:	Marshallese	<i>pit^w</i>	'twist sennit'

Mic:	Mokilese	<i>pit</i>	(VT) 'wind (rope)'
Mic:	Woleaian	<i>fiti</i>	'tie, bind, tangle, spiral, wrap'

POc **bo(q)u(k)*, **bo(q)uk-i* 'feel with fingers, lay hand on, squeeze'

MM:	Nduke	<i>bou(a)</i>	'squeeze'
Fij:	Wayan	<i>bō, bōki-</i>	'feel or squeeze with the fingers, lay hold firmly on s.t.'
Fij:	Bauan	<i>bō, bōk(a)</i> <i>bōbōk(a)</i>	'seize, squeeze, lay hands firmly on' 'seize or squeeze (s.t.)'
Fij:	Rotuman	<i>hō</i>	'squeeze, wring'
Pn:	Tongan	<i>pōpō</i>	'wipe after urinating (women)'
Pn:	Samoan	<i>pōpō</i>	'pat'
Pn:	Maori	<i>pōpō</i>	'pat with hand, soothe'

PWoc **b(u,o)go* 'twist, wring'

NNG:	Mangap	<i>bōgo (sua)</i>	'twist talk, accuse falsely, give false testimony'
NNG:	Poeng	<i>bugo</i>	'twisted up (e.g. rope)'
MM:	Ririo	<i>pugo</i>	'squeeze'
MM:	Babatana	<i>pugo</i>	'squeeze'
MM:	Sisiqa	<i>pogo</i>	'squeeze'

cf. also

MM:	Nakanai	<i>vugo</i>	'(hair) snarled or tangled; tie (a knot)'
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The two terms below, POc **kili(s)*, **kilis-i-* 'twist, bore, rotate' and POc **wiri(t)* 'twist, turn, revolve', are verbs of rotating, whose reflexes vary among twisting, drilling and braiding.

POc **kili(s)*, **kilis-i-* 'twist, bore, rotate'

NNG:	Mangap	<i>kir</i>	'bore, drill a hole into something hard'
NNG:	Roinji	<i>kiri-</i>	'bore (hole)'
NNG:	Manam	<i>kuiri</i>	'bore (hole)'
NNG:	Mapos Buang	<i>kiri(n)</i>	'turn, bore, rotate, open (a tap +)'
MM:	Ramoaina	<i>kili</i>	'twist up the strands of a string; spin, as a top or a cord; go around'; in compound verbs 'around'
NCV:	Lonwolwol	<i>kilh(e)</i> <i>kilih</i>	'turn, turn around' 'be twisted, turned, sprained'

cf. also

Fij:	Nadroga	<i>gili-</i>	'braid'
Fij:	Bauan	<i>gili</i>	'twist or rub in the hands'

The term below bears a formal and semantic resemblance to POc **piri* 'twist' (§8) but is distinct from it:

PMP **wirit* 'twist' (ACD)

POc **wiri(t)* 'twist, turn, revolve'

Fij:	Bauan	<i>wiri</i>	'turn, revolve'
Pn:	Tongan	<i>vili</i>	'drill, bore'

Pn:	Samoan	<i>vili</i>	'(of thread, top, coin +) spin; drill; revolve, rotate'
Pn:	Maori	<i>wiri</i>	'bore, twist; gimlet, auger'

9 Bending and folding

POc **loku(t)*, **lokut-i-* 'bend, fold'

Adm:	Lou	<i>liʔt</i>	'bend, joint'
PT:	Motu	<i>loku</i>	'double up, fold, roll up'
MM:	Sursurunga	<i>lukus, luksi</i>	'bend (a limb or finger)'
SES:	Gela	<i>logu</i>	'bend, fold double, as bamboo tongs'
SES:	Longgu	<i>loʔu-</i>	(VT) 'bend'
		<i>loʔu-loʔu</i>	(VI) 'bend back and forth'
SES:	Arosi	<i>roʔu(ni)</i>	'bend, fold; curl up legs'
SES:	Sa'a	<i>loku</i>	'bend, be doubled back, to curl'
Fij:	Rotuman	<i>loʔu</i>	'bend at an angle, fold, crease'
Fij:	Wayan	<i>lokuʔi-</i>	'bent; twist, fold s.t.'
Fij:	Bauan	<i>loku</i>	'bent, folded'
Pn:	Niuean	<i>lo-loku</i>	'bend'
Pn:	Samoan	<i>loʔu</i>	'be bent, curved'
Pn:	Maori	<i>roku</i>	'bend; to be weighed down'

The seeming PMP ancestor of this form is PMP **lekuʔ* 'bend, fold, folding part of the body' (ACD), but this source is called into question by the root-final POc **-t* reflected in the Lou, Sursurunga and Wayan items above.

10 Fastening and lashing together

Terms for materials used for cordage or string are reconstructed in Chapter 4, §3.2. As well as the verbs listed below, reflexes of POc **patu(R)*, **patuR-i-* 'tie, plait, weave (mats, baskets +)' (Ch. 4, §3.1.1) and POc verb **saqi(t)* 'sew' (Ch. 4, §3.2.1) are also used for tying. This was evidently one of the POc meanings of the former, but probably not of the latter. Other verbs for various kinds of tying are listed below. POc **buku* 'tie (a knot); fasten' was probably a generic term for tying, whilst POc **p^wita* 'tie by encircling', POc **paqu(s)*, **paqus-i-* 'bind, lash; construct (canoe +) by tying together', and POc **pisi* 'bind up, tie up, wind round, wrap' had more specialised meanings. There is insufficient information about POc **kiii* 'tie, bind' to attribute a more specific meaning to it.

The first POc verb reconstructed below is identical to POc **buku* 'node ...' (Ch. 4, §3.2), a noun which referred among other things to knots. It is possible that the verbs listed below under **buku* are independent developments from the POc noun. However, since many POc roots seem to have functioned as both noun and verb, we reconstruct the verb here.

The second verb, **bukuti*, is odd, in that it implies a PMP root ***bukut*, but the reconstructable PMP form is **buku* (Ch. 4, §3.2) without final **-t*. We assume that **-t-* was inserted by analogy with other transitive verbs.

POc **buku* 'tie (a knot); fasten'

NNG:	Lukep	<i>buk</i>	'tie (a knot)'
NNG:	Mangap	<i>mbuk</i>	'tie (a knot)'
NNG:	Roinji	<i>buyu</i>	'tie'
NNG:	Hote	<i>puk</i>	'fasten; dress'
MM:	Roviana	<i>puku</i>	(V) 'tie or knot'
Mic:	Woleaian	<i>ϕugo-ϕugo</i>	(V) 'knot, tie'
Fij:	Bauan	<i>buku</i>	'tie a knot, fasten two things together'

POc **bukuti* (VT) 'tie (a knot); fasten'

MM:	Ririo	<i>pukici</i>	'tie'
MM:	Babatana	<i>pukiti</i>	'tie'
Mic:	Marshallese	<i>p^wiwcij</i>	(VT) 'knot'
Mic:	Woleaian	<i>ϕugosii</i>	(VT) 'knot'
Mic:	Trukese	<i>p^wukeey</i>	(VT) 'knot'
Fij:	Bauan	<i>bukuti</i>	(VT) 'knot'

The verb POc **p^wita* 'tie by encircling' was evidently used of tying a cord around, e.g., a limb (see also Ch. 8, §13):

POc **p^wita*, **p^wita-i-* 'tie by encircling, ensnare'

NNG:	Lukep	<i>wit</i>	'tie by encircling'
		<i>wit(kala)</i>	'tie together'
		<i>pit</i>	'snare, trap; to trap'
NNG:	Mangap	<i>mbit</i>	'tie up with rope, fasten'
		<i>(na)pit-pit</i>	'snare, trap for rats, pigs, bandicoot' (<i>na</i> - indicates a borrowing from Kilenge)
NNG:	Poeng	<i>(sam)pite</i>	'tie securely, tighten'
		<i>(bago)pita</i>	'fasten (to help it to float)'
NNG:	Takia	<i>pite(lak)</i>	'tie on (as grass skirt)'
MM:	Sursurunga	<i>puti</i>	'tie together'
MM:	Ramoaaaina	<i>pita</i>	'hang up in the house; tie to the end of anything'
		<i>pit</i>	'tie'
		<i>pit-pit</i>	'line, snare'
		<i>piti</i>	(V) 'snare'
SES:	Gela	<i>piti-</i>	'tie'
SES:	W. Guad.	<i>piti</i>	'tie'
SES:	Longgu	<i>piti-</i>	'trap an animal's leg; tie s.t. around ankle or wrist'
Pn:	Tokelauan	<i>fi-fita</i>	'(garments) be too tight'
Pn:	Maori	<i>ϕita</i>	'firm, secure, fast'

POc **paqu(s)*, **paqus-i-* was apparently used of tying together larger objects, like the parts of a canoe.

PCEMP **paqu(s)* 'tie, bind'⁹POc **paqu(s)*, **paqus-i-* 'bind, lash; construct (canoe +) by tying together'

Adm:	Loniu	<i>husi</i>	'tie, fasten'
Adm:	Lou	<i>po</i>	'tie with a rope'
NNG:	Manam	<i>wauri</i>	'tie'
NNG:	Lukep	<i>pau</i>	'tie'
NNG:	Takia	<i>fou</i>	'tie, bind; construct (a canoe)'
NNG:	Poeng	<i>pau(e)</i>	'fasten'
NNG:	Hote	<i>vak</i>	'hold, bind, fasten, give'
NNG:	Mapos Buang	<i>vaʔu</i>	'tie, fasten; carry; on a pole between two people'
SJ:	Sobei	<i>fau</i>	'tie'
MM:	Roviana	<i>pusi</i>	'bind' (also the name of a vine used for this purpose)
SES:	Lau	<i>foo</i>	'bind'
SES:	Arosi	<i>hoʔosi</i>	(VT) 'bind, fasten, tie'
SES:	Sa'a	<i>hoʔosi</i>	(VT) 'bind'
NCV:	Raga	<i>vauhi-</i>	'bind, tie'
Mic:	Kiribatese	<i>bou</i>	'construct (canoe, house)'
Mic:	Marshallese	<i>yawyəw</i>	(VI) 'bind with sennit; lash'
		<i>yawit^w</i>	(VT) 'bind with sennit; lash'
Mic:	Woleaian	<i>fəfə</i>	(VI) 'tie, bind'
		<i>fəʔ(agīy)</i>	(VT) 'anchor, tie'
Fij:	Bauan	<i>vauð(a)</i>	'tie'
Pn:	Samoa	<i>fau</i>	'make, construct (wooden objects, canoes +)'
Pn:	Tongan	<i>fəʔu</i>	'tie'
Pn:	Rennellese	<i>haʔu</i>	'tie, lash'

It is just possible that the item above is in fact identical to POc **paus*, **paus-i-* 'weave, plait' (Ch. 4, §3.1.1). Unfortunately, we have found no language in which reflexes of the two items are in contrast. On the other hand, we find widely scattered reflexes with two separate sets of glosses, 'weave, plait' and 'bind, lash, fasten', and it seems judicious to keep them apart.

POc **pisi[-]* 'bind up, tie up, wind round, wrap'

MM:	Bali	<i>vizi</i>	'tie'
MM:	Minigir	<i>visi</i>	'tie'
MM:	Mono-Alu	<i>pi-pisi</i>	'tie (parcel +)'
NCV:	Mota	<i>viv</i>	'bind round'
		<i>vi-vis</i>	'wind round, bind; to tie'
NCV:	Port Sandwich	<i>pisi</i>	'bind up leg, to tie up, around'
NCV:	Nguna	<i>vi-visi(ki)</i>	'wrap around; wrap (cut finger +) with (cloth +)'
Mic:	Mortlockese	<i>fiti</i>	'wrap'
Mic:	Satawalese	<i>fiti</i>	'tie (lei +)'
Fij:	Bauan	<i>viði</i>	'bind, coil, roll up'

⁹ This reconstruction is supported by Ngada *paʔu* 'tie, bind' and the Oceanic reflexes listed here.

Pn:	Tongan	<i>fihī</i>	‘tangled, intricate, complicated, problematical’
		<i>fī-fihī</i>	‘badly tangled’
Pn:	Samoan	<i>fisi</i>	‘entwine’

The item below, POc **kiti* ‘tie, bind’, is reconstructed at POc level because it is fairly clear that there was a PAn root **-kit*. This, according to the theory of PAn monosyllabic roots outlined in Ch. 2, §3.1.3, would have resulted in a PMP ***kit-kit* ‘tie, fasten’ (as yet not directly attested), and this in its turn would have given rise to POc ***kiki(t)* and **kit-i-*, of which only the latter is attested:

PAn root **-kit* ‘join along the length’ (Blust 1988:111–112)

POc **kiti[-]* ‘tie, bind’

NNG:	Yabem	<i>ki?</i>	‘tie’
MM:	Nakanai	<i>kisi</i>	‘fasten; tie, tie up’
		<i>kisi</i>	‘tie’
MM:	Solos	<i>kit</i>	‘tie’
MM:	Teop	<i>kisi</i>	‘fasten, tie, bundle’
MM:	Taiof	<i>kic-kic</i>	‘tie’

11 Applying heat and burning

POc had a number of verbs expressing the various ways in which heat can be applied. The reflexes of some of these, like POc **m^waRi* ‘roast, burn’ (Ch. 6, §3.2), are used almost exclusively in the context of cooking, and are therefore presented in Chapter 6. The reflexes of others, like POc **tunu* ‘roast, burn’ (Ch. 6, §3.2), POc **raraŋ*, **raraŋ-i-* ‘warm s.t./s.o.’ (Ch. 4, §3.1.1), and POc **sunu* ‘singe’ (Ch. 6, §3.6), are used both for cooking and for other kinds of heat application, and so are given here with reduced cognate sets. Two further terms, POc **soko(t)*, **sokot-i-* ‘burn (grass +)’ and POc **tutu(ŋ)*, **tuŋi* ‘light, set fire to’, were used for burning but apparently did not apply to cookery.

PAn **CuNuh* ‘roast food over a fire’ (ACD)

POc **tunu* ‘roast on embers or in fire; burn (s.t.); make decorative cicatrices by burning the skin’

Adm:	Wuvulu	<i>unu</i>	‘cook, roast’
NNG:	Gedaged	<i>tun(i)</i>	‘cause to burn, light (a fire so it burns well), set fire’
NNG:	Sengseng	<i>tun</i>	‘burn; burn shells or limestone to make lime; burn cicatrices; set fire to’
PT:	Motu	<i>tunu-</i>	‘bake pottery’
MM:	Tolai	<i>tun</i>	‘burn, cook, roast, broil’
MM:	Roviana	<i>tunu</i>	‘burn scars on the arm (as is often done by young boys)’
SES:	Bugotu	<i>tunu</i>	‘a mark, blot, cicatrice caused by burning’
SES:	Sa’a	<i>ūnu-unu</i>	‘burn in the fire, roast flesh on the embers; raise cicatrices on the body by burning’
NCV:	Mota	<i>tun</i>	‘roast on or over embers’
NCal:	Nemi	<i>cini</i>	‘burn, grill in fire’

Mic:	Kiribatese	<i>tin-tin</i>	'grill or roast on open fire'
Fij:	Bauan	<i>tunu</i>	'warm food up again'
Pn:	Tongan	<i>tunu</i>	'cook on open fire'

PAn **da(n)daŋ* 'heat s.t. or warm oneself by fire' (Dempwolff 1938)¹⁰

POc **raraŋ, *raŋ-i-* 'heat s.t. or warm oneself by fire' (see Ch.4, §3.1.1)

NNG:	Manam	<i>raraŋ</i>	'warm up (food that has become cold), warm up again'
PT:	Molima	<i>lala</i>	'wilt pandanus leaves over a fire in order to soften them for mat-making'
MM:	Nakanai	<i>lala</i>	'wilt pandanus leaves over a fire in order to soften them for mat-making'
SES:	Sa'a	<i>ra-raŋi</i>	'warm oneself at the fire'
NCV:	Raga	<i>ra-raŋi</i>	'roast on embers'
SV:	Kwamera	<i>(a)raŋi</i>	'singe, burn (hair off pig), warm, dry by fire'
Mic:	Mokilese	<i>rəŋ-rəŋ</i>	'warm oneself'
Mic:	Marshallese	<i>raŋ-raŋ</i>	'warm oneself by the fire'
Fij:	Bauan	<i>ra-raŋ-</i>	'warm oneself at a fire; of pain, smart slightly'
Pn:	Pukapukan	<i>lala</i>	'bleach pandanus leaves by passing them over a fire'
Pn:	Hawaiian	<i>lala</i>	'warm up, cook over fire; warm oneself by a fire'

POc **sunu* 'singe'

Adm:	Loniu	<i>sun</i>	
Adm:	Nyindrou	<i>sun</i>	'burn or cook (over fire); roast'
PT:	Kilivila	<i>sulu-sulu</i>	'cook'
MM:	Nakanai	<i>sulu-lu</i>	
Mic:	Marshallese	<i>t^wini-y</i>	
Fij:	Rotuman	<i>su-sunu</i>	'burn, scorch'
Fij:	Wayan	<i>cunu</i>	'be burnt or branded by a smouldering stick or firebrand'
Pn:	Tongan	<i>hunu</i>	

PMP **zeket* 'burn (fields +)' (ACD)

POc **soko(t), *sokot-i-* 'burn (grass, rubbish +)'

Adm:	Lou	<i>sakot</i>	'burn on'
MM:	Bulu	<i>royo</i>	'(fire) burn'
MM:	Lihir	<i>so</i>	'(fire) burn'
		<i>sakt</i>	'burn (grass)'
MM:	Barok	<i>soŋot</i>	'burn (grass); bake (on fire)'
MM:	Tangga	<i>sok</i>	'(fire) burn'
MM:	Nehan	<i>suk</i>	(ADJ) 'burnt'; (V) 'singe'

¹⁰ Given the two reconstructable POc forms, this appears to be a case of Blust's (1977) paradigm (Ch. 2, §3.1.2), suggesting that the PMP form was **danŋan*.

cf. also:

SES: Arosi *togo* 'make up a fire, set more wood on'

PMP **tutuŋ* 'set on fire, burn' (Dempwolff 1938)¹¹

POc **tutu(ŋ)* 'light, set fire to' (Blust 1972b)

NNG:	Poeng	<i>to</i>	(VI) 'burn'
Fij:	Wayan	<i>tutu</i>	'be alight, lit, started, going'
Fij:	Bauan	<i>tutu</i>	'light a lamp, set fire to a thing'
Pn:	Tongan	<i>tutu</i>	'set on fire or burn up'
Pn:	Samoan	<i>tutu</i>	'light (lamp, fire +)'

POc **tunji* 'light, set fire to'

Adm:	Drehet	<i>suŋ</i>	'burn'
NNG:	Bing	<i>tun</i>	'burn'
NNG:	Poeng	<i>toŋe</i>	(VT) 'burn'
Fij:	Wayan	<i>tuni</i>	'light (fire, lamp +)'
Pn:	Tongan	<i>tunji(a)</i>	'set fire to'
Pn:	Samoan	<i>tunji(a)</i>	'be set alight'
Pn:	Maori	<i>tunji</i>	'set light to'
SES:	Kwaio	<i>sūŋi-</i>	'burn (s.t.)'
SES:	Arosi	<i>suŋi-</i>	'burn (s.t.)'

¹¹ If the Oceanic forms are an example of the usual canon, we would expect PMP **tunŋun*.

Appendix 1: Data sources and collation

1 Introduction

Data sources which were consulted in relation to a particular terminology are noted in the chapter on that terminology. However, quite a wide range of sources was consulted in the construction of the data base and we list these here, rather than repeating them in each chapter. Sources are conveniently divided into published and unpublished. In alphabetical sequence of language, published sources are:

'Are'are	Geertz (1970)
Arosi	Fox (1978)
Bugotu	Ivens (1940)
Carolinian	Jackson and Marck (1991)
Cèmuhi	Rivierre (1994)
Maringe (= Cheke Holo = Hograno)	White, Kokhonigita and Pulomana (1988)
Bauan Fijian (= Standard Fijian)	Capell (1941)
Boumaa Fijian	Dixon (1988)
Gapapaiwa	McGuckin and McGuckin (1992)
Gedaged	Mager (1952)
Gela (= Nggela)	Fox (1955)
Hawaiian	Pukui and Elbert (1971)
Kairiru	Wivell (1981)
Kilivila	Senft (1986)
Kiribatese (= Gilbertese)	Sabatier (1971)
Kosraean (= Kusaiean)	Lee (1976)
Kwaio	Keesing (1975)
Lau	Fox (1974)
Lenakel	Lynch (1977)
Lewo	Early (1994)
Loniu	Hamel (1994)
Lou	Blust (1998)
Maori	Williams (1975)
Marshallese	Abo et al. (1976)
Minaveha	Nenegemo and Lovell (1995)
Mokilese	Harrison and Albert (1977)
Mota	Codrington (1896)
Motu	Lister-Turner and Clark (1954) (2nd ed)

Mussau	Blust (1984)
Muyuw	Lithgow and Lithgow (1974)
Paamese	Crowley (1992)
Ponapean	Rehg and Sohl (1979)
Puluwatese	Elbert (1972)
Rennell and Bellona	Elbert (1975)
Roviana	Waterhouse, revised Jones (1949)
Sa'a and Ulawa	Ivens (1918)
Samoan	Milner (1966)
Sudest	Anderson (1990)
Tikopia	Firth (1985)
Tolai = Kuanua = Raluana	Rickard (1888)
Tongan	Churchward (1959)
Trukese	Goodenough and Sugita (1990)
Wayan Fijian	Pawley and Sayaba (f.c.)
Woleaian	Sohn and Tawerilmang (1976)
Yabem (= Jabem)	Streicher (1982)

Unpublished sources consisted of manuscript word lists for Molima and Nakanai by Ann Chowning, for Tamambo (=Malo) by Dorothy Jauncey, and computer files provided by a number of scholars, some of which are themselves based on a variety of primary sources. These files include:

- The computer files of lexical data collated during the research leading to the publication of Ross (1988), whose sources are listed in Appendices A and B of that work.
- The computer files from the *Comparative Austronesian Dictionary* project which resulted in Tryon ed. (1995), which lists its own sources.
- The computer files of Robert Blust's *Austronesian Comparative Dictionary* on disk at the University of Hawaii. The version to which we refer dates from 1995.
- The computer files of Bruce Biggs' *POLLEX: Proto Polynesian lexicon* on disk at the University of Auckland. The version to which we refer dates from December 1993.
- Computer files of reconstructions with supporting cognate sets for North/Central Vanuatu (Clark 1994), Southern Vanuatu (Lynch 1996b), and Micronesian (Bender et al. 1983).
- Computer files of dictionaries in progress provided by Joel Bradshaw (for Numbami), Debbie Hill (for Longgu) and Malcolm Ross (for Takia).
- Computer files of dictionaries in progress kindly made available by members of the Summer Institute of Linguistics. Languages and those who compiled/supplied the dictionary are as follows: Bing (Doug Bennett), Mapos Buang (Bruce Hooley), Iduna (Joyce Hockett), Dami (George Elliott), Gapapaiwa (Ed and Catherine McGuckin), Gumawana (Clif Olson), Hote (Marguerite Muzzey), East Kara (Perry and Virginia Schlie), Kaulong (Craig Throop), Drehet [= Khehek] (Stephan Beard), Lewo (Robert Early), Lou (Robert and Verna Stutzman), Lukep [= Pono] (Jeff and Sissie D'Jernes), Manam (Stephen and Kim Blewett), Mangseng (Lloyd Milligan), Mangap-Mbula (Robert and Salme Bugenhagen), Mengen (Fred Madden), Misima (Bill Callister), Mumeng [Patep] (Linda Vissering and Karen Wilson), Nakanai (Ray Johnston), Nehan (John Glennon), Patpatar (Ed Condra), Ramoaaina [= Duke of York] (Lisbeth Fritzell and Robyn Davies), Siar (Larry Erdman), Sissano [Arop] (Stephen Whitacre), Sudest

(Mike Anderson), Sursurunga (Don Hutchisson), Takia (Salme Bugenhagen, Judy Rehberg, Curtis Thomas), Tawala (Bryan Ezard), Teop (David Snyder), Tinputz (Roman Hostetler), Titan (Keith Lusk).

2 Collation

The collation stage of the project consisted in the first instance of creating a database of vocabulary materials in a defined set of semantic domains from Oceanic languages for which data were already available (see §1). This database was kept in text files on Macintosh computers. Files were organised in accordance with a modified version of the Summer Institute of Linguistics' 'standard format' in which fields within each record are labelled with an initial backslash followed by a single letter. In our version of the format, each record was terminated with a carriage return, i.e. each record occupied a single line. Each record contained a single word in a single language with associated information (a code relating to the language's subgroup, a gloss and any other semantic information, the source, and any other notes the researcher chose to add). The Macintosh allowed non-standard characters to be created and viewed on screen. Records were organised on screen into putative cognate sets. The use of text files rather than files in a proprietary database format meant (i) that it was easy to view them on screen; (ii) that it was easy to manipulate them with a variety of text editors and word processors; (iii) that more complex repetitive processes could be performed by writing small programs in the Icon programming language (Griswold & Griswold 1990); and (iv) that it was relatively easy to import and reformat other people's data sets and to export collated material into publications in preparation.

Although there are accepted or standard orthographies for a number of the languages from which data are cited here, all data were transcribed at the collation stage into a standard orthography (see Ross 1988:3-4) to enable us to recognise cognates and to spot regular changes more quickly. This orthography is retained in the citation of data in these volumes.

Appendix 2: Languages

1. Introduction

Maps 6–10, showing location of languages referred to in the volume, are included at the end of Appendix 2. In §2 we list these languages in their putative subgroups. The higher-order subgroups are those described in Ch. 1, §3.2. Lower-order groups, except where indicated, are drawn from the classification in Lynch, Ross and Crowley (forthcoming), and also, for Western Oceanic, from Ross (1988). In §3 we provide an index to §2. Polynesian subgrouping is based on Marck (forthcoming).

Square brackets enclose the subgroup abbreviations used in the data. Parentheses include dialect names or, where an equals sign is used, an alternative name or names for the language.

2. Languages by subgroups

1. Yapese

2. *Admiralties* [Adm]

2.1 *St Matthias*

Emira

Mussau

2.2 *Admiralties proper*

2.2.1 *Western Admiralties*

Aua

Seimat (= Ninigo)

Wuvulu

2.2.2 *Eastern Admiralties*

2.2.2.1 *Manus*

Andra

Bipi

Bohuai

Drehet (= Ndrehet, Khehek, Levei-Tulu)

Ere

Koro
Lele
Likum
Loniu
Mondropolon
Nali
Nyindrou
Ponam
Titan

2.2.2.2 *South-East Admiralties*

Baluan
Lou
Nauna
Penchal

3. *Western Oceanic*

3.1 *Sarmi/Jayapura* [SJ]

3.1.1 *Sarmi*

Bongo
Sobei

3.2 *North New Guinea* [NNG]

3.2.1 *Schouten*

3.2.1.1 *Manam/Kairiru*

Bam
Kaiep
Kairiru
Kis
Manam
Medebur
Wogeo

3.2.1.2 *Siau*

Ali
Sissano
Tumleo
Ulau-Suain

3.2.2 *Huon Gulf*

3.2.2.1 *North Huon Gulf*

Yabem

3.2.2.2 *Markham*

Adzera
Labu

3.2.2.3 *South Huon Gulf*

Hote
Kaiwa
Mapos Buang

Numbami
Patep
Vehes

3.2.3 *Ngero/Vitiaz*

3.2.3.1 *Ngero*

Bariai
Gitua
Kove
Malai
Malalamai
Mandok
Mutu
Tuam

3.2.3.2 *Bel*

Bilibil (= Bilbil)
Bing
Dami
Gedaged
Megiar
Mindiri
Takia
Wab

3.2.3.3 *Vitiaz Strait* (areal grouping only)

Amara
Barim
Kilenge
Lukep (Pono) (= Arop-Lokep)
Lukep
Malasanga
Mangap (= Mangap-Mbula, Kaimanga)
Roinji
Singorakai
Sio
Tami

3.2.3.4 *Southwest New Britain*

Akolet
Arawe
Aria
Atui
Bebeli
Mangseng
Rauto
Sengseng

3.2.3.5 *Mengen family*

Poeng
Uvol

3.3 *Papuan Tip* [PT]

3.3.1 *Nuclear Papuan Tip*

3.3.1.1 *Suauic*

Suau

3.3.1.2 *North Mainland/D'Entrecasteaux*

3.3.1.2.1 Gumawana (= Gumasi)

3.3.1.2.2 *Dobu/Duau*

Dobu
Duau
Sewa Bay

3.3.1.2.3 *Bwaidoga*

Bwaidoga
Iduna (= dialect of Bwaidoga?)
Kalokalo
Molima

3.3.1.2.4 Anuki

3.3.1.2.5 Kakabai

3.3.1.2.6 *Are/Taupota*

Are
Arifama
Gapapaiwa (= Paiwa)
Minaveha (= Kukuya)
Tawala
Ubir
Wedau

3.3.2 *Kilivila/Misima*

3.3.2.1 *Kilivila*

Kilivila (= Kiriwina)

Muyuw

3.3.2.2 *Misima*

3.3.3 *Nimoa/Sudest*

Nimoa

Sudest

3.3.4 *Central Papuan*

Balawaia (= dialect of Sinaugoro)

Gabadi

Hula (= dialect of Keapara)

Kuni

Lala (= Nara, 'Ala'ala, Pokau)

Magori

Maopa (= dialect of Keapara)

Motu

Roro

Sinaugoro

Taboro (= dialect of Sinaugoro)

3.4 *Meso-Melanesian* [MM]

3.4.1 *Bali-Vitu*

Bali

Vitu

3.4.2 *Willaumez*

Bola

Bulu

Meramera

Nakanai (= Lakalai)

3.4.3 *New Ireland/Northwest Solomonian*

3.4.3.1 *Tungag/Nalik family*

Kara (East)

Kara (West)

Lavongai

Nalik

Tiang

Tigak

3.4.3.2 *Tabar linkage*

Lihir

Notsi

Tabar

3.4.3.3 *Madak linkage*

Barok
Lamasong
Madak

3.4.3.4 *St George linkage*

3.4.3.4.1 *South New Ireland*

Bilur
Kandas
Konomala
Label
Minigir
Patpatar
Ramoovina (= Duke of York)
Siar
Sursurunga

Tangga (= Tanga)
Tolai (= Kuanua, Raluana, Tuna)

3.4.3.4.2 *Northwest Solomonian linkage*

3.4.3.4.2.1

Nehan/North Bougainville

Hahon
Halia (= Hanahan), Halia (Haku), Halia
(Selau)
Nehan (= Nissan)
Petats
Solos
Taiof
Teop
Tinputz

3.4.3.4.2.2

Banoni

3.4.3.4.2.3

Mono-Alu/Torau

Mono-Alu
Torau

3.4.3.4.2.4

Choiseul

Babatana
Ririo
Sisiqa (= Sengga)
Vaghua
Varisi

3.4.3.4.2.5

New Georgia

Hoava

Nduke

Roviana

Simbo

3.4.3.4.2.6

Ysabel

Kia

Laghu

Maringe (= Cheke Holo, Hograno)

4. *Eastern Oceanic*

4.1 *Southeast Solomonic* [SES]

4.1.1 *Bugotu/Gela/Guadalcanal*

4.1.1.1 Bugotu

4.1.1.2 *Gela/Guadalcanal*

Gela

Lengo

Ghari

Malango

Talise

Tolo

West Guadalcanal

4.1.1.3 *Longgu/Malaita/Makira*

4.1.1.3.1 Longgu

4.1.1.3.2 *Malaita/Makira*

'Are'are

Arosi

Baegu

Bauro

Fagani

Kwai

Kwaio

Lau

Sa'a

To'aba'ita

Ulawa

4.2 *North/Central Vanuatu* [NCV] (groupings are areal, based on Clark 1994)

4.2.1 *Banks & Torres, Maewo, Ambae, North Pentecost*

Ambae (= N. E. Aoba)

Hiw

Mota

Raga

4.2.2 *Espiritu Santo*

Fortsenal
Kiai
Tamambo (= Malo)
Tangoa
Tasiriki
Wusi

4.2.3 *Malekula*

Atchin
Big Nambas
Labo
Mae
Port Sandwich
Uripiv

4.2.4 *South Pentecost, Ambrym, Paama, Epi*

Lewo
Lonwolwol
Paamese
S.E. Ambrym

4.2.5 *Efate-Shepherds*

Namakir (= Namakura)
Nguna
South Efate

4.3 *South Vanuatu* [SV]

Anejom (= Aneityum)
Kwamera
Lenakel
N. Tanna
S.W. Tanna
Sye (= Sie, Eromango)
Ura

4.4 *New Caledonia* [NCal]

4.4.1 *New Caledonia proper*

Fwâi
Pije
Pwapwâ
Nemi
Nyelâyu
Xârâcùù

4.4.2 *Loyalties*

Dehu
Nengone

4.5 *Nuclear Micronesian* [Mic]

Carolinian
 Kiribatese (= Kiribati, Gilbertese)
 Kosraean (= Kusaeian)
 Marshallese
 Mokilese
 Mortlockese
 Ponapean
 Puluwatese
 Satawalese
 Trukese
 Ulithian
 Woleaian

4.6 *Central Pacific* [Fij and Pn]

4.6.1 Rotuman

4.6.2 *Western Fijian*

Nadroga
 Wayan
 Yasawa

4.6.3 *Eastern Fijian*

Bauan Fijian (= Standard Fijian)
 Boumaa

4.6.4 *Polynesian* (subgrouping based on Marck forthcoming)

4.6.4.1 *Tongic*

Niuean
 Tongan

4.6.4.2 *Nuclear Polynesian*

Anutan
 East Uvean
 East Futunan
 Pukapukan
 Rennellese
 Tikopia
 West Uvean
 West Futunan (= Futuna-Aniwa)
 Ifira-Mele (= Mele-Fila)
 Emae

4.6.4.2.1 *Samoan/Ellicean/Eastern Polynesian*

4.6.4.2.1.1

Samoan

4.6.4.2.1.2

Ellicean/Eastern Polynesian

A) *Ellicean*

Kapingamarangi
Luangiua
Nanumean (dialect of Tuvalu)
Nukuoro
Nukuria
Takuu
Tokelauan
Tuvalu (= Ellicean)

B) *Eastern Polynesian*

a) Rapanui (= Easter Island)

b) *Central Eastern Polynesian*

i. *Marquesic*

Hawaiian
Mangareva
Marquesan

ii. *Tahitic*

Manihiki
Maori
Rapa
Rarotongan
Tahitian
Tongareva (= Penrhyn)
Tuamotuan

3. Language finderlist

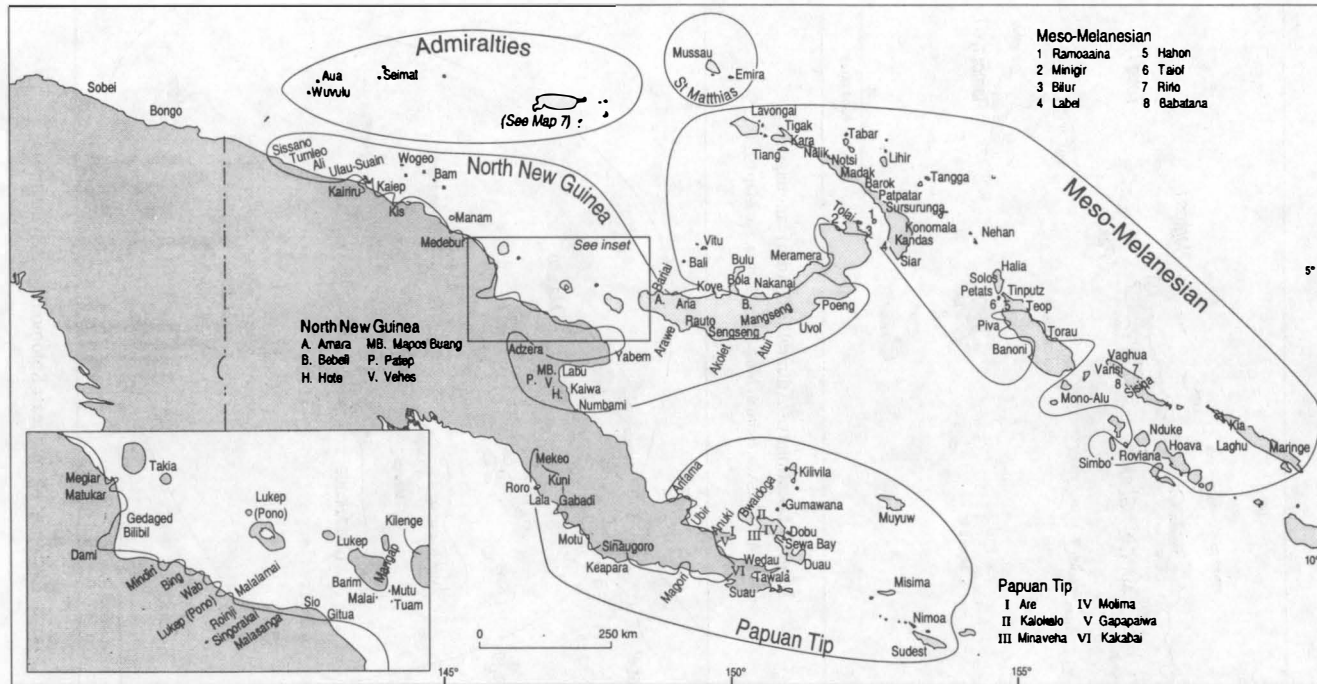
Languages are listed alphabetically below with a numeric reference to their position in the subgrouping hierarchy in §2.

- | | |
|-------------------------------|---------------------------------|
| Adzera 3.2.2.2 | Bing 3.2.3.2 |
| Akolet 3.2.3.4 | Bipi 2.2.2.1 |
| 'Ala'ala (see Lala) | Bohuai 2.2.2.1 |
| Ali 3.2.1.2 | Bola 3.4.2 |
| Amara 3.2.3.3 | Bongo 3.1.1 |
| Ambae 4.2.1 | Boumaa 4.6.3 |
| Andra 2.2.2.1 | Bugotu 4.1.1.1 |
| Aneityum (see Anejom) | Bulu 3.4.2 |
| Anejom 4.3 | Bwaidoga 3.3.1.2.3 |
| Anuki 3.3.1.2.4 | Carolinian 4.5 |
| Anutan 4.6.4.2 | Cheke Holo (see Maringe) |
| Aoba (see Ambae) | Dami 3.2.3.2 |
| Arawe 3.2.3.4 | Dehu 4.4.2 |
| Are 3.3.1.2.6 | Dobu 3.3.1.2.2 |
| 'Are'are 4.1.1.3.2 | Drehet 2.2.2.1 |
| Aria 3.2.3.4 | Duau 3.3.1.2.2 |
| Arifama 3.3.1.2.6 | East Futunan 4.6.4.2 |
| Arop-Lokep (see Lukep (Pono)) | East Uvean 4.6.4.2 |
| Arosi 4.1.1.3.2 | Ellicean (see Tuvalu) |
| Atchin 4.2.3 | Emae 4.6.4.2 |
| Atui 3.2.3.4 | Emira 2.1 |
| Aua 2.2.1 | Ere 2.2.2.1 |
| Babatana 3.4.3.4.2.4 | Eromango (see Sye) |
| Baegu 4.1.1.2 | Fagani 4.1.1.3.2 |
| Balawaia 3.3.4 | Fijian (see Bauan Fijian) |
| Bali 3.4.1 | Fortsenal 4.2.2 |
| Baluan 2.2.2.2 | Futuna-Aniwa (see West Futunan) |
| Bam 3.2.1.1 | Fwâi 4.4.1 |
| Banoni 3.4.3.4.2.2 | Gabadi 3.3.4 |
| Bariai 3.2.3.1 | Gapapaiwa 3.3.1.2.6 |
| Barim 3.2.3.3 | Gedaged 3.2.3.2 |
| Barok 3.4.3.3 | Gela 4.1.1.2 |
| Bauan Fijian 4.6.3 | Ghari 4.1.1.2 |
| Bauro 4.1.1.3.2 | Gitua 3.2.3.1 |
| Bebeli 3.2.3.4 | Gumasi (see Gumawana) |
| Big Nambas 4.2.3 | Gumawana 3.3.1.2.1 |
| Bilbil (see Bilibil) | Hahon 3.4.3.4.2.1 |
| Bilibil 3.2.3.2 | Haku (see Halia) |
| Bilur 3.4.3.4.1 | Halia 3.4.3.4.2.1 |

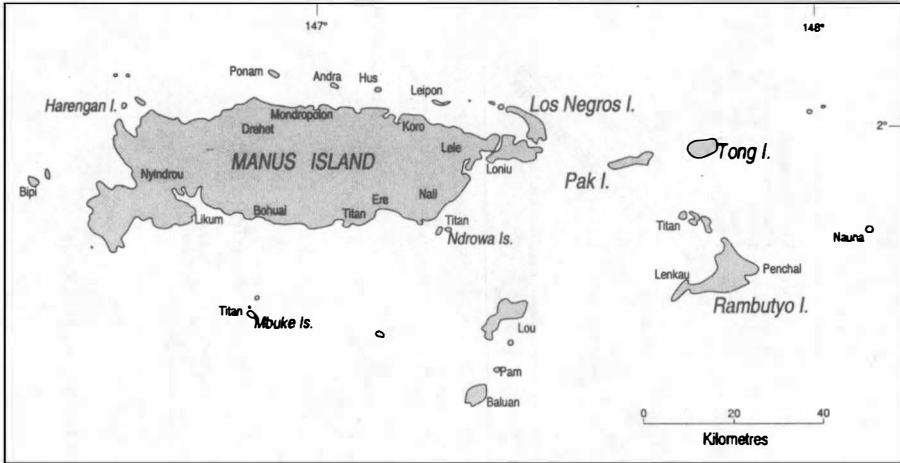
- Hanahan (see Halia)
 Hawaiian 4.6.4.2.1.2.B.b.i
 Hiw 4.2.1
 Hoava 3.4.3.4.2.5
 Hograno (see Maringe)
 Hote 3.2.2.3
 Hula 3.3.4
 Iduna 3.3.1.2.3
 Ifira-Mele 4.6.4.2
 Kaiep 3.2.1.1
 Kaimanga (see Mangap)
 Kairiru 3.2.1.1
 Kaiwa 3.2.2.3
 Kakabai 3.3.1.2.5
 Kalokalo 3.3.1.2.3
 Kandas 3.4.3.4.1
 Kapingamarangi 4.6.4.2.1.2.A
 Kara (East) 3.4.3.1
 Kara (West) 3.4.3.1
 Keapara (see Hula)
 Keapara (see Maopa)
 Khehek (see Drehet)
 Kia 3.4.3.4.2.6
 Kiai 4.2.2
 Kilenge 3.2.3.3
 Kilivila 3.3.2.1
 Kiribatese (see Gilbertese)
 Kiribatese (see Kiribati)
 Kiribatese 4.5
 Kiriwina (see Kilivila)
 Kis 3.2.1.1
 Konomala 3.4.3.4.1
 Koro 2.2.2.1
 Kosraean (see Kusaeian)
 Kosraean 4.5
 Kove 3.2.3.1
 Kuanua (see Tolai)
 Kukuya (see Minaveha)
 Kuni 3.3.4
 Kwai 4.1.1.3.2
 Kwaio 4.1.1.3.2
 Kwamera 4.3
 Label 3.4.3.4.1
 Labo 4.2.3
 Labu 3.2.2.2
 Laghu 3.4.3.4.2.6
 Lala 3.3.4
 Lamasong 3.4.3.3
 Lau 4.1.1.3.2
 Lavongai 3.4.3.1
 Lele 2.2.2.1
 Lenakel 4.3
 Lengo 4.1.1.2
 Levei-Tulu (see Drehet)
 Lewo 4.2.4
 Lihir 3.4.3.2
 Likum 2.2.2.1
 Longgu 4.1.1.3.1
 Loniu 2.2.2.1
 Lonwolwol 4.2.4
 Lou 2.2.2.2
 Luangiua 4.6.4.2.1.2.A
 Lukep (Pono) 3.2.3.3
 Lukep 3.2.3.3
 Madak 3.4.3.3
 Mae 4.2.3
 Magori 3.3.4
 Malai 3.2.3.1
 Malalamai 3.2.3.1
 Malango 4.1.1.2
 Malasanga 3.2.3.3
 Malo (see Tamambo)
 Manam 3.2.1.1
 Mandok 3.2.3.1
 Mangap 3.2.3.3
 Mangap-Mbula (see Mangap)
 Mangareva 4.6.4.2.1.2.B.b.i
 Mangseng 3.2.3.4
 Manihiki 4.6.4.2.1.2.B.b.ii
 Maopa 3.3.4
 Maori 4.6.4.2.1.2.B.b.ii
 Mapos Buang 3.2.2.3
 Maringe 3.4.3.4.2.6
 Marquesan 4.6.4.2.1.2.B.b.i
 Marshallese 4.5
 Mbula (see Mangap)
 Medebur 3.2.1.1
 Megiar 3.2.3.2
 Mele-File (see Ifira-Mele)
 Meramera 3.4.2
 Minaveha 3.3.1.2.6
 Mindiri 3.2.3.2
 Minigir 3.4.3.4.1
 Misima 3.3.2.2
 Mokilese 4.5
 Molima 3.3.1.2.3

- Mondropolon 2.2.2.1
 Mono-Alu 3.4.3.4.2.3
 Mortlockese 4.5
 Mota 4.2.1
 Motu 3.3.4
 Mussau 2.1
 Mutu 3.2.3.1
 Muyuw 3.3.2.1
 N. E. Aoba (see Ambae)
 N. Tanna 4.3
 Nadroga 4.6.2
 Nakanai (see Lakalai)
 Nakanai 3.4.2
 Nali 2.2.2.1
 Nalik 3.4.3.1
 Namakir (see Namakura)
 Namakir 4.2.5
 Nanumean 4.6.4.2.1.2.A
 Nara (see Lala)
 Nauna 2.2.2.2
 Ndrehet (see Drehet)
 Nduke 3.4.3.4.2.5
 Nehan 3.4.3.4.2.1
 Nemi 4.4.1
 Nengone 4.4.2
 Nguna 4.2.5
 Nimoa 3.3.3
 Ninigo (see Seimat)
 Niuean 4.6.4.1
 Notsi 3.4.3.2
 Nukuoro 4.6.4.2.1.2.A
 Nukuria 4.6.4.2.1.2.A
 Numbami 3.2.2.3
 Nyelâyu 4.4.1
 Nyindrou 2.2.2.1
 Paamese 4.2.4
 Paiwa (see Gapapaiwa)
 Patep 3.2.2.3
 Patpatar 3.4.3.4.1
 Penchal 2.2.2.2
 Penrhyn (see Tongareva)
 Petats 3.4.3.4.2.1
 Pije 4.4.1
 Poeng 3.2.3.5
 Pokau (see Lala)
 Ponam 2.2.2.1
 Ponapean 4.5
 Port Sandwich 4.2.3
 Pukapukan 4.6.4.2
 Puluwatese 4.5
 Pwapwâ 4.4.1
 Raga 4.2.1
 Raluana (see Tolai)
 Ramoovina (see Duke of York)
 Ramoovina 3.4.3.4.1
 Rapa 4.6.4.2.1.2.B.b.ii
 Rapanui (see Easter Island)
 Rapanui 4.6.4.2.1.2.B.a.
 Rarotongan 4.6.4.2.1.2.B.b.ii
 Rauto 3.2.3.4
 Rennellese 4.6.4.2
 Ririo 3.4.3.4.2.4
 Roinji 3.2.3.3
 Roro 3.3.4
 Rotuman 4.6.1
 Roviana 3.4.3.4.2.5
 S.E. Ambrym 4.2.4
 S.W. Tanna 4.3
 Sa'a 4.1.1.3.2
 Samoan 4.6.4.2.1.1
 Satawalese 4.5
 Seimat 2.2.1
 Selau (see Halia)
 Sengga (see Sisiqa)
 Sengseng 3.2.3.4
 Sewa Bay 3.3.1.2.2
 Siar 3.4.3.4.1
 Sie (see Sye)
 Simbo 3.4.3.4.2.5
 Sinaugoro 3.3.4
 Singorakai 3.2.3.3
 Sio 3.2.3.3
 Sisiqa 3.4.3.4.2.4
 Sissano 3.2.1.2
 Sobei 3.1.1
 Solos 3.4.3.4.2.1
 South Efate 4.2.5
 Standard Fijian (see Bauan Fijian)
 Suau 3.3.1.1
 Sudest 3.3.3
 Sursurunga 3.4.3.4.1
 Sye 4.3
 Tabar 3.4.3.2
 Taboro 3.3.4
 Tahitian 4.6.4.2.1.2.B.b.ii
 Taiof 3.4.3.4.2.1

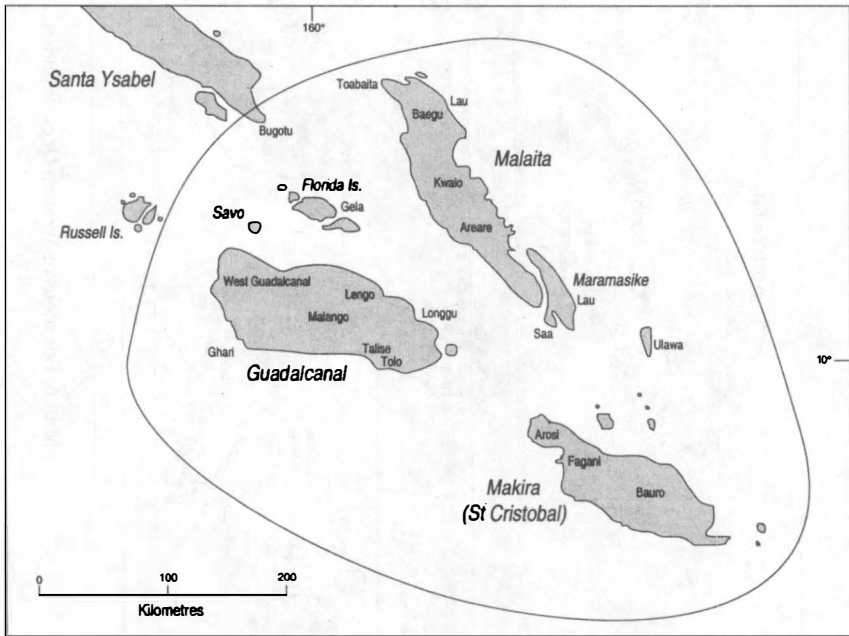
- Takia 3.2.3.2
 Takuu 4.6.4.2.1.2.A
 Talise 4.1.1.2
 Tamambo 4.2.2
 Tami 3.2.3.3
 Tanga (see Tangga)
 Tangga 3.4.3.4.1
 Tangoa 4.2.2
 Tasiriki 4.2.2
 Tawala 3.3.1.2.6
 Teop 3.4.3.4.2.1
 Tiang 3.4.3.1
 Tigak 3.4.3.1
 Tikopia 4.6.4.2
 Tinputz 3.4.3.4.2.1
 Titan 2.2.2.1
 To'aba'ita 4.1.1.3.2
 Tokelauan 4.6.4.2.1.2.A
 Tolai 3.4.3.4.1
 Tolo 4.1.1.2
 Tongan 4.6.4.1
 Tongareva 4.6.4.2.1.2.B.b.ii
 Torau 3.4.3.4.2.3
 Trukese 4.5
 Tuam 3.2.3.1
 Tuamotuan 4.6.4.2.1.2.B.b.ii
 Tumleo 3.2.1.2
 Tuna (see Tolai)
 Tuvalu 4.6.4.2.1.2.A
 Ubir 3.3.1.2.6
 Ulau-Suain 3.2.1.2
 Ulawa 4.1.1.3.2
 Ulithian 4.5
 Ura 4.3
 Uripiv 4.2.3
 Uvol 3.2.3.5
 Vaghua 3.4.3.4.2.4
 Varisi 3.4.3.4.2.4
 Vehes 3.2.2.3
 Vitu 3.4.1
 Wab 3.2.3.2
 Wayan 4.6.2
 Wedau 3.3.1.2.6
 West Futunan 4.6.4.2
 West Guadalcanal
 West Uvean 4.6.4.2
 Wogeo 3.2.1.1
 Woleaian 4.5
 Wusi 4.2.2
 Wuvulu 2.2.1
 Xârâcùù 4.4.1
 Yabem 3.2.2.1
 Yapese 1
 Yasawa 4.6.2



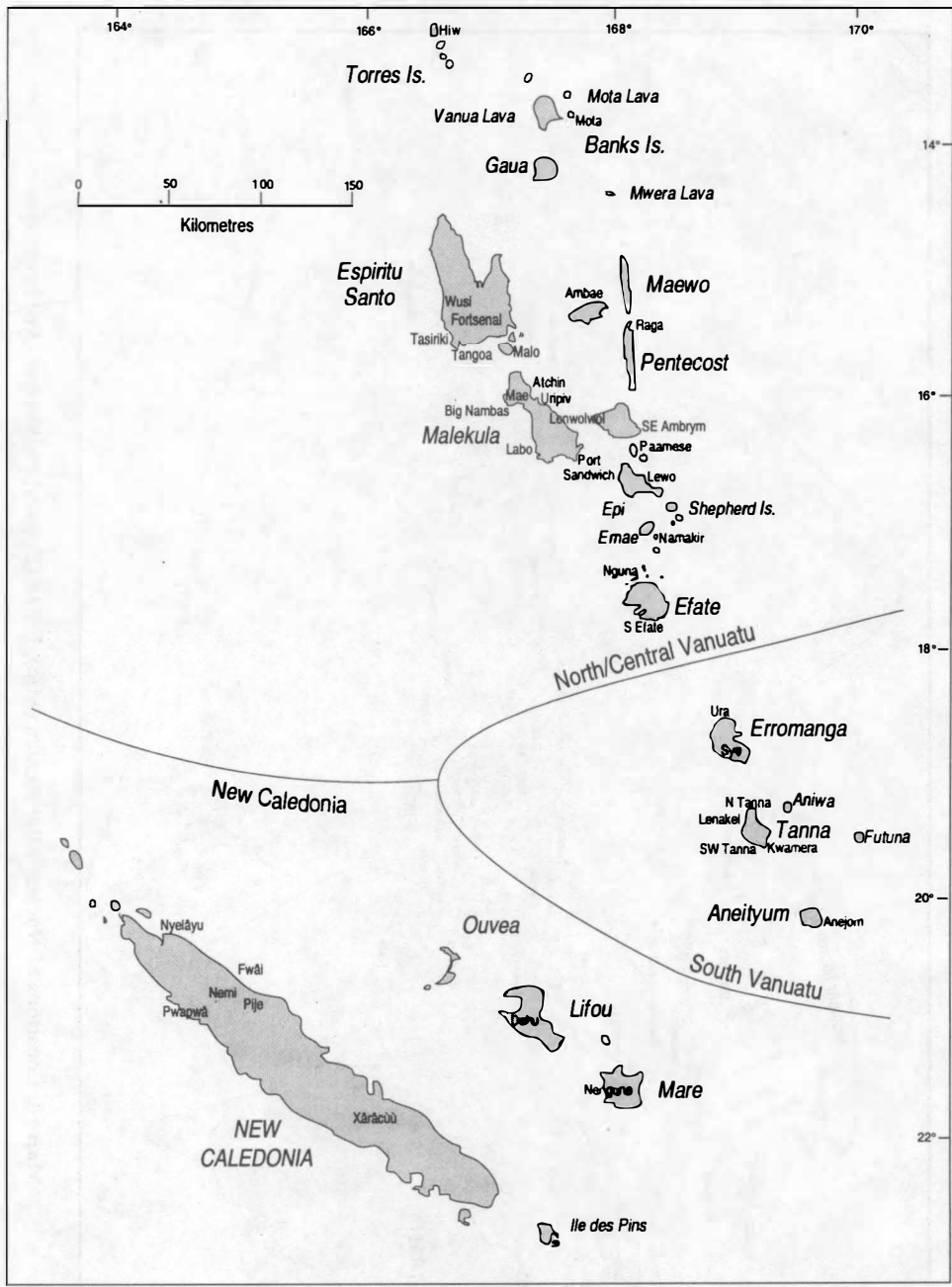
Map 6: Locations of Western Oceanic and other languages in north-west Melanesia



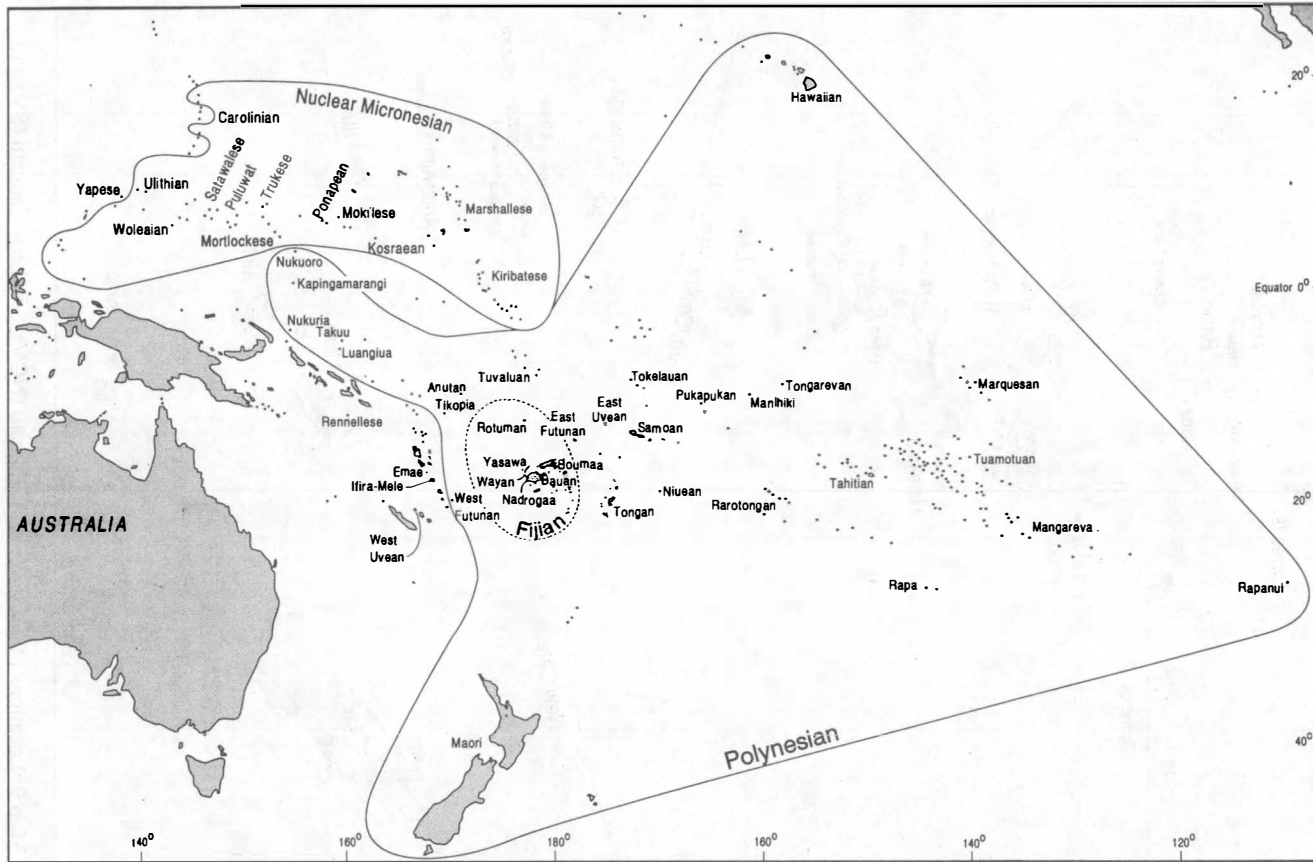
Map 7: Locations of Admiralties (Adm) languages
(for Wuvulu, Aua, Seimat, Mussau and Emira, see Map 6)



Map 8: Locations of Southeast Solomonic (SES) languages



Map 9: Locations of North/Central Vanuatu (NCV), Southern Vanuatu (SV) and New Caledonia (NCal) languages



Map 10: Locations of Nuclear Micronesian (Mic), Fijian (Fij) and Polynesian (Pn) languages

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Index

Proto Austronesian (PAN)

- ?**ba(η)ka(q)* 'outrigger canoe, dugout canoe' 179
- **bubu* 'conical bamboo basket trap for fish' 219
- **buCbuC* 'pull up (weeds +), pluck (feathers +)' 25, 136, 168, 277
- **buNuq* 'throw at, hit with a projectile' 268
- **busuR* 'hunting bow' 225
- **Capa* (V) 'smoke fish or meat for preservation' 158
- **CuNuh* 'roast food over a fire' 151, 293
- **CuSuR* 'string together (beads +)' 105, 264
- **da(n)daŋ* 'heat s.t. or warm oneself by fire' 153, 294
- **deles* 'bowstring' 226
- **kali* 'dig' 123
- **karut* 'scrape, rasp' 237
- **keskes* 'scratch, scrape' 241
- **kulit* (N) 'skin'; (V) 'peel, remove skin of s.t.' 165, 255
- **kuluR* 'breadfruit, *Artocarpus*' 96
- **laSud* 'sea, ocean' 207
- **ma-qataq* 'raw, unripe' 155
- **nasuk*, **Nasu* 'cook by boiling' 152
- **pa* 'go, towards' 207
- **peRes* 'squeeze out' 169, 283
- **qabu* 'ash, cinder, powder' 147
- **qa(l,R)ad* 'fence, palisade' 61, 125
- **qamataq* 'raw, uncooked' 156
- **qasin* 'salty' 159
- **qataq* 'eat s.t. raw' 156
- **qauR* 'bamboo sp.' 108
- **quCaN* 'fallow land?', 'scrubland, bush' 64, 118
- **qumah* 'swidden; work a swidden' 117
- **Rumaq* 'dwelling house' 48
- **senŋeŋ* 'cork, stopper, plug' 76
- **suliq* 'tendrils, sucker' 129
- **SadiRi* 'house post, pillar' 55
- **Sapuy* 'fire' 143
- **Sasaq* 'whet, sharpen' 94, 165, 236
- ?**tazim* 'sharpen' 255
- **tebaS* 'cut, clear vegetation' 120
- **tektek* 'hack off' 25, 250
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This index lists all forms reconstructed in this volume, together with any existing higher-level proto forms. Reconstructions for proto languages of lower order than Proto Oceanic are included when significant to the discussion, or innovatory to their antecedent in some way. Other reconstructed forms listed here are those which have been used to illustrate particular points of phonology or derivation.

Reconstructions are listed by proto language from highest-order to lowest, and in a rough geographical sequence from west to east. Within each proto language, reconstructions are listed in alphabetical order, with the following additions:

n is followed by *ñ*, *ŋ*

s is followed by *S*

r is followed by *R*

Parentheses and hyphens are ignored in alphabetisation. When a reconstruction contains parenthesised alternants, e.g. *(*b,p*)*ulit*, only the first alternant is counted for alphabetisation purposes.

- **testes* 'tear, tear up' 258
 **tuqtuq* 'hammer, pound, crush' 25, 98, 270

Proto Malayo-Polynesian (PMP)

- **aluten* 'firebrand, unconsumed wood in a fire; charred wood' 146
 **añam* 'plait (mats, baskets +)' 82
 **aŋsu* 'scoop or bail out' 75, 201
 **babaw* 'weed (a garden +)' 122
 **bakbak* 'peel off, of skin; remove bark of tree' 258
 **ba(l,r,R)a* 'pen, enclosure for domestic animals' 60
 **balana* 'shallow earthenware cooking pot or pan' 70
 **balay* 'house or building, probably with open sides' 48, 49, 205
 **banua* 'inhabited territory, where a community's gardens, houses etc. are' 62
 **baqeRuh* 'new' 19-20
 **batuR* 'plait, weave (mats, baskets +)' 81
 **báŋaq* 'pot, cooking vessel' 70
 **banj* 'bait' 219
 **baŋkaw* 'barbless spear' 223
 **belaq* 'split (s.t.); part of something split' 260
 **benkaq* 'split in two' 275
 **be(R)(c,s)ay* (N) '(canoe) paddle'; (V) 'paddle' 198
 **beRek* 'pig' 20
 **beRŋi* 'night' 17
 **beTak* 'split, cleave' 167, 260
 **biluk* 'tack, sail to windward'? 207
 **biseqak* 'split' 261
 **bitak* 'break, split' 275
 **bubunŋ* 'ridgepole, ridge of the roof' 53
 **buku* 'node (as in bamboo or sugarcane); joint; knuckle; knot in wood or rope' 85
 **buliq* 'cowrie shell' 215
 *(*b,p*)*ulit* 'caulk, fill up a hole or crack with viscous material' 229
 **bulu* 'wash' 243
 **bunuq* 'throw at, hit, strike with a sharp object; kill; extinguish (a fire)'

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- **bu(ŋ)kas* 'expose, unveil' 150
 **buTuk* 'knock, pound, beat' 271
 *(*c,s*)*a(R)man* 'outrigger float' 181, 191
 *(*c,s*)*uk(c,s)uk* 'skewer' 25, 86, 152, 263
 **dakit* (N) 'raft'; (V) 'join along the length' 184
 **dalikan* 'trivet' 147
 **damaR* 'resin, torch, light' 221
 **dapuR* 'hearth, fireplace' 59, 147
 **daSun* 'leaf' 54
 **daya* 'landwards, towards the interior (from the sea or coast)' 207
 **dejeR* 'hear' 29
 **gagap* 'stammer' 17, 20
 **gasgas* 'scratch' 162, 240
 **gatgat* 'chew up' 259
 **gemgem* 'make a fist' 20, 285
 **hapen* 'fishing line' 216
 **hasek* 'dibble, plant seeds with a dibble stick' 132
 **ike* 'tapa-beating mallet' 97
 **kabut* 'mist' 20
 **kamaliR* 'men's house' 14, 17, 48, 50
 **kambuR* 'sprinkle, scatter (seed +)' 133
 **ka(n)tuŋ* 'basket, pocket in clothing' 77
 **ka(ŋ)bu(q)* 'ladle, dipper' 74
 **kapat* 'cotton, thread' 85
 **kapit* 'fasten thatch with battens or slats' 55
 **kaput* 'close, cover' 154
 **karis* 'scratch mark' 163, 239
 **kasaw* 'rafter' 55, 193
 **katiR* '(small) outrigger canoe or canoe hull'? 180
 **kawil* 'hook, fish hook' 136, 216, 281
 **keleŋ* (dbl. **geleŋ*) 'cut into pieces' 254
 **kemes* 'take in the hand, clasp, grasp' 285
 **kiniŋ* 'pinch, nip, pluck' 280
 **kiRam* 'axe or adze' 88, 187
 **kirkir* (V) 'file, rasp' 95, 236
 **kuDen* 'clay cooking pot' 20, 68
 **kuDkuD* 'rasp, file' 161
 **lawa(n,q)* 'k.o. fishnet' 212
 **layaR* (N) 'sail' 194
 **laŋen* 'rollers, skids or blocks to move

- or raise a boat' 203
**le(c,s)it* 'squeeze out, squirt out' 170, 284
**leku?* 'bend, fold, folding part of the body' 290
**lepak* 'break, crack off' 280
**lepaw* 'granary' 48
**lian* 'hole, pit, cave' 60
**limas* 'bailer' 201
**lujan, *ujan* (V) 'load (a vessel)'; (N) 'load, cargo' 198
**lumuk* '(hair, skin) oily' 100
**(ma-)qesak* 'ripe, cooked, ready to eat' 157
**mekmek* 'broken to bits' 275
**mesmes* 'squeeze' 284
**nunuk* 'banyan, *Ficus* spp.)' 96
**pa[ka]-qasu* (V) 'smoke, fumigate' 158
**pak(o,u)* 'nail' 59
**pakpak* 'clap, slap, beat the wings' 25, 272
**pa(l,R)a* 'shelf, rack' 58
**pa-laSud* 'go down to the sea or coast' 206
**palu* 'beat' 171
**pa-luja* (N,V) 'paddle' 199
**panaq* 'shoot' 225
**panas* 'hot, warm' 19
**pa(n)tar* 'shelf; bed-frame of wooden or bamboo laths' 57
**papan* 'plank (of boat +), strake' 58, 185
**paRada* 'axe-adze handle' 90
**peka* 'separate, disconnect' 251
**pe(R)cit* 'squeeze, squirt out' 283
**pesak* 'break into several large pieces; hatch' 274
**pespes* 'squeeze, press out' 25, 170, 282
**piri(c,t)* 'twist, plait' 84, 286
**pisaw* '(bamboo) knife' 91
**pitpit* 'clamp, jam, pinch' 169, 282
**puket* (N) 'dragnet'; (V) 'surround, engulf' 212
**punay* 'wild pigeon' 19
**qapit* 'pinch or squeeze between two surfaces' 148
**qasu* (N) 'smoke, fumes, steam'); (V) '(fire) smoke' 158
**qatep* 'thatch of sago palm leaves' 54
**qiris* 'cut, slice' 253
**quli* 'knead, mix together' 171
**quli(n,η)* (N) 'steering oar'; (V) 'steer' 197
**qulun* 'rest the head on' 112
**qulun-an* 'place where one rests the head: wooden headrest' 112
**qunap* 'scales' 166, 217
**ra(m)bek* 'strike, break' 276
**ra(m)buk* 'knock, pound, beat' 269
**Rambia* 'sago palm' 54
**Risi[q]* 'tear, split, cut' 257
**Rumaq* 'lineage, descent group' 49
**Runut* 'plant fibres' 168
**saet* (N, V) 'spear' 222
**sakay* 'embark, be aboard, ride (on a vessel +)' 205
**sa(m)puk* 'collide, bump into' 28, 273
**saRu* 'comb' 105
**sasa(h,q)* 'cut or collect palm leaves for roofing' 55
*?*sauq* (N) 'anchor'; (V) 'be anchored' 203
**sawa(η,q)* 'opening used by boats to pass through, safe passage or anchorage' 204
**senjkar* 'cross-seat in boat, thwart' 56, 187
**suat* 'k.o. comb' 106
**suja* 'bamboo trail or pitfall spike' 228
**tabas* 'chop down, cut away' 251
**talun* 'fallow land' 118
**tambuRi(q)* 'conch shell trumpet' 106
**taneq* 'earth, land' 119
**ta(η)kub* 'adze' 90
**tapik* 'slap, pat lightly' 71
**(t,T)aRaq* 'hew, plane' 90, 245
**tata* 'empty water from something' 202
**teken* 'pole, staff' 200
**titey* (also **teyey*) 'foot-bridge' 58
**tuba* 'Derris fish poison' 220
**tub-an* 'lid, cover' 71
**tub-tub* 'close, cover' 71
**tu(m)buk* 'pound' 28, 272
**tu(m)buq* 'grow, thrive; swell' 134
**turus* 'house post' 55

- **tutuy* 'set on fire, burn' 295
 **uruy* 'collect, gather' 150
 **usuy* 'rub, wipe' 144, 242
 **utus* 'break under tension, as a rope'
 247
 **wakaq* 'split' 262
 **wirit* 'twist' 289
 **zalan* 'path, road' 61
 **zaRum* 'needle' 87
 **zeket* 'burn (fields +)' 122, 294

Proto Western Malayo-Polynesian (PWMP)

- **mamikat* or **makiket* 'snare birds with
 birdlime' 229
 **padaw* 'kind of sailboat' 183
 **paraSu* 'boat' 183
 **pik(a,e)t* 'birdlime' 229

Proto Central/Eastern Malayo- Polynesian (PCEMP)

- **ba(η)ka* 'canoe' 179
 **isi* 'peel, strip off; scrape (coconut)'
 164, 256
 **panij* 'bait; fodder' 219
 **paqu(s)* 'tie, bind' 292
 **seka* 'pierce, stab' 265
 **sisi* 'peel off (skin, bark +)' 257
 **wanjka* 'outrigger canoe' 178

Proto Eastern Malayo-Polynesian (PEMP)

- **patotV* 'connective sticks or stanchions
 attaching floats to booms' 193
 **ta(d,R)i* 'steer a course (in navigating)'
 207
 ubi*/ibu* 'drinking vessel' 74

Proto Oceanic (POc)

- **alito(n)* 'firebrand' 146
 **aña* 'woven, braided' 82, 286
 **api* 'fire' 143
 **apon* 'fishing line' 216, 230
 **aRiRi* 'post' 53, 55
 **asa(q)*, **asaq-i-* 'grate, sharpen by
 grating or rubbing' 33, 165,
 235, 236
 **asok* 'plant in holes in the ground' 132

- **asu* (V) 'scoop or ladle out'; (N) 'ladle,
 bailer' 75, 201
 **b^(w)aku(r,R)* 'work a garden' 118
 **b^(w)ilo* 'coconut shell used as liquid
 container' 73, 74
 **b^(w)in>aku(r,R)* (N) 'garden' 118
 **baba(k)*, **baki-* 'strike one against
 another, knock' 31, 267, 272
 **ba(b,p)an* 'plank, canoe plank or
 strake' 58, 185
 **bako* 'spear' 223, 231
 **balur*, **balur-i-* 'mix, stir' 171
 **bani* 'bait; fodder' 219, 230
 **baqapun* 'k.o. banana' 127
 **bara* 'plaited cane armband' 103
 **baRa* 'fence, wall, enclosure' 60, 125,
 220, 231
 **baRego* 'breadfruit fruit' ? 127
 **bayan* 'fish bait, trolling lure, trolling
 hook' 218, 230
 **bayat* 'fence, boundary marker',
 **bayat-i-* 'make a garden
 boundary' 61, 125
 **banj* 'bait' 219
 **bele* 'shrub species, *Abelmoschus*
manihot (syn. *Hibiscus*
manihot)' 128
 **beta* 'k.o. breadfruit' 127
 **bola* 'coconut leaves woven together
 for any purpose' 79
 **bo(q)u(k)*, **bo(q)uk-i-* 'feel with
 fingers, lay hand on, squeeze'
 289
 **boRok* 'domestic pig' 20
 **(b,p)oso* 'k.o. taro' 127
 **botak*, **botak-i-* 'crack open, split open
 (nuts, coconuts +), make
 incision' 261
 **bou* 'main bearers supporting floor/roof
 or centre post supporting
 ridgepole' 18, 53, 56
 **buku* 'node (as in bamboo or
 sugarcane); joint; knuckle; knot
 in wood, string or rope' 5, 31,
 85
 **buku*, **bukut-i-* 'tie (a knot); fasten' 5,
 290, 291
 **bulaka* 'swamp taro, *Cyrtosperma*

- chamissonis*' 127
- **buli(q)* 'cowrie shell; cowrie shell used as net sinker' 215, 231
- **bulit* 'gum, resin (birdlime?)' 229, 232
- **bune* 'wild pigeon' 19
- **buru* 'bore a hole, drill' 94, 145, 265, 266
- **buruŋ(a)* (N) 'cover, plug'? 76
- **butu(k)*, **butuk-i-* 'repeatedly knock, pound, beat' 28, 267, 271
- **b^waŋa* 'k.o. large pot' 68, 70
- **b^waŋo* 'new leaves or shoots, (or taro tops for planting?)' 129
- **b^wera* 'banana type' 127
- ?**d(r)ag(i)* 'k.o. container' 75
- **(d)rama(R)* (N) 'torch'; (V) 'fish at night with torch' 30, 221-222, 231
- **d(r)amut* 'lime spatula' 77
- **gabu* 'mist' 20
- **gab^wari-* 'area underneath a raised house' 32, 51, 52
- **gapi* 'stone?' club' 227, 232
- **garamut* 'slitgong' 109
- **gawit*, **gawit-i-* 'hook, to catch hold of; fruit crook' 281
- **ginit*, **ginit-i-* 'pinch off with fingers, nip with fingernails' 280
- **giri* 'file, rasp, saw' 95, 235, 236
- **giRu* or **guRi* 'deep pit,? for grave or well' 60
- **gora(s)*, **goras-i-* 'scrape out (coconut meat +); dregs of strained coconut scrapings' 164, 239
- **gugu(m)* 'grasp in fist, clench fist' 20, 285
- **gumu(t)*, **gumut-i-* 'hold tight' 282, 285
- **i-asa(q)* 'grater; anything used to grate, grind' 33, 94, 236
- **i-kani* 'thing one eats with' 33
- **ijunŋ* 'projecting headboard of prow, often with ornately carved figurehead' 189
- **ike* 'tapa beater' 96, 98
- **inum*, **inum-i-* 'drink (s.t.)' 23, 26
- **isi* 'scoop out (flesh from coconut +); peel off (skin, bark +)' 164, 256
- **jalan* 'path' 61
- **japi* 'k.o. bivalve (possibly gold-lipped pearlshell, *Pinctada maxima*); ornament made from this' 104
- **jau(q)* 'be anchored or moored, come to anchor or rest' 203
- **jila* 'boom or yard of (triangular) sail' 195, 196
- **jiRi* 'cordyline' 99
- **jojonŋ*, **jonŋi* 'plug, stop, caulk' 76
- **jonŋ-a(n,ŋ)* 'plug, bung, stopper' 76
- **joRaga* 'banana, *Australimusa* group' 127
- **kabu* 'cup, ladle' 74
- **kabu(R)* 'sow or scatter small seeds' 133
- **kaiu* 'tree, wood, stick' 145, 196
- **kaka(p)* 'stammer' 17, 20
- **kakas*, **[ka]kas-i-* 'split' 261
- **kala(s)*, **kalas-i-* 'shape s.t. by cutting, cut s.t. out' 252
- **kalalaŋ* 'water jar' 69
- **kali* 'dig', **kali-aki-* 'plant (garden) with (taro +)' 123
- **kalik* 'native wooden pillow' 113
- **kalo* 'sling; to turn round and round' 227, 232
- **kamali(R)* 'men's house' 39, 50
- **kamiu* 'you (PL)' 238
- **kam^wa* 'k.o. wild taro'? 127
- **kan-an*, **kananŋ* 'place where one eats' 33
- **kani-* 'eat (s.t.)' 25, 30, 33
- **kanonŋ* 'thing to be eaten, food' 33
- **kanonŋ(a)* 'flesh, meat, coconut flesh' 33
- **[ka]ŋaRi* 'canarium almond, *Canarium* spp.' 128
- **kapa* 'sennit' 85
- **kapika* 'Malay apple and rose apple, *Eugenia* spp.' 128
- **kapit* 'secure thatch with battens' (generic sense: 'grasp') 55
- **kapit* 'tongs'; **kapi(t)*, **kapit-i-* 'grasp (with tongs)' 148, 238
- **kapu(t)*, **kaput-i-* 'wrap, cover; cover food prior to cooking' 100,

- 154, 238
**kara(s)*, **karas-i-* 'peel or scrape (skin off tubers)' 163, 237, 238, 239, 255
**kari(s)*, **karis-i-* 'scrape (tubers, coconuts)' 163, 238, 239
**karu(t)*, **karut-i-* 'scratch with fingernails or claws' 237
**kaRi* 'garden fence or partition' 61, 125
**kasi* 'k.o. mussel, used as food scraper; scratch, scrape out or off' 162, 238, 240
**kaso* 'rafter' 53, 55, 193
**katae*, **katea* 'free side of canoe, opposite the outrigger' 193
**kataman* 'entrance to house, doorway' 52
**kati* 'husk with the teeth' 26, 255, 259
**kati(R)* '(small) outrigger canoe or canoe hull' 180, 181
**katu (m,ŋ)* 'basket' 77, 79
**kauR* 'bamboo; bamboo wind instrument' 107, 108
**kawil* 'hook, fish hook' 136, 216, 217, 230
**kawit*, **kawit-i-* 'hook, catch hold of; fruit crook' 31, 32, 136, 142, 281
**keli* 'dig, harvest (tubers)' 123
**kiajo* 'outrigger boom' 181, 192
**kili(s)*, **kilis-i-* 'twist, bore, rotate' 31, 289
**kima* 'clamshell' 217
**kinit*, **kinit-i-* 'pinch off with fingers' 17, 23, 31, 32, 35, 280
**kiri* 'file, rasp, saw' 30, 31, 95, 235, 236
**kiti* 'tie, bind' 290, 293
**(k,q)oda*, 'raw (meat, fish, shellfish); eat raw (meat, fish, shellfish)' 156
**kojom-* (N) 'husking stick', **kojom*, **kojom-i-* (V) 'husk (coconuts)' 124, 167
**kolo(ŋ)* 'cut' 254
**kopi* 'bamboo; bamboo flute' 108
**kopu* (V) 'wrap (food in a certain way ? for cooking), bundle, wrap' 100, 155, 238
**ko[r,R]a(s)*, **ko[r,R]as-i-* 'scrape out (coconut meat +); dregs of strained coconut scrapings' 30, 163, 164, 237, 238
**kiRam* 'stone adze, axe' 88, 120, 142
**kiRe* 'coastal pandanus: mat made from its leaves' 80
**koRa* 'wild mango, *Mangifera minor*' 128
**koRi* 'scraper; bivalve sp., used as a scraper; scrape with a shell' 164, 238, 240
**kosi* 'scrape, scratch (to mark s.t.)' 238, 241
**koti* 'cut off (hair, taro tops +)' 130, 249
**koto* 'obsidian head of spear, obsidian knife or blade; cut (across)' 92, 93, 231, 246
**kude* 'hourglass drum' 109
**kuj(u,i)r* 'fish spear' 223, 231
**kuku(r)* 'mussel; grater made of mussel shell' 161
**kulit*, **kulit-i-* (N) 'skin'; (V) 'peel, remove skin of s.t., bark (a tree)' 165, 255
**kulopi* 'ladle, bailer' 74, 75
**kuluR* 'breadfruit, *Artocarpus altilis*' 96, 127
**kup^(w)ena* 'fishing net' 16, 213, 231
**kuron* 'earthenware pot' 20, 68
**kutu* 'cut' 31, 246, 247
**k<in>ani* 'thing eaten' 33
**laka* 'basket' 78, 79
**[la]lak[o]* 'trochus shell; bracelet made from it' 103
**lap^(w)a(r,R)* 'lightning, phosphorescence' 16
**laqia* 'ginger, *Zingiber officinale*' 128
**lasa* 'coconut half-shell cup' 73, 74
**lawa((n,q))* 'k.o. fishnet' 212, 231
**layaR* 'sail' 195
**laŋon* (N) 'rollers'; (V) 'place rollers under a canoe' 203
**(l,n)ima(s)*, 'bailer' 201
**linji* 'pour (s.t.) out' 25

- *logi 'partition, partitioned area' 57, 139
- *loku(t), *lokut-i- 'bend, fold' 290
- *lolo(s) 'bowstring' 226, 232
- *lopa(k) 'break' 28, 280
- *loqi 'make thread by rolling fibres on the thigh' 83, 288
- *losi(t) 'squeeze, wring' 170, 282, 284
- *loŋoR 'be audible', *loŋoR-i- 'hear, listen to' 23
- *lua(ŋ) 'hole, pit, cave' 60
- *lumu(k) 'oil, grease' 100
- *madraR, *madraR-i- 'grow ripe, overripe (breadfruit and bananas)' 158, 159
- *maga 'stone; slingshot' 227, 232
- *malai 'withered, faded' 135
- *m(a,e)laqai 'open space in a settlement'? 63
- *malo 'broussonetia papyrifera, loincloth' 98
- *mamis 'k.o. yam' 127
- *[ma-]noka 'be in good condition for eating; nicely ripe, well-cooked, soft' 135, 157
- *ma-osak 'ready to be eaten (because ripe or cooked)' 18, 135, 157
- *ma-qasin 'be salty, sharp, of taste' 159
- *mara 'be spoiled, foul (of food or drink)' 159
- *[ma-]raŋo 'become withered (of vegetation)' 135
- *mata- 'mesh of net' 215, 231
- *mata 'opening, entrance; focal point' 204
- *mata-sawaŋ or *mata-ni/qi-sawaŋ 'landing place, channel in fringing reef giving passage to boats' 204
- *mataq 'raw, unripe, new, green, young' 19, 155
- *matau 'axe' 88, 89
- *mate 'die' 34
- *mate-aŋa 'death' 34
- *ma-utus, *motus 'become, be broken off, severed' 246, 247
- *molis 'citrus fruit or citrus-like fruit' 128
- *momo(k) 'break into small pieces' 275
- *momo(s) 'squeeze' 284
- *mo(n,ŋ)o 'knead' 171
- *muju 'be clipped off', *mujuki- 'clip off (protruding growth close to the surface)' 246, 248
- *muni- 'hide (VT)' 30
- *muqa- 'front, bow of boat' 181, 188
- *muri- 'rear, stern' 181, 188
- *m^walala 'cleared land, land free of encumbrances' 64
- *m^wapo(q) 'taro' 19, 127
- *m^waruŋen 'k.o. yam: wild yam'?? 127
- *m^waRi 'roast, burn' 152, 293
- *m^(w)ase 'wild mulberry, paper mulberry, *Broussonetia papyrifera*' 96
- *m^(w)ata 'point, cutting edge, sharp projection' 89, 93
- *m^wati 'herringbone pattern' 102
- *nad(r)i 'flint, obsidian, stone with a cutting edge' 92, 93
- ?*nai(V) 'woman's grass (shredded leaf?) skirt' 99
- *naŋ 'shine' 30
- *napu (v) 'steam?, boil?' 71, 153
- *nasu(q) (v) 'boil; steam?' 152
- *natu 'child' 145
- *(n,ŋ)(a,o)tu 'knead' 171
- *n̄atu(q) 'k.o. tree with avocado-like fruit and hard wood, *Burckella obovata*' 128
- *niuR 'ripe coconut; coconut (generic)' 127
- *n̄opi- 'suck' 30
- *noŋo 'decorate' 102
- *nunu(k) 'banyan, *Ficus* spp.' 96
- *pai 'weave' 82, 286
- *paji 'cut yams for planting' 131
- *paka 'ship' 179
- *pa[ka]-qasu (v) 'smoke, cure by smoking' 158
- *paki 'pluck, break off (leaves) with the hand' 137, 279
- *pako 'wooden peg or pin' 59
- *palau(r) 'go to sea, make a sea voyage' 205, 206
- *palaja 'frying pan' 70

- **pale* 'hut, open-sided building' 49, 138, 191
- **paluca* (V) 'paddle'; (N) 'paddle' 199
- **panako* 'steal' 30
- **panas* 'hot, warm' 19
- **pani* 'apply oil or paint to the body' 101
- **panua* '(1) inhabited area or territory, (2) community together with its land and things on it, (3) land, not sea, (4) (with reference to weather) the visible world, land and sky' 18, 62
- **papak* 'peel bark' 255, 258
- **papo* 'weed (a garden +)' 122
- **paqoRu* 'new' 20, 35
- **paqu(s)*, **paqus-i-* 'bind, lash; construct (canoe +) by tying together' 5, 183, 290, 292
- **pa(r,R)a* 'rack or shelf above hearth for storing or smoking food' 58
- **paru* (N, V) 'club' 227, 232
- **paRi* 'cut or lop off branches' 138, 246, 249
- ?**paRo* 'drill through, pierce, perforate' 266, 267
- **patar* 'platform of any kind' 57, 181, 190
- **pati* 'break, snap s.t. off' 279
- **patoto* 'connective sticks attaching float' 181, 193
- **patu* 'stone' 71, 114, 214, 215
- **patu(R)*, **patuR-i-* 'tie, plait, weave (mats, baskets +)' 81, 286, 290
- **pau(q)* 'mango, probably *Mangifera indica*' 128
- **paus*, **paus-i-* 'weave, plait' 82, 286, 292
- **pera* 'settlement, open space associated with a house or settlement'? 63
- **piji(r)*, **pijir-i-* 'braid, twist together' 288
- **pijo* 'k.o. edible wild cane or reed, possibly *Saccharum spontaneum*' 127
- **pilu(k)* (V) 'tack' 207
- **piri* 'plait a cord, twist, wrap around' 84, 170, 286
- **piro* 'twist together' 287
- **piRaq* 'giant taro, elephant ear taro, *Alocasia macrorrhiza*' 127
- **pisa(k)*, **pisak-i-* 'split' 261
- **pisi* 'bind up, tie up, wind round, wrap' 5, 290, 292
- **piso* '(bamboo) knife' 91, 142
- **pita(k)*, **pitak-i-* 'break, split' 28, 275
- **piti(k)*, **pitik-i-* '(crack)' 276
- **poka* 'to divide, cut up' 30, 31, 251
- **poki* 'clear the ground for a garden site' 121
- **polok* '(plant) grow (tall)' 134
- **ponuq* 'be full' 26
- **popo(s)*, **pos-i-* 'squeeze, press out' 170, 282, 283
- **poRo(s)*, **poRos-i-* 'squeeze out, wring out (liquid)' 169, 283, 284
- **pose* (N) '(canoe) paddle', (V) 'paddle' 199
- **potak*, **potak-i-* 'crack open' 30, 31, 167, 259, 260
- **pudi* 'banana, *Musa* cultivars' 127
- **puke(s)*, **pukes-i-* 'uncover, open (stone oven+)' 150
- **(p,b)uk(i,e)* 'mound up (earth) for yams' 133
- **pukot* 'fishing net, seine' 212, 214, 231
- **pulu* 'rub to make clean, wash' 243
- **puna* 'vine used for fish poison' 221, 231
- **puni* 'hide' 27
- **punu(q)*, **punuq-i-* 'hit, strike, fight, kill' 267, 268
- **pupu* 'basketry fish trap' 219, 220, 231
- **pupu(t)*, **puti* 'pick (fruit +), pluck (feathers +)' 136, 277
- **pupun-an* 'ridgepole' 53
- **pu(q)a(R)*, **pu(q)aR-i-* 'break (s.t. hard), smash' 94, 274, 276
- **puru(k)*, **puruk-i-* 'pierce, bore (hole)' 30, 93-94, 265, 266
- **pusuR* 'bow and arrow' 225, 231
- **puti-* 'pick, pluck (feathers), pull out (weeds +)' 122, 168, 277
- **putu(k)* 'repeatedly knock, pound, beat' 30, 31, 161, 267, 271

- **p^walaq* 'split (wood +)' 259, 260
 **p^wanaq* (N) 'bow', **p^wanaq*,
 **p^wanaq-i-* 'shoot' 35, 225,
 231
 **p^wara(s)*, **p^waras-i-* '(egg) hatch; hatch
 out (chick), break (coconut +)'
 275
 **p^waraq*, **p^wararaq* 'thunder' 16
 **p^waRaRa* 'handle' 16, 90
 **p^wasa(r,R)*, **p^wasa(r,R)-i-* 'slap, hit'
 267, 273
 **p^wasepe* 'greater yam' 127
 **p^wasi* 'cut up, cut off, cut lengthwise'
 250
 **p^watik* 'potato yam, aerial yam,
 Dioscorea bulbifera' 16, 127
 **p^waya* '(cultivable) soil' 120
 **p^wilak* 'lightning' 16
 **p^wilit* 'peel by hand (fruit, cooked
 food)' 166, 255, 259
 **p^wi)p^wi(t)* 'press, wring, squeeze s.t.
 (e.g. in order to extract liquid)'
 31, 169, 282
 **p^wita*, **p^wita-i-* (N, V) 'snare, tie by
 encircling' 5, 16, 228, 232,
 290, 291
 **p^witi* 'press, wring, squeeze s.t. (e.g.
 in order to extract liquid)' 282
 **p^woga(q)* (VI) 'burst open, split open'
 275
 **p^wolaq*, **p^wola(q)-i-* 'split (wood +)'
 260
 **p^wosa(k)*, **p^wosak-i-* 'break, shatter,
 crack open' 23, 274
 **p^wuti* 'cut off' 246, 249
 **qalip* 'canarium almond, *Canarium*
 sp.' 128
 **qamataq* 'not ready to be eaten
 (because unripe or raw)' 156
 **qapu* 'ashes, dust' 147
 **qaqe-* 'leg' 32
 **qaRa(r)* 'fence' 61, 125
 **qata(q)* 'young, raw' 156
 **qatop* 'thatch, roof' 52, 53, 54
 **qatu(ŋ)*, **qatuŋ-i-* 'strike from above,
 pound' 161, 267, 271
 **qebal* 'pandanus mat' 80, 195
 **qio(r, R)* 'spear, arrow' 18, 222, 223,
 231
 **qipi* 'Tahitian chestnut, Pacific
 chestnut, *Inocarpus fagifer*'
 (syn. *Inocarpus edulis*) 128
 **qiri(s)* 'cut' 253
 **qora* 'fishing basket' 79
 *(*q*)*oRa* 'strake, probably topstrake
 (washstrake)' 181, 182, 186
 **qubu*, **qub^wi-* 'hit with fist or with a
 weapon' 267, 268
 **quju(r)*, **qujur-i-* 'rub, make smooth
 by rubbing' 95, 243
 **quli* 'knead, mix together' 171
 **quliŋ* (N) 'rudder'; (V) 'steer' 197
 **quluŋ-an* 'rest the head on; wooden
 headrest' 112, 113
 **quma* 'garden; to clear land for a
 garden' 117
 **qumun* 'oven made with hot stones;
 cook in a stone or earth oven'
 59, 148
 **qunap* 'fish scale; turtle shell, fishhook'
 166, 217, 218, 230
 **qunap-i-* (V) 'scale fish' 166
 **qupi* 'greater yam, *Dioscorea alata*;
 also used as yam generic' 127
 **quRis* 'Polynesian plum, hog plum,
 Tahitian apple, golden apple,
 Spondias Cytherea (syn.
 Spondias dulcis)' 128
 **qutan* 'bushland, hinterland' 64, 118
 **quti(n)* 'penis' 145
 **quwe* 'rattan' 83
 **rabo(k)* 'break, smash' 274, 276
 rabut*/rubat* 'uproot' 122
 **raki(t)* 'raft; join outrigger, join two
 hulls'? 184
 **rapu(R)* 'hearth, fireplace; ashes' 59,
 147, 202
 **rapu(t)*, **raput-i-* 'hit with hand or
 stick, slash' 267, 269
 **raqu(p)* 'New Guinea walnut,
 Dracontomelon dao' (syn. *D.*
 mangiferum, *D. edule*) 128
 **raraŋ*, **raraŋ-i-* 'heat s.t. or warm
 oneself by fire' 83, 153, 293,
 294
 **rasi* 'grate, scrape (tubers, coconuts);

- scratch' 165, 241
 *rau(n) 'leaf; thatch' 18, 54, 216
 *reke 'fishing net' 212, 231
 *rua 'two' 183
 *Rabia 'sago, *Metroxylon* spp.' 128
 *Rau(C) 'dragline' 216
 *Risi(q) 'remove by tearing, tear or peel off (bark +) in long narrow strips' 256, 257
 *Rumaq 'house' 32, 35, 48, 52, 53
 *Runut/*nuRut 'sheath around base of coconut frond, used as strainer' 168
 *(sabi-)sabi 'shell disc used as earring' 104
 *saja(q) 'prepare thatching materials or begin to thatch a roof' 55
 *sake 'embark, ride on a canoe' 206
 *sakup 'k.o. cooking banana' 127
 *salap, *salap-i- 'sweep, broom' 111, 244
 *sali 'strip leaves from branch, frond' 255, 258
 *salu- 'slash, hoe; a hoe, an adze' 120
 *saman 'outrigger float' 181, 191
 *sani 'complete clearing of garden; stripping, of leaves' 121
 *sao(t) (N, V) 'spear' 222, 231
 *sapaki- 'pluck off, break off (leaves) with the hand' 137, 279
 *sapu(k), *sapu(k)-i- 'hit' 28, 273
 *sapu(r), *sapur-i- 'brush (dirt +) off (s.t.)' (where 's.t.' is the object) 111, 244
 *sapu(t), *saput-i- 'pull out, pull up, pluck (fruit, nuts)' 131, 37, 277, 278
 *sap*i 'carve into shape, trim (with axe or adze), whittle' 252
 *saqat 'bad' 35
 *saqi(t) 'sew' 86, 290
 *sara 'clear (vegetation, rubbish) from a garden' 121
 *saRe(k) 'become, be torn up, uprooted', *saRek-i- (VT) 'tear off, uproot' 262
 *saRo 'wipe, sweep' 244
 *saRu 'comb' 105
 *saRum 'needle, tattooing needle' 87
 *sawaj 'channel in reef giving passage to boats, landing place, anchorage' 204
 *siba 'cut, slice' 246, 250
 *sika 'netting needle' 215, 231
 *sika 'split, tear (in strips)' 263
 *sir(i,e) 'tear in two, tear into strips' 262
 *sisi 'scoop out (flesh from coconut +)'; 'peel off (skin, bark +)' 166, 256, 257
 *soka, *soka-i- 'pierce; stab' 27, 167, 224, 231, 263, 265
 *soka(r) 'thwart; bracing timber, crossbeam' 56, 181, 187
 *soko(r) 'bracing timber, crossbeam' 53
 *soko(t), *sokot-i- 'burn (grass, rubbish +)' 122, 293, 294
 *sopu 'prepare yams for planting' 131
 *sua (N, V) 'spear (weapon retained in the hand)' 224, 231, 263, 265
 *suar, *suar-i- 'root up the ground, as pigs do' 124
 *suja 'sharpened stake set in ground' 228, 232
 *suka, *suka-i- 'make fire with fire plough' 144, 243
 *suki- 'pierce, prick, sew (mats)' 263
 *(s.j)uli(q) 'banana or taro sucker, shoot; slip, cutting' 129
 *sulu 'dry coconut leaf torch' 146
 *sunu 'sing' 154, 293, 294
 *supi 'pare, shave, sharpen' 165, 254, 255
 *s(u,i)ri 'pierce, poke' 87, 263, 264
 *suRi 'bone' 87
 *(su)su(k) 'a skewer'; *(su)suk-i- 'pierce, prick, sew' 86, 124, 132, 152, 263
 *(su)suRi 'bone (needle); sew' 87, 263, 264
 *su(w)at, *su(w)a[t,r]-i- 'comb (hair)' 106
 *ta(g,k)o 'barbless? fishhook' 217, 230
 *taba(s), *taba(s)-i- 'cut' 251
 *tabakau 'mat woven from coconut leaves' 80
 *tabiRa 'wooden bowl' 72, 160

- **tab*^(w)*e* 'basket, probably small' 78, 79
 **tajim*, **tajim-i-* 'sharpen to a point, trim (wood)' 255
 **takaw* 'steal' 29
 **taku* 'adze' 88, 90
 **tali* 'rope, cord, plaiting' 83
 **talise* 'Java almond, Indian almond, *Terminalia catappa*' 128
 **talo(s)* 'taro, *Colocasia esculenta*' 127
 **talun* 'fallow land, land returning to secondary growth' 118
 **tama-* 'father' 35
 **tam*^w*ata* 'man, husband' 19
 **tano(q)* 'earth, soil' 119
 **tanum*, **tanum-i-* 'bury, plant (tuber)' 132
 **tana* 'basket or bag, small, used for personal effects' 79
 **tanjis* 'weep' 27
 **tapa* (V) 'dry food by heat to preserve it; smoke food' 158
 **tapa(s)*, **tapas-i-* 'cut into, incise' 251, 252
 **tapi* 'dust off, brush lightly' 111, 114, 244
 **tapi* 'paddle for beating clay into shape' 71
 **ta-(p,b)uk(i,e)* 'yam mound' 133
 **tapuRi(q)* 'triton shell, *Charonia tritonis*, used as trumpet' 106, 107
 **tapu(t)*, **tapu-i-* 'strip (crops), pull off' 28, 137, 277, 278
 **taqo(n)*, **taqon-i-* 'press down, weigh down' 149
 **tara* 'fish spear' 224, 231
 **taRa(q)* 'adze'; **taRa-q-i-* 'chop with adze' 90, 187, 245
 **taRi* 'steer a course'? 207
 **taRu* 'cover up' 190
 **tau* 'body, person' 19
 **tau (ni) waga* 'owner of a boat' 208
 **tawai* 'k.o. banana' 127
 **tawan* '*Pometia pinnata*' 128
 ?**tepa-i-* 'slice (flesh), circumcise' 253
 **tete* 'log bridge or ladder', 'climb a ladder, walk along a bridge or branch' 52, 58
 **tib*^w*a(η)*, **tib*^w*aŋ-i-* 'dart, arrow; shoot with dart, arrow' 225, 226, 232
 **tiki* (V) 'plait (mat +)' 82, 286
 **tipi* 'loincloth, man's garment' 99
 **toki* 'cut, chop' 235, 250
 **tokon* 'staff, punting pole'; **tokon-i-* 'punt or pole (a boat)' 200
 **tola* 'large canoe' 181, 186
 **topa* 'land cleared for a garden', or 'land formerly planted as a garden' 120
 **topu* 'sugarcane, *Saccharum officinarum*' 127
 **tos* 'score, split, pull apart lengthwise' 255, 258
 **toto(k)* 'cut, chop' 235, 250
 **tubuq* 'grow, swell' 134
 **tuki-* 'pound'; 161, 270
 **tunu* 'roast on embers or in fire; burn (grass +); make cicatrices on skin' 122, 151, 293
 **turji* 'light, set fire to' 295
 **tupa* 'derris fish poison' 220, 231
 **tup-a((n,η))* 'lid, cover' 71
 **tupu(k)*, **tupu(k)-i-* 'knock against, knock over, stub (toe), stumble against' 28, 267, 272
 **tupul* 'send out new growth' 134
 **tuqu(r)* 'stand; fixed' 196
 **tuRi* 'sew, thread, string together' 105, 263, 264
 **turu(s)* 'post' 53 55
 **tutuk*, **tuki-* 'pound, mash, crack by hammering' 98, 161, 267, 270
 **tutu(η)*, **turji* 'light, set fire to' 293, 295
 **tutup*, **tupi* 'cover (s.t.)' 71
 ubi*/ibu* 'half coconut shell used as a drinking cup' 74
 **udu(r,R)* 'k.o. greater yam' 127
 **ujan*, **ujan-i-*, **lujan* (V) 'load (a boat)'; (N) 'cargo, freight' 198
 **up(e,a)* 'taro seedling' 129, 130
 upi*/ipu* 'blow; native flute' 107
 **uru(η)* 'take food and/or hot stones out of stone oven or fire; collect, gather' 150

- **usu(q,p)*, **usu(p)*-i- 'rub abrasively'
144, 242
**utoŋ* 'net float' 214, 231
**utu(s)*, **utus-i-* 'sever, separate' 246,
247
**waga* 'large sailing canoe; canoe
(generic)' 178, 181
**wai(p)* 'coconut-shell water bottle' 75
*(*wai*)*wai* 'mango (generic)' 128
**waiR* 'fresh water' 18, 75
**waka(q)* 'cut, split into sections, as
yams for planting' 262
**waRoc* 'vine, creeper, rope, string' 83
**wasi* 'taro stem' 129
**waso* 'digging stick' 124, 142
*(*w,v*)*ele* 'cut nut, *Barringtonia* sp.' 128
**wiri(t)* 'twist, turn, revolve' 266, 289
**yaŋo* 'turmeric, *Curcuma longa*' 128

Proto Western Oceanic (PWOc)

- **b(u,o)go* 'twist, wring' 289
**bogo-bogo* 'Jew's-harp' 110
**b^waR(i,e)* 'pierce, bore (hole)' 94, 266
**b^waR(i,e)* 'pierce, bore (hole)' 266
**b^watiq* 'k.o. banana' 127
**gobu* 'potato yam, *Dioscorea
bulbifera*?' 127
**kapul* 'seed yam' 131
**karo* 'scratch with fingernails or claws'
237
**kase* 'k.o. basket' 78
**lamo* 'clear a garden site' 121
**maRi* 'Derris root' 221
**moke* 'pandanus species, used to make
capes and mats' 80
**m^wali* 'braid large ropes (for use with
canoes +)' 85, 288
**ŋuju* 'carved prow' 189
**pasok*, **pasok-i-* 'plant (tuber +)' 132
**pusuk* '(plant) grow' 134
*(*q,k*)*amisa* 'lesser yam, *Dioscorea
esculenta*' 127
**qa(r,R)ij* 'obsidian; razor' 93
**sapu(k)*, **sapu(k)*-i- 'hit' 267, 273
**tapal* 'substance used to blacken teeth'
101
**walu* 'sago beater' 160, 161

Proto Eastern Oceanic (PEOc)

- **apu* 'mound for house site' 51
**bola* 'coconut leaves woven together
for any purpose' 81
**b^walu* 'cover, lid, stopper' 76
**damu* 'k.o. yam' 127
**gugu(m)*, **gumi-* 'grasp in fist, clench
fist' 282, 285
**ibe* 'mat' 81
**kaiu-tuqu(r)* 'vertical supporting
timber, prop supporting rig?'
196
**kaRi* 'scraper; bivalve sp., used as a
scraper; scrape with a shell'
162, 238, 240
**kete* 'belly, basket' 78
**keti* 'husk with the teeth' 255, 259
**kokoda* 'gather weeds or rubbish,
prepare a garden' 121
**kori(s)*, **koris-i-* 'scrape (esp.
coconuts), grate (esp.
coconuts)' 164, 238, 240
**ma(R)i* 'breadfruit' 127
**make* (N, V) 'tattoo' 102
**mara* 'preserved breadfruit' 158
**palo* 'wither, wilt' 135
**pana* 'mast, boom stepped on foot of
mast?' 196
**papi-* 'cook in oven with hot stones and
leaves' 151
**papia* 'firewood, fuel' 145, 151
**paqurua* 'double canoe' 182
**paro(s)*, **paros-i-* 'chafe (skin);
'scrape' 165, 241, 242
**paRo* 'drill through, pierce, perforate'
94
**pasi* 'plant yams' 132
**pilo(s)*, **pilos-i-* 'make a cord by rolling
fibres on the thigh' 85, 287
**piri-piri* 'twine round and round; thing
made by braiding' 84, 287
**polos*, **polos-i-* 'cut across, sever' 246,
249
**pora(k)*, **porak-i-* 'break, damage'
274, 276
**sapi* 'strip (leaves); pluck (fruit, nuts)'
137, 255, 258
**saqalo* 'scrape, clean by scraping; rub

- smooth' 241, 242
**saRi* 'k.o. spear' 225
**sele* 'knife; cut with a knife' 91, 142
**soni*, **sonit-i-* 'incise, cut into' 253
**sua(C)* (V) 'scull, row with oar held vertically' 200
**suqi* 'take s.t. down (from a hook or branch)' 280
**tapaya* '(gourd or coconut-shell) container, bottle' 75, 76
**taRi* 'noose, snare' 229
**tau(s,t)*, **tau(s,t)-i-* 'pluck (fruit, leaves)' 279
**tau-tasik* 'expert fisherman or sailor, mariner' 207
**wao* 'forest' 119

Proto New Guinea Oceanic (PNGOc)

- *b^wad(r)i* 'k.o. large pot, possibly for water storage' 69
**gabom* 'wooden dish' 72, 73
**(kuron)b^waŋa* 'communal cooking pot' 70
**k^(w)apil* 'k.o. yam' 131
**pa(r,R)a* (V) 'dry by smoking' 158
**ram(i,e)* 'grass-skirt' 100

Proto North New Guinea (PnNG)

- *p^(w)isa(k)*, **p^(w)isak-i-* 'squeeze (grated coconut +)' 283

Proto Papuan Tip (PPT)

- *na(q)u(q)* 'clay dish' 70, 153

Proto Southeast Solomonian (PSS)

- *yoyo* 'slitgong' 110
**ogo* 'tooth-blackening powder' 101
**popo* 'wooden bowl' 73
**tola* 'plank-built canoe' 181

Proto Central Pacific (PCP)

- *(a)valau* 'boatshed' 205
**dreke* 'recess, cavity, pocket of a seine net' 212
**g^(w)ele* 'earth, soil' 120
**jiva* 'pearl oyster' 104
**kumete* 'large wooden bowl' 73, 160

- *lali* 'slitgong' 110
**leu-leu* '(old) tapa cloth' 97
**ŋatu* 'old or worn bark-cloth' 97
**paki* 'pluck, break off (leaves) with the hand' 137
**pusi* 'taro swamp, taro bed' 139
**qava* 'net gauge' 215
**rau* 'dragline, scareline, made from rope and coconut leaves' 216
**sau* 'ear pendant' 105
**sau*, **sauti-* 'strike, beat, chop' 267, 273
**sele* 'knife; cut with a knife' 91
**sinu* 'oil' 100
**sua* (V) 'tack' 199, 207
**taba* 'bark' 96
**takele* 'keel or dugout underbody to which planking is added' 187
**tau* 'end-decking of canoe hull' 190
**tuku* 'let go, slacken' 197
**tuku* 'running stay supporting sail' 197
**tā-dravu* 'portable fireplace or oven' 202
**(v,b)asu* 'a drum'; (V) 'drum, thump' 110, 267, 273
**vuqa(i)ŋa* 'whetstone, grindstone' 94

Proto Polynesian (PPn)

- *amo* 'prepare fibres for string making (by rubbing on thigh); prepared fibre' 83
**fala* 'plaited pandanus mat' 81
**faʔurua* 'double canoe' 183
**fīnaki* 'fish trap' 220
**fāliki* 'cover floor with mats or grass; floor covering' 81
**kafu* (N) 'clothing or covering for the body'; (V) 'cover the body' 100, 154
**kofu* (N) 'clothing; leaf-wrapped parcel of food'; (V) 'wrap up' 100, 155
**lana* 'plait (mat, basket)' 82
**liu* 'bilge, interior of hull' 188
**lohu* 'fruit-plucking pole, hook something with a pole' 136, 277
**loto-qā* 'a garden' (lit. 'inside the

- fence') 125
- **malape* 'open, cleared space used as meeting place or ceremonial place' 64
- **matau* 'axe' 102
- **nafa* 'wooden drum' 110
- **ηafi-ηafi* 'old mat or bark-cloth' 97
- **paopao* 'small outrigger or dugout canoe for inshore use' 184
- **raqakau* 'wood, tree' 145
- **siapo* 'paper-mulberry plant (*Broussonetia* sp.); bark-cloth' 97
- **tama* 'child' 145
- **tapa* 'bark-cloth which was not printed or stained' 97
- **tāpola* 'basket plaited from a single coconut frond' 79
- **tatau* (N, V) 'tattoo' 102
- **tatā* (V) 'bail out'; (N) 'bailer' 202
- **tau-mu?a* 'foredeck' 188, 190
- **tau-muri* 'afterdeck' 188, 190
- **titi* 'skirt or kilt worn in the dance' 100
- **tutu* 'beat tapa' 98
- **tutua* 'board or anvil on which tapa is beaten' 98

Proto Central/Eastern Polynesian (PCEPn)

- **kau-lima* 'upper frictioning stick of fire plough' ('stick' + 'hand') 145